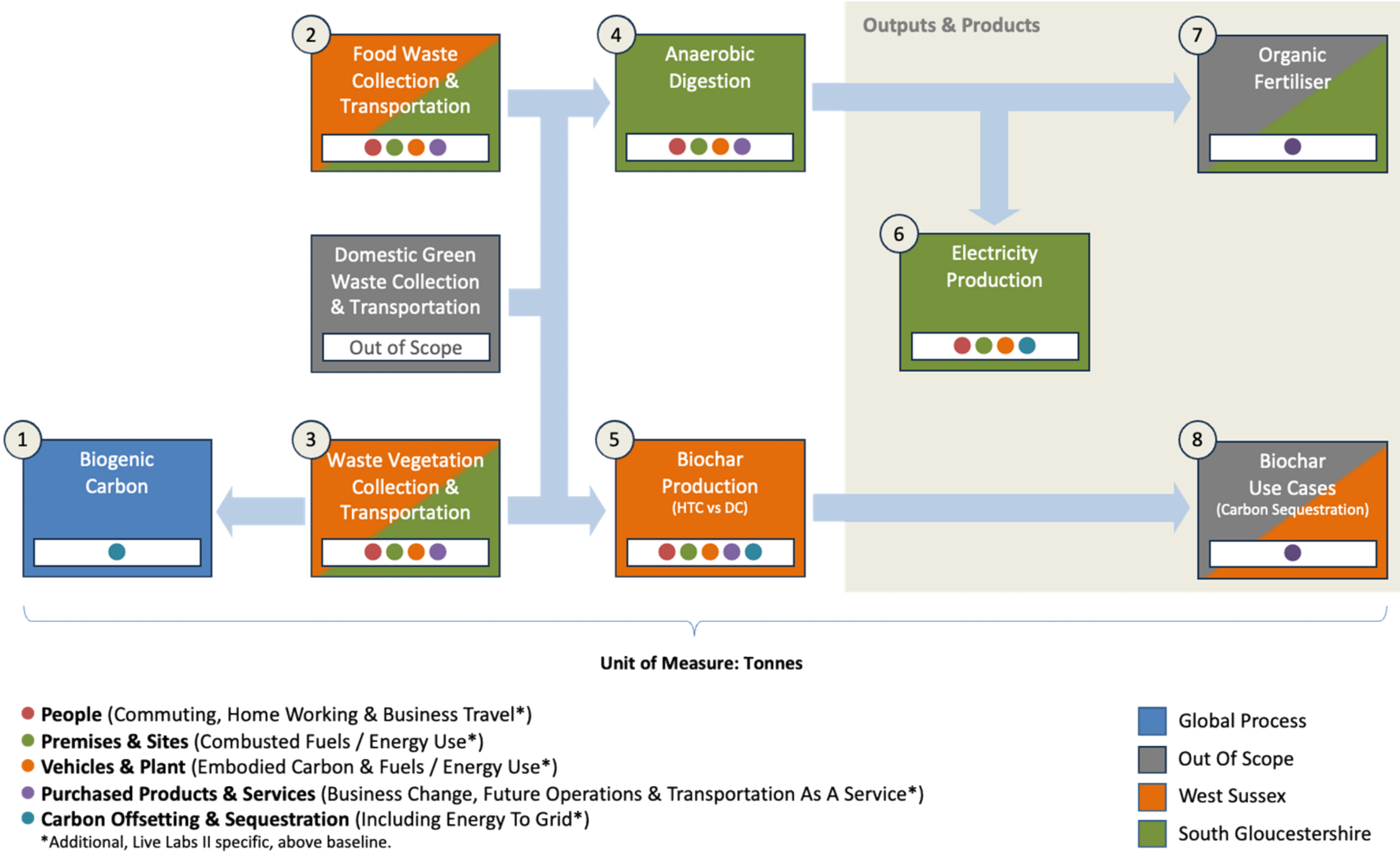
Live Labs II: West Sussex & South Gloucestershire

Programme Route Map v11.3



Stage Name

Biogenic Carbon (WSCC)

Stage Description

Stage 1 Biogenic Carbon of the Live Labs II: Greenprint Carbon Assessment Route Map focuses solely on verge-side biogenic emissions and biogenic carbon storage and sequestration. The 'waste vegetation cutting, collection and transportation process' emissions are calculated as part of Stage 3. The stage 1 processes include two main verge management types: 'cut and leave' (C+L) and 'cut and collect' (C+C). 'Cut and leave' is the baseline procedure involving cutting grass and vegetation and leaving them in situ on the verge. 'Cut and collect' (C+C) is a procedure for cutting and removing grass and vegetation from the site.

Carbon & Cost Analysis (Baseline, Cut and Leave C+L)

ID	Category	Description	Unit Of Measure (UoM) (FW)	Quantity	Amount of disposal grass clippings (t-FW/ha)	UoM Adjustment	Emission Factor (t-CO2e/t-FW)	Total (tonne CO2e per ha per year)	Total (kg CO2e per 1000m2 per year)	Data Confidence	Emission Factor Data Source
1	Biogenic emissions	C+L 1st cut @Pagham, Aldwick and Bersted (191,000 m	tonnes	32.83	1.72	1	0.2060	0.354	**35.403**	Medium-Hig	
2	Biogenic emissions	C+L 2nd cut @Pagham, Aldwick and Bersted (191,000 n	tonnes	50.83	2.66	1	0.2060	0.548	**54.822**	Medium-Hig	
3	Biogenic emissions	C+L 3rd cut @Pagham, Aldwick and Bersted (191,000 n	tonnes	47.06	2.46	1	0.2060	0.508	**50.756**	Medium-Hig	
4	Biogenic emissions	C+L 4th cut @Pagham, Aldwick and Bersted (191,000 n	tonnes	28.28	1.48	1	0.2060	0.305	**30.496**	Medium-Hig	
								Total Per 1000 m^2	**171.4761**		
9				0	0		0.0000	0.0000			
10				0	0		0.0000	0.0000			
11				0	0		0.0000	0.0000			
12				0	0		0.0000	0.0000			
13				0	0		0.0000	0.0000			
14				0	0		0.0000	0.0000			
15				0	0		0.0000	0.0000			

Carbon & Cost Analysis (Experiment, Cut and Collect)

	Category	Description	Unit Of Measure (UoM)	Quantity	UoM Adjustment	Emission Factor	Total kgCO2e	Cost Per UoM (£)		Emission Factor Data Source
1				0	1	0.0000	0.0000	£ -		
2				0	1	0.0000	0.0000	£ -		
3				0	1	0.0000	0.0000	£ -		
4				0	1	0.0000	0.0000	£ -		
5				0	1	0.0000	0.0000	£ -		
6				0	1	0.0000	0.0000	£ -		
7				0	1	0.0000	0.0000	£ -		
8				0	1	0.0000	0.0000	£ -		
9				0	1	0.0000	0.0000	£ -		
10				0	1	0.0000	0.0000	£ -		
11				0	1	0.0000	0.0000	£ -		
12				0	1	0.0000	0.0000	£ -		
13				0	1	0.0000	0.0000	£ -		
14				0	1	0.0000	0.0000	£ -		
15				0	1	0.0000	0.0000	£ -		

Stage Name

Biogenic Carbon (SGC)

Stage Description

Stage 1 Biogenic Carbon of the Live Labs II: Greenprint Carbon Assessment Route Map focuses solely on verge-side biogenic emissions and biogenic carbon storage and sequestration. The 'waste vegetation cutting, collection and transportation process' emissions are calculated as part of Stage 3. The stage 1 processes include two main verge management types: 'cut and leave' (C+L) and 'cut and collect' (C+C). 'Cut and leave' is the baseline procedure involving cutting grass and vegetation and leaving them in situ on the verge. 'Cut and collect' (C+C) is a procedure for cutting and removing grass and vegetation from the site.

Carbon & Cost Analysis (Baseline, Where Applicable)

	Category	Description	Unit Of Measure (UoM) (FW)	Quantity	Amount of disposal grass clippings (t-FW/ha)	Emission Factor (t-CO2e/t-FW)	Total (tonne CO2e per ha per year)	Total (kg CO2e per 1000m2 per year)	Confidence	Emission Factor Data Source
1	Biogenic emissions	C+L 1st cut @Yate (128,629 m2)(12.86 ha)	tonnes	31.12	2.42	0.2060	0.499	**49.850**	Medium-High	
2	Biogenic emissions	C+L 2nd cut @Yate (128,629 m2)(12.86 ha)	tonnes	44.66	3.47	0.2060	0.715	**71.539**	Medium-High	
3	Biogenic emissions	C+L 3rd cut @Yate (128,629 m2)(12.86 ha)	tonnes	49.86	3.88	0.2060	0.799	**79.869**	Medium-High	
4	Biogenic emissions	C+L 4th cut @Yate (128,629 m2)(12.86ha)	tonnes	20.79	1.62	0.2060	0.333	**33.303**	Medium-High	
5							**Total Per 1000 m²**	**234.561**		
6				0	1	0.0000	0.0000	0.000		
7				0	1	0.0000	0.0000	0.000		
8				0	1	0.0000	0.0000	0.000		
9				0	1	0.0000	0.0000	0.000		
10				0	1	0.0000	0.0000	0.000		
11				0	1	0.0000	0.0000	0.000		
12				0	1	0.0000	0.0000	0.000		
13				0	1	0.0000	0.0000	0.000		
14				0	1	0.0000	0.0000	0.000		
15				0	1	0.0000	0.0000	0.000		

Carbon & Cost Analysis (Experiment)

	Category	Description	Unit Of Measure (UoM)	Quantity	UoM Adjustment	Emission Factor	Total kgCO2e		Confidence	Emission Factor Data Source
1				0	1	0.0000	0.0000			
2				0	1	0.0000	0.0000			
3				0	1	0.0000	0.0000			
4				0	1	0.0000	0.0000			
5				0	1	0.0000	0.0000			
6				0	1	0.0000	0.0000			
7				0	1	0.0000	0.0000			
8				0	1	0.0000	0.0000			
9				0	1	0.0000	0.0000			
10				0	1	0.0000	0.0000			
11				0	1	0.0000	0.0000			
12				0	1	0.0000	0.0000			
13				0	1	0.0000	0.0000			
14				0	1	0.0000	0.0000			
15				0	1	0.0000	0.0000			

Stage Name

Waste Vegetation Collection & Transportation (WSCC)

Stage Description

Stage 3, Waste Vegetation Collection and Transportation of the Live Labs II: Greenprint Carbon Assessment Route Map, focuses on the maintenance strategy, cut and collect processes and logistics, cut and collect technology, green waste management, and converting green waste into valuable resources.

Carbon & Cost Analysis (Baseline, Where Applicable Worthing - Total of 5 cuts over one year - Area size = 246,150m^2 1000 m^2 For 5 cuts, that means 5x246,150 = 1,230,750m^2 were cut over the year **Total area cut:** 1230750 **Adjustment:** 1230.75

ID	Category	Description	Unit Of Measure	Quantity		Per 1000 m²	UoM Adjustment	Emission Factor	Total kgCO2e	Cost Per UoM (£)	Data Confidence	Emission Factor Data Source
1	Combusted Fuels	Diesel for Plant Transportation	litres	915		0.7434		3.2856	2.4427	£ 0.96	Medium-High	£1.29 / L - Unleaded Fuel
2	Services	Resource Days (Staff & Contractors)	operative.day	150		0.1219		2.3360	0.2847	£ 15.84	Medium	Based on estimated day rate from C&C extrapolated to here. £130/day
3	Combusted Fuels	Diesel for Mowers	litres	2250		1.8282		2.9517	5.3961	£ 2.52	Medium-High	Diesel Fuel is £1.38 per litre.
4	Combusted Fuels	Petrol for Strimmers	litres	280		0.2275		2.9517	0.6715	£ 0.29	Medium	£1.29 for petrol unleaded
5	Combusted Fuels	Strimmer 2-Stroke Oil	litres	5.6		0.0046		3.1443	0.0143	£ 0.02	Medium-Low	Oil for strimmers. Roughly 5L Petrol : 0.1L Oil. Cost is £4.44 / L, Diverse oil types used.
							Totals Per 1000 m²		**8.8093**	**£ 19.64**		

Carbon & Cost Analysis (Experiment) **Aldwick, Bersted and Pagham - Total of 5 cuts over one year (data only for four cuts) - Area Size = 1** For 4 cuts, that means 4x 191,235 = 764,940 is the total area cut that year **Total area cut:** 764940 **Adjustment:** 764.94

ID	Category	Description	Unit Of Measure	Quantity		Per 1000 m²	UoM Adjustment	Emission Factor	Total kgCO2e	Cost Per UoM (£)	Data Confidence	Emission Factor Data Source
1	Combusted Fuels	Diesel for Plant & Recyclate Transportation	miles	3052	3815	3.9899	1	3.2856	13.1092	£ 5.15	High	Let's take another look for litres
2	Services	Resource Days (Staff & Contractors)	operative.day	172	215	0.2249	1	2.3360	0.5253	£ 30.85	High	2 operatives over 86 days to make 172 days. Cost is for total labour over this 18 day period.
3	Combusted Fuels	Diesel for Mowers	litres	2637.5	3296.875	3.4480	1	2.9517	10.1773	£ 4.76	High	
4	Combusted Fuels	Petrol for Strimmers	litres	342	427.5	0.4471	1	2.9517	1.3197	£ 0.62	High	Assuming unleaded petrol is £1.40 per litre.
5	Combusted Fuels	Strimmer 2-Stroke Oil	litres	6.84		0.0056		3.1443	0.0175	£ 0.02	Medium	Oil for strimmers. Roughly 5L Petrol : 0.1L Oil. Cost is £4.44 / L
							Totals Per 1000 m²		**25.1489**	**£ 41.40**		

Stage Name

Waste Vegetation Collection & Transportation (SGC)

Stage Description

Stage 3, Waste Vegetation Collection and Transportation of the Live Labs II: Greenprint Carbon Assessment Route Map, focuses on the maintenance strategy, cut and collect processes and logistics, cut and collect technology, green waste management, and converting green waste into valuable resources.

Carbon & Cost Analysis (Baseline, Where Applicabl Doddington - Total of 9 cuts in one year - Area size is 254, 1000 m^2 For 9 cuts that means 254,010x9 = 2,286,090m^2 cu **Total area cut:** 2,286,090 **Adjustment:**

ID	Category	Description	Unit Of Measure	Quantity	Per 1000 m²	UoM Adjustment	Emission Factor	Total kgCO2e	Cost Per UoM (£)	Data Confidence	Emission Factor Data Source
1	Combusted Fuels	Diesel for Plant Transportation (Class III LGV)	miles	594	0.2598	2286.09	3.2856	0.8537	£ -	Medium-High	2 miles from depot. Twice per day, 148.5 days (inclusive of days x No. of vehicles)
2	Services	Resource Days (Staff & Contractors)	operative.day	148.5	0.0650	2286.09	2.3360	0.1517	£ 10.26	Medium	3 people. 5.5 days per cut. Multiply by number of cuts and by number of people. This reflects th
3	Combusted Fuels	Diesel for Mowers	litres	1968.3	0.8610	2286.09	3.2856	2.8289	£ 1.21	Medium-High	72.9L per mower per cut. 3 mowers. 3*72.9*number of cuts. Cost / L = £1.41
4	Electricity	Energy for Strimmers (Rechargable Battery Packs)	kWh	118.8	0.0520	2286.09	0.2749	0.0143	£ -	Medium-Low	1.2Kw to recharge. National Grid. 2.5 hours per day use. 2 strimmers / day. 9 cuts / year
							er 1000 m²	**3.8486**	**£ 11.48**		

Carbon & Cost Analysis (Experiment) **Yate - Total of 4 cuts in one year - Area size is 128,629m^2** For 4 cuts, that means 128,629x4 = 514,516m^2 cut **Total area cut:** 514,516 **Adjustment:** 514.516

ID	Category	Description	Unit Of Measure	Quantity	Per 1000 m²	UoM Adjustment	Emission Factor	Total kgCO2e	Cost Per UoM (£)	Data Confidence	Emission Factor Data Source
1	Combusted Fuels	Diesel for Plant Transportation (Class III LGV)	litres	298.95	0.5810	1	3.2856	1.9091	£ 0.81	High	
2	Services	Resource Days (Staff & Contractors)	operative.day	102	0.1982	1	2.3360	0.4631	£ 41.58	High	
3	Combusted Fuels	Diesel for Mowers	litres	2322.87	1.7540	1	3.2856	5.7630	£ 2.46	High	
5	Electricity	Energy for Strimmers (Rechargable Battery Packs)	kWh	81.6	0.1586	1	0.2749	0.0436	£ -	Medium	Extrapolate from calculation in baseline
							er 1000 m²	**8.1788**	**£ 44.84**		

GENERAL