These are the results that go with Table III in the CEC 2013 paper.

**Table III: Routes and best parameters for passengers and operator obtained for Mandl’s Problem using the SEAMO2 algorithm, compared to [9] in brackets.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Number  of Routes | Best Routes  for Passengers | Parameters for  Passenger Routes | Best Routes  for Operators | Parameters for  Operator Routes |
| 4 | 1-2-3-6-8-10-11-13 | *Cp* = **10.57** (10.65) | 9-15 | *Cp* = 13.88 (13.88) |
| 9-15-6-4-12-11-13-14 | *Co* = 149 (126) | 1-2-4-5 | *Co* = 63 (63) |
| 14-10-7-15-6-4-2-1 | *d*0 = **90.43** (90.88) | 11-10-7-15-8-6-3-2 | *d*0 = 61.08 (61.08) |
| 12-11-10-8-6-4-5-2 | *d*1 = 9.57 (8.35) | 14-13-11-12 | *d*1 = 36.61 (36.61) |
|  | *d*2 = 0.00 (0.77) |  | *d*2 = 2.31 (2.31) |
|  | *dun* = 0.00 (0.00) |  | *dun* = 0.00 (0.00) |
| 6 | 1-2-3-6-15-7-10-11 | *Cp* = **10.27** (10.46) | 10-11-13 | *Cp* = 13.48 (13.34) |
| 12-11-13-14-10-7-15-9 | *Co* = 221 (148) | 1-2-3-6-8-15-7-10 | *Co* = 63 (63) |
| 1-2-5-4-6-8-10-11 | *d*0 = 95.38 (93.19) | 5-4-2 | *d*0 = 70.91 (66.09) |
| 1-2-3-6-8-10-13-11 | *d*1 = 4.56 (6.23) | 14-13 | *d*1 = 25.50 (30.38) |
| 1-2-4-12-11-10-14-13 | *d*2 = 0.06 (0.58) | 12-11 | *d*2 = 2.95 (3.53) |
| 1-2-5-4-6-8-15-7 | *dun* = 0.00 (0.00) | 9-15 | *dun* = 0.64 (0.00) |
| 7 | 1-2-5-4-12-11-10-13 | *Cp* = **10.22** (10.44) | 12-11-13 | *Cp* = 14.25 (13.54) |
| 9-15-7-10-14-13-11-12 | *Co* = 264 (166) | 14-13 | *Co* = 63 (63) |
| 3-2-5-4-6-8-10-14 | *d*0 = 96.47 (92.55) | 5-4 | *d*0 = 65.13 (65.64) |
| 8-10-11-12-4-2-3-6 | *d*1 = 3.34 (6.68) | 11-10 | *d*1 = 22.93 (26.20) |
| 1-2-3-6-8-10-11-13 | *d*2 = 0.19 (0.77) | 10-7-15-8-6-3-2-1 | *d*2 = 10.34 (8.16) |
| 14-10-7-15-6-3-2-1 | *dun* = 0.00 (0.00) | 4-2 | *dun* = 1.61 (0.00) |
| 10-7-15-8-6-4-2-1 |  | 9-15 |  |
| 8 | 1-2-3-6-15-7-10-13 | *Cp* = **10.17** (10.45) | 12-11 | *Cp* = 14.45 (13.57) |
| 9-15-8-6-3-2-5-4 | *Co* =291 (245) | 5-4 | *Co* = 63 (63) |
| 15-7-10-14-13-11-12-4 | *d*0 = 97.56 (91.33) | 13-14 | *d*0 = 57.93 (59.92) |
| 1-2-4-6-8-15-7-10 | *d*1 = 2.31(8.67) | 9-15 | *d*1 = 31.92 (21.97) |
| 13-11-10-8-6-3-2-1 | *d*2 = 0.13 (0.00) | 1-2 | *d*2 = 9.70 (18.11) |
| 1-2-5-4-12-11-13-14 | *dun* = 0.00 (0.00) | 11-13 | *dun* = 0.45 (0.00) |
| 11-13-14-10-8-6-4-5 |  | 2-4 |  |
| 9-15-7-10-11-12-4-5 |  | 11-10-7-15-8-6-3-2 |  |

The non-dominated solutions from the 10 replicated runs for 4 routes, 6 routes, 7 routes and 8 routes are available in folders labelled accordingly. The filenames are output1\_1, output1\_2,...,output1\_10 in each case.

The document MandlRoutes.docx gives the routesets from Table III in the format used to read into the Matlab software.

[9] L. Fan, C. L. Mumford, and D. Evans. A simple multi-objective optimization algorithm for the urban transit routing problem. In *Proceedings of the Eleventh* *conference on Congress on Evolutionary Computation*,

CEC’09, pages 1–7, 2009.