

NUERA BAYVIEW LANDFILL PROJECT PLAN

Section 1 - Overview:

Several northern Utah public entities involved with the management, transportation, and disposal of municipal solid waste (MSW) have formed a working group to address various solid waste issues. The group, Northern Utah Environmental Resource Agency (NUERA) is comprised of the following entities from north to south:

Logan City
Weber County
Wasatch Integrated Waste Management District (WIWMD)
Trans-Jordan Cities
North Point Solid Waste Special Service District (NPSWSSD)
South Utah Valley Solid Waste District (SUVSWD)

One of NUERA's objectives is to continually evaluate ways to promote cost effective environmentally responsible methods to collect, transport, and disposal of solid waste in northern Utah.

This document is intended to define a project that NUERA has identified as potentially beneficial to some or all of the member entities. The project, as envisioned, would involve utilizing the existing Bayview Landfill (owned and operated by SUVSWD) as a regional landfill for some NUERA members. The project would involve NUERA purchasing the Bayview Landfill (equipment and site improvements), transferring the existing landfill permit, transferring State of Utah School Trust Land leases, and bifurcating landfill closure and post-closure responsibilities (and associated funds).

This evaluation is also a review of the financial model presented in the Cornerstone Environmental "Landfill Valuation Report" dated January 2015.

Section 2 – Historic, and Current Landfill Operations:

Historic Bayview Operation: (Cornerstone Evaluation)

Participation (Tonnage) = 120,733 Tons	
Annual Landfill Operations Cost	\$2,894,044
Cost per Ton	\$23.97

Current Bayview Operations:

Participation (Tonnage) = 131,000 Tons	
Administration (1/3 of existing costs)	\$140,000
Total Annual Landfill Operations Costs*	\$2,387,622
Cost per Ton	\$18.23

* Closure / Post Closure dropped from \$417,889 to \$100,000

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Section 3 – Future Landfill Operations:

Alternative 1: (SUVSWD plus North Pointe)

Alternative 1 includes the waste from SUVSWD and North Pointe which could be implemented at various time frames within the next 2 years. This alternative assumes that a facility Manager/Operator would be hired and that existing equipment could process the waste. The cost for oil, fuel, filters, and equipment repair have been increased proportional to the additional tonnage for each of the alternatives. Sinking funds for the replacement of liner and compactor have been included. A 2.5% contingency is added to the total projected cost of operation for each alternative.

Alternative 1a: (SUVSWD plus 20% of North Pointe)

The 20% of North Pointe waste alternative represents the maximum amount that the District can transfer until 2018 according to the existing contract with Republic.

Add Manager/Operator.

No additional equipment.

Participation (Tonnage) $131,000 + 34,800 = 165,800$ Tons

Annual Landfill Operations Cost	\$2,579,551
Cost per Ton	\$15.56

Alternative 1b: (SUVSWD plus 60% of North Pointe)

The 60% of North Pointe waste is the minimum amount of waste that the District would process if Republic were to build a transfer station and divert the commercial waste that they process from North Pointe.

One truck tipper.

Participation (Tonnage) $131,000 + 104,400 = 235,400$ Tons

Annual Landfill Operations Cost	\$3,018,360
Cost per Ton	\$12.82

Alternative 1c: (SUVSWD plus 100% of North Pointe)

Alternative 1c models all of SUVSWD waste and all of North Pointes waste.

Same personnel as Alternative 1b.

Same equipment as Alternative 1b.

Participation (Tonnage) $131,000 + 174,000 = 305,000$ Tons

Annual Landfill Operations Cost	\$3,339,294
Cost per Ton	\$10.95

Alternative 2: (SUVSWD, North Pointe, and Weber County)

Alternative 2 includes the waste from SUVSWD, North Pointe, and Weber County which could be implemented within the next 2 years. This alternative utilizes the personnel from Alternative 1c and adds another operator and a laborer. This alternative also provides for an additional compactor and tipper. The cost for oil, fuel, filters, and equipment repair have been increased proportional to the additional tonnage. A 2.5% contingency is added to the total projected cost of operation for each alternative.

One additional operator and one additional laborer.

One additional compactor and one additional tipper.

Participation (Tonnage) $131,000 + 174,000 + 185,000 = 490,000$ Tons

Annual Landfill Operations Cost **\$4,662,712**
Cost per Ton **\$ 9.52**

Alternative 3: (SUVSWD, North Pointe, Weber County and Wasatch Integrated)

Alternative 3 includes the waste from SUVSW, North Pointe, Weber County, and Wasatch Integrated. The estimated timeframe for Wasatch to divert waste would be in approximately 15 years. This alternative utilizes the personnel and equipment from Alternative 2 and adds another operator. The cost for oil, fuel, filters, and equipment repair have been increased proportional to the additional tonnage. Depreciation is increased to reflect a new dozer. A 2.5% contingency is added to the total projected cost of operation for each alternative.

One additional operator.

One additional dozer.

Participation (Tonnage) $131,000 + 174,000 + 185,000 + 110,000 = 600,000$ Tons

Annual Landfill Operations Cost **\$5,436,090**
Cost per Ton **\$ 9.06**

Alternative 4: (SUVSWD, North Pointe, Weber County, Wasatch Integrated and Trans Jordan)

Alternative 4 includes the waste from SUVSW, North Pointe, Weber County, Wasatch Integrated and Trans Jordan. The estimated timeframe for the addition of the Trans Jordan waste is approximately 17 years. This alternative utilizes the personnel and equipment from Alternative 3, and adds another operator and laborer. Another compactor is also added to the depreciation costs. The cost for oil, fuel, filters, and equipment repair have been increased proportional to the additional tonnage. A 2.5% contingency is added to the total projected cost of operation for each alternative.

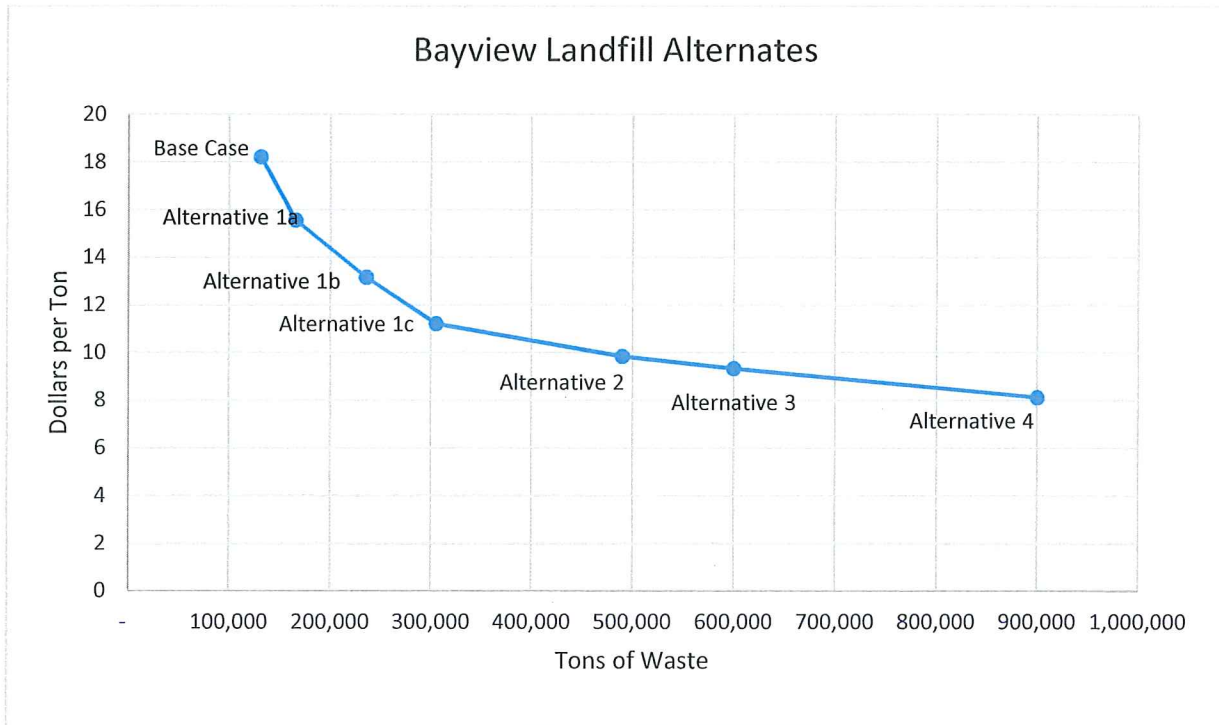
One additional operator and one additional laborer.

One additional compactor.

Participation (Tonnage) $131,000 + 174,000 + 185,000 + 110,000 + 300,000 = 900,000$ Tons

Annual Landfill Operations Cost **\$7,155,918**
Cost per Ton **\$ 7.95**

Section 4 - Alternative Summary:



Section 5 – Transportation Costs:

Transportation costs represent a large portion of the overall cost associated with the collection and disposal of solid waste. Current loads of waste shipped to Wasatch Regional Landfill are approximately 40 - 41 tons per load. Research by SUVSSD and Weber County confirm that all NUERA entities are able to utilize transport trailers that will match the existing 40 - 41 tons per load. For comparison of the transportation costs, 40 tons per load was utilized.

Transportation costs can be looked at on a fixed dollar per mile cost once exact routes are selected or on a cost per hour based on the transfer trucks utilized to haul the waste. The follow analysis looks at the transfer of waste from each of the NUERA facilities to both Wasatch Regional Landfill and to Bayview Landfill based on a cost per hour basis.

The analysis of shipping costs is based on travel times and the per hour cost of a transfer truck hauling 40 tons of waste per load. The cost per hour of the transfer truck was assumed to be \$140 per hour based on current prices of transfer trucks serving similar facilities. Travel time per load based on times indicated in MapQuest then increased by 10% to reflect truck travel rather than automotive travel times. The time to load a transfer truck was determined to be thirty minutes at each transfer station. The time to unload the waste from a transfer truck was determined to be thirty minutes at each of the landfills. No difference in loading or unloading time was assumed between the walking floor trailers or trailers unloading via tipper.

The following table presents the round-trip distance, the round-trip time in hours, the cost per load, and the associated cost-per-ton from each of the NUERA facilities to the Wasatch Regional Landfill and to the Bayview Landfill:

		ROUND TRIP (Miles/Minutes)		ROUND TRIP (Hours)		COSTS PER TRIP (Dollars)		COSTS (\$ PER TON) (@ 42 Tons per Load)	
		WASATCH REGIONAL	BAYVIEW	WASATCH REGIONAL	BAYVIEW	WASATCH REGIONAL	BAYVIEW	WASATCH REGIONAL	BAYVIEW
SUVSWD	131,000	204/216	64/68	4.96	2.25	\$ 694	\$ 315	\$ 17.36	\$ 7.86
NPSWSSD	174,000	176/196	74/88	4.59	2.61	\$ 643	\$ 366	\$ 16.08	\$ 9.15
WEBER	185,000	178/192	188/188	4.52	4.45	\$ 633	\$ 623	\$ 15.82	\$ 15.56
WASATCH	110,000	162/186	172/182	4.41	4.34	\$ 617	\$ 607	\$ 15.44	\$ 15.18
TJL	303,000	110/140	88/104	3.57	2.91	\$ 499	\$ 407	\$ 12.48	\$ 10.17

The above evaluation assumes the following:

- Time of Travel = MapQuest time increased by 10% to account for truck traffic
- Transfer Truck per hour cost = \$ 140
- Loading Time = ½ hour
- Unloading Time = ½ hour
- Tons per Load = 40

The NUERA members that benefit the most from the difference in shipping costs are the members located closest to the Bayview Landfill. The analysis shows that SUVSWD, NPSWSSD, and Trans Jordan would benefit the most due to their relatively close location to Bayview based on a cost per hour analysis.

Due to the similar haul distances, the difference in shipping costs to haul waste from Weber and Wasatch Integrated to either Wasatch Regional or Bayview Landfill will be negligible.

Section 6 – Unloading Costs:

In order to take advantage of the 40 tons of waste per load, NUERA transfer stations will need to utilize light weight trailers. The weight restrictions of the trailers could eliminate the use of walking floor trailers; therefore, the costs for tipping equipment at Bayview Landfill is included in Section 3 – Future Landfill Operations.

Section 7 – Total Cost of Loading, Shipping, Unloading and Disposal:

The projected total per ton costs of shipping, unloading, and disposal of waste for each of the NUERA facilities is as follows:

SUVSWD: Approximate current cost per ton = \$18.23 + 7.49 = \$25.72	Range of Expected Total Costs / Ton (+/- 10%)
Shipping + Tippage = Total Cost	
SUVSWD to Bayview (Alt. 1a.) = \$7.86 + \$ 15.56 = \$ 23.42	(\$21.08 to \$25.76)
SUVSWD to Bayview (Alt. 1b.) = \$7.86 + \$ 12.82 = \$ 20.68	(\$18.61 to \$22.75)
SUVSWD to Bayview (Alt. 1c.) = \$7.86 + \$ 10.95 = \$ 18.81	(\$16.93 to \$20.69)
SUVSWD to Bayview (Alt. 2.) = \$7.86 + \$ 9.52 = \$ 17.38	(\$15.64 to \$19.12)
SUVSWD to Bayview (Alt. 3.) = \$7.86 + \$ 9.06 = \$ 16.92	(\$15.23 to \$18.61)
SUVSWD to Bayview (Alt. 4.) = \$7.86 + \$ 7.95 = \$ 15.81	(\$14.23 to \$17.39)

North Pointe: Current cost per ton to Wasatch Regional = \$ 22.88	Range of Expected Total Costs / Ton (+/- 10%)
Shipping + Tippage = Total Cost	
NPSWSSD to Bayview (Alt. 1a.) = \$9.15 + \$ 15.56 = \$ 24.71	(\$22.23 to \$27.18)
NPSWSSD to Bayview (Alt. 1b.) = \$9.15 + \$ 12.82 = \$ 21.97	(\$19.77 to \$24.17)
NPSWSSD to Bayview (Alt. 1c.) = \$9.15 + \$ 10.95 = \$ 20.10	(\$18.09 to \$22.11)
NPSWSSD to Bayview (Alt. 2.) = \$9.15 + \$ 9.52 = \$ 18.67	(\$16.80 to \$20.53)
NPSWSSD to Bayview (Alt. 3.) = \$9.15 + \$ 9.06 = \$ 18.21	(\$16.39 to \$20.03)
NPSWSSD to Bayview (Alt. 4.) = \$9.15 + \$ 7.95 = \$ 17.10	(\$15.39 to \$18.81)

Weber County: Current cost per ton to Wasatch Regional = \$ 24.83	Range of Expected Total Costs / Ton (+/- 10%)
Shipping + Tippage = Total Cost	
Weber to Bayview (Alt. 2.) = \$15.56 + \$ 9.52 = \$ 25.08	(\$22.57 to \$27.59)
Weber to Bayview (Alt. 3.) = \$15.56 + \$ 9.06 = \$ 24.62	(\$22.16 to \$27.08)
Weber to Bayview (Alt. 4.) = \$15.56 + \$ 7.95 = \$ 23.51	(\$21.16 to \$25.86)

Wasatch Integrated:	Range of Expected Total Costs / Ton (+/- 10%)
Shipping + Tippage = Total Cost	
Wasatch to Bayview (Alt. 3.) = \$15.18 + \$ 9.06 = \$ 24.24	(\$21.82 to \$26.66)
Wasatch to Bayview (Alt. 4.) = \$15.18 + \$ 7.95 = \$ 23.13	(\$20.82 to \$25.44)

Trans Jordan:	Range of Expected Total Cost / Ton (+/- 10%)
Shipping + Tippage = Total Cost	
Trans Jordan to Bayview (Alt. 4.) = \$10.17 + \$ 7.95 = \$ 18.12	(\$16.31 to \$19.93)

Section 8 – Conclusion:

The conclusions of this analysis are twofold. First, the means and methods utilized in the Cornerstone report accurately represent the effects of tonnage on the cost of landfill operations – the more tonnage a facility processes, the lower the operational cost per ton. Second, shipping costs make up a significant portion of the overall waste management costs for waste transferred over 50 miles. Utilizing Bayview Landfill as a regional landfill will result in lower shipping costs and ultimately lower overall MSW disposal costs for the NUERA members located nearest the facility.

The proposed project as presented has various benefits to each of the NUERA participants, representing all of the cities and citizens in each of their service areas. The benefits to each entity vary with transportation costs and vary due to the amount of waste to be processed at Bayview which determines the actual tipping costs. SUVSWD currently has an underutilized landfill that is not operating near capacity thus not operating as efficiently as it could be.

Bayview Landfill has several operational advantages over Wasatch Regional Landfill that will keep the tipping costs to a minimum. A regional operation at Bayview Landfill would not have host fees paid to a County, pay no royalties to initial investors, and most importantly not have to make a profit for corporate shareholders.

Utilizing Bayview Landfill as a regional facility has the following potential benefits:

NUERA Members Currently Transferring Waste

South Utah Valley Solid Waste District (SUVSWD)

- SUVSWD benefits directly from the sale of the landfill to NUERA. The funds generated from the sale will enable the District to invest in their solid waste management system without the need to raise rates at the transfer station.
- The larger benefit to SUVSWD would be the drop in tipping fees for the residents of Southern Utah County. The approximate savings to the District would be approximately \$7.01 (the current \$18.23 minus the projected \$11.22) per ton with the full participation of NPSWSSD and \$8.38 (the current \$18.23 minus the projected \$9.85) per ton with NPSWSSD and Weber County. **The per ton savings could result in an approximate annual savings for the District of between \$900,000 and \$1,100,000 for decades.**

The savings to the District would only increase in the future with the additional participation of Wasatch Integrated and Trans Jordan.

North Point Solid Waste Special Service District (NPSWSSD)

- NPSWSSD would benefit by hauling waste to a closer landfill resulting in substantial savings in shipping costs. The savings to NPSWSSD in shipping alone would be approximately \$6.60 (approximate current shipping costs to Wasatch Regional \$15.31 minus the projected shipping cost of \$8.71) per ton.
- Additionally, NPSWSSD would benefit from lower tipping costs at the Bayview Landfill. NPSWSSD currently ships and disposes of waste to Wasatch Regional for \$22.88 per ton.

The approximate savings to the District would be approximately \$2.95 (current cost per ton at Wasatch Regional \$22.88 minus the projected total cost per ton of \$19.93) per ton if all of NPSWSSD waste is disposed of at Bayview and \$4.32 (current cost per ton at Wasatch Regional \$22.88 minus the projected total cost per ton of \$18.56) per ton with all of SUVSWD, NPSWSSD and Weber County waste. **The total per ton savings in combined shipping and disposal fees would result in an approximate annual savings for the District of between \$500,000 and \$750,000 for decades.**

The savings to the District will only increase in the future with the additional participation of Wasatch Integrated and Trans Jordan.

Weber County

- Due to similar hauling distances from the Weber County to Wasatch Regional and from Weber County to Bayview Landfill, Weber County would not save any in transportation costs by transferring waste to Bayview Landfill. Shipping costs to either Wasatch Regional or Bayview Landfill will be nearly the same.
- The cost to Weber County to dispose of waste at Wasatch Regional or Bayview will be nearly equal until additional waste from Trans Jordan and Wasatch Integrated are transferred to Bayview. The per ton savings to Weber County would be approximately \$1.85 when Wasatch Integrated and Trans Jordan would ultimately bring their waste to Bayview. **The annual savings would be approximately \$340,000 for decades once the additional waste is incorporated.**

NUERA Members Not Currently Transferring Waste

Wasatch Integrated Waste Management District (WIWMD)

- The benefit to WIWMD is to secure an option for future waste disposal. The participation in a regional solution like the Bayview project offers WIWMD an opportunity to take advantage of economies of scale. The hauling distance to Bayview Landfill is slightly farther than the distance to Wasatch Regional – there would be no savings in transportation costs for WIWMD. The savings to WIWMD would be limited to the lower tipping costs associated with the Bayview Landfill operation.

Trans-Jordan Cities

- The benefit to Trans Jordan is to secure an option for future waste management. The location of Bayview Landfill will allow Trans Jordan to save approximately \$ 2.20 per ton on transportation costs (projected cost to ship to Wasatch Regional of \$11.89 minus the projected shipping cost to ship to Bayview of \$9.69) as well as the lower tippage costs. The savings on transportation alone would be approximately \$660,000 per year.

NUERA Members Not Participating in Bayview

Logan City

- Logan City is in the process of construction a new landfill to serve the residents of Cache Valley and will not be participating in the Bayview Landfill project.