So starting with the estimated average household waste per household in Scotland the report: <http://www.zerowastescotland.org.uk/sites/default/files/The%20food%20we%20waste%20in%20Scotland%20-%20full%20report.pdf> Identifies 145kg per household per year as measured in an extensive study in 2009.

Then looking at average numbers of occupants in a household the report: <https://www.nrscotland.gov.uk/files//statistics/household-estimates/2016/house-est-16.pdf> we see there is an average of 2.16 occupants per household in 2016 and math allows us to deduce 67.13kg of food waste per person per year.

Then the number of households are broken down into number of occupants in this report: <https://www.nrscotland.gov.uk/files/statistics/council-area-data-sheets/stirling-factsheet.pdf> where we can see that there is a total of 39,713 Stirling households in 2017.

From that we can see that we are servicing 85,780 individuals creating 5,758 tonnes of food waste per year. If a 7 Litre bag on average is thrown away containing 1kg of food waste as per Stirling’s estimates: <http://my.stirling.gov.uk/services/housing/waste-and-recycling/rubbish-household-waste/household-waste-food-waste-caddies/household-waste-free-caddy-lines> (2 to 3 a week covering an average of 2.78 kg of food waste) Then we can estimate that if 7 Litre bags come in rolls of 30 at a cost of £0.02 per bag then:

If 39,713 households are generating 145kg of food waste we get 5,758,385kg of waste per annum out of Stirling Council households. If there are 30 7 Litre bags in a roll we see that a household requires 5 rolls including a 3.5% over estimate which will cover spoilage (tearing) and alternative uses such as animal waste collection (which is not an undesirable outcome).

So 5 rolls per household and 39,713 households requires 198,575 rolls of BioBags. This represents a total of 5,956,950 individual bags which maintains a 3.4% average of over estimating necessary bags across the council.

The cost of bags is suggested to be £0.02 per bag (as indicated by the figures put forth by Waste Services). Making a total spend on just purchasing bags to be £119,139.

This is far greater than the estimates of £40,000 per annum current suggested in 2017.

Pulling the figures back to household prices we see a cost of £3.00 per household to accomplish this requirement.

Current spend would see £1.01 spent per household on BioBags.

However instead of looking at this as a failure to cover the requirement of a citizenship we can use the discrepancy to define the amount of food waste that is currently going to landfill.

So £1.01 (if we are being generous) indicates a third of all food waste is making it to recycling. So two thirds of 145kg are going to landfill. That represents 95.7 kg per household or 3,800 tonnes of Food Waste in total.

What is still required in this figure would be delivery for 5 annual rolls which could be done once a year a cost to be determined. Then perhaps an educational piece of work pushing use and we can see this work towards reducing landfill by up to 3,800 tonnes a year.

Using the figure that each household discards 1.2 tonnes of waste per year then 95.7 kg represents a 7.98% gain for Recycling Targets.

Distribution changed from open distribution to one annual manual delivery of 5 bags per household.

Cost is free for annually delivered bags, but additional bags can be purchased from the council at below market rates (£1.00 per roll?). Revenue stream to offset costs.

Increased recycling of food waste should generate revenue through selling to compost/energy generating companies. To offset costs.

To make this project work there would be required an un costed element of education of how to use the bags and promote their use effectively taking food waste out of the landfill waste and into the recycling waste.

Also it would be possible to offer money for unwanted bags. If a roll currently costs £0.60 returned bags could be bought back for £0.20 a roll. This means that there is an incentive for people who don’t want to engage with the scheme to return the bags replenishing Stirling Council stock with bags at a third of the cost.