FRATIS-Los Angeles and CA SMART Truck Parking

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Projects

FRATIS – Freight Advanced Traveler Information System
- Applied optimization heuristics to improve performance Truck Productivity, Fleet Efficiency, Delivery Time, Trip Time, and Driver utilization.

SMART Truck Parking
- Advanced Parking Information and Reservation System

Both are technology evaluator/demonstrators
- Act as reference Implementations
- Establish benchmark to measure effectiveness of the technology
FRATIS-LA, Users & Objectives

Primary Stakeholders

Port Terminals
MTO – Marine Terminal Operator

Drayage/Transportation Companies
LMC – Licensed Motor Carrier

Cargo Owners
BCO – Beneficial Cargo Owner

Objectives

• Demonstration ability to plan & optimize
• Improve collaboration
• Measure changes to operational performance
• Do this across the supply chain
FRATIS-LA, User Needs

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- Demonstration ability to plan & optimize
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User Needs
- Traffic aware real-time routing and updates of ETA
  - Updates for MTO/BCO
  - Updates for Drivers and LMC
- Reduce wasted truck/load movements
- Optimization for
  - Routing based on pickup/drop off time constraints
  - Pickup/Drop off time based on routing constraints
- Preserve business process
- Permit dispatcher override
FRATIS Modules

Planning Constraints
1. Truck Routes
2. Distance between stops
3. Appointment time window at each stop
4. Travel time between stops
5. Traffic delay by TOD and DOW
6. Weather condition & expected delays
7. Construction schedules on routes
8. Stop time for each job
9. Waiting time at each stop by TOD & DOW
10. Driver hours of service/duty
11. Equipment related constraints
12. Special requirements

Execution & Monitoring
1. ETA Tracking
2. Status Update
# Generated Optimal Plan

## Optimized Solution (User-Modifiable)

### Plan Performance Measures

<table>
<thead>
<tr>
<th>Modified Plan</th>
<th>Optimum Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orders:</td>
<td>Orders:</td>
</tr>
<tr>
<td>Total Time:</td>
<td>Total Time:</td>
</tr>
<tr>
<td>Total Miles:</td>
<td>Total Miles:</td>
</tr>
<tr>
<td>Total Overtail Miles:</td>
<td>Total Overtail Miles:</td>
</tr>
<tr>
<td>Driving Time:</td>
<td>Driving Time:</td>
</tr>
<tr>
<td>Stop Time:</td>
<td>Stop Time:</td>
</tr>
<tr>
<td>Waiting Time:</td>
<td>Waiting Time:</td>
</tr>
</tbody>
</table>

Modified Plan: $5,115.27

Optimum Plan: $5,115.27

### Drivers Itinerary

<table>
<thead>
<tr>
<th>Driver</th>
<th>Distance</th>
<th>Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Francisco Rice</td>
<td>31.00 mi</td>
<td>1206545</td>
</tr>
<tr>
<td>Aram Radyjian</td>
<td>177.00 mi</td>
<td>1206567</td>
</tr>
<tr>
<td>Dillon Bross</td>
<td>97.00 mi</td>
<td>1206542</td>
</tr>
<tr>
<td>Cesar Cabuyoles</td>
<td>155.00 mi</td>
<td>1206542</td>
</tr>
<tr>
<td>Suren Khachatrian</td>
<td>188.00 mi</td>
<td>1206542</td>
</tr>
<tr>
<td>Ruben Lemos</td>
<td>153.00 mi</td>
<td>1206542</td>
</tr>
<tr>
<td>Jesus Gutierrez</td>
<td>85.00 mi</td>
<td>1206542</td>
</tr>
<tr>
<td>Bert Hernandez</td>
<td>173.00 mi</td>
<td>1206542</td>
</tr>
<tr>
<td>Sergio Mendez</td>
<td>261.00 mi</td>
<td>1206542</td>
</tr>
<tr>
<td>New Driver</td>
<td>0.00 mi</td>
<td>1206542</td>
</tr>
</tbody>
</table>

Drivers with Assignments: 9

[Accept Plan and Send to WebFleet]
FRATIS Program Phases

**Initial Phase**
2012-2013

- Drayage and Truck Routing Optimization
- Advanced Travel Information
- Real Time Information
- Equipped 15 trucks & 2 back-office personnel

**LA Phase I**
2013-2015

- Collaborative Processes & Integration
- Bi-directional Communication
- LMC automatically receives container status
- MTO receives scheduled trucks ETA in advance
- MTO receives real-time updates on trucks ETA
- Equipped 50 trucks and 5 back-office personnel

**LA Phase II**
2015-2018

- Additional 3 MTOs and 1 BCOs
- BCO needs and requirements (Collaboration, Visibility, SC Integration, Communication)
- Equipping 200 Trucks and about 20 back-office personnel

**LMC**: Licensed Motor Carrier, **MTO**: Marine Terminal Operator, **BCO**: Beneficial Cargo Owners
SMART Truck Parking

• Reduce fatigue induced collision

• Help drivers meet hours of service regulations

• Help drivers locate suitable commercial parking facilities

• Improve safety and security for drivers
User Needs

**Used to determine system requirements**
- Internet based systems
- Dynamic parking availability information

**Identify critical user acceptance attributes**
- Availability of devices
- Pricing sensitivity

**Truck Stop Operator considerations**
- Potential for additional advertising revenue
- Concern about O&M as related to availability sensors
- Concern about cost to offer accurate reservation data

**Who are the Users:**
- Truckers
- Truck Stop Operators
- Fleet Operators
High Level Architecture
Logistics Terminal

Type: Private Truck Stop

Hours of Operation: 24 hours

Street Address: 36014/2nd St
French Camp, CA 95231

Phone Number: 209-234-7231
Website Address

Nearest facility: N/A
Nearest B/E: Bakersfield / Rich Road

Truck Parking

Striped Truck Parking Spaces: 0
Estimated Unstriped Spaces: 600

Dynamic Parking

Availability

Parking Lot is 93% Full
Estimated Spaces Available: 0
Estimated Spaces Occupied: 541
Availability data as of: 2:39 pm 07/27/2018 EDT

Amenities

Communications

Pay Phone

Parking Attributes

Dynamic Parking
Information
Gated Access to Parking
Open 24 hours
Paid Parking
Parking Reservations
Available

Personal Convenience

Vending Machines

Health and Hygiene

Bathroom

Additional Information

To make a reservation at this location, please call 209-234-7231. This facility is a logistics terminal that has truck parking and is secure with video surveillance, gated access, and is staffed 24 hours.

You may also email ustrmp@logisticsterminals.com and bjiang@logisticsterminals.com for additional information.

Pricing information for parking can be found at: http://logisticsterminals.com/

Make a Reservation
Project Status

Dynamic Truck Parking Information

Flying J in Lodi (Operational)
  • Detection through occupancy loops

Logistics Terminal in Lathrop (Operational)
  • Detection through existing inventory system

Love’s in Santa Nella (Under Development)
  • Detection through RFID technology

49er in Sacramento (Under Development)
  • Detection through LPR and RFID

Truck Parking Locations

Nationwide rest area database
  • Complete

Private truck stop database
  • Under development

Alt fuel database
  • CNG, LNG Complete
  • Biodiesel under development

Other truck parking
  • WIM Stations