FINAL REPORT

MRF Work Group
Town of La Pointe

June, 2020

CONTENTS

EXECUTIVE SUMMARY

The MRF Work Group of the Town of La Pointe provides its observations and recommendations for improved waste management on Madeline Island. The report consists of eight (8) chapters.

The report is the result of research conducted and meetings held during the first five months of 2020. The report integrates results of a survey of community opinion conducted in early spring.

Key observations and recommendations of the work group are:

> ***(1) Introduction*** *– The work group identified several principles, including (a) considering the full spectrum of waste; (b) locating solutions as far "upstream" as possible; (c) weigh both hard costs and externalities; and (d) drive toward an end-to-end "reduce, reuse, recycle" approach within the community. These principles guided the work of the work group, and the work group believes these principles will have continued importance for implementation of the report's recommendations.*
>
> ***(2) Demolition & construction*** *– We recommend seeking greater efficiency by urging private dumpster use by contractors.*
>
> ***(3) Organics*** *– We estimate a large quantity (weight) of organic waste is generated here, and we recommend prioritizing a project(s) to accelerate community-level composting.*
>
> ***(4) Traditional recyclable categories*** *– We recognized the rapidly changing, increasingly challenging situation with efforts to recycle materials (glass, aluminum and other metal, plastics, paper). We provided numerous specific operational recommendations, including charging fees. Public education will be required to increase understanding of evolving situation and reset expectations.*
>
> ***(5) Special categories*** *– There are numerous types of items that are a nuisance to dispose of, but for which it is important that the Town help people dispose of responsibly. Taking into account the magnitude of the "old car" problem, we recommend prioritizing removal of old cars in the near term. We provided several strategies for dramatically reducing the operational complexity of other categories.*
>
> ***(6) Reuse*** *– On the strength of community support and the logic of nurturing a culture of reuse is a foundation of an overall "reduce, reuse, recycle" ethic, we recommend the Town prioritize The Exchange. This will require operational improvements.*
>
> ***(7) Costs & expenditures*** *– To better manage costs and expenditures, we recommend MRF operations should be better integrated with other Town operations (esp. Public*

Works). We also recommend careful consideration of a levy on ferry travelers to support the community's overall program in this area.

(8) Learning laboratory *– We believe the Town's waste handling operation is integral to a vital "learning mission" of the community about future sustainability. The MRF (and associated operations) are a "learning laboratory." Town management must lead the way in helping the whole community leverage this asset.*

Each of these points is explained in detail in the corresponding chapter of the report, including specific recommendations of the work group.

(1) INTRODUCTION

Section 1: Overview

As we progressed through this project, several principles came into focus that we believe will be helpful ongoing.

Committee Observations

(A) Most people think about some particular aspect(s) when they think about waste management – for instance, sorting plastics – but finding good solutions requires us to grasp the whole picture (diverse waste streams).
(B) There are many factors to consider: money, environmental impact, handling procedures, product/waste life cycle
(C) A paradox exists: most people want waste to be "out of sight, out of mind"; but successful waste management will requirement public engagement

What We Learned from the Community Survey

There is very strong support in the community for the overall goal of doing a good job with waste management here on Madeline Island. (92% of survey responders support policies that lead to improved waste reduction and reuse.)

Members of the community submitted comments with helpful suggestions about how, as a community, we might communicate our vision for Madeline Island with respect to waste management.

(These community survey results are discussed further in Section 4.)

Analysis

Section 2 of this chapter describes the "full spectrum of waste streams" we address in this report. Section 3 describes major "levers" that we looked at for obtaining improvements. Section 4 introduces the importance of public education to this entire project.

Section 5 provides several broad recommendations, with reference to detailed recommendations in subsequent chapters.

Section 2: Full spectrum of waste streams

Most of us embarked on this project with a knowledge of the MRF as a place where we throw away bags of garbage and sort a few types of recyclables. Some of us knew about one or two other aspects.

The Tetra Tech report to the Town quickly helped us recognized that we needed to get our arms around a full spectrum of waste streams.

Our view of the challenge evolved from a two-part one:

- solid waste
- recyclables

to one involving at least five distinct waste streams, in addition to "run-of-the mill solid waste":

- demolition/construction
- organics
- "traditional recyclables"
- reuse
- special

This is reflected in the structure of the report.

Section 3: Levers for impacting improvement

When we began this project, the most obvious questions were: (a) how to reduce costs, and (b) what to do about particular handling steps related to "traditional recyclables."

As we proceeded to get our arms around the full spectrum of waste streams, we realized that, in addition to those questions, we would need to pay attention to: (c) other parts of the cycle where we might have an impact, and (d) impacts that don't show up in dollars and cents.

Of course, we devoted attention to costs at all times. This concern is reflected throughout the report, and particularly in Section 7.

The "traditional recyclables" waste stream gets detailed attention in Section 4.

In the course of our work, it became more and more apparent that a powerful lever is to make changes "upstream" – that is, finding ways to influence better use, and encouraging reuse. This is especially important in Chapters 3 (organics) and 6 (reuse). It is also heavily reflected in Chapter 2 (demolition/construction).

We continuously considered factors like emissions and pollution of land and water, even though those factors were not directly reflected in our direct cost calculations. This is especially important in informing Chapter 5 (special), as well as Chapter 3 (organics).

Section 4: Public education

In the course of this project, it became apparent to us that there should be an overall "reduce, reuse, recycle" education program on Madeline Island.

In our work, we focused on particular waste streams. We recommend placing emphasis on education related to "recyclables" (Chapter 5) and organics composting (Chapter 3). Of course, this should be in the context of an overall campaign.

Numerous comments provided in response to the community survey provided useful words for use in communications campaigns:

> *"The island could enhance its 'brand' in this manner. … We're in support of the Island being a beacon of progressive approaches to waste management specifically, and sustainability more generally."*
>
> *"Full island sustainability should be the vision. Recycling, food and energy."*
>
> *"We only have one island."*
>
> *"Because we care."*
>
> *"It would benefit all if there was more emphasis on the footprint every person has on Madeline Island through media messaging."*
>
> *"A green island."*
>
> *"Keep Madeline Green!"*
>
> *"Keep Madeline beautiful."*

These suggestions are well-supported by the overall survey results. There is very strong support in the community for the overall goal of doing a good job with waste management here on

Madeline Island. (92% of survey responders support policies that lead to improved waste reduction and reuse.)

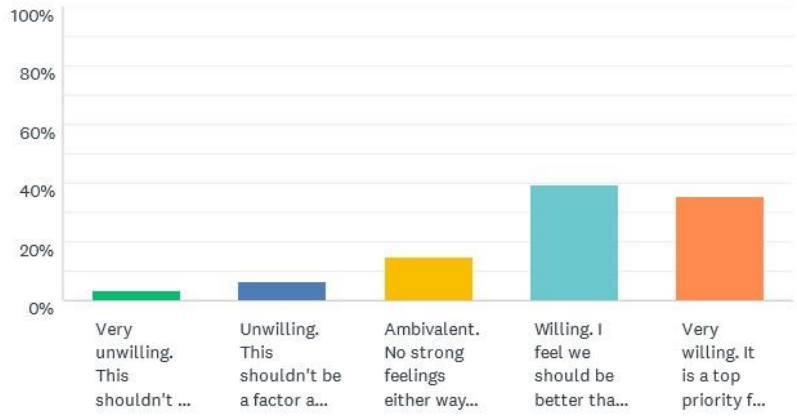
Nearly 75% of the community likes the sound of being *at least* **"better than average"** environmentally, though significantly fewer are sold on the value of being **"super low impact."** (See the graphic of Question 12, at the end of this section.)

Everyone plays a role: elected leaders, Town staff, residents, and visitors.

As discussed in Chapter 7, we see transportation on/off island via the ferry as an important communications opportunity.

Q12 Apart from wanting an efficient and cost-conscious operation, how willing are you for the Town to prioritize making the waste management system on Madeline Island "super low impact" environmentally?

Answered: 401 Skipped: 37



ANSWER CHOICES	RESPONSES	
Very unwilling. This shouldn't be a factor.	3.49%	14
Unwilling. This shouldn't be a factor as long as we're compliant with the law.	6.73%	27
Ambivalent. No strong feelings either way; I can see both sides.	14.96%	60
Willing. I feel we should be better than the average in this respect.	39.40%	158
Very willing. It is a top priority for me; we should set an example of excellence	35.41%	142
TOTAL		401

Section 5: Recommendations

(A) Consider the full spectrum of waste: Consider ALL the waste streams generated on the island. (It's a big management task to balance all of this.) This is reflected in every chapter, and particularly in Chapter 7 (containing recommendations about overall management).

(B) Go upstream: Devote less effort to handling waste that has already been generated for transfer; spend more effort influencing better use and reuse. (See especially Chapters 3 and 6. This is also heavily reflected in Chapter 2.)

(C) Give full weight to "externalities": Factors like emissions and pollution of land and water need to be continuously borne in mind, even if we are not forced to directly include them in our direct cost calculations. (This is especially important in informing Chapter 5, as well as Chapter 3.)

(D) Communicate and educate: Everyone plays a role: elected leaders, Town staff, residents, and visitors. An education effort will be necessary. There should be an overall "reduce, reuse, recycle" education program on Madeline Island. In the near term, we recommend placing emphasis on education are "traditional recyclables" (Chapter 4) and organics composting (Chapter 3). The role of Town waste handling efforts as a "learning laboratory" (Chapter 8) is also important.

(2) DEMOLITION & CONSTRUCTION

Section 1: Overview

A lot of weight is in the form of demolition/construction waste. Handling this differently should allow the Town to save money.

Committee Observations

(D) we estimate a large tonnage of demolition/construction waste
(E) we note many contractors use a 3rd party disposal service (dumpster, "box")
(F) we note that demolition/construction waste has some distinct seasonal aspects
(G) demolition/construction is theoretically “cleaner” than undifferentiated solid-waste, and that opens up possibilities for alternative disposal (e.g. a local landfill)

What We Learned from the Community Survey

Two-thirds of respondents expressed willingness to pay to provide “alternative landfill” options.

There were only 2 remarks in the survey comments section relating to demolition and construction waste.

Analysis

Sections 2 through 6 of this chapter consider various “levers” that may affect the efficiency of Town handling of demolition/construction waste: dumpster use, seasonality, the possibility of a local landfill, and fees charge.

Section 7 provides recommendations.

Section 2: Throughput estimate

We estimate a large tonnage of demolition/construction waste is handled at the MRF.

At our January 28 meeting, Ted Pallas provided estimates of demolition/construction waste coming through the MRF of about 250,000 lbs/yr. (This is corroborated by data on MRF hauling totals.)

This compares to an average annual total of 748,000 lbs for all types of solid waste, or about 33% (one-third).

(Note: Forty percent (40%) of the demolition/construction total, or 100,000 lbs., is estimated to be wood. This is a secondary factor which may have relevance for us in the long term as island composting increases – see Chapter 3.)

Section 3: Dumpster use by contractors

At our January 28 meeting, Ted Pallas pointed out that many contractors make use of dumpsters, and arrange those to be directly moved off the island for disposal. His estimate is that an additional amount, equal to the quantity of demolition/construction waste delivered to the MRF (i.e. an additional 250,000 lbs.) is moved directly off the island each year in this manner.

We believe a substantial number of the contractors not currently following this practice could be convinced to do so. This would have several advantages:

(a) reduce throughput at the MRF
(b) makes it more likely that the demolition/construction waste actually ends up in a dedicated demolition/construction landfill

Re: point (a) – there is particular value in reducing the volume of *demolition/construction waste* throughput at the MRF, because that waste accounts for a large percentage of the off-peak season traffic at the MRF (see section 4). As discussed in Chapter 7 of this report, one opportunity to control costs is to adjust operating levels to more efficiently deal with seasonal use of the MRF.

We recognize that some contractors may still require access to the MRF to dispose of waste from smaller jobs. (This should represent a small percentage of the total throughput of demolition/construction waste at the MRF.)

Section 4: Seasonality

Analysis supplied by the Town enabled us to recognize that traffic at the MRF is highly seasonal. (See graphs on following page.)

There is a clear peak season for the ***non***-demolition/construction solid waste on the island (i.e. generated by residents, visitors, tourists, restaurants, not contractors) – July and August, with a shoulder season of April through June in the spring, and September through November in the fall. December through March sees a very low level of solid waste throughput at the MRF. (See graph – "Compactor" [i.e. solid waste that has been compacted for hauling] – on following page.)

The generation of demolition/construction waste is also seasonal, but less dramatically so.

To the degree that the volume of demolition/construction waste passing through the MRF is substantially decreased, there could be incentive to operate the MRF at lower levels during the off-season. The months of June, November, and December are especially sensitive.

We added a recommendation in Chapter 7 about adjusting MRF operations to better reflect seasonality.

Section 5: On-island landfill?

We discussed the possibility of a dedicated landfill for demolition/construction waste on Madeline Island.

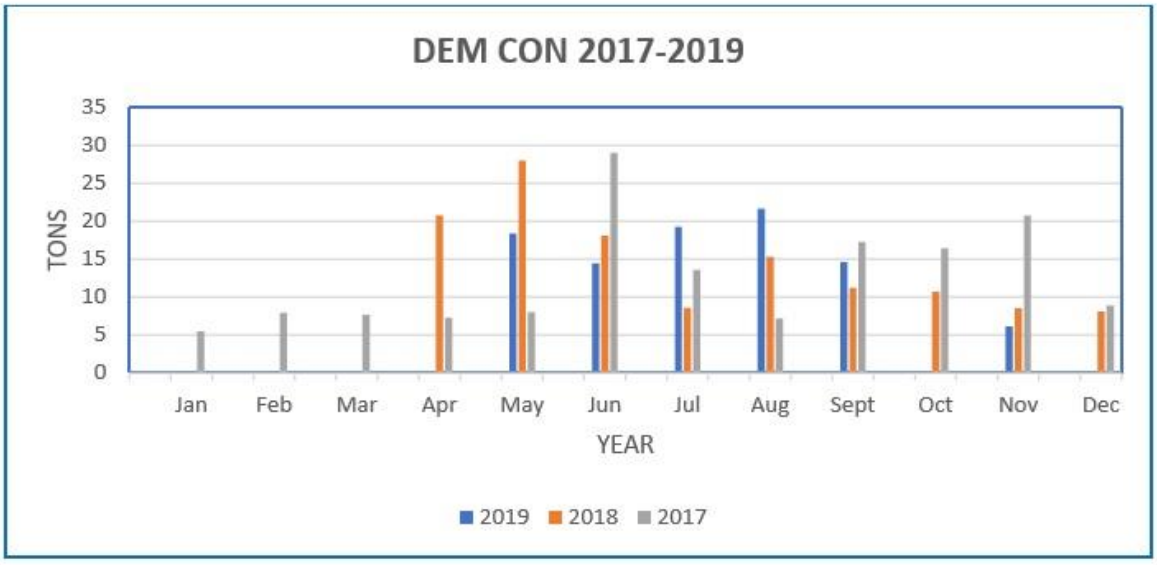
Such a local landfill would enable us to eliminate the cost of hauling demolition/construction waste off the island. Since demolition/construction waste is inert, such a landfill would be environmentally friendly.

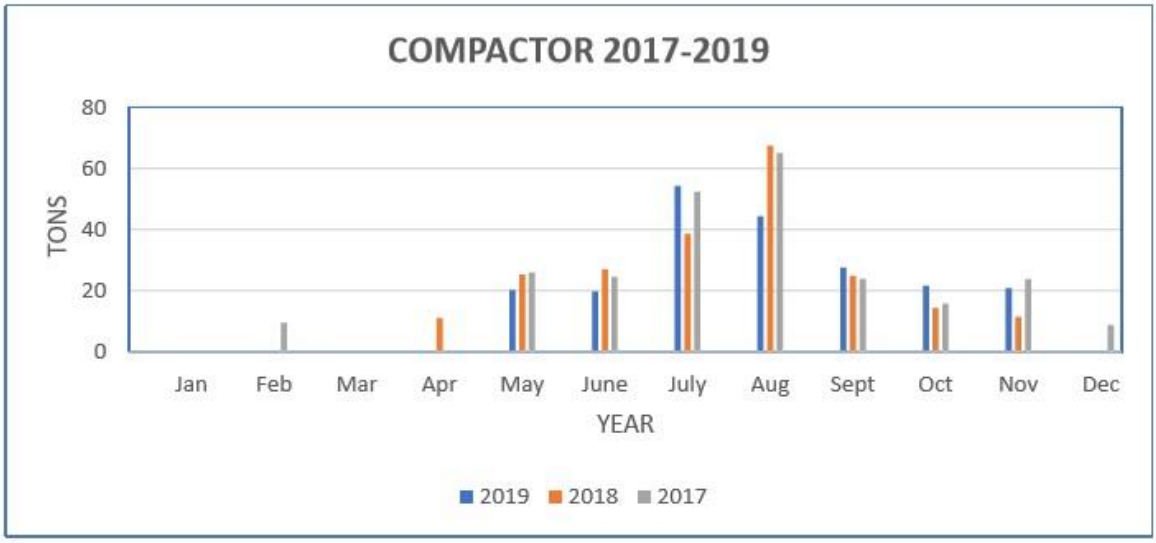
Initial information provided by Ted Pallas indicated that DNR regulations on hauling demolition/construction landfills would require several costly features, particularly staffing during all hours that the landfill is open in order to strictly monitor deliveries, and the drilling of numerous test wells to constantly monitor any changes in the surrounding soil resulting from the landfill.

We were unable to obtain from DNR up-to-date costs of establishing and operating a compliant demolition/construction landfill.

We noted that there are numerous registered demolition/construction landfills in our area of Wisconsin (e.g. Hayward – see https://dnr.wi.gov/topic/Waste/documents/faclists/CDLandfillsSmall_byFacName.pdf). This

led us to question the real environmental value of establishing a new landfill rather than hauling to a nearby existing demolition/construction landfill.





Section 6: MRF Fees

In discussing how to encourage contractors to use dumpsters for direct removal of demolition/construction waste from the island, we felt that it must certainly be cheaper for them to do so, compared to what it costs to get it off the island by handling it at the MRF (because of extra handling steps).

We concluded that if we adjust the price of accepting demolition/construction waste so that it reflects the full cost of handling it at the MRF, it would create a strong incentive for contractors to use dumpsters.

According to the report done by Tetra Tech (July 31, 2019), here are the numbers related to <u>all</u> solid waste (including demolition/construction waste) handled by the MRF (average annual basis):

- Overall handling cost = $165,417
- Quantity = 374 Tons (748,000 lbs).
- Fees collected = $85,609.

Therefore, we can observe:

- The net cost to operate the solid waste part of the MRF averages $165,417 annually.
- The net unit cost for handling the materials that pass through the solid waste part of the MRF averages $0.22/lb.
- About half ($85,609/$165,417 = 51.7%) of the net unit cost of handling solid waste is contributed by users via fees.

We do not know whether this gives an accurate idea of the current fees charged for the *demolition/construction waste portion* of the solid waste stream – i.e. the demolition/construction waste portion might cover 50% of the cost of handling . . . or more . . . or less. ***Our best guess is*** that current fees do not recoup the full cost of handling demolition/construction waste at the MRF.

Accurately assessing fees on demolition/construction waste would introduce effort on the part of the MRF as well as contractors bringing materials for disposal – *especially in the beginning, when some calculating and evaluating will need to be done*.

The committee notes that the survey of the community asked: “How willing are you for the Town to increase inconvenience and handling costs in order to assure that every user pays fees that exactly match the costs of the waste disposal services they are making use of?” Sixty-eight percent (68%) of the community responded that they were “willing” or “very willing.” Only fourteen percent (14%) of the community responded that they were “unwilling” or “very unwilling.”

Section 7: Recommendations

(A) Focus on dem/con: Prioritize changes to handling of demolition/construction waste

(B) Reduce dem/con throughput at MRF: Establish a target as close to zero as possible for Town handling of demolition/construction waste

(C) Revise fees: Accurately assess fees on demolition/construction waste. It is believed this will help with goal (B) above.

(D) Keep re-use/recycle possibilities in mind: A possible goal for the future would be to encourage re-use and recycling of portions of the demolition/construction waste stream (see Chapter 3 (Organics) and Chapter 6 (Re-use)

(3) ORGANICS

Section 1: Overview

In evaluating the overall waste management situation on Madeline Island, our attention was drawn to the fact that a lot of weight seems to be in the form of organics. There are different ways for handling it that promise to save money and help the environment.

Committee Observations

Our observations and estimates:

(A) we estimate a large tonnage of organic waste generated on the island
(B) in particular, we estimate a significant amount of *food* waste is currently entering the solid waste stream at the MRF, and can be diverted to composting
(C) we see numerous benefits to community-level composting, including cost savings
(D) practical steps (small-scale pilot, grants) are relatively doable

What We Learned from the Community Survey

Given the volumes of organic waste produced here, there is strong support in the community for composting (72% of survey responders are willing to compost their food waste).

There is also pretty strong support for community-level composting. (61% indicated willingness to participate in an island-wide compost site. – and 2/3 of those said doing so was “extremely important.”)

There were 54 remarks in the survey comments section relating to organics/composting. Many comments were by people who already compost at home. *Many people like the idea of a town wide compost pile but worry about animals getting into it.*

Analysis

Subsequent sections of this chapter of the report provide our analysis of the organics waste stream on Madeline Island (Section 2), a plan for a pilot composting project (Section 3), and estimates for the pilot composting project (Section 4).

Our recommendations are in Section 5.

Section 2: Organic Waste on Madeline Island

The committee took note of the recommendation in the Tetra Tech report to the Town that a way be found to divert organics from the solid waste stream, and that "4 pounds of organic waste per person per day" are generated on the island.

We made estimates of the various components of the organic waste stream on Madeline Island. (See Appendix 1.) Our estimates suggest that organics make up almost 40% of the weight of the solid waste handled by the MRF.

We made two observations about the organic waste streams on Madeline Island:

- more work will be required to accurately estimate *all* organic waste flows, and to understand the usability features of those components; however
- initial estimates of several components do seem reliable, and we do understand the usability features of *them*

A very large quantity of **wood waste** passes through contractors, and we estimate a significant portion of that passes through the MRF currently. However, that portion is encompassed under our recommendations with respect to demolition/construction waste (Chapter 2).

We estimated there is 150,000 lbs/year of **food waste** (net of home composting) that could be diverted from the solid waste stream if we had a composting program. We further estimated that there is abundant “brown” matter (e.g. leaves and other yard waste), and manure, to add to the compost recipe. (“Brown” matter is added in at a .375 ratio by weight, i.e. potentially 56,250 lbs.)

The average annual solid waste throughput over the past two years averaged 748,000 lbs. Removing 206,250 lbs (= 150,000 lbs/year of food waste + 56,250 lbs. of "brown" matter) from that stream would represent a 27.5% decrease in throughput. Benefits to the community of doing so would include:

- facilitate lower level of operations at the MRF, with accompanying cost savings
- reduce deliveries to landfill (thereby reducing both costs and environmental impact)
- reduce tipping costs
- generate a valuable resource for the community (compost)
- encourage overall island-wide program of "reduce, reuse, recycle"

Therefore, our first focus was the opportunity for a significant reduction in the weight of solid waste shipments (i.e. cost). Every pound that we don't put into landfill saves dollars.

Much of this report focuses on "reducing" and "eliminating." However, composting adds a worthwhile commodity to the island. Given the clay soil base on the island, composting should add much needed nutritional value to food production as well as enhancing garden soil. We are beginning to see more green houses on the island and a source for compost will be an incentive for even more.

This, in turn has an added benefit: more on-island food production and less waste in transport of food to the island (transportation and packaging).

For these reasons, we focused attention on composting.

This is aligned with community views. The survey of the community found that, given the volumes of organic waste produced here, there is strong support in the community for composting (72% of survey responders are willing to compost their food waste).

Section 3: Composting options

We considered several options for composting on Madeline Island, at both the household level and at the community level.

Household-level composting

Home composting is a method of household-level composting. It is currently practiced by many people in the community (including several committee members).

Benefits of this method include:

- convenience
- use of finished compost (if household gardens)

Disadvantages of this method include:

- lack of full range of desirable inputs
- space requirement/appearance
- cost/effort (e.g. fencing) required to fend off animals
- lack of outlet for finished compost (if household does not garden)
- no leverage (does not encourage additional community participation)

Community-level composting

There are several methods of community-level composting. We looked at two:

Outside pile. This approach takes advantage of the fact that compost formation takes place naturally over time when layers of food waste and other organics ("brown waste") are piled together.

An example of the outdoor pile approach is the aerated static pile. It is described in these two videos:

5 m intro: https://www.youtube.com/watch?v=fig0-kuDACI
1 hr webinar: https://www.youtube.com/watch?v=Qn2j9x_sfrM

Enclosed plant. This approach takes advantage of the fact that compost formation takes place rapidly under agitation, and so can be done in a relatively small space, usually within an enclosure where agitation equipment is protected and the operation is out of sight. Because the composting is indoors, there is enough heat for composting to proceed year-round, including during cold winter months. The mechanical action also offsets the absence of manure in helping the composting process proceed rapidly.

An enclosed plant composting project is underway at Northland College, and members of the committee visited the project in early 2020. Full details of our site visit are provided in Appendix 2 to this chapter.

Benefits of both of these community-level composting methods include:

- makes participation by commercial establishments (e.g. restaurants) possible
- shared cost/effort to gather full range of desirable inputs
- shared cost/effort (e.g. fencing) required to fend off animals
- no space requirement/appearance impact on household
- part of a community program -- encourages maximum community participation

Disadvantages of both of these community-level composting methods include:

- inconvenience of delivery of waste to a central location

- must identify outlet for all finished compost

Weighing the options

Even if some (or many) Madeline Island residents find household-level composting satisfactory, there are advantages to community-level composting that are likely to appeal to a substantial number of other residents (and businesses), and which, apart from benefits to individual users, have community-wide benefits. For these reasons, we believe *community-level* composting would be an attractive addition to Madeline Island.

The survey of community opinion found there is pretty strong support for community-level composting. (61% indicated willingness to participate in an island-wide compost site, and 2/3 of those said doing so was "extremely important.")

There were 54 remarks in the survey comments section relating to organics/composting. Many comments were by people who already compost at home. *Many people like the idea of a town wide compost pile but worry about animals getting into it.*

Following our visit to Northland College, we considered what *type* of community-level composting might be appropriate to the conditions on Madeline Island.

On Madeline Island:

(a) abundant space is available, so there would be no benefit to investing in agitation machinery to reduce the footprint of the operation
(b) there are ready supplies of manure available, so the use of agitation machinery is not necessary to offset the absence of manure in the compost "recipe"
(c) supply of food waste is very low in the cold winter months, so there would be no benefit to having a high-throughput indoor (warm) plant

We concluded that the outdoor pile approach should be very suitable to Madeline Island, and a capital equipment investment of the type required for enclosed plant composting is not necessary. (Fencing will need to be provided to keep animals out.)

Section 4: A Pilot Composting Project

Having identified community-level composting using the outdoor pile approach as a goal, we considered the question: how might this be attempted on a trial basis.

A member of the committee, Michael Brenna, has identified a location for a pilot project, and developed a plan to get it up and running. (See Appendices 3 and 4.) The project is envisioned

as a stand-alone entity, rather than a Town-owned operation. However, Town support would be requested. Contributions are anticipated from a full spectrum of stakeholders:

- the Town of La Pointe -- to publicize the pilot, to evaluate results of the pilot, and communicate the benefits to Madeline Island residents and visitors
- community organizations and funders -- for start-up funds
- building material suppliers -- for in-kind donations
- Northland College -- for technical guidance and help with pilot evaluation
- residents and local businesses and farmers – contribute food waste, yard waste, and manure

Town participation and support would be essential in cementing support of other stakeholders.

The location would be Lauren Schuppe & Gip Matthews' farm (adjacent to the Community Garden). Since several farmers are involved, there is a guaranteed source of the necessary manure, and a ready outlet for the finished compost.

Initial estimates are to handle 2,850 lbs/month of food waste at the pilot project during the first summer season. This would be accomplished by accepting food waste from a small number of commercial establishments (perhaps 3), plus households totaling about 50 people (a mix of year-round residents and summer residents).

Section 5: Grant opportunities

We have identified a grant that could support a Phase 2 project. "The U.S. Department of Agriculture (USDA) Community Compost and Food Waste Reduction (CCFWR) pilot program is offering up to $90,000 to assist local governments with projects that develop and test strategies for planning and implementing municipal compost plans and food waste reduction plans."

The grant deadline is June, 2020. We believe it could be appropriate for a "next phase" composting project for 2021.

Details are at:
https://s2fundingopportunities.tumblr.com/post/619378705921376256/funding-available-to-establish-municipal

Section 6: Recommendations

(A) Support a Phase 1 project (pilot): Give support to a community-level composting pilot project, in order to begin as soon as possible to develop experience with community-level composting Madeline Island.

(B) Apply for a grant to assure the project continues to Phase 2: A grant could support Phase 2 of community-level composting on Madeline Island, ideally beginning in 2021.

(C) Public education: The benefits of new ways of handling organics, especially community-level composting, should be part of an overall “reduce, reuse, recycle” education program on Madeline Island.

Appendices:

(1) Organic Waste on Madeline Island
(2) Northland Site Visit
(3) Pilot Composting Project – PLAN
(4) Pilot Composting Project – ESTIMATES

APPENDIX (1) -- Organic Waste on Madeline Island

Standard expectations about organic waste production

In the Tetra Tech report to the town, the figure "4 pounds of organic waste per person per day" was mentioned. (I don't know the source of this data.)

The 4 lb/person/day number sounds reasonable if we compare it to one estimate of annual output/person I found online (See https://www.titlemax.com/discovery-center/lifestyle/trash-one-person-produces-year/):

Food waste:	221 lbs
Yard trimmings:	92
Wood:	854

(However, the high number attributed to wood is confusing to me.)

If 4 lb/person/day is a good number, that would suggest that Madeline Island generates 1,000 lbs/day from our 250 year-round residents; that's 365,000 lbs./year. If we have another 2,500 summer residents here for 60 days/year, that adds 600,000 lbs. If we have 1,000 day-trippers/day during 60 days/year, that adds another 240,000 lbs. **That's over 1 million lbs/year.**

(As a point of comparison, per the Tetra Tech report, solid waste hauled off Madeline Island over the past two years averaged 748,000 lbs annually.)

Using the ratios above, 1,000,000 lbs/year would be expected to consist of approximately:

Food waste:	190,000 lbs	… or in round numbers:	200,000 lbs.
Yard trimmings:	80,000		80,000
Wood: 854 lbs	730,000		800,000

How might the subtotals arrived at above correspond to what we know about particular organic waste streams on Madeline Island?

How Madeline Island data corresponds to standard expectations

(a) food waste

We estimate about 100,000 lbs/year of food "waste" thrown out by commercial establishments on the island.

(I'm assuming there is currently no giveaway of unused food by island establishments, or composting.)

We estimate another 100,000 lbs/year of food waste coming from **residences**. We estimate half of that gets composted in some way, and the other half goes to the MRF.

That suggests the food waste subtotal reaching the MRF is on the order of 150,000 lbs.

(b) yard clippings

We estimate 80,000 lbs./yr. of wood waste generated on the island.

We assume:

- this means non-wood yard waste (e.g. grass, weeds)
- generated by: contractors, Town, residents
- much is composted or burned; at most half finds its way into the MRF

That suggests the yard clippings subtotal reaching the MRF is on the order of 40,000 lbs.

(c) wood

We estimate 800,000 lbs./yr. of wood waste generated on the island.

Based on the numbers shared by Ted Pallas, we can estimate the **contractor portion** of this stream as about 400,000 lbs.:

* about 100,000 lbs/yr brought by contractors into the MRF (dem-con)
* another 100,000 lbs/yr leaving the island directly in contractor dumpsters
* 200,000 lbs/yr being re-directed to other uses (burned? Re-used? Taken home by workers?)

The other 400,000 lbs. must be generated by ***residents***. Possible breakdown of where that 400,000 lbs. goes might be:

* dumped at the MRF as solid waste by residents: virtually none (?)
* burned as refuse by residents: 50,000 (?)
* mulched/thrown in woods by residents: 50,000 (?)
* burned for fuel by residents: 100,000 (?)
* dumped at MRF by landscapers: virtually none (?)
* re-directed to third-parties for burning by landscapers: 200,000 (?)

(These are very crude estimates and we have a lot more to learn about the situation with wood waste on the island.)

That suggests the wood subtotal reaching the MRF is on the order of 150,000 lbs.

Possible Impact at the MRF

The quantities estimated above to end up in the MRF total:

Food waste:	150,000 lbs.
Yard clippings:	40,000
Wood:	100,000
TOTAL	290,000 lbs

Per the Tetra Tech report, solid waste hauled off Madeline Island over the past two years averaged 748,000 lbs annually.

Our estimates suggest that **organics make up almost 40% of the weight of the solid waste handled by the MRF**.

APPENDIX (2) -- Northland Site Visit

On Thursday, January 30, 2020, Michael Brenna and Joe Scarry visited Northland College. Todd Rothe, Manager, Hullings Rice Food Center, gave us a tour of the Northland composting unit, and described their program.

Northland composting facility

Northland processes 2-3 T/week of waste food, which it receives from the surrounding community (see (c) below).

The system output is about 2-4 cubic yards/week of compost. (The overall output at the end of the process is about 1/3 of the weight of the food input portion.)

The Northland unit is in a dedicated section of the Hullings Rice Food Center. The equipment footprint is 16’ x 20’ – and there is an estimated 2x additional amount of space surrounding the unit for handling input and output, including a wash station for containers.

The unit cost $144,000. It pumps heated air up through the compost mix, and also continuously agitates/stirs. The result is a reduction in process time per output batch to 4 weeks (vs. 3 months for aerated static pile).

The major advantages of the unit vs. an unenclosed aerated static pile are: (i) uses less space; (ii) is unobtrusive; (iii) can operate year-round (i.e. continues to operate even during cold winter months); (iv) eliminates the need for a front-end loader to move piles around; (v) the agitation factor offsets the absence of manure as a process driver.

For reference: here are several videos that explain how to operate an unenclosed aerated static pile:

5 m intro: https://www.youtube.com/watch?v=fig0-kuDACI
1 hr webinar: https://www.youtube.com/watch?v=Qn2j9x_sfrM

The composting "recipe" used by Northland

The basic recipe is 1 part food waste plus 2 parts "carbon-source" (by volume). As noted above, in the Northland system, the agitation factor offsets the absence of manure as a process driver.

Food waste accepted:
Coffee grounds and filters
Fruits and vegetables
Bread
Meat
Eggs, eggshells, and egg cartons
Tea bags
Cheese
House plants

Carbon sources:
Leaves (highly preferred
Shredded paper (from campus offices)
… must not contain chlorine; uncoated; soy ink
Newspaper
Shredded tree bark
(wood shavings and very small fragments; no big chips)

NOTE: Density: Uncompacted yard waste has a density of 250 pounds per cubic yard to 500 pounds per cubic yard. Landfilled yard waste has a density of 1,500 pounds per cubic yard. See https://www.waste360.com/mag/waste_profiles_garbage_yard

Landfilled food waste has a density of 2,000 pounds per cubic yard.
https://www.waste360.com/mag/waste_profiles_garbage_food

Northland's program for collecting organic material from the community

Northland composts waste from its own food operations, plus food waste from two other sources:

- Area commercial establishments
- Area residents

It provides commercial establishments with a 32-gallon wheeled plastic trash can for food waste, and makes weekly pickups. (In the trial period, this service was provided free; they are evaluating possible buy-in in future years.)

It provides residents with a (2 gallon?) bucket. Residents drop buckets with food waste at the site (it is open 24 hours) and pick up clean buckets. (Todd provided us with a sample bucket. The types of food waste accepted (*and types of contaminants prohibited*) are clearly marked on the outside.)

For reference: here are several videos that give a sense of how such community programs sometimes operate:

Composting and Food Recovery - 15 m introduction (Ted Talk) - https://www.youtube.com/watch?v=nffkVafaUtY

Community Food Scrap Composting - 1 hr webinar - https://www.youtube.com/watch?v=Fwi6WZDtUBk

Consulting assistance available from Northland

We briefly discussed pros and cons of various approaches, and what might work best for Madeline Island. Todd is available to consult with us as we consider this further.

APPENDIX (3) -- Pilot Composting Project – PLAN

This plan is designed as a small-scale pilot for food scrap composting on Madeline Island– a way to start with minimal investment.

It can be implemented "as-is," more-or-less immediately, with an eye to future possibilities that include: (a) expansion; and/or (b) duplication in other suitable locations.

Proposed Facility

The location would be Lauren Schuppe & Gip Matthews' farm (adjacent to the Community Garden). The site would include a **receiving shed** and a **composting structure**., as well as empty space to accumulate yard waste and manure to be added to the composting mixture.

The receiving shed would be a small structure, similar to a garden-type metal storage shed.

- wooden floor and be critter-proof.
- conveniently located near Middle Road
- always available for people to drop off scrap buckets
- clean buckets provided to replace buckets dropped off

(Optional: a receiving point could also be located at the MRF. This would require someone to transfer buckets to/from the main composting area.)

Food scraps will be composted in a 3-bin compost structure, including aeration means consisting of piping, a fan, and a timer. (see budget in Table 1 and example shown in Figure 1)

Proposed Operation

Food scraps would be received from participating residents and businesses in containers provided by the project.

- 4-gallon lidded buckets, as used at Northland (see Figure 2)
- Buckets include instruction labels (see Figure 3)
- Donations will be accepted from users to defray bucket expense
- Initial bucket expense covered in start-up budget (see Table 1)

(In the pilot stage, both residents and businesses would use the same size container. If and when the program expands, larger containers can be provided for business use.)

The pilot will be overseen by a manager, who will supervise initial construction, build the piles, clean buckets, provide for dispensing the finished compost, and deal with other issues that arise. (See Table 2 – "pile-building responsibilities.")

Michael Brenna and Gip Matthews have both volunteered as initial managers.

Community garden participants may assist managers in order to learn the process.

Town and community organization support

Support will be sought from:

- the Town of La Pointe to publicize the pilot, to evaluate results of the pilot, and communicate the benefits to Madeline Island residents and visitors.
- community organizations and funders for start-up funds.
- building material suppliers for in-kind donations
- Northland College for technical guidance and help with pilot evaluation

Value Proposition

The value proposition for the stakeholders is:

people contributing food scraps and yard waste	zero-cost disposal of waste that would otherwise cost $$$ to dump at the MRF helping Madeline Island food sustainability
site provider (Gip and Lauren)	compost for use on their farm
volunteer manager(s)	compost for use on their farm
farms contributing old hay/manure	compost for use on their farm
assistants	compost for use on Community Garden plots
Town	contribute to driving down overall MRF volumes (and thus overhead) contribute to overall waste reduction ethic on Madeline Island helping Madeline Island food sustainability visible contribution to a possible “Green Madeline Island” communications campaign

Table 1:
Pilot – Estimated Start-up Costs

3-Bin Compost Structure (three 6' l x 6' w x 4' h bins)	
Structural materials	$2,000
Aeration parts	400
Labor	1,000
	$3,400
Storage Shed (metal – 8' x 10')	$ 500
Buckets and Labels (50 @ $4 each)	$ 200
Tools/instruments Compost thermometer	$ 75
	======
TOTAL	**$4,175**

Table 2:
Pile-building responsibilities

The manager places materials in the proper proportions in the compost structure bins ("builds the piles").

- food scraps
- yard waste (grass clippings, leaves, wood chips)
- old hay and straw
- un-composted manures

Building the piles in the proper proportion results in a 30:1 ratio of carbon:nitrogen.

A second responsibility is monitoring moisture, temperature, and air flow.

Figure 1
Example 3-Bin Compost Structure

Figure 2
Buckets (as used in Northland College program)

Figure 3
Label (as used in Northland College program)

APPENDIX (4) -- Pilot Composting Project – ESTIMATES

These estimates supplement the plan for a small-scale pilot for food scrap composting on Madeline Island ("Pilot Composting Project – PLAN")

The estimates address:

- Throughput (Phase one – Summer 2020 and first 12-month cycle)
- Capacity of the proposed facility
- Inputs and staffing requirements
- Miscellaneous considerations

These estimates are intended as preparatory to a preparation of an actual operating budget.

Throughput (Phase one – Summer 2020 and first 12-month cycle)

Assume we start with a small number of participants in the months ahead:

- Individuals: max 50
- Commercial: 3 establishments

Assume the individuals are a mix of year-round and summer residents (perhaps 15/35). Many year-round residents already compost at home, or may find it easier to do so. But we want to provide for the possibility of year-round operation. Thirty-five summer residents participating the first year is a small share of the total, but it helps test out how well the system will work once we encourage participation by everybody.

Assume that the rate of food waste contributed by each is:

- Individuals: 1 lb./day per person
- Commercial: each entity = of 0.5 lb/person x 30 people/day (average)

Assume some year-round residents participate (perhaps 15);

(The estimated volume generated by commercial establishments takes into account low levels of business in summer 2020.)

Further, let's assume the pilot will continue to operate in the off-season (but with lower throughput). The facility will need to accommodate the throughput in both the peak season/summer months (when the compost is generated in a matter of 60-90 days [?]), as well as in the off season/winter-spring (when the waste just accumulates, and does not degrade).

Season	Months	Yr-round	Summer	Comm.	OUTPUT
Peak	Jul-Aug-Sept	15 people	35 people	3 entities	Beginning in fall
OFF-winter	Oct-Mar	15	0	0	None until following summer
OFF-spring	Apr-May-June	15	0	0	Beginning during the summer

Here is a calculation of <u>monthly</u> throughput during the peak season:

Type	Entities	People	Lbs/day	Days	TOTAL lbs
Yr-round resident	--	15	1	30	450
Summer resident	--	35	1	30	1,050
Commercial	3	30	.5	30	1,350

The total is 2,850 lbs/month.

Using a figure for typical density of fresh food waste (56 lbs/ft^3), the gives a total of **51 ft^3/month.**

Based on the proportions of ingredients that we learned about during the site visit to Northland College, we could expect the space to be filled in this way (by volume):

food waste - 1 part
"carbon-source" - 2 parts

(Northland doesn't use manure. For the purposes of this analysis, let's assume the amount of manure is small, i.e. encompassed in the "carbon-source" amount.)

Therefore, we could expect to add in yard waste, etc., to the extent of about **102 ft^3/month.**

That yields a total volume require of **total 152 ft^3** each month. Over the course of a given month, the materials piled up during that the month the would settle somewhat. By the end of 3 months – at least during the warm summer months – it would settle substantially. The end result would be a small fraction (perhaps 1/3?) of the original volume.

Capacity of the proposed facility

Capacity of both the receiving shed and the composting structure must be sufficient to accommodate the projected throughput.

(a) receiving shed

The proposed size (8' x 10' x 4' [?]) provides a total of 320 ft^3 of space.

(b) composting structure

The proposed size (three 6' l x 6' w x 4' h bins) a total of 3 x 144 = 432 ft^3 of space.

This suggests that the composting structure should be able to accommodate the projected summer 2020 throughput – as well as the off-season. (More space would be needed if the program grows in summer 2021.)

Since the receiving shed only needs to accommodate several days of contributions at a time, it seems there would be more than enough room.

Inputs and staffing requirements

We identified several tasks for the manager (and assistants?):

The primary responsibility is placing materials in the proper proportions in the compost structure bins ("builds the piles").

- food scraps
- yard waste (grass clippings, leaves, wood chips)
- old hay and straw
- un-composted manures

A second responsibility is monitoring moisture, temperature, and air flow.

Additional responsibilities include:

- wash out food scrap buckets and return to receiving shed
- fielding questions from participants
- coordinating deliveries of yard waste, old hay/straw, un-composted manures

Assume all of this can be accomplished within **1 hour/day** during the high season. That allows for some days that require just a few minutes to check the shed, and some days where there is a lot of transferring and bucket washing to be done.

Miscellaneous considerations

- will scrap buckets be acceptable (big enough) for use by commercial establishments?
- water and electricity source?
- water and electricity cost?
- traffic – can people safely enter/exit the site for drop-off?

(4) TRADITIONAL RECYCLABLE CATEGORIES

Section 1: Overview

The committee recognizes commitment by the Madeline Island to “recycling.” Given the current state of certain typical materials for recycling – especially plastics – we see an opportunity for education and to encourage people to think more broadly about all the possible ways to “reduce, reuse, recycle.”

Committee Observations

(H) much plastic currently accepted for recycling in fact must be added to solid waste stream
(I) we may be unable to use all the glass we are processing; it may need to be added to solid waste stream
(J) some "recyclable" categories (non-aluminum metals, mixed paper) are difficult to dispose of
(K) even "highly recyclable" items like aluminum and corrugated cardboard cost the Town money to recycle
(L) every handling step increases the Town's costs

What We Learned from the Community Survey

There is very strong support in the community for “recycling”:

- 92% of survey responders felt it is important for the MRF to continue recycling everything possible

- 83% of survey responders agree that recycling is extremely important to them

- There is also very strong support in the community for improving the recycling that is done here:

- 90% support public policies that lead to an improved recycling program

Interestingly, there is slightly less awareness that there is a need for public education:

Only 60% feel it is "extremely" important for government to educate residents about the importance of waste reduction and recycling . . . though another 24% acknowledge that it is "somewhat" important.

There were 79 remarks in the survey comments section relating to traditional recyclables, mostly relating to plastics. *(Examples: single use water bottles and plastic bags.)* (I noticed that many people know a little about one or another aspect of plastic recycling, but the comments don't reflect recognition of the scope of the problem.)

Analysis

Section 2 of this chapter of the report analyzes the costs vs. revenues and fees associated with recycling by the Town.

Subsequent sections detail the situation with specific materials (Section 3), list numerous possibilities for reducing plastic waste (Section 4), and consider the current program of crushing glass at the MRF (Section 5).

Our recommendations are in Section 6.

Section 2: Costs vs. Revenues and Fees

The Town does not currently calculate the cost of handling different categories of recyclables.

According to the report done by Tetra Tech (July 31, 2019), here are the numbers related to **recyclables** handled by the MRF (average annual basis):

- Overall handling cost = $121,601

- Offsets = $14,945 (*price paid for recyclables and RUG Grant)*

- Quantity = 54 Tons (108,000 lbs)

- Fees collected = none

Therefore, we can observe:

- The net cost to operate the recycling part of the MRF averages $106,656 annually.
- The net unit cost for handling the materials that pass through the recycling part of the MRF averages $0.99/lb.
- No portion of the net unit cost of handling recyclables is contributed by users via fees.

For comparison, here's the situation with **solid waste** (average annual basis):

- Overall handling cost = $165,417
- Offsets = none … *(no RUG grant or price paid)*
- Quantity = 374 Tons (748,000 lbs).
- Fees collected = $85,609.

Therefore, we can observe:

- The net cost to operate the solid waste part of the MRF averages $165,417 annually.
- The net unit cost for handling the materials that pass through the solid waste part of the MRF averages $0.22/lb.
- About half ($85,609/$165,417 = 51.7%) of the net unit cost of handling solid waste is contributed by users via fees.

Users of the MRF are reminded every time they dispose of solid waste that it is costly, and they have an incentive to reduce that cost (i.e. the opportunity to reduce the fees they pay).

Users of the MRF have no reason to believe that disposing of recyclables is costly, because (currently) they pay no fees to do so.

There is no rationale for users paying fees to enable the Town to recover costs associated with solid waste disposal but paying no fees to enable the Town to recover costs associated with recyclables disposal.

Collecting fees on recyclables would introduce effort on the part of the MRF as well as users bringing materials for disposal.

The committee notes that the survey of the community asked: “How willing are you for the Town to increase inconvenience and handling costs in order to assure that every user pays fees that exactly match the costs of the waste disposal services they are making use of?” Sixty-eight percent (68%) of the community responded that they were “willing” or “very willing.” Only fourteen percent (14%) of the community responded that they were “unwilling” or “very unwilling.”

Section 3: Observations re: Specific Materials

The price for most traditional recycling categories (glass, paper, plastic, metal) has collapsed. In fact, the principal question for our waste management program is whether there are even willing receivers of specific materials. (At best, handling and transport eat into -- or even outstrip -- payment we might receive for these materials.)

(A) Glass is a special case. We have the ability to recycle it ourselves (to some extent – see Section 4).

The logical approach is to crush it and use it. (Unused glass can be buried [?])

(B) Categories of Continuing recyclability - The following items have willing receivers (for recycling).

Aluminum*

Corrugated*

Mixed Paper**

* need analysis of whether price offsets transport cost - better to transfer free F.O.B.?

** we should transfer free F.O.B. -- i.e. as long as receiver pays transport cost

The logical approach is that these materials be baled and transferred.

(C) Categories No Longer Recyclable - The following are on the verge of having no willing receivers:

Tin cans

Plastics (see extensive discussion in Section 4)

These materials require market inquiry to determine if they must go into the solid waste stream.

Section 4: Plastics

The market for used plastics has collapsed for several reasons:

... China has stopped accepting used plastics

... end-uses for large quantities of recycled plastics have failed to develop

... oil prices have collapsed so much that virgin plastic is cheap

We considered some possibilities:

- Perhaps it is possible to bale and hold plastics, awaiting a change in the market. (But no change can be foreseen w/in [?] ten years [?])
- Perhaps it is valuable to bale plastics for separate delivery to landfill, to avoid back-pressure on the compactor mechanism in our solid waste set-up

However, it seems quite clear it is cost-prohibitive to have MRF staff handling plastics for which there is no one to take delivery.

Also, we recognize a very important phenomenon: as long as people can deliver their plastics to the MRF for "recycling" they have an illusion that they are actually being recycled, and don't understand the actual situation.

Therefore, the conclusion of our discussion was: the MRF must be prepared to stop accepting plastics for recycling. We should encourage people to seek every possible way to get the plastics out of their own waste streams -- i.e. trying very hard to stop purchasing plastic-packaged goods.

We identified a large number of possible approaches:

- Ask local retailers to voluntarily participate by implementation of a change to paper/cardboard containers for single use water (so-called boxed water).
- Fee for un-recyclable packaging: Deposit/return fee on purchases made on island, this fee should be high enough that it covers the cost of those items not returned (as in Norway)
- Mass collection of single use bags to be recycled through Walmart.
- To avoid conflict with laws that say you can’t ban certain products then charge a Utility fee (resolution to the state as an educational first step towards change) Follow up with a concerted effort to defeat the lobbyist.
- Educate vendors and/or require vendors to participate either through fees which could be offset if said vendor is willing to transport recyclables back off the island.
- Differentiate Closed loop recycling and Clean Loop recycling (Europe): Identify which companies are currently suppling retailers on the island with plastic containers/single use and require/request those companies to implement a complete life cycle of

products from creation to recycle with cost borne by those manufactures and distributors. (Product Entire Value Charge) (also called closed loop recycling) said distributors should be responsible for removing the recyclable materials back off island on their empty delivery vehicles

- Legislate a ban on the sale of single use plastics, if not allowed because of industry lobbying efforts then at minimum pass a resolution requesting a change in the law.

We recognized that other Wisconsin municipalities may be able to share best practices (e.g. specific public education programs) with us.

Section 5: Glass

The MRF has the ability to crush glass received. It is unclear whether the Town has enough uses for the crushed glass.

We received the following information from the Town:

> *"In the four years I have been here we have only used [crushed glass] once as fill for the industrial lot development. Previous Town Foremen used it as a base layer for culvert replacements but both Ben and I agree that this practice is liability/safety issue.*
>
> *"If the MRF produces 50 ton a year on average, we have used 15-20 percent of what has been produced over the last 4 years.*
>
> *"To my knowledge there are no records of what has been used over the past 5 years. Projected use by Public works over the next five years would be 15-25% but could be as much as 50% depending on excavation projects Public Works under takes in the years to come.*
>
> *"If stock piling is becoming an issue at the MRF we do have space at the sanitary district to store excess glass.*
>
> *"We are open to any suggestions for additional applications."*

(Report of Pete Wiggens via L. Potswald, 2/4/2020.)

One other possibility is to offer the crushed glass to local contractors, e.g. as a base layer for concrete pads. (Could it be used for the new fire house concrete floors?)

Section 6: Recommendations

(A) Reset public expectations - Inform the community that recycling doesn't pay for itself, and that for many materials the opportunity to truly recycle is evaporating.

(B) Establish Fees - Recover a defined percent of net cost of recycling.

- The committee recommends fees amounting to 50% of net handling costs (to put recycling at parity with solid waste).
- In the short run, charge the same fee for all recycling materials (on the basis of weight).
- As soon as possible, Town management should calculate the net cost of handling different categories, and adjust fees accordingly.

(C) Tighten operational controls -

- Avoid getting "stuck" with stocks - Since some categories (esp. plastics) are on the verge of no longer being accepted anywhere, Town management should survey recycling centers at the beginning of a season and make a "go/no go" decision about whether to generate a stock of a particular category. If it is unlikely that 12 months from now there will be a willing receiver of the stock, don't accumulate it. (Put it in the solid waste stream.

- Analyze handling costs for each category – This should be done with attention to how variations in volume effect handling efficiency, and should evaluate steps to cut down on handling costs.

- Define threshold volumes required to justify continued handling of each category - Foreseeing that fees may discourage users from recycling certain categories, driving volumes so low it is not cost-effective to handle them, define a level for all categories below which the MRF will discontinue handling that category.

(D) Continue glass crushing … subject to satisfactory answer about where to use full output, and limitation of liability.

(E) Educate the public extensively about "recycling"

- program of education to encourage people to do MORE than just "recycle"
- start by making clear what truly CAN be recycled
- urge changes to behavior -- including "reduce, reuse, re-purpose". In particular, encourage people to seek every possible way to get the plastics out of their own waste streams -- i.e. trying very hard to stop purchasing plastic-packaged goods.
- should include everyone on Madeline Island (visitors as well as residents). Therefore, we believe the ferry will play an important role in carrying out a successful program.
- mix of "carrot and stick" (encouragement ... and also ... increased charges for handling)

(5) SPECIAL CATEGORIES

Section 1: Overview

There are numerous types of items that are a nuisance to dispose of, but for which it is important that the Town help people dispose of responsibly. It's costly for the Town to handle these.

Committee Observations

(A) Old cars is a high-visibility sub-category in the island waste stream
(B) Other major sub-categories of bulky and/or hazardous items are handled at the MRF:
- bulky items people need to get rid of for space reasons: old appliances, old mattresses, tires
- less bulky items that require special handling are those that pose an environmental hazard and thus should not go into the solid waste stream: paint, oil, grease, batteries, light bulbs
- bulky *and* hazardous: old electronics

(C) At present, there is not a plan for efficient handling of these sub-categories, or for minimizing accumulation
(D) We don't really know the magnitude of costs for handling this overall category

What We Learned from the Community Survey

Junk cars are a significant waste management problem on the island. See Section 2.

There was little comment about other sub-categories, but we believe the numerous comments about the messiness of the MRF (see Chapter 7) reflects general concern about this overall category.

Analysis

As indicated above, Section 2 of this chapter of the report discusses old cars. Sections 3 and 4 deal with other sub-categories (bulky items, hazardous items).

Section 5 discusses the handling cost issue.

Our recommendations are in Section 6.

Section 2: Old Cars

Junk cars are a significant waste management problem on the island:

- 40% of survey responders said they would “participate in” a junk car program

- 26% of people who answered the question (26% x 155 = 40 people) said they have one or more junk cars for removal.

Perhaps most significantly, many people who do not, themselves, have a junk car said that they would pay to support removal of junk cars! (29% x 323 = 94 people)

The vast majority of these related to junk cars. Of the 172 total remarks in this category:
... 119 remarks were noting whether the respondent had a junk car. (34 total cars were tallied)
... 53 remarks - also mostly about cars; a few about other "special" category items like oil and appliances.

Survey comments included several suggestions for dealing with junk cars:

- Donation of cars with value to a charity like Rawhide
- Collection of scrap cars by a firm like CWO Auto & Scrap Removal - Ashland

Section 3: Hazardous materials

The MRF currently accepts a sub-category of items consisting of less bulky items that require special handling because they pose an environmental hazard and thus should not go into the solid waste stream, including:

- paint
- oil
- grease
- batteries
- light bulbs

This sub-category roughly coincides with the materials that are collected under state Clean Sweep campaigns:

- antifreeze
- ballasts
- acids
- caustics
- fertilizers
- insecticides
- mercury
- oil filters
- oxidizers
- paint
- pesticides
- poisons
- solvents
- water reactives

See http://www.nwrpc.com/873/Northwest-Cleansweep-Program "Paints and solvents generally account for nearly 60 percent of the material brought into an event."

We believe that most community members have *some* understanding of the importance of proper disposal of items in this sub-category, but few have a *complete* understanding. (It's a long list!)

Because these items are not bulky, there can be a temptation to accumulate them in cellars and garages. This simply extends the risk of improper disposal (especially as properties change hands).

We believe that, in the interest of keeping Madeline Island as pristine as possible, we should make it as easy as possible for residents to dispose of this category of materials.

Section 4: Bulky items

The MRF currently accepts a sub-category of items consisting of bulky items people need to get rid of for space reasons, including:

- old appliances
- old mattresses
- tires

Discussion by the committee centered on phasing out this category.

Generally, when new items are purchased, provision can be made to have the old item removed at the same time. This alleviates load on the MRF, and is actually more environmentally friendly. (The delivery truck doesn't have to return empty.)

Obviously, car tires are only disposed of by someone who owns a car. Car owners can make provision to dispose of car tires off-island.

People who have bulky items to dispose of are residents of Madeline Island, i.e. people with a strong stake in the community. We believe that, with public education, illegal dumping of bulking items will not be a problem.

Section 5: Handling costs

At present, there is not a plan for efficient handling of these sub-categories, or for minimizing accumulation.

As indicated in the overview to this chapter, it is important that the Town help people dispose of responsibly. That implies that, in a sense, "money is no object." But, in fact, the proper management of this area of the MRF requires cost accountability, just like every other part. This is essential to developing a plan for efficient handling of these sub-categories, and for minimizing accumulation.

Currently, we don't really know the magnitude of costs for handling this overall category, much less the individual sub-categories. The one resource that can help us get a "size of the breadbox" sense of the cost is the monthly MRF supervisor reports. Those do not give metrics, but they at least give a sense of how often various tasks are listed. Tasks related to items in this category are mentioned twice as often as tasks related to solid waste handling; they are mentioned 2/3 as often as tasks related to "typical recycling" (i.e. the items described in Chapter 4).

In other words, we don't know exactly how much it is, but we can see it's enough that it's worth tracking carefully.

Section 6: Recommendations

(A) Old cars: Given the level of community response to survey questions about the "old car" problem, make old cars a priority for the next planning period. Options include:

- Donation of cars with value to a charity like Rawhide
- Collection of scrap cars by a firm like CWO Auto & Scrap Removal - Ashland

(B) Clean sweep: As soon as possible (e.g. summer 2021), conduct an island-wide "Clean Sweep." Transition to 1X/year handling of the relevant items, with no handling at the MRF. See https://datcp.wi.gov/Documents/CleanSweepSchedule.pdf

(C) Eliminate other sub-categories: Stop accepting at the MRF the bulky items described in Section 4.

(D) Document a complete plan: All the sub-categories need to be described; information about the cost of handling must be developed; and various pathways for community members to dispose of them mapped out (including ultimate exit from the island of any items that continue to be accepted at the MRF).

(6) RE-USE

Section 1: Overview

Encouraging re-use of "gently used" consumer goods can have an outsize impact on behavior on the island. As one survey respondent commented, “I have always believed in the principles of reduce, reuse, then recycle and the more we can educate and initiate change among local businesses and individuals alike, the better it will be for the sustainability of La Pointe.”

Committee Observations

(A) there is a Town facility to encourage re-use of old items instead of adding them to the waste stream: The Exchange
(B) there is a highly trafficked event for a few days during the summer at St. John's church which does something similar: The Bazaar
(C) many island residents derive a great benefit from obtaining low- or zero-cost items from these sources
(D) we believe there is an opportunity to emphasize how these activities encourage a culture of "more re-use, less throw-away" on the island, and contribute to the overall effort to handle waste more efficiently

What We Learned from the Community Survey

Survey results indicated that the community values re-use *in general*, and that it also very strongly supports having a physical place in here on the island to make sure that happens. (See Section 2.)

There were many (73) remarks on this specific topic. In addition to many statements of support, there were some criticisms/concerns, which can serve as a guide for improvements. (See Section 3.)

Eighty-one percent (81%) of survey responders are in favor of an exchange for *construction materials*. (See Section 4.)

Analysis

Sections 2-4 of this chapter of the report discuss survey findings about re-use and The Exchange, and recommendations are in Section 5.

Section 2: Community support for The Exchange

Survey results indicated that the community values re-use *in general*, and that it also very strongly supports having a physical place in here on the island to make sure that happens:

- 90% of survey responders think it is important to have the Exchange
- 78% of survey responders are willing to bring useable items to the Exchange
- 90% think the Exchange should be expanded

The large number of comments (73) made in the survey on this specific topic affirm strong community interest. There were many were statements of support for the Exchange, e.g. "We love the Exchange (a.k.a. the Mall) Thank you for keeping it available" and ""Somehow get the Exchange ramped up/kept up."

Section 3: Operational suggestions re: The Exchange

In addition to many statements of support, survey comments included criticisms, concerns, suggestions for operational improvements. These roughly fall into three categories:

Access and ease of use – numerous comments related to hours of operation ("hours are terrible") and difficulty of "shopping" the current space ("Entire place needs reorganizing (for) better flow and user understanding"; "too congested").

Inventory management – numerous comments touched on the problem of what to accept at The Exchange ("you get people dropping junk off"), and how to keep it from simply piling up ("We pay at the end of the year to get ride for the stuff that sits all summer at the Exchange").

Management – several comments acknowledged that running an operation like The Exchange requires serious management (examples: "run the way the run goodwill"; "Make a list of what you can recycle") and noted that alternates do exist (e.g. ABC Thrift Shop, St. John's Church Bazaar)

The suggestions are reflected in our recommendations.

Section 4: Re-use of construction materials

Eighty-one percent (81%) of survey responders are in favor of an exchange for *construction materials*. (Example comments: “Yes, add one for construction materials." “Most of my cabin was built using recycled bldg. materials.”)

The committee’s primary recommendation on demolition/construction waste is to strongly urge contractors to directly dispose of their waste off-island using dumpsters. (See Chapter 2.) In other words, the committee believes that the big opportunity for more efficient waste management with respect to demolition/construction waste on the island is direct disposal (and not re-use). This is based on our best guess, given that we lack detail on the quantity of reusable material in the demolition/construction waste stream.

We had discussion about the large amount of waste wood in the demolition/construction waste stream, and whether it should be targeted for use in a possible composting scheme. We realized that the usability (even for compost, after chipping) of the wood from this stream varies widely. (More in Chapter 3.)

On the other hand, to the degree that contractors have readily-identifiable re-usable demolition/construction waste, especially leftover materials, an opportunity exists.

Following through on this idea will probably have to wait on progress on our main recommendations in Section 5, and will almost certainly require volunteer assistance to figure out how to make the materials available in a setting that is easy to “shop.”

Section 5: Recommendations

(A) Prioritize the Exchange: Honor community demand for The Exchange as a "re-use center" - Make a commitment to have The Exchange function successfully under Town auspices.

(B) Avoid getting "stuck" with stocks: The Exchange should have rules, guidelines, procedures to help assure that the stock "moves." (This will include a decision about the right size/location for a building to house The Exchange.)

(C) Provide Town management: The Town should assume responsibility to make sure The Exchange runs smoothly, including (a) taking the time to think through rules, guidelines, procedures; (b) operating it with paid staff; and (c) communicating its place in the larger Town campaign to "reduce, reuse, recycle" (public education).

(D) Tap community support: Given the level of community support expressed in the survey, call on members of the community to volunteer time to do tasks in support of the goals above.

(7) COSTS & EXPENDITURES

Section 1: Overview

In addition to the recommendations in Sections 2 through 6 above, we considered additional ways to raise money and/or cut costs.

Committee Observations

(A) The MRF has several distinct operation streams (types of waste), and fees assessed *directly* for each can be calibrated to correspond to costs of handling each specific stream.
(B) The community of MRF users (property owners and renters, residents and visitors, etc.) is diverse, and that makes it challenging to devise an ideal way to collect fees to support the MRF *indirectly*.
(C) We noted numerous aspects of the operation that we feel deserve close attention as possible opportunities to achieve operating efficiencies, including: ground glass usage, hauling, and seasonality.
(D) We notice that the MRF operations are on a scale such that it seems very likely to us that achieving efficiencies will require consideration *together with* other Town operations (esp. Public Works).

What We Learned from the Community Survey

The community leans toward the idea that what people pay to dispose of waste should closely match what it costs the Town to handle it – and they seem to understand that to do so may make parts of the operation *less* streamlined than they might otherwise be. (Question 10)

The survey polled support for a range of options for indirect fees (at parks, donations from tourists, ferry fee) and these are discussed in section 2. Many survey responses included

comments about park fees (pro/con), ways of assessing fees on tourists (pro/con), and the whole question of tourists/renters in general (pro/con).

In addition, there were 73 suggestions recommending operational changes at the MRF. These are summarized in Section 6.

Analysis

Section 2 of this chapter of the report deals with indirect fees. Subsequent sections deal with aspects of achieving greater efficiency (reducing cost). Section 3 deals with hauling. Section 4 concerns seasonality. Section 5 addresses the need for cost accounting. Section 6 lists other possible operational improvements. (Handling of ground glass is discussed in Chapter 4.)

Our recommendations are in Section 7.

Section 2: Indirect fees – finding common ground

Most of the other chapters of this report deal with distinct waste streams, including the fees directly assessed for dealing with those streams. What about collecting fees to support the MRF *indirectly* – i.e. on people in general, not at the point of waste delivery to the MRF?

Different members of the community interact with waste disposal on Madeline in different ways – both in terms of the waste they dispose of and the way they contribute to the cost of disposal (or not).

Other sections of this report address the collection of specific fees for specific materials delivered directly to the MRF. The committee struggled with numerous possibilities of how to assess *indirect* fees, especially on people who inevitably generate waste but may not be subject to direct fees at the MRF itself. As we reviewed the results of the survey, we noted that the community similarly struggled with this issue.

For example, there were extensive comments included with survey responses about recovering waste handling costs through fees on ***users of the Town park***. They included numerous insights about how fees might be "marketed" and many concerns about unintended consequences/blowback. Many would like to see an increase in camping fee at the Town Park to offset the cost of removing garbage and recyclables, while others do not want visitors to be charged any more than they already are for fear it will deter visitors from coming to the island and/or worry the garbage will end up in the ditch. That said, 71% of survey responders think tourists should pay at parks to dispose of their garbage.

Similarly, there were many comments about ***tourists in general***. Comments included ones about the need to make tourists pay their fair share, the concern about tourists disposing of waste indiscriminately, and not wanting to impose fees that seem to single-out visitors and

discourage tourism. Notably, 81% of survey responders were in favor of a volunteer donation for tourists to help defray the cost of hosting tourists on the island

Some commenters focused on ***renters***. Many expressed a view that there are ways to encourage better usage of current waste options by renters.

It is worth noting that ***property owners*** currently support the MRF through taxes. That is a form of indirect support of MRF operations. Most of those property owners (and/or their renters) make use of the MRF. The Town budget (i.e. those tax payments) currently supports a substantial part – but not all – of MRF operations. The information we currently have available does not enable us to make a general statement about whether the Town budget portion (i.e. the portion supported by property owners through taxes) is equitable, relative to the volume of MRF volume generated by those same property owners. The one thing we can say for sure is that the more users pay their fair share toward fully covering MRF operations directly when they deliver waste at the MRF, the more sure we can be that property owners are being treated equitably. (Property owners will be among those paying *direct* fees when they use the MRF, too, of course.)

Aside from fees paid directly when delivering waste at the MRF, travel to the island is the "great equalizer" – everyone who comes to the island must ride over on the ferry, and that is the most broad-based opportunity to get everyone in our Madeline Island community contributing to our waste management goals.

Should there be a fee paid by ferry users to defray the cost of waste disposal on Madeline Island? About half (51%) of survey responders were in favor of a visitor's fee for vehicles arriving on the island to help defray the cost of disposing of garbage.

The ferry will play an important role in carrying out a successful program. This is recognized in our final recommendation in this chapter (Section 7), as well as our recommendation about an education program in Chapter 5 ("Recyclables").

Section 3: Hauling

We note that in the current Town budget cycle, the MRF supervisor has alerted the Town to the need to replace the MRF's truck within the next two years.

In addition, we note that the current truck is was acquired used, and MRF operations have included significant repairs and refurbishments to keep it operative.

Finally, recommendations in other chapters of this report (especially Chapter 2 and 3, but also 4 and 5) may result in changes to quantities hauled. (Of course, we can expect reduced volumes in 2020 as a result of COVID.)

Therefore, we see a need for Town staff to closely examine hauling options.

In particular, we wonder

- What is the "fully-loaded" cost of owning and operating an old truck (i.e. including all the management and overhead that goes into upkeep)?
- What the cost of owning and operating a *new* truck be?
- Might it actually be cheaper to *lease* a truck?
- Might it actually be cheaper to pay a third-party hauler?
- Is it more efficient to share a truck with other parts of Town operations?

Again: we emphasize that, since return-on-investment on various hauling options is a function of volumes handled, the answer to these questions will be different depending on the success at achieving the recommendations in other parts of this report (which would reduce MRF volumes).

Section 4: Seasonality

Chapter 2 provides information about seasonality of MRF operations.

In terms of considering cost management, we particularly note that the MRF staffing currently fluctuates, at between 1 and 2 FTE (full-time employees), plus part-time seasonal help.

We recognize that efforts to operate as efficiently as possible – in light of seasonality, and given that there may be even greater "lightness" in off-peak months once recommendations of this report are carried out – may be best accomplished if MRF operations are considered *in combination with* other Town departments.

Section 5: Cost accounting

The committee notes that the survey of the community asked: "How willing are you for the Town to increase inconvenience and handling costs in order to assure that every user pays fees that exactly match the costs of the waste disposal services they are making use of?" Sixty-eight percent (68%) of the community responded that they were "willing" or "very willing." Only fourteen percent (14%) of the community responded that they were "unwilling" or "very unwilling."

This response tells us that members of the community have an expectation that the Town has ***a granular understanding of the costs of dealing with various waste streams***.

The members of the committee share this expectation. Our understanding of how to achieve a more efficient operation depends on carefully accounting for the cost of each stream handled at the MRF, and continuously asking questions about how each part of a given stream is handled and whether there might be a way to handle it more efficiently.

We understand that granular cost accounting does not fall within the scope of the current MRF setup. We believe there is probably a way to better integrate various Town functions (accounting, MRF supervision, overall public works management) to assure that cost accounting efforts are undertaken.

Section 6: Other operational improvements

There were numerous comments in response to the survey that touched on specific operational issues, including many addressed to:

- **messiness** *(example: "We need to work on cleaning up the dump. It's so sad to see the amount of trash on the ground there. Not to mention the amount of eye sores with the pile of old furniture and the endless amount of broken glass.")*
- **poor set-up** *(example: "Dump is difficult to use, where things go, too congested.")*
- **user experience/customer service** *(example: "The attitude at MRF makes me discouraged as if they really don't care whether I recycle or not.")*
- **how fees are collected** *(example: "Consider some sort of credit card like ferry uses.")*

These areas all call out for attention. We believe they will require competencies that are not currently at the MRF.

These experiential observations complement the observation in the previous section about the need for cost accounting. It's hard to accurately improve efficiency without metrics; but our gut reaction to seeing an operation often points in the right direction. The Japanese "5S" management approach uses "messiness" and lack of order as a flag for inefficient processes offering opportunities for improvement.

Section 7: Recommendations

(A) Operations integration: MRF operations should be better integrated with other Town operations (esp. Public Works) to achieve possible efficiencies, including (but not limited to):

- Evaluating hauling options
- Setting optimum seasonal staffing levels
- Conducting cost accounting studies for each waste stream handled by the MRF
- Solving other MRF problems (such as: messiness, difficulty-of-use, poor customer service, and need to tighten fee collection accountability)
- Evaluating potential long-term ground glass usage (e.g. on road repair)

(B) Levy on ferry traffic: A careful evaluation should be made of a possible levy on all traffic entering the island, to supplement the overall waste handling budget for the island.

(8) LEARNING LABORATORY

Section 1: Overview

To successfully carry out these recommendations, the Town is going to need to keep a close eye on how each of these steps is proceeding -- keep good records, measure carefully, analyze the results, and be willing to make mid-course corrections.

Committee Observations

(A) Much information (and many solutions) are publicly available for communities seeking to improvement waste management; *and/but*
(B) All communities need to develop solutions specific to their context, *and this is especially true for Madeline Island because of its island setting.*
(C) At present, we don't have all the information we need to do waste management here.
(D) In light of this need for knowledge, our waste operations *themselves* constitute a unique asset – an opportunity to learn – a "laboratory."
(E) Recognizing this would represent a paradigm shift for most members of our community.

What We Learned from the Community Survey

There is willingness – *but it is guarded willingness* – for the town to experiment. (Question 11) Several respondents contributed comments about how to meet these challenges, and those comments are shared in following sections.

Analysis

Sections 2 through 4 of this chapter of the report expand on the topics of where we can get information to guide our efforts, and the paradigm shift toward being a "learning laboratory."

Recommendations are in Section 5

Section 2: Publicly-available information

In the course of our project, we discovered that there is abundant information available generally about waste management. We could find websites, documents, and videos about all the topics we studied.

In fact, in a certain sense, it is like drinking from a firehose. We realized that we needed to shape recommendations specific to our local context, particularly the unique island context of our community.

In the course of this project, we constantly confronted the challenges posed by special island conditions, including:

- transportation on/off island
- seasonality
- small population size
- unusual consumption/waste patterns

We can get help from others in doing this. As one survey respondent commented, “Let's look at other towns and see how they do it.” Another said, “Resources already available to islands & small communities - refer to these + experts available.”

For instance, Chapter 3 benefited greatly from what we learned from a site visit to Northland College. Several members of the committee are active participants in the Great Lakes Island Alliance (GLIA), and we envision opportunities to share information with similar island communities.

That said, at the end of the day, we need data generated from our own operations, under the use conditions of our own community. We need to subject this data to careful analysis.

Section 3: Learning as we go

The committee recognizes that, at some level, the Town’s waste management operations exist principally as a way to make waste "go away.” For better or worse, when it comes to waste management, for most people in *any* community, it’s "out of sight, out of mind.”

For the reasons described in Section 2, we will all need to change our perspective, and become interested in waste management.

Town staff will need to allocate time and effort for tasks beyond just "making the waste go away." This includes tasks like:

- planning
- measuring
- recording
- analyzing
- sharing

The values of curiosity and experimentation will become as important as values like speed and efficiency.

The wider community will need to understand and support this approach. From the community survey, we learned that there is willingness – *but it is guarded willingness* – for the Town to experiment. When asked, "How willing are you for the Town to try new approaches to waste management even if that will require us to lay out some money to learn and there will be some trial and error?" (Question 11), nearly 40% chose the response, "Willing. I'm generally optimistic about trying something new." About 30% of people were very enthusiastic, and chose, "Very willing. Money spent learning how to manage waste well is a valuable investment in our future." But another 30% were ambivalent or opposed. (See graphic on next page.)

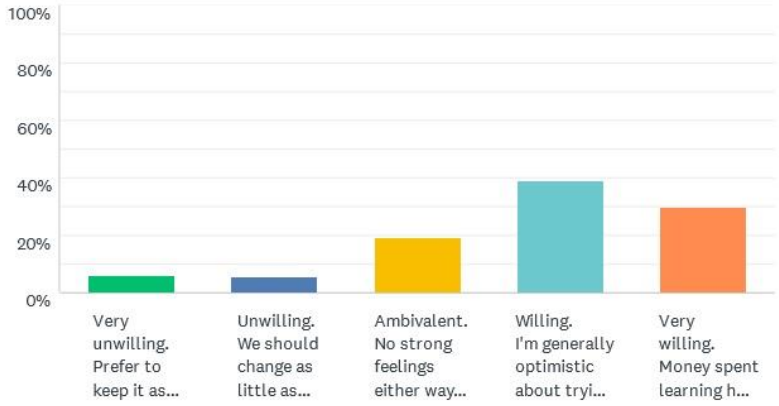
In the course of preparing Chapter 3, on organics, we saw a concrete example of how this can play out. It caused us to recognize the need to balance the "get it done" approach with a "learning laboratory" approach. When we decided that a pilot composting project would be desirable, we felt the most important thing was to "just do it." We developed a plan to do a first phase pilot – as streamlined as possible, to assure that we don't miss the opportunity. We subsequently learned about a grant for which the Town could to cover costs of a *second phase* of the composting project. The grant description says, "is offering up to $90,000 to assist local governments with projects that ***develop*** and ***test strategies*** for ***planning*** and ***implementing*** municipal compost ***plans*** and food waste reduction ***plans***." (emphasis added). A successful grant application would need to show how we would seek to:

- Generate compost;
- Increase access to compost for agricultural producers;
- Reduce reliance on, and limit the use of, fertilizer;
- Improve soil quality;
- Encourage waste management and permaculture business development;
- Increase rainwater absorption;
- Reduce municipal food waste; and
- Divert food waste from landfills.

Obviously, in order to achieve those goals we would need to a really good job with all those "other" tasks -- planning, measuring, recording, analyzing, sharing.

Q11 How willing are you for the Town to try new approaches to waste management even if that will require us to lay out some money to learn and there will be some trial and error.

Answered: 404 Skipped: 34



ANSWER CHOICES	RESPONSES	
Very unwilling. Prefer to keep it as is.	5.94%	24
Unwilling. We should change as little as possible.	5.45%	22
Ambivalent. No strong feelings either way; I can see both sides.	19.55%	79
Willing. I'm generally optimistic about trying something new.	39.11%	158
Very willing. Money spent learning how to manage waste well is a valuable investment in our future.	29.95%	121
TOTAL		404

Section 4: A paradigm shift

Several survey comments were instructive:

"Our model could teach & inspire others!"

"The dump is a visitor's bureau . . . . "

These comments suggested a view of the Town's waste operations that goes far beyond just "make the waste go away."

They were also instructive because they represented a point of view that was not articulated by other survey respondents, at least not as clearly or as enthusiastically as these comments did.

The committee believes that, in the overall program to encourage the Madeline Island community to “reduce, reuse, recycle,” the MRF operations should stand as an encouragement. Beyond just “make the waste go away,” the way in which the MRF is perceived will inevitably have a big influence on how the community thinks about a whole constellation of values related to consumption and disposal. A learning laboratory is thoughtful, smart, intentional, careful, future-oriented, hopeful. Those are the kind of values that can guide a “green Madeline Island.”

Section 5: Recommendations

(A) Commit Town management and staff to learning goals: Prioritize planning, measuring, recording, analyzing, sharing.

(B) Communicate with the community: People should be encouraged to feel they have a stake in the learning mission of the Town's waste handling operation

(C) Get assistance: The Town should empower staff to maximum possible use of outside resources

(D) Share our story: Communicate what we are learning to the wider world, and use our learning orientation to help people understand what Madeline Island values.