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Title: p-Median based Formulations with Backbone Facility Locations

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Highlights

- 1) We propose new mixed integer linear programming models for the p-Median problem under backbone topology constraints on the facility locations.
- 2) The proposed models arise as a combination of the classical p-Median problem with the traveling salesman, spanning tree and star network problems.
- 3) We propose variable neighborhood search (VNS) meta-heuristic procedures, one for each topology.
- 4) VNS algorithms proved to be highly efficient when compared to the optimal solutions of the problem.
- 5) We obtain better feasible solutions than CPLEX for large instances and in significantly less computational cost.

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