

Case Study

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Q1 - Logistics

PROPOSED SOLUTION

District	Polygon Group	Total Weight (kg)	Vehicle Choice	Utilization (%)
2	Polygon 1 + Polygon 4	537.85	Vehicle 1	67.23%
	Polygon 2	2853.58	Vehicle 3	95.12%
	Polygon 3	1832.11	Vehicle 2	91.61%
1	Polygon 5 + Polygon 10 + Polygon 12	3942.52	Vehicle 4	98.56%
	Polygon 6 + Polygon 9 + Polygon 11 + Polygon 13	3997.99	Vehicle 4	99.95%
	Polygon 7 + Polygon 8 + Polygon 11	1908.64	Vehicle 2	95.43%

Constraints:

- Utilization above 90% of each vehicle's maximum weight
- Cost efficiency and minimization of unused capacity



Pickers

Row Labels	Sum of ITEMS	Sum of WEIGHT	Sum of Duration	Items/day	Duration/day
2441	2270	6943.96	7.299999998	324.2857143	1.042857143
4343	5783	19548.28	14.33333332	826.1428571	2.047619046
5122	10177	28365.65	19.98333334	1453.857143	2.854761905
5530	1312	4515.21	4.333333332	187.4285714	0.619047619
6235	5889	21112.45	16.61666667	841.2857143	2.373809525
6274	11648	40619.45	34.28333334	1664	4.897619049
6310	2039	4497.54	4.083333331	291.2857143	0.583333333
7202	14386	37247.23	33.7	2055.142857	4.814285715
7356	2496	8841.13	7.383333329	356.5714286	1.054761904
7752	10124	31529.48	24.71666666	1446.285714	3.53095238
8013	283	908.59	1.016666669	40.42857143	0.145238096
8253	4469	14095.83	13.88333334	638.4285714	1.983333334
8254	3033	9958.11	9.283333332	433.2857143	1.326190476
8571	2734	8541.14	8.500000003	390.5714286	1.214285715
8614	150	307.2	0.616666666	21.42857143	0.088095238
8615	592	1824.28	1.999999999	84.57142857	0.285714286
Grand Total	77385	238855.53	202.0333333		
AvgItems/day	11055				
Max	2055.142857	Avg	1038.285714		
Min	21.42857143	Pickers needed/day	11		



Loaders

Row Labels	Sum of ITEMS	Sum of WEIGHT	Sum of Duration	Items/day	Duration/day
3806	605	1644.27	0.933333334	86.42857143	0.133333333
3858	23089	56913.35	28.36666667	3298.428571	4.052380952
3984	30028	71369.46	35.11666667	4289.714286	5.016666667
4997	2352	5286.46	3.383333333	336	0.483333333
6623	576	1387.73	0.6	82.28571429	0.085714286
6734	20512	44451.39	22.56666667	2930.285714	3.223809524
7390	28287	66069.79	27.71666666	4041	3.959523809
7476	25349	58626	27.91666667	3621.285714	3.988095238
7682	6066	16130.28	8.250000003	866.5714286	1.178571429
7782	23775	50610.27	25.23333334	3396.428571	3.604761905
7783	544	1859.3	1.65	77.71428571	0.235714286
7924	825	1846.9	2.583333334	117.8571429	0.369047619
8115	3545	8985.02	4.766666669	506.4285714	0.680952381
8116	436	1841.17	0.966666665	62.28571429	0.138095238
8117	1641	4898.8	3.066666667	234.4285714	0.438095238
8118	11923	27286.08	17.38333333	1703.285714	2.483333333
8199	3706	9507.63	4.149999999	529.4285714	0.592857143
8233	3151	6644.72	3.916666666	450.1428571	0.559523809
8258	19925	44948.09	25.86666667	2846.428571	3.695238095
8265	13959	35677.96	18.78333333	1994.142857	2.683333332
8526	774	1786.19	1.066666666	110.5714286	0.152380952
8527	5429	14537.62	7.883333333	775.5714286	1.126190476
8576	831	1857.88	1.633333334	118.7142857	0.233333333
8708	1545	3806.75	1.916666666	220.7142857	0.273809524
Grand Total	228873	537973.11	275.7166667		
AvgItems/day	32696.14286				
Max	4289.714286	Avg	2176		
Min	62.28571429	Loaders needed/day	15		

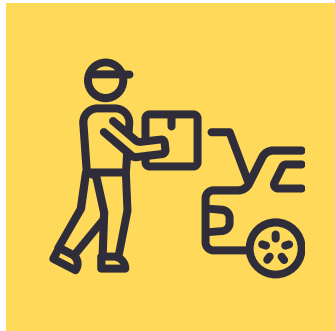


Budgeting



Pickers

$11 \times 140 = 1540$ EGP



Loaders

$15 \times 160 = 2400$ EGP



Total Budget

$1540 + 2400 + 7120 = 11060$ EGP



Fleet

Vehicles= 6100 EGP

Courier= 6 *170 EGP

Total= 7120 EGP



Thank You