



Waste and Recycling Collection Round Review

The Government's Resources and Waste Strategy Summary

The Government published its National Resources and Waste Strategy in December 2018. At the time, the key headlines from the Department for Environment, Food and Rural Affairs (DEFRA) were:

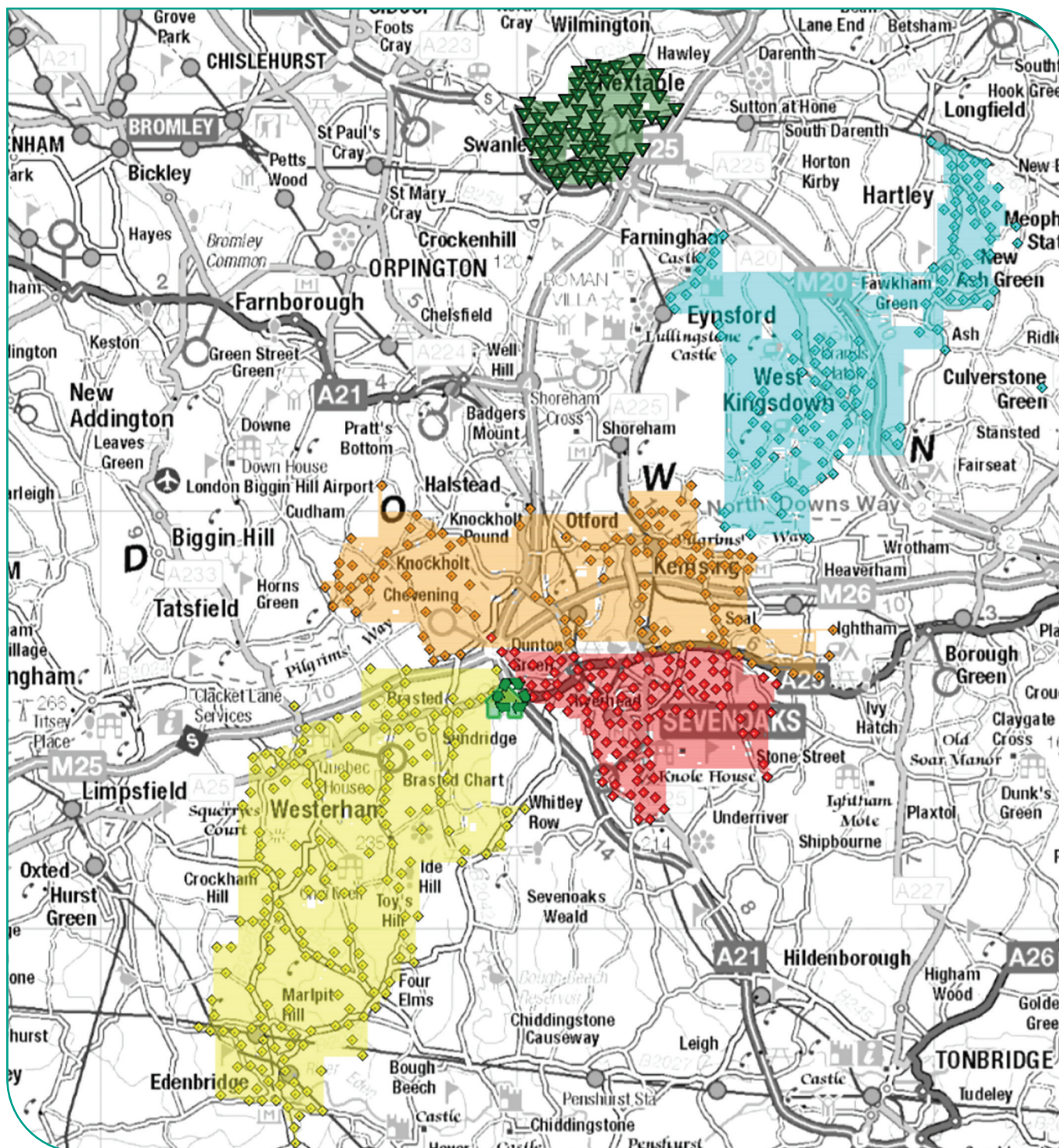
- The introduction of extended producer responsibility (EPR) for packaging so business and industry pay the full net cost of recycling or disposing of their packaging waste.
- EPR will include a review of producer responsibility schemes for items that can be harder or costly to recycle including cars, electrical goods and batteries. Extending EPR to textiles, fishing gear, tyres, certain materials from construction and demolition and bulky waste such as mattresses, furniture and carpets will also be explored.
- Mandatory weekly separate collections of food waste for every household, subject to consultation.
- A Deposit Return Scheme (DRS) will be brought in, subject to consultation, to increase the recycling 'on the go' of single-use drinks containers, including bottles, cans and disposable cups filled at the point of sale.
- To increase recycling, a consistent set of recyclable materials collected from businesses and households will be instigated on a national basis together with consistent labelling on packaging.
- Mandatory guarantees and extended warranties on products to encourage manufacturers to design products that last longer and drive up the levels of repair and reuse will be introduced.
- Annual reporting of food surplus and waste by food businesses will be laid down. If progress is insufficient consultation will start on introducing mandatory targets for food waste prevention.

The initial consultation phase concluded in May 2019. DEFRA provided an update in late July which indicated no changes to the principle set out in the Strategy that any required changes to how Councils manage waste will be fully funded. The update stated the elements of the strategy that look to introduce greater producer responsibility for ensuring recyclability of packaging and a Deposit Return Scheme remain key. In July, DEFRA reported that it intends to bring forward fresh consultations on firm plans in early 2020.

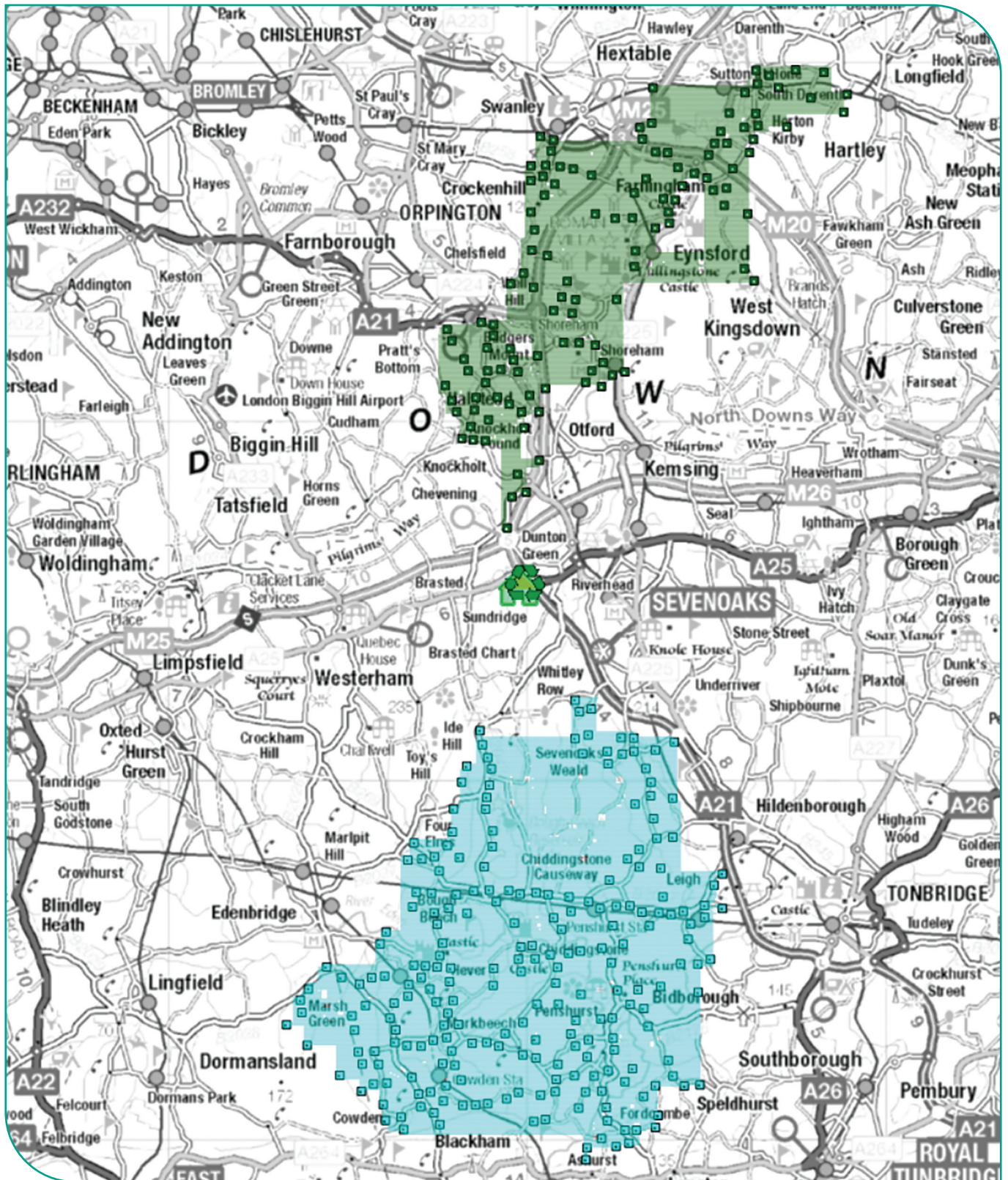
In the meantime, the Government announced the Environment Bill 2019/20. This bill was due for its second reading towards the end of October 2019, but the dissolution of Parliament prevented that happening. The Bill makes reference to the Office for Environmental Protection's "25 Year Environmental Plan". This plan has a section "Minimising Waste" which includes statements such as:

"We will minimise waste, reuse materials as much as we can and manage materials at the end of their life to minimise the impact on the environment. We will do this by: working towards our ambition of zero avoidable waste by 2050, working to a target of eliminating avoidable plastic waste by end of 2042, meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones"

District Main Zones



Rural Zones



Staffing Levels

Refuse/Recycle						
Round ID	Area	Vehicle	HGV	7.5t	Van	LDR
R1	Zone	LN70YBO	1	0	0	2
R2	Zone	LN70YBP	1	0	0	2
R3	Zone	NA11XTM	1	0	0	2
R4	Zone	NA11XTX	1	0	0	2
R5	Zone	GN17VKV	1	0	0	2
R6	Zone	LN70 YBM	1	0	0	2
R7	Zone	GN63HVK	1	0	0	2
R8	Zone	GN63HVL	1	0	0	2
R9	Zone	GN63HVM	1	0	0	2
R10	Zone	GKL63 BZR	1	0	0	2
R11	Rural	GN15DNX	1	0	0	1
R12	Rural	VX16 ASV	1	0	0	2
Na1	Narrow Access 18t	NEW TBA	1	0	0	1
Na2	Narrow Access Refuse	HN63 XUY	1	0	0	1
Na3	Narrow Access Recycle	DV63UFY	1	0	0	1
Na4	Narrow Access 3.5t	WP17TGX	0	0	1	0
FL1	Flats Bulk Bins	NEW TBA	1	0	0	1
M1	Mop Up 7.5t	NEW TBA	0	1	0	0
B1	Bulky Collections	NA10VPL	1	0	0	1
F1	Fridges	PJ63WBY	0	0	1	0
C1	Clinical	NEW TBA	0	0	1	0
Sacks1	Sacks	LJ15 XGA	0	0	1	1
Sacks2	Sacks	LJ15 XGB	0	0	1	1
Bins1	Bin Deliveries	GN12 FWA	0	0	1	0
BottleBank1	Bottle Banks	CN18 VCW	1	0	0	0
BottleBank2	Bottle Banks	GN60FFL	1	0	0	0
Out Of Door Requirement Total			19	1	6	30
Garden Waste						
Round ID	Area	Vehicle	HGV	7.5t	Van	LDR
G1	District	GN63HVF	1	0	0	1
G2	District	GN63HVH	1	0	0	1
G3	District	PO63BKN	1	0	0	1
G4	District	DX13GPK	1	0	0	1
G5	District	CN11CTF	1	0	0	1
Out Of Door Requirement Total			5	0	0	5
Paid Services						
Round ID	Area	Vehicle	HGV	7.5t	Van	LDR
Trade 1	Trade Waste	ND63EOG	1	0	0	1
Trade 2	Trade Waste	NEW TBA	1	0	0	0
Cesspool	Cesspools	GN15 OBO	1	0	0	1
Out Of Door Requirement Total			3	0	0	2
Construction						
Round ID	Area	Vehicle	HGV	7.5t	Van	LDR
Construction	Construction	GL08KKT	0	0	1	0
Out Of Door Requirement Total			0	0	1	0
Calculations						
Working Days [365 Days - 104 Weekends - 8 Bank Holidays = 253]			253			
Sickness as a Percentage			3.00%			
Holiday Average Entitlement in Days			27			
Summary			HGV	7.5t	Van	LDR
Totals Out Of Door			27	1	6	37
Holiday Days to Cover			729	27	162	999
Staff Required to cover Holiday (Roundup)			3	1	1	4
Sub Total Staff to Cover Out of Door and Holiday			30	2	7	41
Lost Sickness Days Including Holiday Cover Staff			227.7	15.18	53.13	311.19
Staff Required to cover Sickness at 3.00%			1	1	1	2
Staff to cover 27 Holiday and Sickness at 3.00% and Out Of Door			31	3	8	43
			85			

Existing Resources Table One Monday to Thursday

Round	Time (hrs)	Distance (miles)	Locations	Tips	Fuel Used (litre)	Emissions kg	Total Weight (kg)	Crew	Vehicles	Urban Locations	Semi Locations	Rural Locations
Mon 1	7.60	52.11	890.00	2.00	58.62	158.28	10412.96	3.00	1.00	837.00	53.00	0.00
Mon 2	7.66	56.82	865.00	2.00	63.93	172.60	11548.67	3.00	1.00	865.00	0.00	0.00
Mon 3	7.70	58.36	862.00	2.00	65.65	177.26	10904.70	3.00	1.00	788.00	74.00	0.00
Mon 4	7.63	57.61	853.00	2.00	64.81	174.99	10059.74	3.00	1.00	850.00	3.00	0.00
Mon 5	7.68	62.52	825.00	2.00	70.34	189.92	9149.55	3.00	1.00	818.00	7.00	0.00
Mon 6	7.61	63.09	808.00	2.00	70.98	191.65	9013.32	3.00	1.00	735.00	73.00	0.00
Mon 7	7.82	68.50	806.00	2.00	77.07	208.08	9044.93	3.00	1.00	466.00	322.00	18.00
Mon 8	7.76	58.71	870.00	2.00	66.05	178.33	9653.89	3.00	1.00	870.00	0.00	0.00
Mon 9	7.60	52.79	884.00	2.00	59.39	160.35	9557.18	3.00	1.00	883.00	0.00	1.00
Mon 10	7.36	51.96	846.00	2.00	58.46	157.83	9569.65	3.00	1.00	846.00	0.00	0.00
Tue 1	8.76	71.38	811.00	2.00	80.31	216.82	8994.80	3.00	1.00	811.00	0.00	0.00
Tue 2	8.54	71.81	773.00	2.00	80.79	218.12	8998.35	3.00	1.00	737.00	36.00	0.00
Tue 3	8.70	70.71	806.00	2.00	79.55	214.78	8988.84	3.00	1.00	587.00	212.00	7.00
Tue 4	8.14	66.54	743.00	2.00	74.86	202.12	8999.82	3.00	1.00	589.00	154.00	0.00
Tue 5	8.47	65.96	799.00	2.00	74.21	200.36	8994.13	3.00	1.00	522.00	269.00	8.00
Tue 6	8.61	74.65	766.00	2.00	83.98	226.75	8992.26	3.00	1.00	559.00	190.00	17.00
Tue 7	9.16	67.50	900.00	2.00	75.94	205.04	8095.41	3.00	1.00	680.00	183.00	37.00
Tue 8	8.11	53.21	823.00	2.00	59.86	161.62	8997.10	3.00	1.00	652.00	171.00	0.00
Tue 9	8.63	64.01	838.00	2.00	72.01	194.44	8989.73	3.00	1.00	678.00	159.00	1.00
Tue 10	4.90	53.26	376.00	1.00	59.92	161.77	3466.42	3.00	1.00	0.00	283.00	93.00
Wed 1	8.58	47.32	936.00	2.00	53.23	143.73	8467.79	3.00	1.00	818.00	88.00	30.00
Wed 2	8.26	37.13	950.00	2.00	41.77	112.78	8661.20	3.00	1.00	739.00	211.00	0.00
Wed 3	7.60	38.33	837.00	2.00	43.12	116.42	9180.17	3.00	1.00	619.00	185.00	33.00
Wed 4	7.89	31.09	930.00	2.00	34.98	94.44	8992.71	3.00	1.00	882.00	35.00	13.00
Wed 5	9.07	69.89	856.00	2.00	78.62	212.28	8238.19	3.00	1.00	429.00	322.00	105.00
Wed 6	7.78	30.54	907.00	2.00	34.36	92.78	9485.05	3.00	1.00	698.00	208.00	1.00
Wed 7	6.90	15.71	898.00	1.00	17.67	47.71	7935.97	3.00	1.00	895.00	0.00	3.00
Wed 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00
Wed 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00
Wed 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00
Thu 1	8.54	54.56	884.00	2.00	61.38	165.72	8999.61	3.00	1.00	605.00	252.00	27.00
Thu 2	7.71	29.51	911.00	2.00	33.20	89.63	9001.30	3.00	1.00	909.00	0.00	2.00
Thu 3	8.60	45.69	950.00	2.00	51.40	138.77	8152.44	3.00	1.00	594.00	356.00	0.00
Thu 4	7.59	30.96	950.00	1.00	34.83	94.04	7406.76	3.00	1.00	817.00	133.00	0.00
Thu 5	7.90	28.23	950.00	2.00	31.76	85.76	8114.70	3.00	1.00	950.00	0.00	0.00
Thu 6	7.61	28.86	950.00	1.00	32.47	87.66	7398.01	3.00	1.00	880.00	70.00	0.00
Thu 7	7.77	24.91	950.00	2.00	28.03	75.67	8000.14	3.00	1.00	950.00	0.00	0.00
Thu 8	7.34	21.09	950.00	1.00	23.73	64.07	7801.93	3.00	1.00	950.00	0.00	0.00
Thu 9	7.24	20.23	950.00	1.00	22.76	61.46	7472.47	3.00	1.00	651.00	285.00	14.00
Thu 10	1.00	4.46	65.00	1.00	5.02	13.55	503.24	3.00	1.00	0.00	57.00	8.00

Existing Resource Table Two Continuation of Thursday and Friday

Round	Time (hrs)	Distance (miles)	Locations	Tips	Fuel Used (litre)	Emissions kg	Total Weight (kg)	Crew	Vehicles	Urban Locations	Semi Locations	Rural Locations
R1 Thursday	14.73	90.35	2164.00	4.00	101.64	274.43	18840.00	6.00	2.00	2127.00	26.00	11.00
R2 Thursday	12.79	102.39	1686.00	4.00	115.19	311.02	13520.00	6.00	2.00	1373.00	201.00	112.00
R3 Thursday	8.50	91.17	1447.00	3.00	102.57	276.93	12880.00	6.00	2.00	1146.00	275.00	26.00
R4 Thursday	6.98	77.90	693.00	1.00	87.64	236.63	6730.00	3.00	1.00	0.00	507.00	186.00
R5 Thursday	14.63	131.54	1721.00	4.00	147.99	399.56	23260.00	6.00	2.00	1642.00	79.00	0.00
R6 Thursday	6.46	86.34	904.00	2.00	97.14	262.27	12480.00	3.00	1.00	692.00	156.00	56.00
R7 Thursday	16.38	137.17	1421.00	4.00	154.32	416.67	15760.00	6.00	2.00	1032.00	384.00	5.00
SV Thursday	16.88	165.79	757.00	2.00	186.51	503.58	9330.00	4.00	2.00	532.00	135.00	90.00
T1 Domestic Thursday	9.97	176.98	435.00	2.00	199.11	537.58	10090.00	2.00	1.00	348.00	83.00	4.00
Mop Up Thursday	2.87	10.24	15.00	1.00	11.52	31.11	750.00	2.00	1.00	15.00	0.00	0.00
R1 Friday	19.13	81.97	2291.00	4.00	92.21	248.97	17360.00	6.00	2.00	1918.00	363.00	10.00
R2 Friday	13.29	95.03	951.00	4.00	106.91	288.67	13460.00	6.00	2.00	174.00	703.00	74.00
R3 Friday	7.90	109.17	967.00	3.00	122.82	331.61	8340.00	6.00	2.00	688.00	163.00	116.00
R4 Friday	6.75	66.93	566.00	1.00	75.30	203.31	5880.00	3.00	1.00	0.00	418.00	148.00
R5 Friday	14.29	110.14	1387.00	4.00	123.91	334.54	15550.00	6.00	2.00	1121.00	266.00	0.00
R6 Friday	7.15	92.63	544.00	2.00	104.21	281.37	6500.00	3.00	1.00	67.00	389.00	88.00
R7 Friday	16.98	124.99	1584.00	4.00	140.61	379.65	17310.00	6.00	2.00	1358.00	226.00	0.00
SV Friday	13.56	140.63	898.00	2.00	158.21	427.18	10090.00	4.00	1.00	727.00	75.00	96.00
Mop Up Friday	4.96	13.91	110.00	1.00	15.65	42.24	1600.00	2.00	1.00	109.00	0.00	1.00
Totals	534.86	5182.85	50811.00	127.00	5830.70	15742.90	539250.00	210.00	75.00	36109.00	11420.00	3282.00

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New Resource Table One

Round	Time (hrs)	Distance (miles)	Locations	Tips	Fuel Used (litre)	Emissions kg	Total Weight (kg)	Crew	Vehicles	Urban Locations	Semi Locations	Rural Locations
Mon 1	7.60	52.11	890.00	2.00	58.62	158.28	10412.96	3.00	1.00	837.00	53.00	0.00
Mon 2	7.66	56.82	865.00	2.00	63.93	172.60	11548.67	3.00	1.00	865.00	0.00	0.00
Mon 3	7.70	58.36	862.00	2.00	65.65	177.26	10904.70	3.00	1.00	788.00	74.00	0.00
Mon 4	7.63	57.61	853.00	2.00	64.81	174.99	10059.74	3.00	1.00	850.00	3.00	0.00
Mon 5	7.68	62.52	825.00	2.00	70.34	189.92	9149.55	3.00	1.00	818.00	7.00	0.00
Mon 6	7.61	63.09	808.00	2.00	70.98	191.65	9013.32	3.00	1.00	735.00	73.00	0.00
Mon 7	7.82	68.50	806.00	2.00	77.07	208.08	9044.93	3.00	1.00	466.00	322.00	18.00
Mon 8	7.76	58.71	870.00	2.00	66.05	178.33	9653.89	3.00	1.00	870.00	0.00	0.00
Mon 9	7.60	52.79	884.00	2.00	59.39	160.35	9557.18	3.00	1.00	883.00	0.00	1.00
Mon 10	7.36	51.96	846.00	2.00	58.46	157.83	9569.65	3.00	1.00	846.00	0.00	0.00
Tue 1	8.76	71.38	811.00	2.00	80.31	216.82	8994.80	3.00	1.00	811.00	0.00	0.00
Tue 2	8.54	71.81	773.00	2.00	80.79	218.12	8998.35	3.00	1.00	737.00	36.00	0.00
Tue 3	8.70	70.71	806.00	2.00	79.55	214.78	8988.84	3.00	1.00	587.00	212.00	7.00
Tue 4	8.14	66.54	743.00	2.00	74.86	202.12	8999.82	3.00	1.00	589.00	154.00	0.00
Tue 5	8.47	65.96	799.00	2.00	74.21	200.36	8994.13	3.00	1.00	522.00	269.00	8.00
Tue 6	8.61	74.65	766.00	2.00	83.98	226.75	8992.26	3.00	1.00	559.00	190.00	17.00
Tue 7	9.16	67.50	900.00	2.00	75.94	205.04	8095.41	3.00	1.00	680.00	183.00	37.00
Tue 8	8.11	53.21	823.00	2.00	59.86	161.62	8997.10	3.00	1.00	652.00	171.00	0.00
Tue 9	8.63	64.01	838.00	2.00	72.01	194.44	8989.73	3.00	1.00	678.00	159.00	1.00
Tue 10	4.90	53.26	376.00	1.00	59.92	161.77	3466.42	3.00	1.00	0.00	283.00	93.00
Wed 1	8.58	47.32	936.00	2.00	53.23	143.73	8467.79	3.00	1.00	818.00	88.00	30.00
Wed 2	8.26	37.13	950.00	2.00	41.77	112.78	8661.20	3.00	1.00	739.00	211.00	0.00
Wed 3	7.60	38.33	837.00	2.00	43.12	116.42	9180.17	3.00	1.00	619.00	185.00	33.00
Wed 4	7.89	31.09	930.00	2.00	34.98	94.44	8992.71	3.00	1.00	882.00	35.00	13.00
Wed 5	9.07	69.89	856.00	2.00	78.62	212.28	8238.19	3.00	1.00	429.00	322.00	105.00
Wed 6	7.78	30.54	907.00	2.00	34.36	92.78	9485.05	3.00	1.00	698.00	208.00	1.00
Wed 7	6.90	15.71	898.00	1.00	17.67	47.71	7935.97	3.00	1.00	895.00	0.00	3.00
Wed 8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00
Wed 9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00
Wed 10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	1.00	0.00	0.00	0.00
Thu 1	8.54	54.56	884.00	2.00	61.38	165.72	8999.61	3.00	1.00	605.00	252.00	27.00
Thu 2	7.71	29.51	911.00	2.00	33.20	89.63	9001.30	3.00	1.00	909.00	0.00	2.00
Thu 3	8.60	45.69	950.00	2.00	51.40	138.77	8152.44	3.00	1.00	594.00	356.00	0.00
Thu 4	7.59	30.96	950.00	1.00	34.83	94.04	7406.76	3.00	1.00	817.00	133.00	0.00
Thu 5	7.90	28.23	950.00	2.00	31.76	85.76	8114.70	3.00	1.00	950.00	0.00	0.00
Thu 6	7.61	28.86	950.00	1.00	32.47	87.66	7398.01	3.00	1.00	880.00	70.00	0.00
Thu 7	7.77	24.91	950.00	2.00	28.03	75.67	8000.14	3.00	1.00	950.00	0.00	0.00
Thu 8	7.34	21.09	950.00	1.00	23.73	64.07	7801.93	3.00	1.00	950.00	0.00	0.00
Thu 9	7.24	20.23	950.00	1.00	22.76	61.46	7472.47	3.00	1.00	651.00	285.00	14.00
Thu 10	1.00	4.46	65.00	1.00	5.02	13.55	503.24	3.00	1.00	0.00	57.00	8.00

New Resource Table Two

Round	Time (hrs)	Distance (miles)	Locations	Tips	Fuel Used (litre)	Emissions kg	Total Weight (kg)	Crew	Vehicles	Urban Locations	Semi Locations	Rural Locations
Fri 1	7.64	51.98	756.00	2.00	58.48	157.89	8293.42	3.00	1.00	732.00	23.00	1.00
Fri 2	7.60	50.83	757.00	2.00	57.19	154.40	8193.56	3.00	1.00	745.00	0.00	12.00
Fri 3	7.59	48.60	770.00	2.00	54.68	147.62	8187.53	3.00	1.00	770.00	0.00	0.00
Fri 4	7.67	49.83	775.00	2.00	56.06	151.37	8007.43	3.00	1.00	695.00	64.00	16.00
Fri 5	7.58	48.87	766.00	2.00	54.98	148.44	8567.15	3.00	1.00	699.00	45.00	22.00
Fri 6	8.42	90.17	704.00	1.00	101.44	273.89	7997.66	3.00	1.00	47.00	414.00	243.00
Fri 7	6.38	24.12	800.00	1.00	27.13	73.26	6415.18	3.00	1.00	703.00	67.00	30.00
Fri 8	6.66	31.12	800.00	1.00	35.00	94.51	7092.14	3.00	1.00	544.00	248.00	8.00
Fri 9	7.89	51.33	800.00	2.00	57.74	155.91	10927.54	3.00	1.00	234.00	537.00	29.00
Fri 10	2.65	17.02	249.00	1.00	19.14	51.69	3283.31	3.00	1.00	17.00	217.00	15.00
R4 Mon	6.37	91.97	475.00	1.00	103.47	279.36	5261.49	2.00	1.00	0.00	209.00	266.00
R4 Tue	6.40	77.91	563.00	1.00	87.65	236.66	6191.50	2.00	1.00	0.00	402.00	161.00
R4 Wed	7.95	97.43	672.00	1.00	109.61	295.95	6983.93	2.00	1.00	0.00	473.00	199.00
R4 Thu	6.08	72.96	719.00	1.00	82.08	221.60	7077.14	2.00	1.00	0.00	531.00	188.00
R4 Fri	5.21	46.60	580.00	1.00	52.42	141.54	6025.44	2.00	1.00	0.00	425.00	155.00
Paul 1	7.41	52.39	784.00	1.00	58.94	159.14	5952.42	3.00	1.00	638.00	55.00	91.00
Paul 2	7.27	59.67	715.00	1.00	67.13	181.26	8139.05	3.00	1.00	183.00	442.00	90.00
Paul 3	6.73	47.44	668.00	1.00	53.37	144.10	8616.00	3.00	1.00	418.00	190.00	60.00
Paul 4	7.69	65.07	733.00	1.00	73.20	197.65	7904.12	3.00	1.00	109.00	571.00	53.00
Paul 5	6.54	40.20	722.00	1.00	45.23	122.11	7505.16	3.00	1.00	0.00	643.00	79.00
Narrow 1	6.98	106.29	256.00	1.00	119.57	322.84	2992.92	2.00	1.00	48.00	60.00	148.00
Narrow 2	6.92	82.93	378.00	2.00	93.30	251.90	4459.91	2.00	1.00	0.00	316.00	62.00
Narrow 3	7.78	72.45	308.00	2.00	81.50	220.06	3094.55	2.00	1.00	135.00	47.00	126.00
Narrow 4	7.07	84.30	226.00	2.00	94.83	256.05	3131.58	2.00	1.00	6.00	66.00	154.00
Narrow 5	7.17	85.95	352.00	2.00	96.69	261.06	4696.68	2.00	1.00	177.00	107.00	68.00
Narrow 6	7.10	67.64	281.00	2.00	76.10	205.47	3512.32	2.00	1.00	131.00	75.00	75.00
Narrow 7	6.57	46.56	262.00	1.00	52.38	141.42	2991.99	2.00	1.00	83.00	80.00	99.00
Narrow 8	7.57	69.86	380.00	2.00	78.59	212.19	4433.07	2.00	1.00	122.00	186.00	72.00
Narrow 9	7.20	69.19	378.00	2.00	77.84	210.17	4170.56	2.00	1.00	29.00	151.00	198.00
Narrow 10	7.30	69.16	272.00	2.00	77.81	210.09	3012.24	2.00	1.00	92.00	104.00	76.00
Narrow 11	7.12	53.18	337.00	2.00	59.83	161.55	5427.95	2.00	1.00	0.00	312.00	25.00
Narrow 12	7.31	43.72	373.00	2.00	49.19	132.81	4443.96	2.00	1.00	201.00	134.00	38.00
Narrow 13	6.59	25.73	380.00	2.00	28.94	78.14	4077.18	2.00	1.00	376.00	0.00	4.00
Narrow 14	6.56	22.18	380.00	2.00	24.96	67.38	4485.14	2.00	1.00	366.00	14.00	0.00
Narrow 15	4.30	12.16	237.00	1.00	13.68	36.95	2704.05	2.00	1.00	213.00	12.00	12.00
Flats 1	8.42	60.39	843.00	1.00	67.94	183.44	9102.82	2.00	1.00	812.00	27.00	4.00
Flats 2	7.50	39.10	686.00	1.00	43.99	118.77	6083.70	2.00	1.00	577.00	109.00	0.00
Flats 3	1.97	13.99	99.00	1.00	15.74	42.51	1021.16	2.00	1.00	92.00	0.00	7.00
Flats 4	4.55	16.10	438.00	1.00	18.11	48.90	3559.42	2.00	1.00	429.00	9.00	0.00
Flats 5	1.19	11.25	51.00	1.00	12.66	34.18	485.20	2.00	1.00	23.00	23.00	5.00
Totals	550.67	3967.67	51693.00	125.00	4463.63	12051.80	540750.67	215.00	80.00	36605.00	11779.00	3309.00

45
16

New vs old

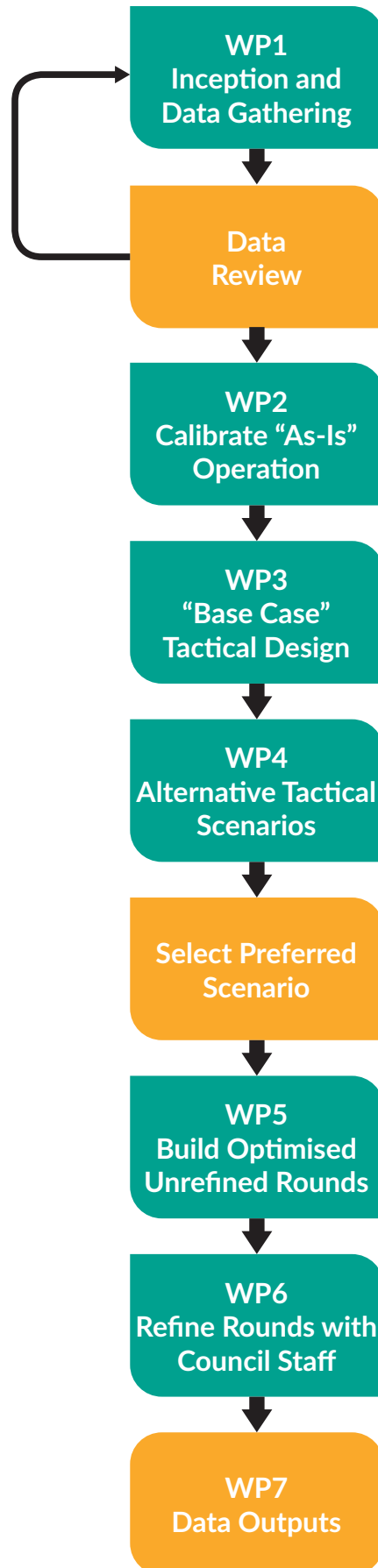
	Time (hrs)	Distance (miles)	Bins	Locations	Tips	Fuel Used (litre)	Emissions kg	Total Weight (kg)	Crew	Vehicles	Urban Locations	Semi Locations	Rural Locations
Current	534.8556	5182.847	50811	50811	127	5830.702	15742.9	539250	210	75	36109	11420	3282
New	550.6678	3967.67	51693	51693	125	4463.629	12051.8	540750.7	215	80	36605	11779	3309
New v Old	15.81228	-1215.18	882	882	-2	-1367.07	-3691.098	1500.674	5	5	496	359	27

Current

New

New v Old

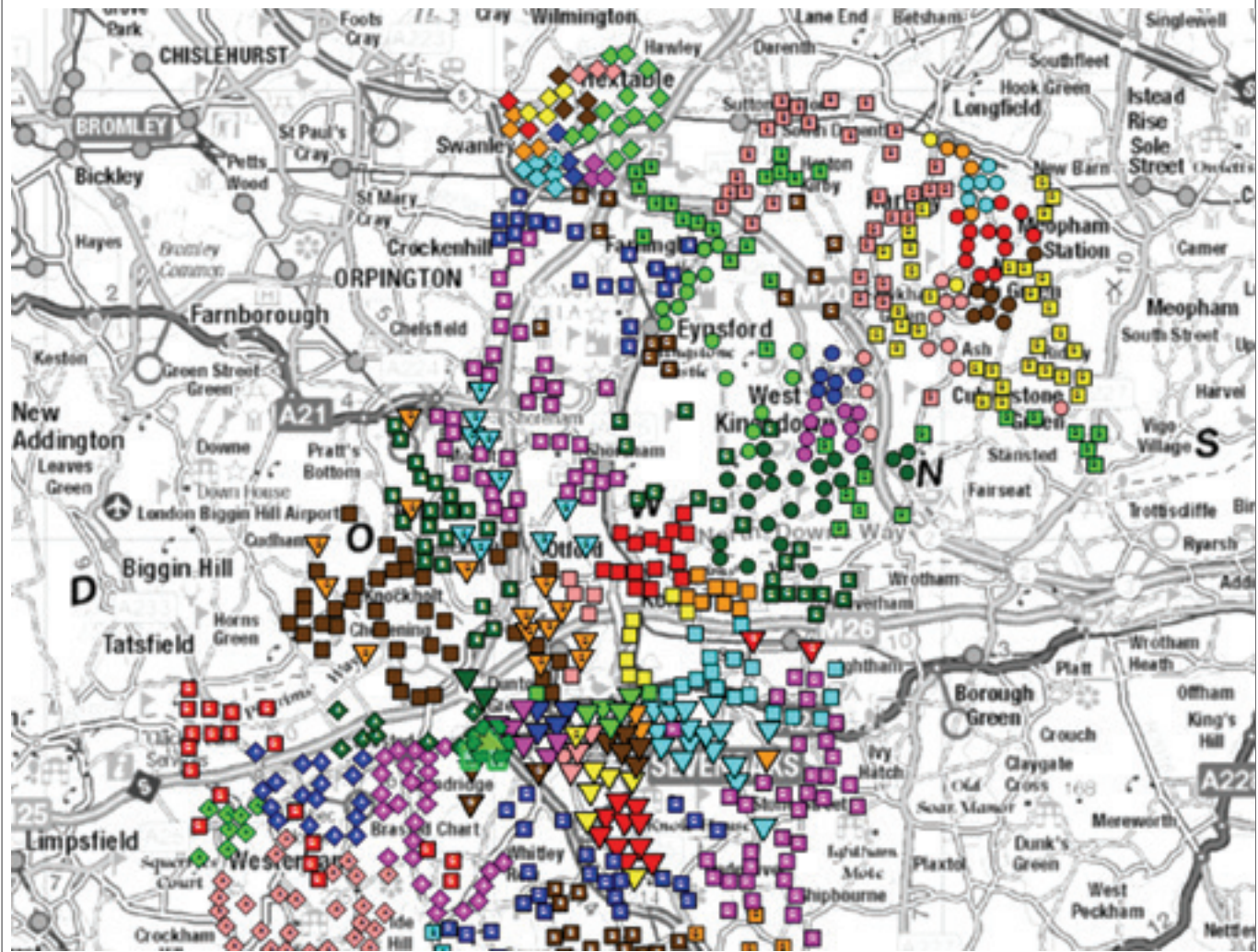
Description of stages followed in the development of optimised routes



Process Stage	Description
WP1 - Data Preparation	<p>This is a critical stage of the project and ensures that key variables are loaded into the software, including:</p> <ul style="list-style-type: none"> ■ Property details from the Local Land and Property Gazetteer with Unique Property Reference Numbers (UPRNs). As well as the unique reference for each household this also provides the collection location (Easting/Northing) and address details. ■ Those properties which are flats/households of multiple occupancy, and the configuration of a parent/child relationship for each one served by a communal collection. ■ Restricted access streets, with streets identified as either Standard, Narrow or Ultra-Narrow. ■ Assisted collection information for those properties which receive this. ■ Infrastructure details, including the locations for depots and tips, along with expected turnaround times at each tip for the different services. ■ The number of operating days in a week and the operating time per day for each vehicle. ■ Proposed vehicle types and crew sizes for each service. ■ Capacities of fleet available, the different compartments on the vehicles and whether waste streams will be co-collected on the same pass or not. ■ Proposed container sizes and numbers at each location ■ The frequency of collection from each location.
Data Review	<p>A collaborative approach to reviewing the data and identifying any issues must be undertaken to ensure that the most robust model of the services is able to be built within the software.</p>
WP2 - “As-is” Modelling	<p>Another critical part of the process involves calibrating the software model based on the amount of waste that is expected to be collected (yield) and the productivity (process rates) that would be expected by the crews using the proposed fleet and collection regime. As such, values for the following variables must be decided and incorporated:</p> <ul style="list-style-type: none"> ■ The average yield per service and container type at each property (measured in kg). ■ The appropriate process rates for each service and location (measured in bins per hour). <p>The base model is then calibrated using a mixture of local knowledge of the existing yields that are collected and adjusting these for the proposed service structure as well as the anticipated process rates that could be achieved based again on the existing contract, local knowledge and experience of other contracts. These rates can be adjusted accordingly for different levels of urbanity and rurality within the contract area. This then concluded the building of the base/’as-is’ model within the software and enabled the modelling of tactical optimised rounds and routes to be undertaken.</p>

WP3 - Base Case Tactical Design This involves developing a base case set of optimised tactical rounds for the services within the Webaspx software. These tactical rounds are viewed within the software and the output from this stage is a number of rounds and indicative mileage for the collection scenario. No round definitions are produced at this stage, if further work packages are undertaken prior to that.

WP4 - Alternative Tactical Scenarios This is the normal point in the process when further tactical round design scenarios are developed. If the preferred scenario/service design has already been decided then there is often no need to assess alternative scenarios at this point (although they can certainly be assessed at a future time within the software). The additional tactical scenarios will provide the number of rounds/vehicles required for optimised rounds for each of the required service scenarios which you wish to compare against the base case design. For example, it is possible to easily model scenarios for different shift patterns, different fleet options, different depot and tipping points, different collection types (co-mingled, kerbside sort with different materials) etc. The results of each scenario can be compared against the base case tactical design.



Select Preferred Scenario - Once the base case design and the other tactical options are complete, we will be in possession of a firm evidence base to make an informed, fully justifiable decision on our preferred scenario.

WP5 – Build Optimised Unrefined Rounds -

At this next stage, the software is then used to develop a set of unrefined rounds for the preferred scenario. This is the first stage in which the machine generated rounds were reviewed and ‘polished’ to make any necessary amendments. The result of this stage provides a check on the suitability of rounds before they would ultimately be refined into operational rounds with local staff. This stage also provides the ability to produce the outputs that have been included later in this section.



The last two stages involve further review and refinement, as polished rounds are prepared for implementation and the relevant outputs are created. These two stages help ensure that the efficiencies that have been identified during the optimisation process are actually achieved in practice, rather than having ‘paper savings’ that are impossible to implement.

WP6 – Refine Rounds with Staff -

This stage would involve driving and reviewing the polished rounds with supervisors and other knowledgeable staff to reflect their concerns and provide a “safety net” for any issues in the design. This process also helps familiarise staff with the new rounds and begins the process of handing over ownership of the rounds to the crews.

WP7 – Produce Outputs -

Once the rounds have been reviewed a variety of outputs can be produced including round maps, round sheets and “data dumps” of all the round definitions in suitable formats. This ensures that a single set of new round data can be used to populate a variety of systems and that there is consistency in the information that a wide variety of stakeholders access through a variety of means. As well as ensuring that other systems are updated with the new round information, outputs will provide the basis for mailshots to the residents and generation of calendars.

Implementation Support and Ongoing Round Maintenance	<p>Designing an efficient set of well-balanced collection rounds is only half the battle! Beyond the initial implementation, the Webaspx software can be used to ensure the rounds are kept up-to-date with changes and therefore are kept efficient.</p> <p>When the routes have been finalised these will be submitted to the Council for review and then, final agreement once any necessary changes have been made.</p>
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