

Constructing a Brighter Future

**Construction and Demolition Waste Management Project
for Skagit County, Washington**

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Executive Summary

Skagit County has been increasing the number of construction projects within the county over the past decade. With any sort of project, waste is associated. The Skagit County Transfer Station has very loose economic incentives that include discounted prices on +70% recyclable material loads. However, information regarding a full list of available resources and the services they provide are difficult to access making them underutilized. It is common for sites to use one large container to store all of their waste, both recyclable and not, but when there is a lack of separation between recyclable material and non-recyclable materials, it is a lot less likely that the recyclable materials will be separated and properly processed.

Our proposed solution to the problem of the filling landfills of our state is to divert the waste that can be recycled. To do this we are proposing the implementation of an education pamphlet included with the construction permitting process. It will provide information available resources in the County, what materials can and cannot be recycled, the discounts available for bringing in pre-sorted recyclable materials.

Another aspect of our solution is to promote the act of on-site sorting through an increase in the amount of signage on construction sites. A sign that gives a clear image of which materials go in the recyclable bin and what goes to the landfill will provide an easy and cost effective method to divert unnecessary waste from ending in the landfills.

Lastly, we suggest an increase in the economic incentive offered for people to sort their recyclables. With more of a reason to take the extra time to sort materials, there is a higher chance that the concept will successfully change the long time business practices of the construction companies and their employees.

Statement of Need

C&D materials are often bulky and heavy, taking up a lot of space in landfills. There are many instances where wastes could be reused and recycled but because those materials are mixed with the non-recyclable materials, they are contaminated and have to be sent to the landfills. Besides the reduced rates for recyclable loads at the transfer station, there is no other incentive or legislation determining how construction companies and individual contractors dispose of their waste in Skagit County. By providing information on rates and recycling centers, we create the opportunity for individuals to recycle their materials.

Skagit County produced an approximate 16,000 tons of both commercial and residential C&D waste in 2016 based on the percentage the County's population is out of the entire state (See Waste Characterization Study in Appendices). The large portion of that number is compiled of materials such as excess wood framing, excess siding, and carpeting that could be recycled if properly sorted and processed but often ends in landfills due to the improper disposal methods currently in place.

Construction and demolition projects in Skagit County are increasing as more multifamily housing and commercial spaces are being built. The County will benefit by seeing less materials being transported to the landfill as well as less resources being necessary to process non-recyclable materials.

Project Description

The long term goal for our project is to significantly reduce the amount of waste generated from construction and demolition projects from Skagit County. Adding education that is easily accessible to parties involved in projects as well as signage that goes on project sites (See Pictures in Appendices for an example of a sign for on-site). The measurable outcomes of our project include the number of informational pamphlets and posters we created that are distributed to anyone involved in the permitting process for construction and demolition. We predict that if we make the information clear, straightforward and concise, there will be a clear shift in the way waste is disposed of.

There is very valuable information that the county already has about information to assist in effective disposal of materials but that information is currently burrowed deep into the county website and is hard to find. This is the cause for the suggestion for the educational pamphlet in order to hand the information out through a portal in which anyone getting a new permit needs to go through regardless so there is a lot more likely chance that the correct practices will be enforced.

The major stakeholders and partners that are included in our project include the County permitting office, the transfer and sorting stations in the county as well as the contractors and anyone else performing a C&D project in the county. The permitting office of the County is in charge of processing and distributing information for any incoming permits of the county. A significant stakeholder in regards to the sorting and transfer stations is the main material sorting and processing facility called Lautenbach Recycling located in Anacortes, WA. Lautenbach will ideally see an increase in pre-sorted loads that are going through their station and a decrease in the amount of recyclable materials that have been contaminated and must be sent off to the landfills. The current timeline for our project is to get the education on proper recycling into the

permitting process as soon as possible as well as print the signs for on-site sorting and get those onto job sites.

Budget and Other Resources

Table 1. The costs associated with our proposal. The project budget is \$2000.

Equipment, Material, Human Resources	Budget Expenditures	Totals
Clearly visible signage for on-site sorting	22 * \$35.00	\$770.00
Printouts of C&D recycling Information for public	615* \$2.00	\$1,230.00
	Total Costs	\$2,000.00
	Budget remaining	\$0.00

The County has provided our project with a budget of \$2000. With the \$2000 we will divide the assets towards printing informative signage, and printing out informational booklets that are included with every construction permit. We plan to use all \$2000 given for this project. Skagit County issues roughly 50 construction permits per month and thus we would print 615 informational booklets to last an entire year. We plan to print 22, 24" by 18 laminated signs at \$35 per sign (Table 1). Prices were quoted from the Bellingham Kinkos. Our budget expenditures is presented in the table below.

Should the County see an increase of recycled c&d materials then the County could allocate more money to this project. Another aspect we were looking into was the rates for several other transfer stations around the country, to see how their rates and incentives compare to Skagit County's (Table 2). When c&d loads are taken to Skagit Transfer and Recycling Center if they are 70% or more of recyclable material then the savings is \$15 per ton. Whereas in Seattle when c&d loads are taken to a transfer station the savings is \$70 per ton. \$70 per ton is a more significant incentive to recycle and it pays out. Assuming a 2,400 sq ft house generates 5 tons of c&d waste and only 3 tons of that could be recycled. In Skagit you would save \$45 whereas in Seattle you would save \$210 which is money that could be spent on workers or transportation costs. Skagit County could potentially increase the cost of landfill rates which would then increase the discount for recyclable materials.

Table 2 represents rates c&d loads for transfer stations located in several cities around the US compared to Skagit County.

City	Landfill rate (\$/ton)	Recycle rate (\$/ton)	Discount incentive (\$)
Seattle	\$145.00	\$75.00	\$70.00
Portland	\$94.00	\$35.00	\$59.00
San Francisco*	\$115.00	\$90.00	\$25.00
Skagit County	\$89.00	\$74.00	\$15.00

Sustainability

Our C&D project proposal would be a great opportunity for the County to benefit from the proper sorting, recycling, and processing of C&D waste. This project proposal is an ongoing effort in the sense we want to instill an institutional normality towards on-site recycling and sorting to reduce landfill waste. However, we were informed by our Skagit County contacts that this project opportunity won't be in every budget and thus we are relying on the effectiveness of our educational outreaches to persuade the County to continue to make efforts like this to help reduce the amount of recyclable C&D materials into our landfills. The shift in everyday habits of not sorting materials can be difficult which is the reason there will be have an economic incentive of savings on waste processing rates at the County's sorting and processing centers so overall, correctly sorting and processing recyclable materials is a positive for everyone involved.

This project is in its very first stages and has the opportunity to have a significant impact on the diversion of waste to the landfill. Given our \$2,000 County provided budget, we are going to use the majority of the funds towards the initial implementation process of the created signage and the educational material going in the construction permits throughout the County. These channels of funds don't require maintenance other than the printing of educational brochures, which would be the only recurring cost of the this program if it were to be continued.

Monitoring and Evaluation

Our main source of monitoring will be the number of brochures that are distributed through the permitting process as well as if people are taking advantage of implementing the on-site sorting signs. We thought it would be best to leave it up to the discretion of the County to decide how you want to allocate the on-site signage whether it be renting the signs or giving them to companies that will likely be doing multiple projects where the signs would be effective. Seeing as this is the first implementation of a system to encourage and incentivize sorting and recycling, the most beneficial source of monitoring would be to record how much of the waste going through the processing centers have been pre-sorted and are receiving those incentives of the lower rates. If less of the materials are going to the landfill after they go through the transfer stations, that means our implementations are working. Transfer stations are required to document all the processed waste they handle, it may be possible that a noticeable reduction of metals, woods, and other construction materials entering and exiting stations.

Conclusion

There is a large amount of waste created through C&D projects that can be easily recycled yet when not properly handled result in excess amounts of unnecessary waste going to the landfill. With the help of easily accessible information as well as on-site signage to instill proper disposal With the information more accessible and provided systems set in place, proper on-site recycling will become something that is a normal expectation on C&D sites throughout the County. Little steps can make large changes and that is the goal of our proposed solution for the construction and demolition waste management project we have worked on for Skagit County.

Appendices

Case studies:

1. Illinois County Case Study:

[Illinois Construction and Demolition Site Recycling ... - DuPage County](#)

2. City Of Chicago Case Study:

http://www.cityofchicago.org/content/dam/city/depts/dae/general/RecyclingAndWasteMgmt_PDFs/CandDrecycling/ConstBestMgmtPractices2.pdf

Pictures:

List of available resources in Skagit County that would be useful for informational pamphlet:


	Location	Hours	Notes
Recycling/Compost			
Rita Street Appliance Recycling 360-855-2030	211 W Woodworth St Sedro-Woolley		Accepts appliances for recycling and resell. Call ahead for details and fees.
Skagit Appliance Recycling 360-540-5825	1152 State Rt. 20 Sedro-Woolley	Mon-Sat: 8:00 am - 3:00 pm	Accepts appliances for recycling and resell. Most items free to drop-off. Pick-up service also available.
Skagit River Steel & Recycling 360-757-6096 email	1265 S Anacortes St. Burlington	Mon-Fri: 8:00 am - 4:30 pm	Provides drop-off recycling services of a variety of materials such as scrap metals, newspaper, cardboard, paper products, plastics, non-ferrous materials, and glass. Also provides demolition services. Call or email for more information.
Lautenbach Industries 360-757-4000	13084 Ball Road Mount Vernon	Mon-Fri: 7:00 am - 6:00 pm Sat: 9:00 am - 3:00 pm	Provides demolition, hauling, and recycling services of a variety of construction and demolition debris such as wood, concrete, asphalt, metal, sheetrock, roofing, and landclearing debris
Pallet Services 1-800-769-2245 email	12926 Farm to Market Road Mount Vernon		Provides pallet recycling services
Skagit Soils 360-424-0199	13260 Ball Road Mount Vernon	Mon-Fri: 8:00 am - 4:30 pm Sat: 9:00 am - 2:00 pm	Accepts green waste and food waste for recycling. Under 10 ft in length and 2 ft in diameter. Compostable plastics are not accepted. Also accept dirt, rock, sod, and small pieces of concrete and sod for recycling, must be separate from green waste.
Sunland Bark & Topsoil 360-293-7188	12469 Reservation Road Anacortes	Mon-Fri: 8:00 am - 5:00 pm Sat: 8:00 - 4:00 pm (hours vary seasonally)	Accepts brush & tree trimmings, dirt & rocks, sod, stumps, and concrete. No horsetails, grass clippings, or large quantities of leaves.


Disposal			
Clear Lake Compactor Site 360-856-5083	23159 Howey Road Clear Lake	Fri-Mon: 8:00 am - 6:00 pm Closed on holidays	Accepts household solid waste (\$6 for 32 gallons), free household recycling, and up to 5 gallons of used motor oil and antifreeze. No construction debris accepted
Skagit County Transfer Station 360-416-1570	14104 Ovenell Road Mount Vernon	Everyday: 8:30 am - 6:00 pm Closed on holidays	General waste \$89/ton with \$10 minimum, household recycling free, appliances accepted for a fee. Some size restrictions exist, please call for details.
Skagit County HHW Facility Hazardous Waste 360-416-1580	14104 Ovenell Road	Mon-Fri: 10:00 am - 4:00 pm 1st Sat of the month: 10:00 am - 4:00 pm	Accepts 25 gallons of household hazardous waste per month for free. Examples of accepted waste include: various cleaners, fluorescent lightbulbs, used oil and antifreeze, NiCad batteries, fertilizers, pesticides, etc.
Skagit County Small Quantity Generator 360-416-1580	14101 Ovenell Road	3rd Wednesday of each month: 8:30 am – 3:30 pm	A business that generates less than 220 pounds (about 25 gallons) of most types of chemical wastes may qualify as a "Small Quantity Generator" (SQG) and dispose of those wastes through the County's SQG program. Please call 360-416-1580 for more details.
Sauk Transfer Station 360-853-8810	50795 State Route 20 Concrete	Thurs-Sun: 9:00 am - 5:00 pm Closed on holidays	General waste \$89/ton with \$10 minimum, household recycling free, appliances accepted for a fee. No construction debris accepted
Reuse			
Skagit Building Salvage 360-428-9402 email	17994 State Route 536	Mon-Sat: 10:00 am-5:30 pm Sun: 11:00 am-4:00 pm	Accepts a wide range of reusable building materials. Please call the store to discuss the items. Also provides deconstruction and salvage services. Pickups of higher value material can be arranged.
Skagit Habitat for Humanity 360-428-9402	1022 Riverside Drive Mount Vernon	Tues-Sat: 10:00 am-6:00 pm	Donated materials must be in good condition for reuse. Provides donation pickup services.

<https://www.skagitcounty.net/Departments/PublicWorksSolidWaste/CDL.htm>

Example of on-site sorting sign:

H: 18 in
W: 24 in




 Questions?
Call 360-416-1570


Yes

- ✓ • Wood w/ nails, untreated
- ✓ • Metal
- ✓ • Concrete (under 2 ft)
- ✓ • Rigid Plastics
- ✓ • Asphalt (under 2 ft)
- ✓ • Glass
- ✓ • Masonry
- ✓ • Drywall

←

No

- ✗ • Sweepings
- ✗ • Treated Wood
- ✗ • Exterior Board
- ✗ • Asbestos Insulation
- ✗ • Furniture



- Links to relevant websites

<https://www.skagitcounty.net/Departments/PublicWorksSolidWaste/CDL.htm>

<https://www.skagitcounty.net/Departments/PublicWorksSolidWaste/rates.htm>

<http://wmnorthwest.com/washington.html>