

Report: Analysis of Inspection Request Scheduling for Property Preservation Companies

Executive Summary

This report explores the logistical efficiencies of scheduling property inspections either en masse at the beginning of each month or distributed daily throughout the month. Drawing from established logistics practices in parcel delivery services like FedEx, UPS, and e-commerce giants like Amazon, as well as efficiencies observed in traditional manufacturing, the report seeks to extrapolate applicable benefits and challenges to the property preservation sector. While direct studies in this niche area may be limited, the operational principles derived from these industries provide a solid foundation for analysis.

Introduction

Property preservation requires meticulous planning and execution, especially when covering the geographic diversity of the United States. The delinquent loan volume has continued to shift to more rural areas and the distance between properties have grown significantly since 2012, extending each year, and has not slowed. The scheduling of property inspections is a critical operational aspect that impacts cost, efficiency, and service quality. Currently, the industry operates on a rolling basis, but this report proposes a reevaluation towards a more consolidated scheduling approach, drawing parallels from logistics and manufacturing sectors.

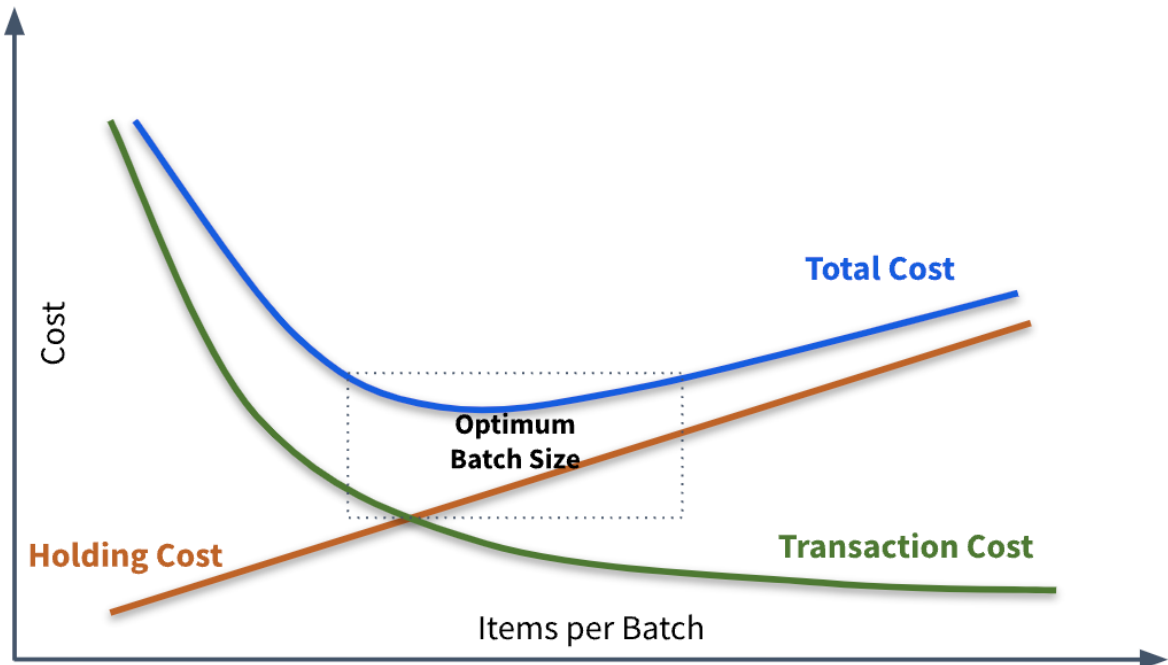
Advantages of Monthly Consolidation

Improved Planning and Efficiency

Consolidating inspection schedules could mirror the route optimization benefits seen in delivery services. FedEx and UPS use advanced logistics software to optimize delivery routes, reducing fuel consumption and improving delivery times. A study by Savelsbergh and Van Woensel (2016) on transportation and logistics optimization highlights similar principles that could be applied to inspection routing, potentially reducing travel distances and times significantly.

Cost Reduction

Bulk scheduling and route optimization can lead to significant cost savings. In the context of Amazon's logistics, a paper by Jaller, Pahwa, and Samaranayake (2019) discussed how consolidation in delivery networks can reduce last-mile delivery costs by optimizing route densities. By applying these principles, property preservation companies could see reduced fuel usage, vehicle maintenance costs, and labor expenses.



Batch size represents a U-curve optimization problem

The above graph represents the trade-offs well (Source: Agility). The U-curve optimization reinstated for our inspection ordering frequency problem would have following components:

Holding Costs: this would be the costs of finding problems later based on increased batching of orders. I'd suggest in our industry the Holding Cost curve has a low positive slope.

Transaction Cost: would be the logistical cost per property of completing an inspection.

Total Cost: the combination of the above.

We attempted to mathematically define the optimal batch size (time between inspection requests) but because of the lack of true

risk (new damage, new vacancy) when adjusting the inspection interval from 10-day average to 45 or even 60 the Holding Cost line on Total Cost is insignificant. Because our data set doesn't extend much beyond 60 days between visits or gets incredibly small, the model would suggest to minimize Transaction Cost fully as the optimal answer.

Enhanced Resource Allocation

Having a complete overview of the month's inspection needs upfront allows for strategic resource allocation, akin to manufacturing resource planning. A study on manufacturing efficiency by Shah and Ward (2007) outlines how integrated planning can lead to better utilization of resources, reducing idle times and improving throughput. This principle can enhance inspector scheduling and vehicle usage in property preservation.

Disadvantages of Monthly Consolidation

Potential for Inspection Delays

The major concern with monthly consolidation is the potential delay in inspections for some properties. However, research into the impact of inspection frequencies on property condition is scarce. Anecdotal evidence suggests that, barring properties at high risk of rapid deterioration, inspection frequency can be adjusted without significant risk to property condition or value. Our analysis on the results that come back from our inspections that are completed 45 days after order day was statistically insignificant from inspections completed prior to 45 days. I believe the risk to properties remains event risk and a monthly

cycle is already an elongated period that doesn't seem to be materially impacted by adding a few weeks to it when it occasionally happens.

Risk of Initial Overload

Adopting a new scheduling system could initially overwhelm resources. However, as operational adjustments are made and efficiencies realized, these challenges can be mitigated. Continuous improvement processes, a staple in manufacturing efficiency studies, can guide this adaptation phase. We do think there needs to be effective routing and order dating implemented by Property Preservation companies. It is beyond the scope of this paper to detail this solution out.

Conclusion and Recommendations

The logistical strategies employed by FedEx, UPS, and Amazon, along with efficiency models from manufacturing, offer valuable insights for property preservation companies considering the consolidation of inspection requests. While direct studies in this specific context are limited, the principles of route optimization, cost reduction, and resource allocation remain relevant. Companies should explore the potential benefits of this approach, with a willingness to adapt and optimize over time.

Actual References

Savelsbergh, M., & Van Woensel, T. (2016). 50th Anniversary Invited Article—City Logistics: Challenges and Opportunities. *Transportation Science*, 50(2), 579-590.

Jaller, M., Pahwa, A., & Samaranayake, S. (2019). The Last Mile Problem and City Logistics. Pathways to Urban Sustainability: Challenges and Opportunities.

Shah, R., & Ward, P. T. (2007). Defining and developing measures of lean production. Journal of Operations Management, 25(4), 785-805.

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