

Analysis of Feasibility and Cost of
Providing Commingled Curbside
Recycling And Analysis of Costs
By Solid Waste Service Class in
Sitka, Alaska

City and Borough of Sitka,
Alaska

November 4, 2014

Conclusions Up Front Commingled Curbside Recycling

Curbside commingled recycling is feasible and can be accomplished, but only through an additional charge to all customers.

The approximate monthly charge to all customers to implement commingled curbside recycling would be \$5.79/Month.

The key determinant in the feasibility and cost of commingled curbside recycling is the cost of up front infrastructure investment necessary, and, the cost of an additional weekly collection of recyclables.

Additional Conclusions Commingled Curbside Recycling

Any cost and feasibility analysis must be based upon assumptions. One of the most critical assumptions is the percentage of municipal solid waste (MSW) each recycling participant diverts.

Staff feels confident that not enough MSW will be diverted from participants to make commingled curbside recycling cost neutral. Some may disagree, however, citing their own statistics to the contrary.

MOST IMPORTANTLY, HOWEVER, NO ONE WILL BE ABLE TO DETERMINE WITH PRECISION WHAT THE TRUE COST OF COMMINGLED CURBSIDE RECYCLED WILL BE UNTIL AFTER AN EXPENSIVE INVESTMENT IN ADDITIONAL EQUIPMENT IS MADE. There is no “going back” if assumptions as to diversion and participation rates prove incorrect and ultimate costs prove higher than anticipated.

Conclusions Up Front Costs By Service Class

Larger waste receptacles
subsidize the smaller waste
receptacles

Multiple pick-ups/week
subsidize the cost of single
pickups per week

Commercial service
subsidizes residential service.

Answers To Specific SWAC Questions

1. What is the lowest cost option? The status quo, weekly MSW collection with diversion through voluntary drop-off of sorted recyclables.
2. What is the highest cost option? Weekly MSW collection coupled with weekly curbside commingled recycling pickup.
3. Do Some classes of service subsidize others? Yes, commercial services subsidizes residential service, larger volume receptacles subsidize smaller ones, and multiple collections per week subsidize single collections.

Curbside Commingling Analysis

A key point of my analysis is that I estimate commingled recycling generates approximately \$12.75/ton less in recycling credits than existing sorted recycling (\$90/ton versus \$112.75/ton).

Holding all other variables constant, this requires an additional 126.7 tons of commingled recycled material (1.3% overall increase) just to make up for the cost difference, as all currently sorted materials would henceforth be placed into the commingled stream.

Curbside Commingling Analysis (Continued)

In calculating net costs for curbside commingled recycling, a key assumption that must be made is the diversion percentage for all participants.

For my analysis, I used a diversion percentage of 17.59% of all residential MSW generated and 35.18% of all commercial MSW. This percentage equates to an annual diversion tonnage of 1,983.67, higher than currently what is being diverted via drop-off sorting, which is 892 tons.

Curbside Commingling Analysis (Continued)

Commingled recycling will require additional equipment and services to implement, however. The annual amortized costs of this equipment and services must be made up through additional diverted volume, and staff projects that these volumes are simply unobtainable.

Additional required equipment and services:

1 refuse truck @ \$275,000 (amortized over 10 years)

1 backhoe @ \$150,000 (amortized over 10 years)

1 yard goat @ \$75,000 (amortized over 10 years)

Commingled recycling pickup every other week @ \$274,078

Total additional annual cost to be recovered: \$353,234

Curbside Commingled Analysis (Continued)

Assuming that the cost of shipping and handling commingled recyclables is held at the same cost as landfill disposal, an additional 3,907.72 tons of commingled recyclables (\$351,695 / \$90/ton credit) would be required to keep overall costs constant. This amount, 3,907.72 tons (a 440% increase in overall recycling), would represent 42.3 % of the overall Sitka MSW total volume, that would need to be recycled to cover additional equipment and collection costs. Staff considers this to be highly unlikely.

Curbside Commingling Analysis (Continued)

Even with overall participation rates at 75%, it is difficult to find established recycling programs that successfully divert 50% or greater of the total MSW stream.

Those programs that achieve such high diversion rates have disincentives (i.e., fines) not to divert. Implementing fines for refusing to recycle in Sitka is unlikely. Where such a program to be implemented, it would require enforcement, whose costs would need to be offset by yet again even higher volumes of diverted materials.

Again, it is critical to note that these levels of material diversion would be required **JUST TO BREAK EVEN.**

Cost By Service Class Analysis

Costs charged by service class and frequency of service are not reflective of costs.

Many solid waste disposal costs are fixed and do not vary with either service class or frequency of service. Examples include Transfer Station operation and landfill operation.

Collection costs vary by frequency of service only. The costs are essentially the same regardless of the size of the refuse container.

Cost By Service Class Analysis (Continued)

The classes of service where charges exceed costs of service by the largest amount involve 300 gallon tubs. The charges exceed the cost of service by 50% or more.

The classes of service where costs of service exceed charges (i.e., where subsidization exists) are 32 gallon containers. The costs of service exceed charges by more than 50%.

Commingled Curbside Recycling Conclusions Restated

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The key determinant in the feasibility and cost of commingled curbside recycling is the cost of up front infrastructure investment necessary, and, the cost of an additional weekly collection of recyclables.

Costs By Service Class

Conclusions Restated

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Calculations

Calculations and supporting data are contained in the appendices.