
Drone Delivery Opportunities

in Los Angeles, California

John Hilbun - February 14, 2019



Introduction / Business Problem

Are you involved in a Business wishing to expand market share but realize in-store visits may not be a growth area? Do you have an existing website where you take orders but constantly receive feedback that delivery times are too long? There may be a solution on the horizon... Bring the store to your customers in as little as 30 minutes using Drone Delivery!



Fig. 1: Possible delivery items: Prescriptions, Pizza and Office Supplies

The success of quick delivery has caught the attention of retailers as large as Amazon with their Amazon Prime Now 2 hour delivery (<https://primenow.amazon.com>). Amazon are also moving into the idea of even shorter delivery times using Drones (<https://www.amazon.com/Amazon-Prime-Air/b?ie=UTF8&node=8037720011>).

The idea presented in this report is to begin to implement the drone delivery option in Los Angeles, CA using a series of existing aviation friendly locations (Heliports). The effort will begin by targeting the 10 most popular venues nearest each heliport and determining if they are interested in providing drone delivery.

The reason for using heliports as a base location is because neighbors are more likely to be 'aviation friendly' and not complain of noise or have concern over low flying aircraft. Longer term, it might make sense for each store/restaurant location to have their own drone launch pad. But that is a potentially costly investment that may be too risky in the immediate future. Concentrating the drone delivery fleet at centralized locations is a good starting point.

Data

1. Airport/Heliport information:

Airport/Heliport information for Los Angeles, California is obtained from the United States Department of Transportation : http://osav-usdot.opendata.arcgis.com/datasets/a36a509eab4e43b4864fb594a35b90d6_0 The columns of interest are:

- FullName : a description of the location
- City : will only deal with 'Los Angeles' to start
- Y : Latitude
- X : Longitude

2. Target businesses (Phase 1):

The effort to target businesses that might be interested in drone delivery will initially be concentrated on venues surrounding the above heliports. This will be obtained using the Foursquare venues/explore API call. The specifics:

- [https://api.foursquare.com/v2/venues/explore?](https://api.foursquare.com/v2/venues/explore?&client_id/&client_secret(not%20disclosed)&ll=latitude%20and%20longitude%20from%20the%20DOT%20database%20above&radius=distance%20around%20each%20Heliport%20we%20will%20target%20businesses)
- &client_id/ &client_secret (not disclosed)
- &ll : latitude and longitude from the DOT database above
- &radius : the distance around each Heliport we will target businesses.

3. Target businesses (Phase 2):

Any chain of retailers or restaurants would be a good target. Their location information can typically be scraped from their website using variety of techniques. The general idea is:

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- read the html
 - use BeautifulSoup to get the address information
 - store this in a Pandas DataFrame
 - plot locations on a map to determine the flight range each store's drone(s) would be responsible for.