



Freight Advanced Traveler Information System (FRATIS)

Background and Overview

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Current Freight Operations Environment



Road Congestion

Poor Efficiency



Long Lines

High Energy Consumption



Low Driver Utilization

Negative Impact on Safety



Current Freight Operations Practices

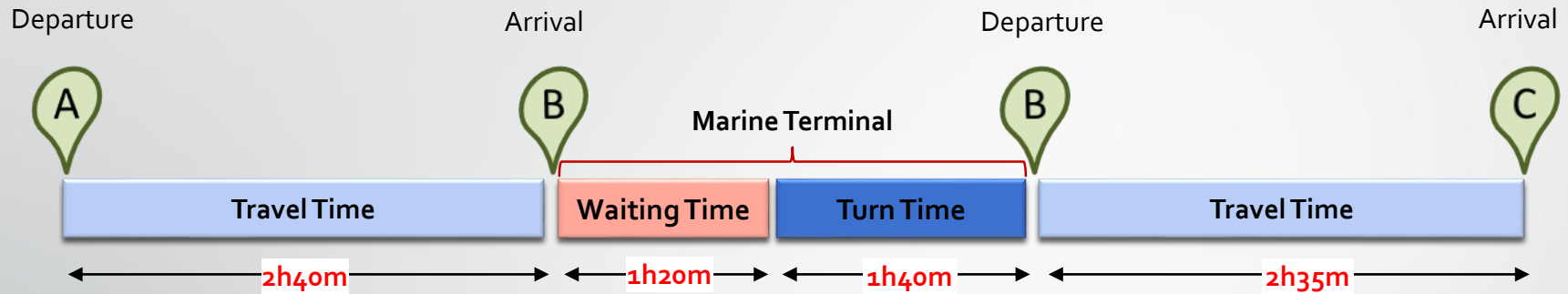
Pure Chance



Advanced Data
Driven Planning &
Execution

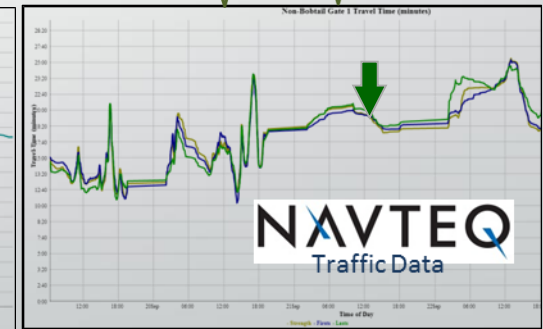


Freight Operations with *Limited or No Data*



8 hr.15 min.





Data and Technology Challenges

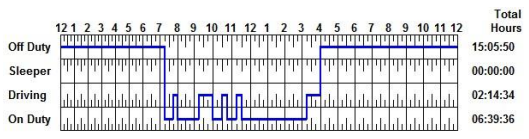












A Potential Solution: *FRATIS*

Freight-Specific Dynamic Travel Planning and Performance

- *Enhances traveler information systems to address freight needs*
- *Integrates data on wait times at intermodal facilities (e.g. ports), traffic conditions, incident alerts, road closures, work zones, routing restrictions (hazmat, oversize/overweight)*
- *Facilitates adaptive communication between drayage company, drivers, intermodal Facilities, MTOs, and BCOs*
- *Provides real-time information and dynamic routing for drivers*



A Potential Solution: *FRATIS*

Drayage Optimization

- *Optimize truck/load movements between freight facilities*
- *Individual trucks are assigned best time windows for pick-up or drop-off*
- *Utilizes travel information and information on port terminal conditions to optimize operations*



FRATIS Modules



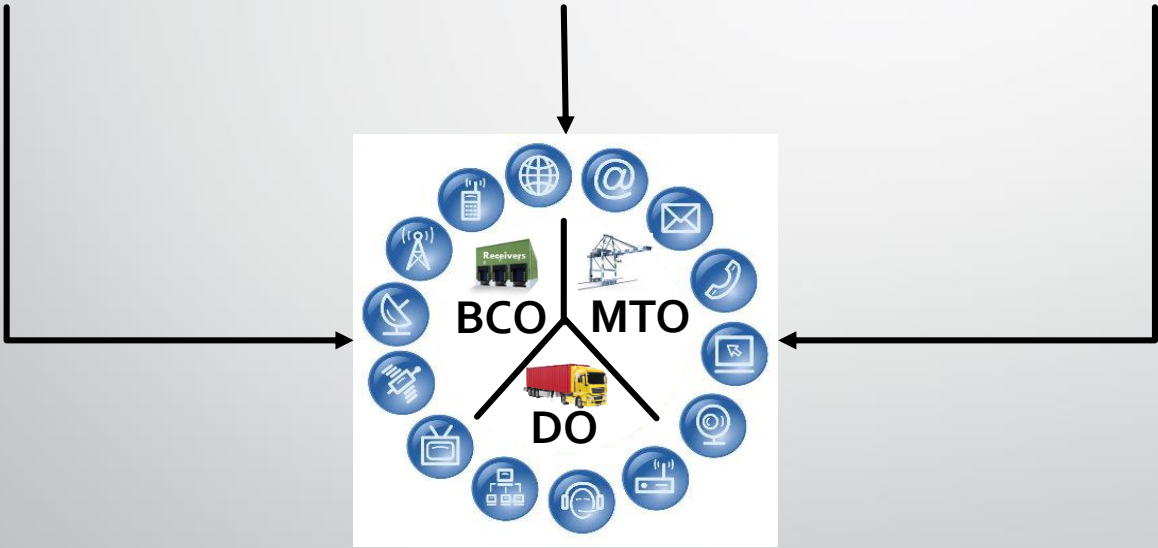
Planning



Execution



Monitoring



Communication



Generated Optimal Plan

Optimized Solution (User-Modifiable)

Send to WebFleet

Plan Performance Measures

Modified Plan

\$5,115.27

Orders: 30

Total Time: 113:40

Total Miles: 1240.00

Total Bobtail Miles: 568.00

Total Time: 113:40

Driving Time: 28:12

Stop Time: 64:00

Waiting Time: 00:53

Optimum Plan

\$5,115.27

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Total Time: 113:40

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Waiting Time: 00:53

Drivers Itinerary

Driver	Distance	Jobs				
☐ Francisco Arias	31.00 mi	1125818	1125218-I	1125371	1125847	1125847-E
☐ Aram Boyadjian	177.00 mi	1125182	1125241			
☐ Dillon Bruno	97.00 mi	1125547	1125861	1125861-E	1125620	1125309
☐ Cesar Cabuyales	155.00 mi	1125548	1125546	1125720	1125720-E	
☐ Suren Khachatryan	168.00 mi	1125545	1125308	1125644		
☐ Ruben Lemus	153.00 mi	1125544	1125415-E	1125634-E	1125634	1125620-E
☐ Jesus Gutierrez	85.00 mi	1125300				
☐ Bert Hernandez	173.00 mi	1125133	1125184			
☐ Sergio Mendez	201.00 mi	1124728	1125385	1125542		
☐ New Driver	0.00 mi					

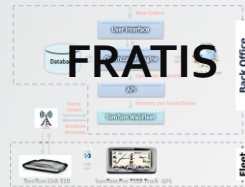
Drivers with Assignments: 9

Accept Plan and Send to WebFleet



MTO and Drayage Operator Exchange of Information Elements of the FRATIS System

Drayage Fleet Operators (DO's)



Container information message is sent from DO to MTO once order information entered in the order management system



Container availability message is sent from MTO to DO once the container is cleared from customs and become ready for pickup



Truck ETA message is sent from DO to MTO one day before a container is to be picked up off at MT, ETA is based on traffic historical data.



Truck ETA message is sent from DO to MTO once the truck start heading to the MT, ETA is based on real time traffic data.

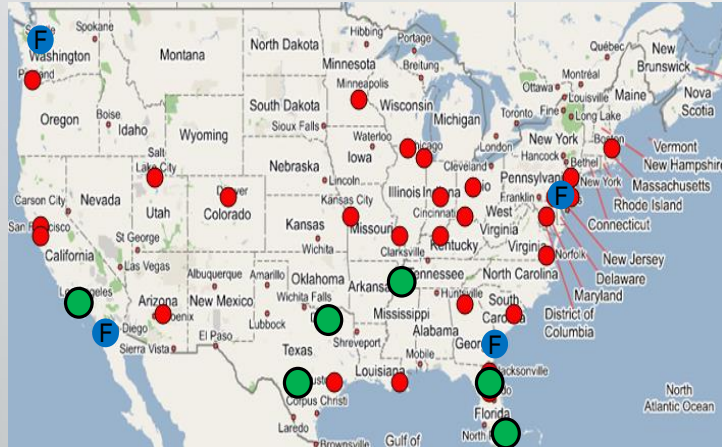
Marine Terminal Operators (MTO's)



MTO uses truck ETA information to support estimation of labor and equipment orders; and stacking preparation



Implementation Results



- Identified FRATIS Sites
- Completed and In-Progress Sites
- Potential Future Sites

Average Improvements and Operational Impacts:

Fleet Productivity: **16%**

Orders/Truck Increase: **9%**

Total Miles Reduction: **1%**

Unproductive Miles Reduction (Bobtail Miles): **12%**

Fuel Consumption Improvement : **8%**

Emission Reduction: **10%**

Driving Time Utilization % Improvement: **15%**

Total Time Utilization % Improvement: **16%**



THANK YOU !

For More Information ...

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