OLVER INCORPORATED

Consulting Engineers and Applied Scientists — *Memorandum*

TO:	**Transfer Station Siting Team Members**	DATE:	**May 8, 2008**
FROM:	**Bob Sallach**	OLVER PROJECT NUMBER:	20151
RE:	**Break-Even Haul Analysis**		
	Orange County Transfer Station Siting		

A transfer station becomes economically feasible when it reduces the costs of transporting waste to a final disposal or transfer site as compared to hauling the waste directly in collection vehicles. A break-even analysis can be developed to identify the minimum distance at which transfer haul becomes more economical than direct haul.

Evaluation parameters include haul travel time to transfer or disposal site; transportation costs per hour; vehicle payload; and transfer station operations costs.

> Direct Haul Cost = [Truck Operating Cost ($/hr) x Miles (round trip) / [Miles Per Hour x Payload (tons)]

> Transfer Haul Cost = [Truck Operating Cost ($/hr) x Miles (round trip) / [Miles Per Hour x Payload (tons)] + Transfer Station Operations Cost ($/ton)

Direct haul and transfer haul costs are calculated for various distances to identify the point at which the costs are equal (break-even distance). Any distance greater than the calculated break-even distance indicates that transfer haul for that distance is more economical than direct haul. The break-even distance is significantly impacted by travel time, which is a function of transportation network from the end of the collection route to the disposal or transfer site.

For the purposes of potential site identification (exclusionary screening process), the projected 2025 waste generation centroid (population and employment center) for the county has been used to establish the break-even haul distance along the selected major transportation corridors: 15-501, NC 54, NC 86 (excluding NC 86 north of Hillsbourgh), US 70, I-40, and I-85. Based upon the attached analysis, the break-even distance from the waste generation centroid is approximately 10-road miles. As a general rule in urban and suburban areas, transfer stations should be no more than 10 miles away from the end of all collection routes.[1]

It should be noted that the direct haul distance from the end of the current collection routes of the municipal and private haulers may exceed 10 miles depending upon the final location of the transfer station using the proposed 12-mile exclusionary criteria. This analysis does not take into account the additional off-route time of a collection vehicle resulting from increased distance to the final transfer location.
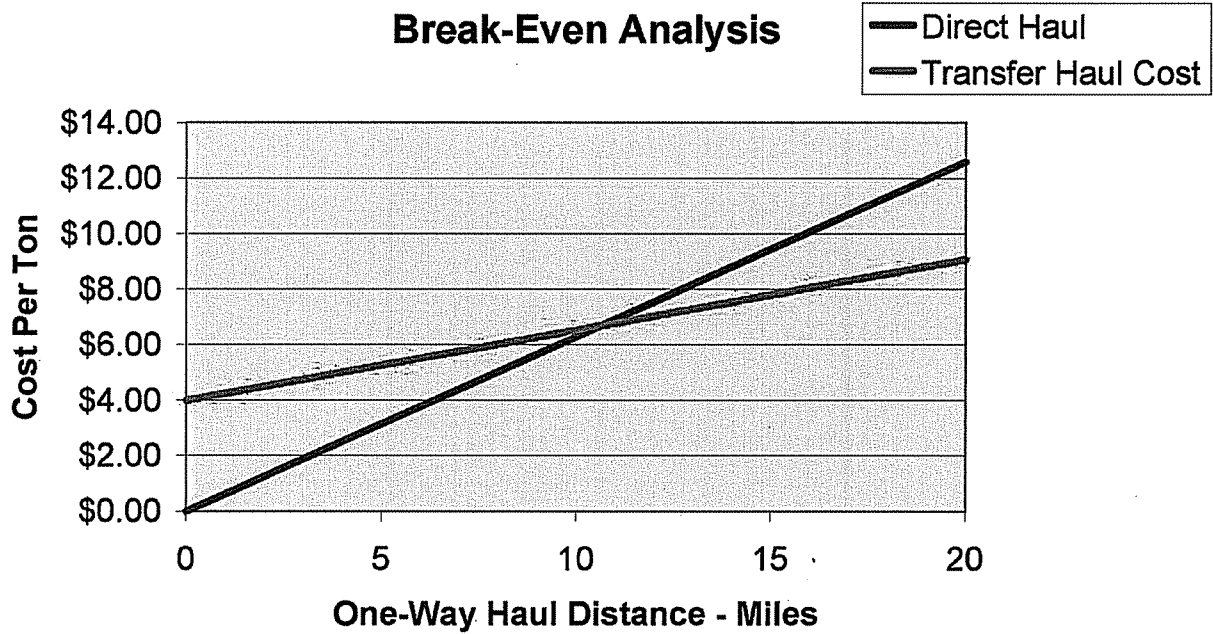
RCS/det

Attachments

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[1] U.S. EPA, Office of Solid Waste. 2002. *Waster Transfer Stations: A Manual for Decision-Making*

Orange County
Transfer Station Siting
Direct Haul Distance Evaluation

Break-Even Analysis

— Direct Haul
— Transfer Haul Cost

ASSUMPTIONS

Direct Haul
Payload, (Tons)	9
Truck Operating Cost, ($/hr)	$85.00
Average Travel Speed, (mph)	30

Transfer Haul
Payload, (Tons)	21
Truck Operating Cost,($/hr)	$80.00
Average Travel Speed, (mph)	30

Transfer Station Operating Cost	$4.00

One-Way Haul Distance	0	5	10	15	20
Direct Haul Cost	$0.00	$3.15	$6.30	$9.44	$12.59
Transfer Haul Cost	$4.00	$5.27	$6.54	$7.81	$9.08

Orange County Transfer Station Siting - C.2

Legend	
12 Mile Marker	Commercial Node
10 Mile Marker	Rural Industrial Node
Mean Center 2025 (weighted by pop and emp)	Commercial Industrial Node
EDD	

1 inch equals 2 miles

0   1 Miles

N

Orange County Planning and Inspections Department
GIS Map Prepared by Brian Carson April 29, 2008