

Jefferson County
Board of Commissioners
Agenda Request

To: Board of Commissioners
Mark McCauley, County Administrator

From: Monte Reinders, Public Works Director/County Engineer *MR*

Agenda Date: April 17, 2023

Subject: Solid Waste Fee Schedule

Statement of Issue: The current fee schedule for solid waste services became effective January 1, 2014 [Ord. 6-13 § 1 (Exh. A)] as part of Jefferson County Code, Appendix FEE SCHEDULES, III. Public Works Department - Solid Waste Division, attached for reference.

Fees for solid waste services have not been adjusted since 2019 and revenue is not keeping pace with rising operational costs.

Analysis/Strategic Goals/Pro's & Con's:

The solid waste operations reserve and capital reserve funds have been drawn down in order to maintain the current fee schedule, last revised in 2019. Drawing down reserve fund balances further would be imprudent.

Fiscal Impact/Cost Benefit Analysis:

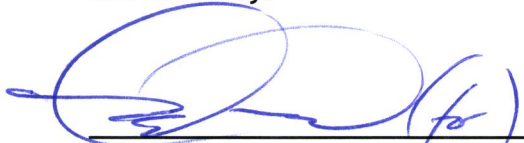
An issue paper is attached.

Recommendation:

Public Works staff would like to review the issue paper and recommendations with the County Administrator and Board of County Commissioners.

Department Contact: Al Cairns X213

Reviewed By:



Mark McCauley, County Administrator

4.11.23

Date

**Solid Waste Fee Schedule
Issue Paper
April, 2023**

Statement of Issue

The Jefferson County Solid Waste Enterprise Fund is self-funded by the fees charged for municipal solid waste. A small portion of operating costs (less than 1%) are paid for with grant funds from the Department of Ecology.

Operational costs for salaries and benefits, equipment purchase and maintenance, and contracted services like solid waste transport and disposal have all increased by at least 3% per annum since the last adjustment to solid waste fees in 2019. Fees need to be adjusted to meet these cost increases and to maintain prudent fund balances in order to make Capital improvements and to make emergency repairs or replace critical equipment.

Solid waste handling facilities use minimum fees to manage self-haul customer demand by encouraging fewer, heavier loads or curbside service by subscription. The current minimum fee at the Transfer Station has not been adjusted since 2014.

The fee schedule at the Quilcene Rural Drop Box is based on volume rather than weight because the facility lacks scales. The fee schedule is set to make the facility operation cost-neutral or positive. Revenue has not met operational costs for the past 3 years.

The fee schedule for yard debris disposal has not been adjusted since adoption in 2014 and the minimum charge is too low to discourage frequent, low weight visits which cause longer wait times for other customers.

Background

Benchmarks

The current fee schedule became effective January 1, 2014 [Ord. 6-13 § 1 (Exh. A)] as part of Jefferson County Code, Appendix FEE SCHEDULES, III. Public Works Department – Solid Waste Division, and attached for reference.

Under III-012 Fee Indexing, three benchmarks are used to guide fund balances:

- (1) A year end reserved capital fund balance of 12% of current capital replacement value in equipment and buildings
- (2) A year end reserved operations fund balance of 15% of annual solid waste expenditures
- (3) An increase in annual waste tons received of no less than 1% with 2013 as the base year

A report on solid waste facility asset values was completed in November 2022 and is attached for reference. Current facility replacement costs are estimated at a low of \$6,910,949 and a high of \$8,167,485. Using the high replacement cost estimate and the current solid waste budget, **Table**

**Solid Waste Fee Schedule
Issue Paper
April, 2023**

1 shows that the above benchmark for reserved capital fund is not being met while it is for reserved operations fund.

**Table 1
Current Ordinance Benchmarks**

Capital Fund	
Facility Replacement Cost:	\$ 8,167,485
Projected Capital Fund Balance end of 2023:	\$ 915,839
12% of Facility Replacement Cost:	\$ 980,098
Difference:	\$ (64,259)
Reserved Operations Fund	
Projected Solid Waste Expenditures:	\$ 4,217,993
Projected Reserved Fund Balance End of 2023:	\$ 1,398,348
15% of Reserve Fund Balance:	\$ 632,699
Difference:	\$ 765,649

A benchmark of 25% for reserve balances is more prudent considering the need for facility replacement, the large outlay for emergency replacement of critical machinery, the current inflationary period, and the program's vulnerability to large market corrections.

Table 2 shows that should the benchmarks be adjusted upward to 25% of facility replacement costs and one quarter of annual expenditures, the fund balance would fall far below the benchmark for capital replacement and would be only marginally sufficient to meet the benchmark for annual operating expenditures.

**Table 2
Modified Benchmarks: 25% Capital and O&M**

Capital Fund	
Facility Replacement Cost:	\$ 8,167,485
Projected Capital Fund Balance end of 2023:	\$ 915,839
25% of Facility Replacement Cost:	\$ 2,041,871
Difference:	\$ (1,126,032)
Reserved Operations Fund	
Projected Solid Waste Expenditures:	\$ 4,217,993
Projected Reserved Fund Balance End of 2023:	\$ 1,398,348
25% of Projected Expenditures:	\$ 1,054,498
Difference:	\$ 343,850

The third benchmark concerning annual tonnages serves as a sort of caveat for the first two. It sets the basis for fee adjustments regardless of fund balances should tonnages (99.06% of revenue) begin to soften and provides the County with a means to react to market downturns, as has been experienced in the past.

**Solid Waste Fee Schedule
Issue Paper
April, 2023**

Table 3 shows that the average increase in tonnages of 3.4% since 2013 meets the third benchmark. It should be noted however that there are years of near-zero or negative growth in the mix and these variations in revenue have been addressed by either spending down the operating fund balance or with a slight increase to the tipping fee or both. This strategy allows us to make incremental adjustments to the fees in service to our customers.

Operating reserves have been spent down since 2019 in order to maintain the current fees, from a beginning balance of \$2.2M in 2022 to an estimated \$1.2M at end of 2023. This has only been possible with an increase in tonnages (revenue). Additional revenues are now necessary to maintain benchmark reserves.

**Table 3
Transfer Station Annual Tonnage 2013-2023**

<i>Year</i>	<i>Tonnage</i>	<i>% Increase</i>
2013	17,673.15	
2014	17,662.24	-0.1%
2015	18,814.26	6.5%
2016	20,413.86	8.5%
2017	20,454.07	0.2%
2018	20,960.14	2.5%
2019	21,662.34	3.4%
2020	21,587.13	-0.3%
2021	23,443.41	8.6%
2022	23,816.81	1.6%
Average Increase		3.4%

The Solid Waste Fund is vulnerable to major market corrections as seen in **Tables 4** and **5**. In this “stress test”, the 2023 projected end of year fund balances and expenditures are applied to the historic decrease in revenue starting in 2006 which was a bellwether to the market correction caused by bank failures in 2008.

These tables show that if fund balances were set at the recommended 25% of annual operating expenses and facility replacement value they would be inadequate to meet the benchmark in the third year of a market downturn and capital funds would be far below benchmark immediately. This demonstrates the importance of maintaining adequate reserves to weather major market downturns and the need to rebuild those balances now.

**Table 4
Historic Market Correction Applied to Reserved Operations Fund Projections**

Year	Revenue Increase/Decrease (%)	2023 End of Year Fund Balance	Expenditures	15% Reserve	Over/Under Benchmark	25% Reserve	Over/Under Benchmark
2006		\$ 1,398,348	\$ 4,217,993	\$ 632,699	\$ 765,649	\$ 1,054,498	\$ 343,850
2007	-4%	\$ 1,342,414	\$ 4,323,443	\$ 648,516	\$ 693,898	\$ 1,080,861	\$ 261,553
2008	-1%	\$ 1,328,990	\$ 4,431,529	\$ 664,729	\$ 664,261	\$ 1,107,882	\$ 221,108
2009	-9%	\$ 1,209,381	\$ 4,542,317	\$ 681,348	\$ 528,033	\$ 1,135,579	\$ (73,802)
2010	1%	\$ 1,330,319	\$ 4,655,875	\$ 698,381	\$ 631,938	\$ 1,163,969	\$ (166,350)
2011	-6%	\$ 1,250,500	\$ 4,772,272	\$ 715,841	\$ 534,659	\$ 1,193,068	\$ (57,432)
2012	0%	\$ 1,250,500	\$ 4,891,579	\$ 733,737	\$ 516,763	\$ 1,222,895	\$ (27,605)
2013	2%	\$ 1,275,510	\$ 5,013,868	\$ 752,080	\$ 523,430	\$ 1,253,467	\$ (22,043)
2014	0%	\$ 1,275,510	\$ 5,139,215	\$ 770,882	\$ 504,628	\$ 1,284,804	\$ 9,294
2015	6%	\$ 1,198,979	\$ 5,267,695	\$ 790,154	\$ 408,825	\$ 1,316,924	\$ 117,945
2016	8%	\$ 1,294,898	\$ 5,399,388	\$ 809,908	\$ 484,989	\$ 1,349,847	\$ 54,949

**Solid Waste Fee Schedule
Issue Paper
April, 2023**

**Table 5
Historic Market Correction Applied to Capital Fund**

Year	% Revenue Increase/Decrease	2023 End of Year Fund Balance	2023 Replacement Cost	12% Reserve	Over/Under Benchmark	25% Reserve	Over/Under Benchmark
2006		\$ 915,839	\$ 8,167,485	\$ 980,098	\$ 64,259	\$ 2,041,871	\$ (1,126,032)
2007	-4%	\$ 859,905	\$ 8,371,672	\$ 1,004,601	\$ (144,696)	\$ 2,092,918	\$ (1,233,013)
2008	-1%	\$ 846,481	\$ 8,580,964	\$ 1,029,716	\$ (183,235)	\$ 2,145,241	\$ (1,298,760)
2009	-9%	\$ 726,872	\$ 8,795,488	\$ 1,055,459	\$ (328,587)	\$ 2,198,872	\$ (1,472,000)
2010	1%	\$ 738,966	\$ 9,015,375	\$ 1,081,845	\$ (342,879)	\$ 2,253,844	\$ (1,514,878)
2011	-6%	\$ 659,147	\$ 9,240,760	\$ 1,108,891	\$ (449,745)	\$ 2,310,190	\$ (1,651,043)
2012	0%	\$ 657,204	\$ 9,471,779	\$ 1,136,613	\$ (479,409)	\$ 2,367,945	\$ (1,710,740)
2013	2%	\$ 682,214	\$ 9,708,573	\$ 1,165,029	\$ (482,815)	\$ 2,427,143	\$ (1,744,929)
2014	0%	\$ 683,009	\$ 9,951,287	\$ 1,194,154	\$ (511,146)	\$ 2,487,822	\$ (1,804,813)
2015	6%	\$ 759,539	\$ 10,200,070	\$ 1,224,008	\$ (464,469)	\$ 2,550,017	\$ (1,790,478)
2016	8%	\$ 855,458	\$ 10,455,071	\$ 1,254,609	\$ (399,151)	\$ 2,613,768	\$ (1,758,310)

Minimum Fee

The minimum transaction fee of \$10 was set in 2014 and is no longer effective at incentivizing less frequent and heavier loads or curbside service for self-haul customers.

Table 6 compares the 2017- 2021 number of self-haul customers and total tonnages above and below the minimum fee with 45% of the customer mix bringing only 13% of tonnages (revenue). This large imbalance strains the transfer station operation by increasing customer wait times while providing less program revenue.

By comparison, Kitsap County staff have shared that minimum fee customers at the Olympic View transfer station make up less than 10% of the customer mix and that they hope to further reduce the number of minimum charge customers with an increase of the fee to \$41.00 that became effective January 1, 2023. We have observed an increase in Kitsap County customers using the Jefferson County transfer station since the minimum fee increase in January at Kitsap County facilities.

Table 6

	5 Yr Totals	
	Trans	Tons
Minimum Fee Customers	145,655	5,671.75
Above Minimum Fee Customers	179,446	39,234.95
Totals	325,101	44,907
Percentage of Minimum Fee customers	45%	13%
Percentage of Cash Self Haul Above Minimum Fee	55%	87%

Solid Waste Fee Schedule

Issue Paper

April, 2023

Table 7 shows the fees charged at regional facilities for comparison with Jefferson County's fees. These Counties have historically been used to compare Jefferson County's level of service. King County and Seattle facilities have been used for level of service comparison to show that Jefferson County's solid waste program performs as well as urban area programs.

Table 7

Transfer Station	Municipal Solid Waste		
	Minumum/Trip Fee	Min. Fee Weight	Per Ton Fee
Seattle	\$ 33.00	420	\$ 180.80
King County (effective 1/1/23)	\$ 30.25	320	\$ 165.61
Kitsap County (effective 1/1/23)	\$ 41.00	660	\$ 118.00
Mason County	\$ 17.89	340	\$ 110.27
Snohomish County	\$ 20.00	360	\$ 105.00
Clallam County (Port Angeles)	\$ 10.00	100	\$ 193.98
Jefferson County	\$ 10.00	120	\$ 162.93
Average including Jefferson	\$ 23.16	331.43	\$ 148.08
Average w/out Jefferson	\$ 25.36	366.67	\$ 145.61

Refrigerators

Jefferson County charges an additional "environmental fee" to cover the additional disposal costs for refrigerated appliances. The additional fee has not covered disposal costs and the program loss in 2021 was estimated at \$21,017. Staff was recently successful in encouraging a local vendor to service these units which avoids shipping costs to Seattle. A more efficient material handling strategy will reduce labor costs which is expected to make this program element cost-neutral.

Nondisposal Weight Charges

The transfer station charges \$5.66 for nondisposal weight measurements and has done so for so long that no record can found of when the fee was implemented. Two private sector scales in Jefferson County charge \$10.00 and \$15.00 per weight receipt. The more competitive fee at the transfer station conflicts with the goal of the Jefferson County Solid Waste Management Plan (SWMP) to encourage private sector services and customer demand for this service increases wait times for municipal solid waste customers.

Yard Debris

Yard debris is used as feedstock for the City of Port Townsend (City) Biosolid Composting Facility which is co-located at the transfer station through an Interlocal Agreement. County staff processes yard debris transactions at the transfer station scale house and a portion of the fee is used to cover County administrative functions. The current fee for yard debris was set in 2014 with a \$5.00 minimum for up to 200 lbs. and a per ton rate of \$48 above 200 lbs.

**Solid Waste Fee Schedule
Issue Paper
April, 2023**

In 2022, yard debris customers made up 18% of total transactions. On the largest customer count day ever on November 15, 2022, yard debris customers made up 44% of the total transactions with some yard debris customers delivering three or more minimum weight loads that day.

The fees for yard debris disposal were first set in 2014 by ordinance as part of Jefferson County Code. City staff have recommended that it would be more appropriate for this fee to be adopted as part of City code.

Quilcene Rural Drop Box

The last large revision to the fee schedule for disposal at the Quilcene Rural Drop Box was in 2014 with annual increases of 2.5% until 2019 with the goal of making the operation cost-neutral. **Table 8** shows deficit spending from the operating reserves fund over the past three years.

Table 8

Quilcene Drop Box 3 Year P&L				
Year	2020	2021	2022	
Operational Costs	\$ 79,004	\$ 80,281	\$ 87,705	
Revenue less 3.6% Tax	\$ 66,850	\$ 74,677	\$ 72,600	
Profit/Loss	\$ (12,154)	\$ (5,604)	\$ (15,105)	

Limited capital improvements to the facility planned for in 2023 will create more efficient material handling but will not offset losses completely. 96% of all transactions in 2022 were for the 32-gallon can charge of \$6.79. As shown in **Table 9**, if the minimum fee was set at \$15.00 for up to two 32-gallon cans, revenues would nearly keep pace with 2022 operational costs.

Table 9

2022 Quilcene Charges			
Type	Count	Fee	Revenue
32 Gallon	5,964	\$ 6.79	\$ 69,967.00

2023 Quilcene Modified Fees			
Type	Count*	Fee	Revenue
32 Gallon	5,368	\$ 15.00	\$ 80,514.00

* Assumes 10% decrease in customer count

Like many drop box sites in rural Washington, the Quilcene facility does not have scales and charges for loose garbage by the cubic yard. The attached visual estimator is used by facility attendants to calculate the charge for loose garbage. The operation would benefit from fewer variations of truck bed loads and clearer fee calculations to make charges consistent. Several modifications to material handling equipment are being considered presently which would improve consistency and ease of volume estimating.

Solid Waste Fee Schedule

Issue Paper

April, 2023

Moderate Risk Waste Small Quantity Generator Fee

By agreement between the County and Port of Port Townsend (Port), the Moderate Risk Waste Facility has been returned to Port ownership and Public Works has substituted fixed facility operations with remote collection events for both Small Quantity Generator (business) and residential moderate risk waste collection. Under this new service delivery model, Small Quantity Generator customers pay the vendor directly and, as such, the current fee schedule for these customers is no longer applicable.

Recommendations

Several revisions to solid waste handling strategies have been made in 2022 with more planned in 2023 in order to gain efficiencies and reduce operating costs. These cost-savings alone will not meet anticipated increases to operating costs. Additionally, the current fund balance benchmarks are seen as inadequate to moderate fee increases in the event of a protracted period of high inflation or a large economic downturn.

Public Works makes the following recommendations to fee schedule revisions to be implemented following pending updates to scale software and no less than 45 days after widely distributed public notice:

Transfer Station Fee Schedule

- Adjust fund balance benchmarks to 25% of current capital replacement value and projected annual expenditures
- Adjust per ton fee for municipal solid waste by 2.5% annually until fund balances meet benchmarks
- Adjust minimum fee for municipal solid waste from \$10.00 to \$20.00 and the minimum fee weight from 120 lbs. to 240 lbs.
- Adjust nondisposal fee from \$5.66 to \$20.00
- Upon adoption by the City, begin charging a yard debris minimal fee of \$20.00 for up to 800 lbs. and retain the \$48.00 per ton fee for loads above 800 lbs. It should be noted that there is a slight imprecision of less than one cent within the recommended yard debris fee revision between minimum fee and per ton rates owing to the transfer station scales measuring weight in 10 lb. increments. Rounding to the whole penny would provide simple communication to the public and ease of transactions.

Quilcene Rural Drop Box Fee Schedule

- Establish a minimum fee of \$15.00 for up to two 32-gallon cans
- Replace loose garbage visual estimator with the below table:

Load Description	Full Size Truck	Compact Truck
Up to Rail Height	\$ 63.35	\$ 54.30
Above Rail Height	\$ 90.50	\$ 63.35
Above Cab	\$ 126.70	\$ 90.50

III. Public Works Department – Solid Waste Division

III-010 Purpose – Scope.

The purpose of this section is to establish a fee schedule for the solid waste division of the Jefferson County department of public works. This schedule shall apply to all fees required by the solid waste division. [Ord. 6-13 § 1 (Exh. A)]

III-011 Effective date.

The fees listed in Sections III-020 through III-050 shall go into effect on the first business day in January 2014 (or 60 days after the enacting ordinance is adopted and published, if later). Fees will be adjusted annually through 2019 as provided for in Section III-012 of this schedule. [Ord. 6-13 § 1 (Exh. A)]

III-012 Fee indexing.

The base (pre-tax) solid waste disposal fees established by this Appendix Part III for Public Works Solid Waste Division with the exception of the minimum charge (Section III-020(4)), environmental fee (Section III-020(3)) and yard debris fee (Section III-020(6)) shall be adjusted on the first business day of 2015 and annually thereafter for a period of five years, by a percentage increase of two and one-half percent. The Washington State solid waste collection tax of 3.6 percent shall be added to the adjusted base fees where applicable.

The percentage increase of two and one-half percent is calculated to maintain minimum specified reserved balances in the solid waste funds, measured by the following benchmarks:

- (1) A reserved capital fund balance at year end, projected in September of that year, of 12 percent of then current capital replacement value in equipment and buildings, excluding any GO bond funds, and
- (2) A reserved operations fund balance at year end, projected in September of that year, of 15 percent of the annual total solid waste expenditures, and
- (3) An increase in the annual waste tons received of no less than one percent per year with 2013 as a base year.

An increase over the annual percentage rate fee increase of two and one-half percent that is necessary for the fund reserved balances to meet the stated benchmarks shall be subject to review, approval and adoption by resolution of the board of county commissioners.

Copies of the fee schedule shall be available to the public at the public works office and will be mailed to any customer upon request.

The adjusted fee schedule will show the prior year fees, the annual percentage increase, and the new fees. [Ord. 6-13 § 1 (Exh. A)]

III-020 Solid waste disposal – Transfer station commercial and noncommercial rates.

The solid waste collection tax, where applicable, will be added to the base fees as shown below:

	2014 Base (pre-tax) fee	2014 Fee with tax
(1) Solid waste disposal rate	\$139.00/ton	\$144.00/ton
(2) Asbestos disposal rate	Not accepted	Not accepted
(3) Refrigerators	\$139.00/ton + \$20.00 environmental fee	\$144.00/ton + \$20.00 environmental fee
(4) Minimum charge (flat fee)	\$9.65	\$10.00
(5) Nondisposal weight charge	\$5.00	Not taxed
(6) Yard debris		
Loads 200 pounds or less	\$5.00	Not taxed
Loads more than 200 pounds	\$48.00/ton	Not taxed

Yard debris shall only include grass clippings, leaves, tree branches not over eight to 10 inches in diameter and less than eight feet long, and other plant material, but excluding stumps, kitchen scraps, food waste, dimensional lumber, rocks, gravel, dirt, lawn furniture, tools, or other non-vegetative material. Acceptable yard debris shall be dropped off at a point designated by the city of Port Townsend staff.

In the event the weight scales are inoperative, the rates for the solid waste disposal drop box site listed in Section III-030 shall apply to loose waste and other items; commercial compacted waste shall be charged based on average load weights for each route, determined for the immediately preceding calendar month, and by mutual agreement with the commercial haulers. [Ord. 6-13 § 1 (Exh. A)]

III-030 Solid waste disposal drop box site (Quilcene).

The solid waste collection tax, where applicable, will be added to the base fees shown below:

	2014 Base (pre-tax) fee	2014 Fee with tax
(1) One 32-gallon container	\$5.79	\$6.00
(2) Loose garbage:		
(a) Load up to one cubic yard	\$30.89	\$32.00
(b) Each additional 1/2 cubic yard	\$15.44	\$16.00
(3) One 55-gallon container	\$10.62	\$11.00
(4) Automobile tires	\$5.79	\$6.00
(5) Truck tires	\$6.75	\$7.00
(6) Off-road tires (loaders, skidders)	\$15.44	\$16.00
(7) Large items (do not fit in compactor)	\$15.44	\$16.00
(8) White goods	\$15.44	\$16.00
(9) Refrigerators	\$28.96	\$30.00

[Ord. 6-13 § 1 (Exh. A)]

III-040 Hours of operation.

The solid waste disposal transfer station, drop box site, moderate risk waste facility and recycle center hours of operation shall be set by the director of public works with approval by the board of county commissioners. [Ord. 6-13 § 1 (Exh. A)]

III-050 Moderate risk waste disposal facility.

Tax, where applicable, will be added to the base fees shown below:

(1) This base fee schedule shall apply to the processing and disposal of moderate risk waste materials brought to the facility by businesses classified as conditionally exempt small quantity generators (CESQGs) in 40 CFR 261.5.

(2) The base fees include all labor and materials, facility overhead, and shipping and final disposal costs.

(3) A minimum charge, at the rate shown, will be made when the calculated total fee per customer visit is less than that minimum amount.

(4) Charges for CESQG waste material types not listed will be charged at a rate determined from the sum of the waste disposal fee (shipping and disposal charge) obtained from the county's disposal contractor plus a processing charge at the hourly rate shown in the table below.

(5) No fee shall be charged for household hazardous waste obtained from the general public.

Base Fees for Conditionally Exempt Small Quantity Generators		
Waste Type and Packing	Cost per unit	Unit
Bulked Waste		
Solvents	\$1.37	lb
Oil base paint and paint-related	\$1.41	lb
Flammable liquids – Other	\$1.41	lb
Flammable liquids – Aerosol paint cans	\$0.76	each
Contaminated oil (halogens, solvents)	\$1.83	lb
Contaminated bilge water and nonregulated water	\$1.47	lb
Fuels – Gas	\$1.38	lb
Fuels – Diesel	\$1.31	lb
Antifreeze	\$1.27	lb
Loosepacked Waste		
Oil base paint and paint related	\$1.93	lb
Flammable liquids – Other	\$1.93	lb
Adhesives, resins, tars	\$1.93	lb
Flammable solid (emergency services)	\$3.36	lb

Base Fees for Conditionally Exempt Small Quantity Generators		
Waste Type and Packing	Cost per unit	Unit
Oil/gas/diesel soaked rags	\$3.36	lb
Other flammable solid	\$8.14	lb
Non-regulated liquid/solid	\$1.73	lb
Aerosol poisons, corrosives, cleaners	\$1.90	each
Aerosol paints (over/under size cans)	\$1.90	each
Nonflammable gas	\$8.45	lb
PCB ballast < 9 lb	\$1.62	lb
PCB ballast > 9 lb	\$2.86	lb
Batteries – Drycell (Ni-MH, Ni-cad rechargeable)	\$1.75	lb
Batteries – Wet lead/acid	\$0.91	lb
Fluorescent light – Tubes (2 to 8 feet)	\$0.26	foot
Fluorescent light – Compacts and small tubes	\$0.93	each
Cellular phones/chargers	\$1.75	lb
Labpacked Waste		
Corrosive acid	\$2.25	lb
Corrosive alkaline	\$2.25	lb
Organic peroxide	\$15.39	lb
Oxidizing liquid/solid	\$2.56	lb
Flammable toxics	\$2.64	lb
Toxic liquid/solid (pesticide, herbicide, poison)	\$2.64	lb
Spontaneous combustible	\$14.59	lb
Dangerous when wet	\$14.97	lb
Mercury and mercury containing devices	\$9.02	lb

Base Fees for Conditionally Exempt Small Quantity Generators			
Waste Type and Packing	Cost per unit	Unit	
Minimum charge per transaction	\$22.00	each	
All nonlisted waste – Processing fee – Plus contractor's shipping and disposal cost	\$44.00	hour	
	+Quoted unit price		

[Ord. 6-13 § 1 (Exh. A)]

The Jefferson County Code is current through Ordinance 9-22, passed October 3, 2022.

Disclaimer: The clerk of the board's office has the official version of the Jefferson County Code. Users should contact the clerk of the board's office for ordinances passed subsequent to the ordinance cited above.

County Website: <https://www.co.jefferson.wa.us/>

County Telephone: (360) 385-9100

[Code Publishing Company](#).



Contract No. JC0726-2022-069

Task 9

Solid Waste Facility Replacement Planning Project

FINAL TECHNICAL MEMORANDUM SOLID WASTE FACILITY REPLACEMENT COST

November 23, 2022

Prepared By



23309 100th Avenue West
Edmonds, Washington 98020-5075
(206) 629 - 5935



Contents

1. EXECUTIVE SUMMARY	1
ES 1.0 PURPOSE AND SCOPE	1
ES 2.0 METHODOLOGY	1
ES 3.0 RESULTS	1
2. INTRODUCTION	3
2.1 Purpose and Scope	3
2.2 Facility Locations and Background	3
2.2.1 - Locations	3
2.2.2 Background	5
2.3 Cost Estimating Limitations	5
2.4 Existing Information Summary and Sources	5
3. METHODOLOGY	5
3.1 Site and Facility Reviews	6
3.2 Basis of Replacement Cost Estimates - Overview	6
3.2.1 Inflation and Escalation	6
3.2.2 Cost Estimation Method	6
3.2.3 Contingency Allowance	6
3.2.4 Soft Costs	6
3.3 Solid Waste Facility Asset Categories	7
4. RESULTS	8
4.1 Building Replacement Costs	8
4.1.1 Transfer Station	8
4.1.2 The Recycling Building	8
4.1.3 The Maintenance Shed	9
4.1.4 The Moderate Risk Waste Shed	9
4.1.5 Scale House and Scales	9
4.1.6 Rest House	10
4.1.7 The Administration Building	10
4.1.8 Small Equipment Shed Next to the Transfer Building	10
4.1.9 The West Storage Building	11
4.1.10 Secondary Transfer Area Retaining Wall	11
4.1.11 The Quilcene Office Building	11
4.2 Machinery and Equipment Replacement Costs	12
5. DISCUSSION	15
6. REFERENCES	17
7. GLOSSARY	17
8. APPENDICES	18
Appendix A. Assets Not Included	18
Appendix B: Existing Information Table and Sources	18
Appendix C. Photographs of the Transfer Station and the Quilcene drop box	19
Table 1-1 Solid Waste Facility Asset Categories	2



Table 1-2 Summary of Replacement Costs Including Contingency and Uncertainty Allowances	2
Table 3-1 Solid Waste Facility Asset Categories ⁽¹⁾	7
Table 4-1 Transfer Station Building Replacement Cost	8
Table 4-2 Recycling Building Replacement Cost	8
Table 4-3 Maintenance Storage Pole Building Replacement Cost.....	9
Table 4-4 Moderate Risk Waste Shed Replacement Cost.....	9
Table 4-5 Scale House and Scales Replacement Cost	9
Table 4-6 Rest House Replacement Cost	10
Table 4-7 Administration Building Replacement Cost	10
Table 4-8 Shed next to Transfer Building Replacement Cost.....	11
Table 4-9 West Storage Building Replacement Cost.....	11
Table 4-10 Secondary Tipping Area and Wall Replacement Cost.....	11
Table 4-11 Quilcene Office Building Replacement Cost	12
Table 4-12 Quilcene Moderate Risk Waste Shed Replacement Cost	12
Table 4-13 Machinery and Equipment Replacement Cost	12
Table 5-1 Summary of Replacement Costs Including Contingency and Uncertainty Allowances	15
 Figure 1 Assessor's Tax Lot Map of the Transfer Station and Closed Landfill Area	3
Figure 2 Jefferson County Transfer and Recycling Station	4

November 23, 2022

Contract No. JC0726-2022-069**Task 9 - Solid Waste Facility Replacement Planning Project****TO: Al Cairns, Solid Waste Manager/Project Manager, Jefferson County****FROM: Tom Karston, PhD, Lead Financial Analyst****Victor O. Okereke, PhD, PE, DEE, CLSS, Principal /Project Manager****Vikek Environmental Engineers, LLC****CC: File****SUBJECT: Draft Jefferson County's Solid Waste Facility Replacement Cost****1. EXECUTIVE SUMMARY****ES 1.0 PURPOSE AND SCOPE**

This Solid Waste Facility ("Facility") Replacement Cost (SWFRC) technical memorandum was completed in accordance with the Professional Services Agreement, Task 9 – Existing Solid Waste Facility Replacement Cost, between Vikek Environmental Engineers, LLC ("Vikek") and Jefferson County ("County"). The purpose of this cost estimate is to support the County's fee schedule modifications pursuant to the requirements of County ordinances, and as input to the Solid Waste Facility Replacement Planning project and the subsequent update to the County's 2016 comprehensive Solid Waste Management plan.

This technical memorandum [TM] presents the cost of replacing the buildings and equipment at the County's solid waste recycling and transfer station (RTS) located at 325 County Landfill Road, Port Townsend, Washington and at the drop box located at 295312 Highway 101, Quilcene WA, as of November 2022.

ES 2.0 METHODOLOGY

The results summarized below are subject to assumptions and limitations which are considered reasonable in the framework of this study:

- The replacement cost estimates were generally based on the expense of replacing the buildings, major site improvements, and the machinery and equipment currently being used at both locations.
- These estimates assume that the new assets will be of the same quality, design and materials that exist now. In the case of the machinery and equipment where possible the purchase price of the same make and model has been used. If no longer available, a contemporary substitute was used instead.
- Building cost estimates are based on the present cost of materials, labor, permitting, construction management and an appropriate contingency. However, especially now that the labor and construction supply markets are in a considerable post-Covid turmoil, the resulting estimates should be considered in this context. Site Improvements other than buildings were evaluated at the cost of rebuilding them. However, as directed by the County this study excludes the cost of replacing the paving, fencing, plumbing and electrical systems at both sites.

ES 3.0 RESULTS**ES 3.1 ESTIMATED FACILITY REPLACEMENT COSTS**

Vikek developed replacement costs for the two facilities and Solid Waste Facility asset categories summarized in Table 1-1.



Table 1--1 Solid Waste Facility Asset Categories and Descriptions

Category	General Description	Facility Assets at Site
Buildings	Includes - buildings used for recycling and/or transfer operations (RTS), office space, buildings used for lighting, electric and power supply at RTS, maintenance buildings, prefabricated metal structures, and RTS scale houses.	[1] Transfer Building [2] Recycling building [3] Rest shack near the scale house [4] Large maintenance shed pole building west of the transfer building [5] Older wooden storage [6] Transfer station administration office [7] Small wooden equipment shed [8] Moderate-waste facility [9] Scale shack for taking payments At Quilcene [1] Office building [2] Moderate waste facility – converted from a 40-foot shipping container
Furniture, Machinery and Equipment	Includes – Major Operating Equipment, Trucks and Trailers, Refuse Containers, Generators, Compactors, Loaders, Backhoes, Vans, Meters, Utility Vehicles, Automobiles, Light hand Equipment, Communications Systems, Computer Equipment, Cashiering System, Telephone and telegraph lines, data cables, and radio towers.	Inbound/Outbound scales See details of operating equipment in Table 4.2 below.
Site Improvements other than Buildings	Includes – Special industry machinery, Warehouses, Chain-link fences, Roadways and Pavement, Outdoor Building Lighting, Utility systems, Solid Waste drop boxes, Building Renovations, Building Lighting Fixtures, Above ground Tanks, Fences, Vehicle scales, Environmental Monitoring Systems, Retaining Walls, Parking Structures. Structures used for maintenance and repair, Traffic Aids (other than buildings)	The secondary tipping location, including the retaining wall and the paved parking area above it
All Other:	Other Assets that cannot be readily classified under the above categories.	None.

The Solid Waste Facility Replacement Costs are summarized in Table 1-2 and indicate that the total replacement costs for the Jefferson County Solid Waste Facility Assets documented in this study range from a low of \$5,654,413 to a high of \$8,167,485, while the average is \$ 6,910,949.

Table 1--2 Summary of Replacement Costs Including Contingency and Uncertainty Allowances

Asset Category	Replacement Cost, \$
Buildings	3,511,200
Machinery and Equipment	2,482,181
Site Improvements other than Buildings	289,300
Subtotal Planning Level Solid Waste Facility Replacement Costs	6,282,681
Cost Estimating Contingency Allowance (-10%) [LOW]	(628,268)
Cost Estimating Contingency Allowance (+30%) [HIGH]	1,884,804
Grand Total Planning Level Solid Waste Facility Replacement Cost Estimate (LOW)	5,654,413
Grand Total Planning Level Solid Waste Facility Replacement Cost Estimate (HIGH)	8,167,485
Average Planning Level Facility Replacement Cost Estimate	6,910,949



2. INTRODUCTION

2.1 Purpose and Scope

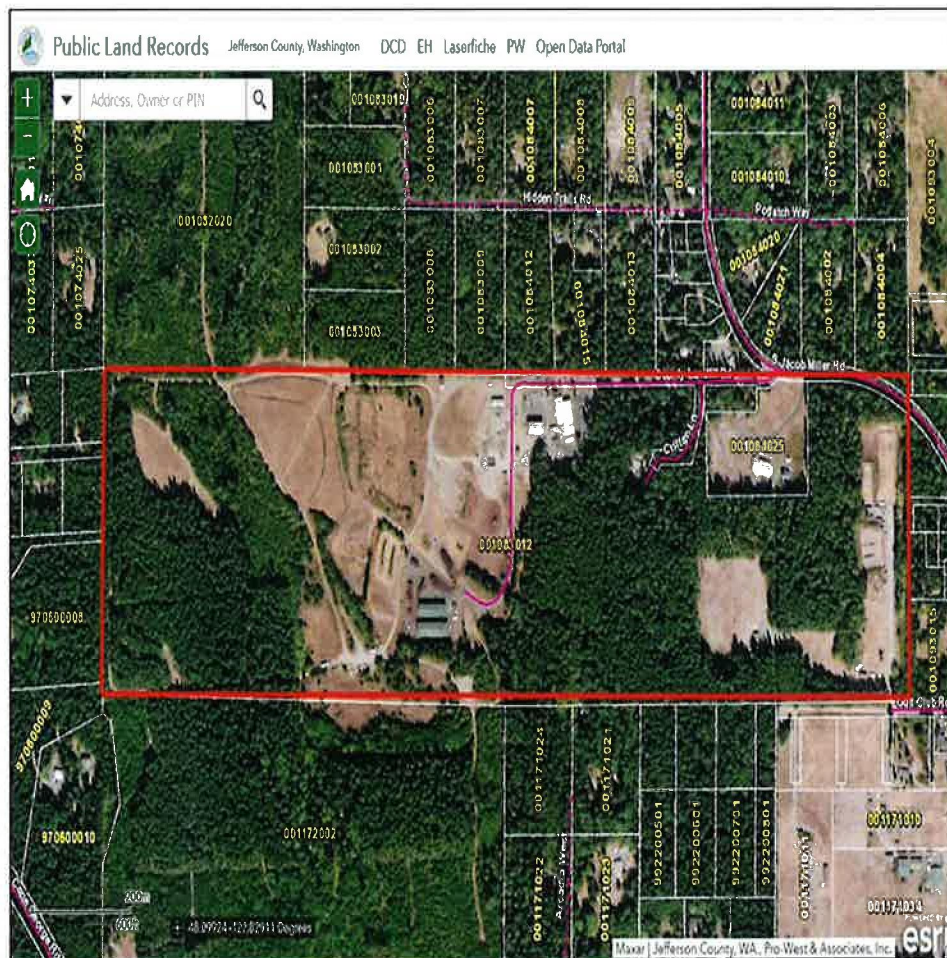
This Solid Waste Facility ("Facility") Replacement Cost (SWFRC) technical memorandum (TM) was completed in accordance with Professional Services Agreement, Task 9 – Existing Solid Waste Facility Replacement Cost, between Vitek Environmental Engineers, LLC (Vitek) and Jefferson County ("County"). The purpose of this study is to support the County's review of its fee structure to customers in 2023, in compliance with County ordinance III-O12- Fee Indexing. This Ordinance requires that the tipping fee for using County Solid Waste facilities should produce enough revenue to support a reserve fund, which is set as a percent of the replacement cost of the Division's buildings and material operating equipment.

2.2 Facility Locations and Background

2.2.1 - Locations

The recycling and transfer station is located on the site of a closed County landfill south of Port Townsend, at 325 County Landfill Road (See Figures 1 and 2). The other facilities at that site include the recycling center, which collects and prepares collected recyclables for shipment, a residential recycling drop box collection site and the City of Port Townsend's biosolids composting facility. The tax parcel on which the transfer station and the closed landfill are located is 157 acres in size.

The facilities at the Quilcene Drop Box include a small payment office, a portable toilet, two 25 cubic yard stationary waste compactors (owned by a vendor), full-service recycling containers, a collection unit for used oil and antifreeze, and roll-off containers for metals and large household items. The site is fenced to prevent use when it is closed, and during open hours it is staffed by a County employee.



[illegible]

FIGURE 2
JEFFERSON COUNTY TRANSFER AND RECYCLING STATION

CALL BEFORE YOU DIG 1-800-424-5555



VIKEK ENVIRONMENTAL ENGINEERS, LLC
2100 E. 1st Ave. #100, Anchorage, Alaska 99501
Tel: 907.562.8888 Fax: 907.562.8889 Email: info@vikek.com

Figure 2 Jefferson County Transfer and Recycling Station



2.2.2 Background

The Facility Replacement cost is defined in the study as the amount of money it would take to rebuild a similar building or purchase the same equipment using current market prices for comparable make and models as well as comparable, building materials, land, and labor for the buildings. Replacement cost is distinctly different from the property's market value, which is the amount of money an arm's length buyer would be willing to pay to acquire the asset in the open market.

2.3 Cost Estimating Limitations

- **RISK AND UNCERTAINTY** - Vikek relied upon information provided by the County, site visits, and various assumptions in completing this study. Judgments and analyses reported here are based upon this information and Vikek's extensive experience with the planning, construction management, renovation, and construction of transfer station facilities in the Pacific Northwest.
- **EXCLUSIONS AND EXCEPTIONS** - The cost estimates were limited to assets the County owns at the transfer station site and at the drop box at Quilcene. It does not include the value of the land involved, the cost of replacing the paved surfaces, or the plumbing, electrical, septic and other underground infrastructure systems at both sites. As directed by Jefferson County, this study does not include the household hazardous waste facility previously located at the harbor in Port Townsend which has recently been closed, to be replaced by a mobile service, which will not be operated by the County.
- **USE** - This study has been conducted exclusively for the use of Jefferson County to support its future rate studies, and the forthcoming revision of the comprehensive plan. No other party, known or unknown is intended as a beneficiary. Third parties use this TM at their own risk. Vikek assumes no responsibility for the accuracy of information obtained from or provided by third-party sources.

2.4 Existing Information Summary and Sources

The available information used includes site maps, visual observation, field measurements, and asset information provided by the County. These are presented in **Appendices A and B**.

3. METHODOLOGY

This section summarizes the information, assumptions, and approach used to develop a solid waste facility replacement cost estimate to be used by the County for future rate setting purposes, and to inform the forthcoming updating of the existing Solid Waste Comprehensive Plan.

Since solid waste facilities are diverse, there is not yet a complete standardization regarding the methodology for estimating their replacement costs. Vikek has completed this study based on site and facility reviews, experience with both building new transfer stations and renovating old ones, a detailed review of asset information provided by the County, and state-of-practice techniques described by the American Association of Cost Engineers (AACE) and by the manual: *Full Cost Accounting for Municipal Solid Waste Management* (USEPA). According to the AACE's, *Cost Estimates' Classifications (2020) for Engineering, Procurement and Construction for Building and General Construction Industries*, budget level cost estimates are typically used to support full project funding requests. Details of the estimating methods are further described in the subsequent subsections.



3.1 Site and Facility Reviews

The County and representatives from Vikek met on August 15 and September 30 of 2022 to discuss the County's assets at the Transfer and Recycling Station, the purpose of the replacement cost estimates, and then visually reviewed the site and took photographs. A photographic log of the facilities is presented in Appendix A.

3.2 Basis of Replacement Cost Estimates - Overview

3.2.1 Inflation and Escalation

The estimation of facility replacement costs today presents a unique challenge in the current economic climate, due to the earlier COVID situation, supply chain difficulties, labor shortages, rising interest rates and rapidly changing conditions specifically in the construction industry. Especially if the values in this report might be used over the next few years, it will be important to adjust them for subsequent inflation, preferably using a standard in the construction industry: the Engineering News Record (ENR) for the Seattle area or using the Producer Price Index for New Industrial Building Construction (PCU236211236211) curated on a monthly basis by the Federal Reserve Board. As a cautionary example of the recent price changes in this sector, the ENR's index of industrial construction costs for the Seattle area rose by 12% between October 2021 to October 2022.

(https://www.enr.com/economics/historical_indices/construction_cost_index_history). Note that ENR is subscription, and the above link is for reference only.

In estimating replacement costs for the County's buildings we have employed information from the RS Means industrial construction database for the relevant materials (steel, concrete etc.), for 2023. In the more straightforward case of replacing operating equipment, we have used the cost of buying the same make and model of, for example, a front-end loader, from a reasonably nearby distributor. But in quite a few cases the County has substantially modified items it is using, and a direct purchase would not be possible, so we have taken the Division's historical cost and updated it for inflation in those cases where such equipment has been put into service in somewhat recent past.

3.2.2 Cost Estimation Method

For the assessment of building and other site improvement costs, Vikek used the Building Construction Costs Estimation manual (Means 2023), which have been produced for about 70 years and are widely employed in the industry. For each facility, the required construction materials were determined and their cost estimated based on material costs derived from the Means Manual.

3.2.3 Contingency Allowance

Most of the County's solid waste facility assets are over 20 years old and for many of them construction information or equipment specification data were either not available or incomplete. The contingency allowance is intended to reflect possible inaccuracies in the raw replacement cost estimates considering sometimes less than complete engineering information regarding the original assets. In consideration of the potential estimating inaccuracies, a planning level contingency allowances of -10% to +30% were applied in this study in accordance with AACE (2020) guidelines.

3.2.4 Soft Costs

An allowance was also added to the estimates to provide for the County's cost for engineering, project management, permitting, bidding and construction management. From Vikek's experience the percentage adjustments for these items are management, 2%; permitting, 2%; engineering 5%; bidding, 1%; and construction management 5% for a total of 15%.



3.3 Solid Waste Facility Asset Categories

Vikek developed replacement costs for the three categories of assets at both County's locations: buildings, equipment, and site improvements, as itemized in Table 3-1.

Table 3--1 Solid Waste Facility Asset Categories

Category	General Description	Included Facility Assets at Site
Buildings	Includes - buildings used for recycling and/or transfer operations (RTS), office space, buildings used for lighting, electric and power supply at RTS, maintenance buildings, prefab metal structures, and RTS scale houses.	[1] Transfer Building
		[2] Recycling building
		[3] Rest shack near the scale house
		[4] Large maintenance shed pole building west of the transfer building
		[5] Older wooden storage building west of pole building
		[6] Transfer station administration office
		[7] Small wooden equipment shed just southeast of the transfer building
		[8] Moderate-waste facility – converted from a 40-foot shipping container
		[9] Scale shack for taking payments
		At Quilcene
Furniture, Machinery and Equipment	Includes – Major Operating Equipment, Trucks and Trailers, Refuse Containers, Electric Control Generators, Compactors, Loaders, Backhoes, Vans, Meters, Sewer Cleaning Equipment, Utility Vehicles, Automobiles, Light hand Equipment, Communications Systems, Computer Equipment, Cashiering Micro- Computer System; Telephone and telegraph lines, data cables, and radio towers.	[1] Office building
		[2] Moderate waste facility – converted from a 40-foot shipping container
Site Improvements other than Buildings	Includes – Special industry machinery, Warehouses, Chain- link fences, Advertising Displays, Roadways and Pavement, Outdoor Building Lighting, Utility systems, Solid Waste drop boxes, Building Renovations, Building Lighting Fixtures, Above ground Tanks, Fences, Vehicle scales, Environmental Monitoring Systems, Retaining Walls, Parking Structures. Structures used for maintenance and repair, Traffic Aids (other than buildings)	Inbound/Outbound scales
		See Table 4.2 for the list of machinery and equipment replacement costs itemized for this TM
		The retaining wall and the paved parking area above it.
All Other:	Other Assets that cannot be readily classified under the above categories.	None.



4. RESULTS

The building and operating equipment replacement cost estimates developed in this TM are described in subsections 4-1 to 4-12 and summarized in Table 5-1.

4.1 Building Replacement Costs

4.1.1 Transfer Station

The Transfer Station building is a pre-engineered rectangular structure, re-built in 1994, with walls on only two sides and the other two sides open. It is approximately 100 feet long by 60 feet wide, utilizes 20-foot-tall support columns, and has a metal roof. There are four entry bays, with the support columns being approximately 20 feet apart. The replacement cost estimate for the transfer station building is presented in Table 4-1.

Table 4--1 Transfer Station Building Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	7,500 sf	\$5.00	\$37,500
Building	7,500 sf	\$42.50/sf	\$318,750
Repair Retaining Wall	160 lf	\$1,675/lf	\$268,000
Scale	1	\$95,000	\$95,000
Floor	300 cy	\$240.00/ sf	\$72,000
Mechanical and Electrical	1	\$20,000	\$20,000
Administration, Permitting, Design, Construction Management	%	15%	\$121,500
Total			\$932,750

4.1.2 The Recycling Building

The Recycling Building is a pre-engineered metal structure, which was built in 1983. There are two buildings with an awning or breezeway connecting them. Each one has metal siding, and the northern building, used for storing baled paper items, includes a two-story office inside. The recycling building has approximately 12,200 square feet in total floor space, with the internal office having approximately 1,800 square feet. The walls are

The replacement cost estimate for the transfer station is presented in Table 4-2.

Table 4--2 Recycling Building Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	12,200 sf	\$5.00	\$61,000
Building	12,200 sf	\$42.50/sf	\$518,500
Footing and Floor	12,200 sf	\$10.50/sf	\$128,100
Office	1,800 sf	\$120.00/sf	\$216,000
Mechanical and Electrical	1	\$60,000	\$60,000
Administration, Permitting, Design, Construction Management	%	15%	\$147,500
Total			\$1,131,100



4.1.3 The Maintenance Shed

The Maintenance Shed is a pole building, approximately 60 by 20 feet in size, that is enclosed on three sides with the north side open. Its floor was recently upgraded to concrete. The columns are set on drilled shafts. The replacement cost estimate is presented in Table 4-3.

Table 4--3 Maintenance Storage Pole Building Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	4,000 sf	\$5.00	\$10,000
Building	4,000 sf	\$35/sf	\$140,000
Repair Footing and Floor	4,000 sf	\$10.5/sf	\$42,000
Mechanical and Electrical	1	\$5,000	\$5,000
Administration, Permitting, Design, Construction Management	%	15%	\$30,000
Total			\$222,000

4.1.4 The Moderate Risk Waste Shed

The Moderate Risk Waste Shed is made from a 40-foot shipping container with a canopy roof and a front wall into which 4 rollup doors were built. The front of the building and floors are concrete, and there is a drainage system to keep any water from running into it. The cost estimate is presented in Table 4-4.

Table 4-4- Moderate Risk Waste Shed Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1,200 sf	\$5.00	\$6,000
Building	1,200 sf	\$25/sf	\$30,000
Repair Footing and Floor	1,200 sf	\$10/sf	\$12,000
Mechanical and Electrical	1	\$5,000	\$5,000
Administration, Permitting, Design, Construction Management	%	15%	\$7,950
Total			\$60,950

4.1.5 Scale House and Scales

The scale house is a wood frame building that is approximately 6 feet by 10 feet. Heating and cooling are provided by a spilt unit heat pump, and inside there is a safe and vital point of sale equipment. On either side of it are inbound and outbound scales, which are 25 feet long. The replacement cost estimate is presented in Table 4-5.

Table 4--5 Scale House and Scales Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1	\$10,000	\$10,000
Building	150 sf	\$150/sf	\$22,500
Repair Footing and Floor	150 sf	\$100/sf	\$15,000
Point of Sales Equipment	1	\$10,000	\$10,000
Scales, 2	2	\$95,000	\$190,000



Description	Unit	Unit Cost	Cost
Mechanical and Electrical	1	\$10,000	\$10,000
Administration, Permitting, Design, Construction Management	%	15%	\$38,600
Total			\$296,100

4.1.6 Rest House

The rest house is a wood frame building that is approximately 10 feet by 10 feet. The replacement cost estimate is presented in Table 4-6.

Table 4--6 Rest House Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1	\$2,000	\$2,000
Building	100 sf	\$100/sf	\$10,000
Repair Footing and Floor	100 sf	\$10/sf	\$1,000
Mechanical and Electrical	1	\$10,000	\$10,000
Administration, Permitting, Design, Construction Management	%	15%	\$3,450
Total			\$26,450

4.1.7 The Administration Building

The Administration Building is a pre-manufactured structure, approximately 40 feet by 15 feet. It replaced a much inferior facility in 2019 and was further improved in 2020. The total cost for the design, construction and finishing for this facility was about \$700,000, which was greater than expected, due to complications with numerous aspects of the project, including the utility hookups.

The replacement cost estimate is presented in Table 4-7.

Table 4--7 Administration Building Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1	\$10,000	\$10,000
Building	1	\$500,000	\$500,000
Office Furniture and Equipment	1	\$20,000	\$20,000
Mechanical and Electrical	1	\$50,000	\$50,000
Administration, Permitting, Design, Construction Management	%	15%	\$87,000
Total			\$667,000

4.1.8 Small Equipment Shed Next to the Transfer Building

This is a simple storage building that can be purchased at a lumber store. It has a wood frame and floor structure, and its purpose is to store supplies and smaller power tool items, such as portable generators. There is no power or plumbing provided to this structure. The replacement cost estimate is provided in Table 4-8.



Table 4--8 Shed next to Transfer Building Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1	\$1,000	\$1,000
Building	1	\$5,000	\$5,000
Administration, Permitting, Design, Construction Management @15%	%	15%	900
Total			6,900

4.1.9 The West Storage Building

The West Storage building is an older wood frame structure, with a concrete floor. It has no power or plumbing. Its replacement cost estimate is provided in Table 4-9.

Table 4--9 West Storage Building Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1	\$5,000	\$5,000
Building	1	\$30,000	\$30,000
Administration, Permitting, Design, Construction Management	%	15%	\$5,250
Total			\$40,250

4.1.10 Secondary Transfer Area Retaining Wall

This structure is made from concrete blocks. The wall is six (6) blocks high and reinforced with a geogrid to create a stable vertical wall. At the top is a cantilevered slab that is wrapped in steel. The wall has the capacity to have two open top transfer trailers placed alongside it, below and is approximately 100 feet long by 18 feet tall (1,800 square feet). The excavation to remove the wall would be 20 foot deep, which is approximately 1,500 cubic yards. Replacing the top surface would require 100 feet by 50 feet of concrete paving. The replacement cost estimate is provided in Table 4-10.

Table 4--10 Secondary Tipping Area and Wall Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1	\$15,000	\$15,000
Excavation and Backfill	4,000 cy	\$10.5/cy	\$42,000
Concrete Top Surface	5,000 sf	\$10.5/sf	\$52,500
Retaining Wall Concrete Block	1,200 sf	\$28/sf	\$33,600
Retaining Wall Geogrid	20,000 sf	\$0.75/sf	\$58,500
Surface Features	2	\$50,000	\$50,000
Administration, Permitting, Design, Construction Management	%	15%	\$37,700
Total			\$289,300

4.1.11 The Quilcene Office Building

There is a small wood frame office structure at this site that is like the scale house at the Transfer and Recycling Center. Its replacement cost is shown in Table 4-11.



Table 4--11 Quilcene Office Building Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	1	\$10,000	\$10,000
Building	150 sf	\$150/sf	\$22,500
Repair Footing and Floor	150 sf	\$100/sf	\$15,000
Point of Sales Equipment	1	\$10,00	\$10,000
Administration, Permitting, Design, Construction Management	%	15%	\$8,600
Total			\$66,100

The other asset at the Quilcene Drop Box location owned by the County is the Moderate Waste collection shed. This is virtually a twin of the one at the transfer station and is likewise made from a 40-foot shipping container, by adding the four doors, roof assembly and concrete pad in front. Its replacement cost is shown in Table 4-12.

Table 4--12 Quilcene Moderate Risk Waste Shed Replacement Cost

Description	Unit	Unit Cost	Cost
Demolition	sf	\$5.00	\$6,000
Building	1,200 sf	\$25/sf	\$30,000
Repair Footing and Floor	1,200 sf	\$10.5/sf	\$12,600
Mechanical and Electrical	1	\$5,000	\$5,000
Administration, Permitting, Design, Construction Management	%	15%	\$8,000
Total			\$61,600

4.2 Machinery and Equipment Replacement Costs

A wide variety of equipment is employed at the transfer station and the Quilcene drop box. These items include a large front-end loader, bailing machine, and two trash compactors (owned by a vendor at Quilcene), but also generators, gas monitoring equipment, several trucks, a forklift, as well as software and ancillary support systems. The replacement cost for these items are shown in Table 4-13.

Table 4--13 Machinery and Equipment Replacement Cost

Asset ID	Description	Acquisition Date	Estimated Life	Replacement Cost	Notes
CAPITAL AL	PIT SCALE	09-Jan-22	10	514,892	1 inf
LF0216	TARP RACK	30-Nov-21	30	37,483	inf
LF0082	UTILITY SHED 12X20	31-Dec-20	10	11,574	inf
RC0016	RECYCLE TAP BIN COVER	31-Dec-20	5	58,781	inf
	JD BACKHOE 310E	31-Dec-20		250,000	7



Asset ID	Description	Acquisition Date	Estimated Life	Replacement Cost	Notes
LF0081	2020 JOHN DEERE GATOR W/CANOPY	30-Nov-20	7	23,649	4
LF0080	2020 HUSTLER SUPER Z MOWER	15-Jun-20	3	27,799	10
LF0079	2020 SALTD OG TAILGATE SPREADER	09-Mar-20	10	2,938	11
LF0078	CRANE PUMP STATION	31-Dec-18	10	115,229	inf
LF0077	2018 LINC RANGER 250GXT WELDER	16-Jul-18	10	8,924	12
CAPITAL AL	KNUCKLBOOM CRANE - MODEL 215 SW	01-Jan-18	20	721,465	13
LF0212	TS SCALE DIGITAL DISPLAY	31-Dec-17	10	9,382	inf
LF0075	HONDA EB10000 GENERATOR	12-Dec-16	15	5,499	14
LF0076	HONDA EB10000 GENERATOR	12-Dec-16	15	5,499	14
LF0071	48X48X48 METAL RECYCLE BIN	30-Apr-14	5	1,132	16
LF0072	48X48X48 METAL RECYCLE BIN	30-Apr-14	5	1,132	16
LF0073	48X48X48 METAL RECYCLE BIN	30-Apr-14	5	1,132	16
LF0074	48X48X48 METAL RECYCLE BIN	30-Apr-14	5	1,132	16
MR0008	48X48X48 METAL RECYCLE BIN	30-Apr-14	5	1,132	16
CAPITAL AL	TRANSFER STATION TRACTORS	01-Jan-14	10	144,000	17
CAPITAL AL	FORKLIFT REPLACEMENT	01-Jan-13		39,000	6
LF0070	COMPUWEIGH SCALE SOFTWARE	31-Dec-09	6	8,000	9
LF0069	SANICAN ADA W/WASHSTAND	31-Aug-04	5	2,650	3
LF0015	SW OPEN 35YD DROP BOX	28-Feb-03	5	7,769	15
LF0045	FLARE MONITORING FACILITY	30-Nov-02	7	13,020	inf
LF0066	LANDTEC GAS MONITOR	30-Nov-02	11	15,000	5
LF020401	SCALE SHACK AUTOMATIC WINDOW	30-Nov-02	7	18,739	inf
LF0063	2000 HONDA GENERATOR EB5000SX	31-Jan-01	6	2,600	2
MR0007	MRW COLLECTION TRAILER	30-Sep-00	10	9,272	inf
LF004901	BURGLAR SYSTEM @ OFFICE & SCALE	31-May-00	5	4,179	inf



Asset ID	Description	Acquisition Date	Estimated Life	Replacement Cost	Notes
LF0054	TARPING TRAILER	31-May-96	20	40,435	inf
MR0004	1996 FORD 3/4T P/U W/LIFTGATE	30-Apr-96	5	64,000	8
LF0046	OIL TANK SYSTEM (3)	30-Apr-93	10	13,041	inf
LF0047	ALLIED GARY BC/CD SAFE-SCALE	28-Feb-93	5	2,242	inf
RC0015	DIGITAL SCALE A1696 83204	31-Dec-89	3	6,710	inf
LF0051	Peterbilt Class 8 truck	1978	30	292,750	18
Total				2,482,181	

Notes to Table 4-13

1	Inf	This indicates an inflation adjustment to the original purchase price, using the Federal Reserve Producer Price Index by Industry: New Industrial Building Construction (PCU236211236211), for the relevant years since the purchase of the existing equipment. If a comparable product is not available, such as in note 18 below, a contemporary substitute has been used.
2	Honda EB 2400 generator	https://www.amazon.com/Honda-5000-Watt-Industrial-Generator-CO-MINDER/dp/B08YJJB7ZP/ref=sr_1_2?crid=1VDG0UVXM1CUX&keywords=1999+HONDA+GENERATOR+EB5000X&qid=1662332304&s_prefix=1999+honda+generator+eb5000x%2Caps%2C827&sr=8-2
3	ADA compliant Sanican	Polyjohn.com quote on the phone Oct 21 22: https://www.polyjohn.com/we-ll-care-iii-product
4	John Deere: Gator™ XUV835M Honor Edition Utility Vehicle; Open Station	https://eMarketing.deere.com/AddAccessories.do?lid=667402779&newproduct=57L3M&newproducts=57L3M,XUV835MHE_1009,PPR_XUV_NO
5	Landtec gas monitor; GEM 5000 model	Diamond Scientific. Florida. Ray Raviera (321) 323-7500. Oct 5. GEM 5000 is the premier instrument. Republic and WM have systems tied to it directly. A competitor, at about half the price, is the Optima, from Germany.
6	Forklift: use Toyota iFGU25 w/ side shift, lift tilt, fork positioner	Jim Wygal at Toyota Lift NW. new series 8 FGU25: \$33,000. Propane, Side Shift, Lift, Tilt, 15.5-foot height, 5000 # lift capacity; add 2,000 for a 'fork positioner'.
7	John Deere 310 Loader	Pape Machinery Mt Vernon. Tyson@Papemachinery.com; Enclosed cab, standard L3 tires, 3-yard bucket; \$250,000; Olympics area specialist: Clay Emory (360) 340-0396
8	Ford 3/4-ton PU	Steve fleet manager. (425) 284-9514. 3/4 Ton 250 XL = 55K + 6K for liftgate + 3K for 4-wheel drive \$64,000; https://www.fordofkirkland.com/new-vehicles
9	Compuweigh Scale Software	via Paradigm Software (410) 329-1300. \$8,000 from this site: https://www.capterra.ca/software/85669/compuweigh#pricing
10	60" Mower	https://hustlermower.com.au/hustler-zero-turn-mowers/super-z



Notes to Table 4-13		
11	tailgate spreader	https://www.amazon.com/SaltDogg-TGS07-Tailgate-Spreader-200-Pound/dp/B005QZMVWO
12	Lincoln Ranger 250 Welder	https://www.weldingoutfitter.com/products/lincoln-k2382-4-ranger-250-gxt-engine-driven-welder
13	Grizzly Crane Model 215 SW	Inflation but assumes electric, not diesel, with accumulators included, to prevent down time when system otherwise stuck. Source Grizzly Crane Co, Eugene Oregon
14	Honda EB 10000 generator	https://www.electricgeneratorsdirect.com/Honda-EB10000-Portable-Generator/p8764.html
15	Waste container 40 yd	Quote from Hambicki Products, Phoenix AZ Oct 21, 2022; 10-gauge steel floor; Roll-off.
16	Recycle containers 48" x 48" x 48"	Quote from Hambicki Products, Phoenix AZ Oct 21, 2022; 12-gauge steel; buyer selects external paint colors; printed inside
17	Transfer station tractors: Capacity brand dock jockeys	Triple M Truck & Equipment. Cameron Brittain. Oct 4th. (541) 720-8006. TJ 400: Single Axle, non-DOT, 81,000-pound rating 173 HP, with QSB emissions rating. 4000 Model discontinued 2004-2005. About \$8,000 to make it DOT capable. Two available on their lot in Hermiston Oregon as of Oct 4th. If ordered today it would take 8 to 12 months to receive it.
18	Peterbilt Class 8 truck	Replaces the 1978 GMC General Class 8 truck, which was discontinued in 1987. Day cab. https://www.commercialtrucktrader.com/listing/2023-PETERBILT-389-5023674874

5. DISCUSSION

This Technical Memorandum reports the analysis and results for the Jefferson County's Solid Waste Facility replacement costs and covers the County-owned building and equipment assets at the Transfer Station and at Quilcene. Also included is the significant site improvement which is infrequently used as the secondary tipping facility at the Transfer Station Site. The analysis and cost estimating has been completed in accordance with best practice associated with the subject matter.

The results of this study are summarized in Table 5-1, and indicate that the total replacement costs for the Jefferson County Solid Waste Facility Assets range from a low of \$5,654,413 to a high of \$8,167,485 while the average is \$ 6,910,949.

Table 5--1 Summary of Replacement Costs Including Contingency and Uncertainty Allowances

Asset Category	Replacement Cost, \$
Buildings	3,511,200
Machinery and Equipment	2,482,181
Site Improvements other than Buildings	289,300
Subtotal Planning Level Solid Waste Facility Replacement Costs	6,282,681



Asset Category	Replacement Cost, \$
Cost Estimating Contingency Allowance (-10%)- [LOW]	(628,268)
Cost Estimating Contingency Allowance (+30%) [HIGH]	1,884,804
Grand Total Planning Level Facility Replacement Cost Estimate (LOW)	5,654,413
Facility Replacement Cost Estimate (HIGH)	8,167,485
Average Planning Level Facility Replacement Cost Estimate	6,910,949

The solid waste facility replacement costs and allowances presented in Table 5-1 may change with the timing of such replacements, the amount of inflation up to that point, and local market conditions.

As mentioned above, these cost estimates will be directly relevant, by County ordinance, to the forthcoming calculation of any changes in the current tipping fee charged by the County. They will also help inform the self-insurance arrangements employed by the County regarding both moderate and possibly catastrophic risks which might adversely affect operation of the Jefferson County solid waste Division.

In addition, these replacement cost results will be used as a major input to the ongoing assessment of the existing solid waste facilities under the Solid Waste Facility Replacement Planning project and future updates to the County's Solid Waste Comprehensive Plan.

Costs not estimated

However, it is important to bear in mind that in this facility replacement cost estimate, some asset classes have been omitted. One is the value of the land on which the facilities are constructed, which is a substantial 157 acres in size. Another is the value of the underground utilities at each of the sites: plumbing, septic, drainage systems, as well as a substantial array of electrical facilities and equipment. A third item not included is the fence which surrounds the Landfill Road property. Likewise, also excluded is the cost of replacing the substantial amount of paving which exists at the sites.

This report also does not value any aspect of the closed landfill, located directly next to the transfer station. In particular it does not assign a value to several possible uses of this land area, which might become viable in the future. Likewise, this report does not include any aspect of the Port Townsend soil amendment/composting facility located on this tax parcel, to the south of the old landfill, as that operation is owned and managed by the city.

Limitations of the methods used to develop the cost estimates

There are a variety of methods for forecasting the cost of fully replacing a specific set of physical assets. The most accurate approach is typically obtained by using a detailed documentation of each constructed component, including designs, detailing requirements for foundations, piping, supports, electrical connections, painting, insulation, instrumenting, and/or related operations equipment. Because this level of detail was not available for the existing County buildings, alternative methods consistent with best practice were used, and allowances provided to account for the impacts on estimating accuracy



resulting from this methodology. Detailed building construction estimates should be developed whenever the County decides to replace these facilities.

The facility cost estimates developed in this TM are intended to assist the County in its rate setting, budget planning, and preparation for the forthcoming revisions to its Solid Waste Comprehensive Plan. The data currently available and the approach employed for this study limit the use of its results to these intended purposes.

6. REFERENCES

1. AACE International (2020). *Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Process Industries, Recommended Practice No. 18R-97*.
2. GAO (2020). *Cost Estimating and Assessment Guide*. GAO best practices.
3. RS Means Inc. Cost Data Manuals (2023): *Building Construction Costs, 2023*.
4. Humphreys K., K and Wellman (1987). *Basis Cost Engineering. 2nd Edition, Revised and Expanded*. Edited by Kenneth K Humphreys, American Association of Cost Engineers.
5. US Environmental Protection Agency (1997). *Solid Waste and Emergency Response, 5305W, Full Cost Accounting for Municipal Solid Waste, a Handbook*. EPA 530-R-95-041, September 1997, <http://www.epa.gov>.

7. GLOSSARY

Assets. Tangible or intangible items owned by the County having probable economic benefits that can be obtained or controlled by the County.

Capital assets are land (including park and landfills), structures, equipment (including motor and truck fleets), and intellectual property (including software), which are used by the County and that have an estimated useful life of two years or more. Capital assets exclude items acquired for resale in the ordinary course of operations or held for the purpose of physical consumption such as operating materials and supplies

Contingency. The allowance is intended to reflect the accuracy of the estimate considering the stage of the project, and to cover omissions and unforeseen expenses caused by lack of complete engineering information (AACE, 2020).

Cost Estimate. An estimate, developed in dollars, of the cost to repair or replace an asset component or an entire asset that uses standard industry estimating tools, unit costs, and methodology.

Current Replacement Cost – The cost the entity would incur to acquire the asset on the reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the **minimum it would** cost to replace the existing asset with a new modern equivalent asset (not a secondhand one) with the same economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating Costs (IIMM or *INGENIUM* and *IPWEA (2011) International Infrastructure Management Manual (IIMM)*, Association of Local Government Engineering New Zealand Inc. and National Asset management Steering Group, Thames, New Zealand).



Escalation. The change in price levels due to underlying economic conditions. Escalation is affected by changes in price-drivers such as technology and productivity. Changes in the market conditions such as high demand, profit margins, and labor shortages also impacts escalation.

Inflation. A persistent increase in the level of consumer prices, or a persistent decline in the purchasing power of money, caused by an increase in available currency and credit beyond the proportion of available goods and services (AACE 2020).

8. APPENDICES

Appendix A. Assets Not Included

Asset items initially presented to Vikek by the County but ultimately excluded from replacement cost estimation due to being now retired or classifiable as earlier repairs to existing facilities.

Item	Description	Acq Date	Acq Cost	Life
MR0002	1995 TEEMARK PAINT CAN CRUSHER	31-Aug-95	7,461	7
LF0030	STEAM CLNR BLDG (OLD HADLK TS)	01-Jan-85	3,195	5
LF0032	EMPLOYEE BLDG (OLD BRINNON TS)	01-Jan-85	3,195	5
LF0033	SCALE BLDG (OLD COYLE TS)	01-Jan-85	5,735	5
MR000201	MRW PAINT CAN CRUSHER REBUILD	31-Jul-02	1,632	2
RC020302	IMPRV O/T BLDGS - PAVEMENT	31-Dec-01	49,725	20
RC020303	IMPRV O/T BLDG - DROPOFF DRAIN	31-Dec-01	2,795	20
LF020302	IMPRV O/T BLDG - FENCE PHASE I	31-Mar-01	4,016	25
LF020303	SW FENCE PROJECT PHASE II	30-Nov-02	5,878	25
LF020304	SW FENCE PROJECT PHASE II	31-Jan-03	5,565	25
LF020305	SW BOUNDARY FENCING	31-Dec-10	94,233	15
LF0208	SW WATERLINE EXTENSION	31-May-10	159,920	30
LF004401	TEMPORARY TIPPING WALL REPAIR	31-Dec-04	41,498	20
LF006901	EXCISE TAX ON SANICAN	30-Sep-04	177	5
LF0209	QUILCENE WATERLINE EXTENSION	30-Sep-14	19,457	20
LF020306	TRANS STN PAVEMENT RPR&COATING	31-Dec-15	30,946	5
LF0046	OIL TANK SYSTEM (3)	30-Apr-93	11,738	10

Appendix B: Existing Information Table and Sources

Data Type	Specific Description	Author or Source
Financial	Fee Schedule	Jefferson County Solid Waste Division
Machinery and Equipment	Spreadsheet from the COUNTY detailing physical assets and major elements of operating equipment owned by the Division. Their purchase dates expected service lives and salvage values.	Jefferson County Solid Waste Division
Land	Tax parcel information for both sites	Jefferson County Tax Assessor
Policy	Jefferson County Code regarding Public Health and Solid Waste management	Jefferson County



Appendix C. Photographs of the Transfer Station and the Quilcene drop box

Appendix C presents a photographic log of the Jefferson County Transfer and Recycling Station, as of September 15, 2022.



Household Hazardous Waste Building



Transfer Station



Recycling Building



Knuckle Boom Crane (Grizzly) in Transfer Building



Wooden Shed West End of Site



Pole Building for Equipment Storage



Backup Loading Wall



Wooden Shed adjacent to Transfer Building



Scale House



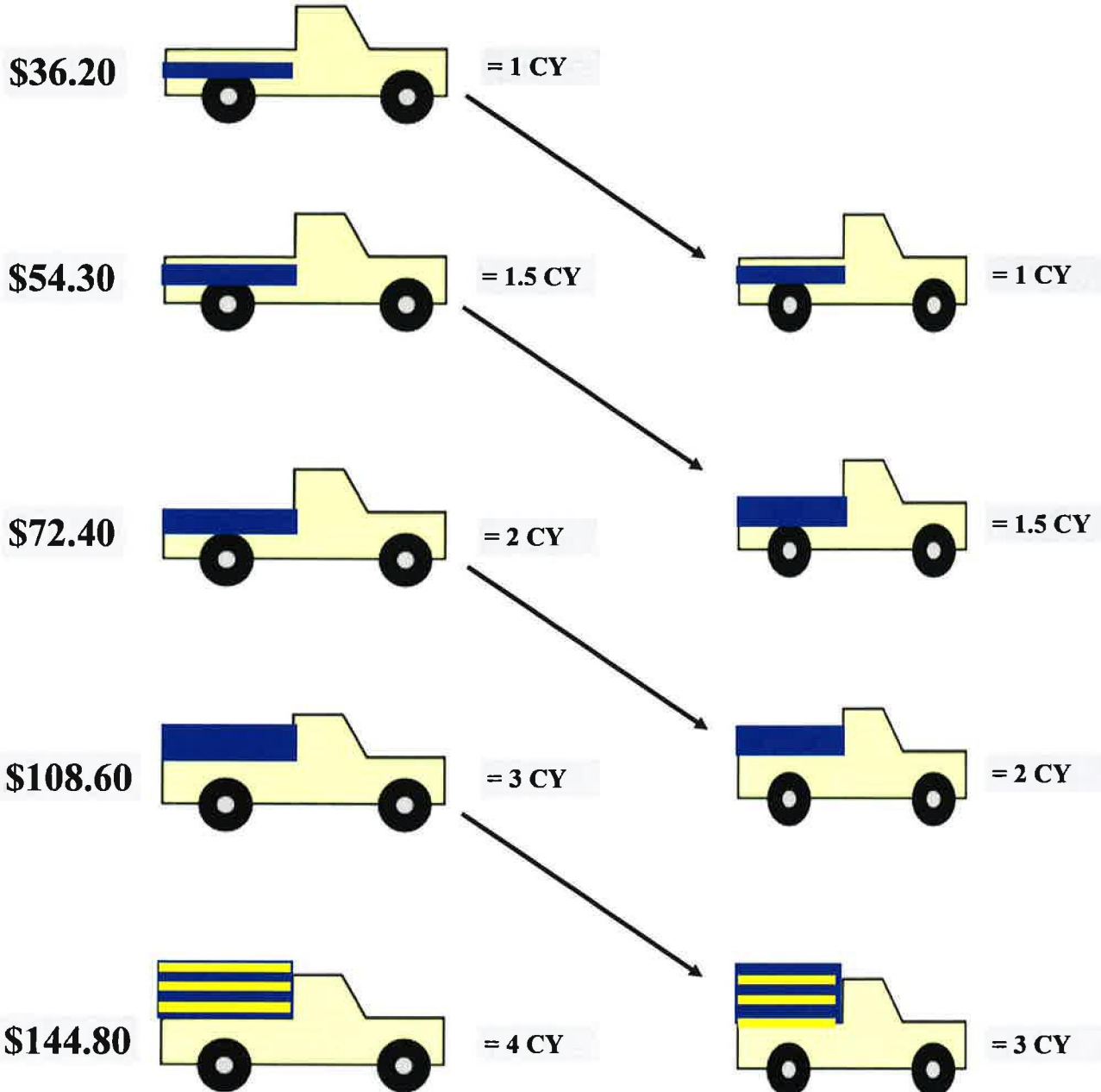
Worker Rest House

QUILCENE
2021 LOOSE TRASH CUBIC YARD ESTIMATES

* Includes Tax *

FULL SIZE PICKUP

COMPACT PICKUP



32-Gallon Container \$6.79

55-Gallon Container \$12.45

1/2 Cubic Yard \$18.12

Tires: Auto \$6.79 ea; Truck \$7.72 ea; Off Road (loaders, skidders) \$18.12 ea

White Goods \$18.12 ea

Refrigerators \$33.94 ea

Other Large Appliances or items that DO NOT fit in box \$18.12 ea