737 North Line Wingbox Transportation

A special Thank You To
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Client Overview: Boeing 737 MAX Final Assembly Line

Three assembly lines for the 737 MAX located in Renton

Fourth assembly line located in Everett named "737 North Line"

The 737 North Line will be a replication of the existing Renton assembly line, with the only new process of delivering wingboxes from Renton to Everett.

Project Statement

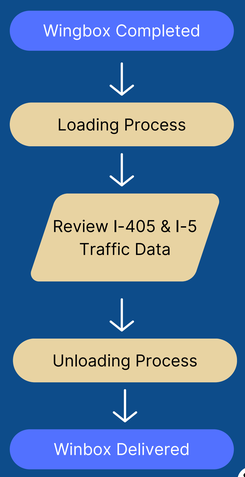
To design a transportation plan for the 737 MAX wingbox from Renton to Everett using the most efficient route and time of day. Deliverables include a transportation model, time recommendations, a process flow diagram, and a facility layout.

Data Collection & Process Flow

Data was collected from Google Maps and Apple Maps spanning from 2023 to 2024.

-Collection Included-

- One randomly chosen week from each month
- Monday to Friday
- North and south on both **I-5** & **I-405**
- 18 Hours excluding WSDOT **6am - 9 am | 3pm - 6pm**

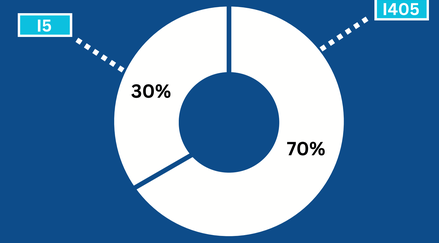


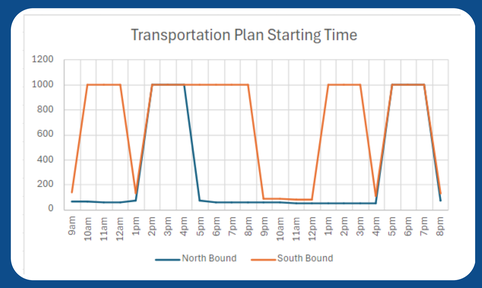
Simulation Model

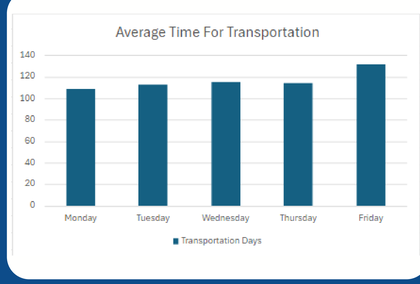
"Simio" was used to model the transportation of the wingbox

Results & Recommendations

Routes Taken







Average Duration of Travel: 100.06 Minutes Round Trip

Best Time to Begin Process: 4:00 PM for Wing 1 and 10:00 PM for Wing 2

Document

- Loading procedures
- Unloading procedures
- Time
- Floor Layout in Everett
- Process flow of the transportation of the wingbox

Simulate

- Create SIMIO model
- Consider loading, unloading and travel
- Going north and south on I-405 & I-5

Data Collection

- Collect data from Google maps and cross validate with Apple Maps
- Shift data 11% to represent the speed of a oversized trailer
- Organize data to be inputted into Simio

Experiement/Results

- Create experiments in Simio to send the trailer every hour in a 24 hours period.
- Examine results to determine best time of day to send the trailer.
- Determine most optimal route

Impact

63% Increased Throughput

1+ 737 MAX assembly line

With the results obtained we hope to deliver the wingbox in a efficient manner for the new North Assembly Line!