

# A Matheuristic for the Distance-Constrained Close-Enough Arc Routing Problem

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The Close-Enough Arc Routing Problem (CEARP), also known as the Generalized Directed Rural Postman Problem (GDRPP) is an arc routing problem with some interesting real-life applications, such as routing for meter reading. In this application, a receiver in a vehicle that gets closer than a certain distance to a meter records the meter consumption. Hence, the vehicle does not need to traverse every street containing meters to read them, but only some streets. We consider here the extension of the CEARP where a fleet of vehicles with distance constraints is available. Several formulations and exact algorithms for this problem, the Distance-Constrained Close-Enough Arc Routing Problem (DC-CEARP), were proposed in Ávila et al. (2017). Since the size of the instances solved to optimality is far from those arising in real-life problems, we propose here a matheuristic algorithm capable of providing good quality solutions in medium/large instances. The method basically consists of a constructive phase, an improvement phase, and an optimization procedure for each route. In order to assess the relative efficiency of our algorithm, extensive computational experiments have been carried out. The results show the good performance of the proposed heuristic, even in the instances with a very tight maximum distance.

## References

- [1] T. Ávila, Á. Corberán, I. Plana, and J.M. Sanchis, “Formulations and exact algorithms for the distance-constrained generalized directed rural postman problem”, *EURO Journal on Computational Optimization* 5, 339-365, 2017.