

## REVIEWER'S REPORT

Manuscript No.: IJAR-59408

Title: Optimization of Mixed Vehicle-Drone Routing with Time Windows for Last-Mile Delivery.

### Recommendation:

Accept as it is .....  
**Accept after minor revision.....**  
 Accept after major revision .....  
 Do not accept (*Reasons below*) .....

| Rating         | Excel. | Good | Fair | Poor |
|----------------|--------|------|------|------|
| Originality    |        | ✓    |      |      |
| Techn. Quality |        |      | ✓    |      |
| Clarity        |        | ✓    |      |      |
| Significance   |        | ✓    |      |      |

Reviewer Id: JPR-397

### Reviewer's Comment for Publication.

The manuscript addresses an important optimization problem in last-mile delivery by integrating vehicle-drone routing, soft time windows, and an Adaptive Large Neighborhood Search (ALNS) heuristic. The proposed mathematical formulation and computational experiments are relevant to logistics and transportation optimization. However, several issues require clarification before publication:

1. The mathematical formulation contains ambiguities in vehicle-drone synchronization, time-window constraints, and the treatment of depot launch and recovery operations. These aspects should be clarified to establish the feasibility and correctness of the model.
2. The experimental results contain inconsistencies between the reported objective values, optimality claims, and average performance measures. The authors should verify Tables 2–6 and ensure that all reported values are consistent.
3. The benchmark generation procedure, parameter selection, and random-seed settings should be described in sufficient detail to ensure reproducibility.
4. The comparison with existing methods should be strengthened by providing a clearer and more consistent basis for evaluating solution quality and computational performance.
5. The claimed economic benefits of drone-assisted delivery should be discussed more cautiously, considering the simplified assumptions regarding drone endurance, customer eligibility, operational costs, and real-world constraints.
6. The manuscript requires language editing and improved mathematical notation. Typographical errors, inconsistent terminology, and formatting issues should be corrected throughout the paper.

Overall, the study has potential and addresses a relevant research problem. However, the mathematical formulation and experimental results require careful verification. **Acceptance after minor revision is recommended, provided that the authors adequately address these concerns.**