SPECIAL SESSION:
Optimizing Truck Movements in the Southern California Port Region

• Intro to the Session: Mark Jensen, Transpo Group (Moderator) (5 min)

• The DrayFLEX Program and Applications (30 min)
  ○ Program Overview and Related Initiatives: Shrota Sharma, LA Metro
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METRO GOODS MOVEMENT TECHNOLOGY PROGRAM

SHROTA SHARMA
LA METRO
Metro is a...

- Funder
- Operator
- Planner
- Builder
San Pedro Bay Ports handled over 20 million TEUs in 2021 – the largest ports in the country

40% imports, 25% exports

By 2035, truck volumes and TEUs will triple

ISSUE: Increased container volume → increased freight hauled on trucks

SOLUTION: Use ITS to improve goods movement at the POLA & POLB
Gateway Cities Technology Plan
for Goods Movement

Developed implementation plan for deploying technology to reduce congestion and improve air quality

13 individual ITS projects identified, FRATIS among these projects

Related elements identified in Technology Plan:
- Enhances traveler information systems to address specific freight needs
- Integrates data on wait time at intermodal facilities
- Drayage Optimization
  - Optimize truck/load movements between freight facilities
The FRATIS application bundle provides freight specific route guidance and optimizes drayage operations to improve coordination between freight facilities.
Addressing mobility goals for I-710 South corridor.

FRATIS intends to address the following objectives:

- Improve air quality
- Improve mobility, congestion, and safety
- Assess alternative, green goods movement technologies
Modernized FRATIS

Improve Trucking Company Experience & Add Significant Daily Value

Promote the use of FRATIS with more flexible software

Improved integration approach

Make FRATIS a true mobile application (using any iOS or Android platform)

Integrate and operationalize features that LA Ports really need

Rebranded as DrayFLEX Core and DrayFLEX Trip
DrayFLEX Core

Leverage Existing Systems
- Terminal wait times
- Real-time terminal and port performance
- Aggregate analytics

DrayFLEX Elements
- Real-time data integration with TMS
- Automated Route and load match optimization
  - Instant best match load assignments with re-dispatch options
  - Trip monitoring
  - Move alerts
- Chassis availability and matching
- API-based open architecture
DrayFLEX Trip Application provides route guidance

- Truck driver mobile app
  - Turn by turn routing based on truck profile
  - Fastest or more fuel-efficient route options
  - Audible incident alerts
  - Audible speed notifications
  - Slow-down ahead notifications
  - Terminal wait and turn times
- iOS and Android
- Performance reporting and dashboards
- Integration with other data platforms
DrayFLEX as a goods movement solution

Continuing to fulfill what came out of the Gateway Cities Technology Plan for Goods Movement

Technology has rapidly matured since the document

Supply Chain issues has caused disruption on advancements

Traffic Management using technology is the focus in lieu of capital improvements on I-710
THANKS!
Any questions?

Shrota Sharma
LA METRO | Principal Transportation Planner
sharmas@metro.net
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<table>
<thead>
<tr>
<th>ATCMTD Benefit</th>
<th>Anticipated Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobility</strong></td>
<td>FRATIS would drive overall goods movement efficiencies for the private sector through shorter turn times, improved travel times to distribution centers achieving benefits of 15 percent savings in vehicle miles of travel (VMT), travel times, and 21 percent savings in fuel.</td>
</tr>
<tr>
<td><strong>Safety</strong></td>
<td>By reducing congestion and increasing reliability, FRATIS will enhance safety by lowering the number of primary and secondary incidents.</td>
</tr>
<tr>
<td><strong>Environment</strong></td>
<td>FRATIS will reduce CO₂, NOₓ, SOₓ, VₒC and CO by and between 21 and 23 percent each, and PM₁₀ by 27 percent.</td>
</tr>
</tbody>
</table>
HOW WE ARE “MODERNIZING” FRATIS

• Rebranded to Drayage Freight and Logistics Exchange “DrayFLEX”
  » DrayFLEX Core – Dispatcher optimization tool
  » DrayFLEX-Trip – Routing mobile app for truck drivers

• Integrate and operationalize features that ports, trucking companies, and/or truck drivers need to add significant value to daily operations

• Improve trucking company experience and promote adoption of DrayFLEX with more flexible software and integration approaches

• Make DrayFLEX-Trip a mobile application that can run on both iOS and Android platform, utilizing web services, and API connectivity

• Build on top of already commercialized goods movement tools to increase commercial deployment

“Future efforts should focus on more flexible software and integration approaches, and utilize web services, API connectivity and mobile applications for the next generation of FRATIS. The FRATIS approach needs to eventually become independent from both the back office and dispatcher-to-truck communications platforms that trucking companies use today. Additionally, future FRATIS application of the Drayage Optimization Algorithm must be more flexible to allow for the Daily Plan to be modified by drayage dispatchers, in real-time, across a given day in response to changing operational conditions and external events”

DRAYFLEX CORE
DRAYFLEX CORE OVERVIEW

• Instant best-match load assignments with re-dispatch options when changes arise en route
  » Trip monitoring
  » Move alerts

• Automated dispatch workflow and optimization

• Chassis availability and matching

• Performance reporting and dashboards

• Integration with Truck Management Systems (TMS)
  » Profit Tools
  » Trinium
DRAYFLEX CORE DEMONSTRATION
DRAYFLEX-TRIP
**DrayFLEX-Trip Key Features**

- Mobile app for truck drivers (iOS and Android)
  - Fastest or more fuel-efficient route options
  - Turn by turn routing based on truck profile
  - ETA and appointment on-time arrival information
  - Favorite locations
  - Restricted route notifications
  - Audible incident alerts
  - Audible speed notifications
  - Slow-down ahead notifications
  - Terminal wait and turn times
  - Trip summary and ratings
FASTEST OR MORE FUEL-EFFICIENT ROUTE OPTIONS
TURN BY TURN ROUTING BASED ON TRUCK PROFILE

Trip Planner

Appoint Time: 3:01 PM

Trip Details:
- Go north on West 7th Street
- Turn right on West 7th Street
- Turn left on South Figueroa Street
- Turn left on West 5th Street
- Take ramp to CA-110 South (Pasadena Freeway)
- Stay on I-110 South (Harbor Freeway) as it bears right
- Take Exit 1A to CA-47 East (Seaside Freeway)
- Take ramp to I-10

ETA: 2:44 PM
11.85 miles / 22 mins
ETA AND APPOINTMENT ON-TIME ARRIVAL INFORMATION

ETA: 3:14 PM
3.96 miles / 8 mins
Late Arrival
RESTRICTED ROUTE NOTIFICATIONS

Caution
This road is restricted. Always obey locally posted regulations.

OK

Keep right on I-580 West (Macarthur Freeway)

Warning
Macarthur Freeway is a restricted road 0.2 mi ahead on your route.

ETA: 3:03 PM
2.81 miles / 14 mins

OK
End Navigation
INCIDENT/ACCIDENT ALERTS
SLOW-DOWN AHEAD NOTIFICATIONS
### TERMINAL WAIT AND TURN TIMES

#### Ports of Los Angeles/Long Beach
Last Updated: 1/15/2021 5:47:59 PM

<table>
<thead>
<tr>
<th>Location</th>
<th>In Q</th>
<th>In Terminal</th>
<th>Total Visit Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCT</td>
<td>9 minutes</td>
<td>54</td>
<td>63</td>
</tr>
<tr>
<td>TraPac Container Terminal</td>
<td>9 minutes</td>
<td>36</td>
<td>44</td>
</tr>
<tr>
<td>TTI Total Terminals International, LLC</td>
<td>15 minutes</td>
<td>54</td>
<td>69</td>
</tr>
</tbody>
</table>
Welcome to DrayFLEX-Trip
Evaluate your best route options based on the desire to improve fuel economy and travel time, increasing the potential for more turns, reducing fuel use, and enhancing safety.

SIGN-UP AT:
www.drayflextrip.com
SCHEDULE/NEXT STEPS
## DrayFLEX Schedule and Next Steps

<table>
<thead>
<tr>
<th>Task</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Refinement &amp; Concept Exploration</td>
<td>September 2018</td>
<td>February 2019</td>
</tr>
<tr>
<td>Stakeholder Outreach and Recruitment</td>
<td>October 2018</td>
<td>March 2019</td>
</tr>
<tr>
<td>Project Planning (SEMP, ConOps, System Requirements)</td>
<td>January 2019</td>
<td>July 2019</td>
</tr>
<tr>
<td>System Definition and Design</td>
<td>June 2019</td>
<td>November 2019</td>
</tr>
<tr>
<td>System Deployment and Implementation</td>
<td>June 2019</td>
<td>June 2022</td>
</tr>
<tr>
<td>System Validation, Performance Measurement, Training, &amp; Commercialization Plan</td>
<td>September 2018</td>
<td>June 2023</td>
</tr>
<tr>
<td>Operations and Maintenance</td>
<td>August 2021</td>
<td>June 2023</td>
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2018-2022 Storm of Trade Impacts

**U.S.-China Trade Tensions**
Tariffs & Retaliatory Tariffs

- Manufacturer Migration to Southeast = Cargo Routing to U.S. East coast
- BCOs Pull Cargo Forward in Advance of Tariff Increase
- Tariff Wars Trigger Export Declines
- Record-Setting 2018 Container Volume

**Covid-19 Pandemic**
Critical Supply Chain Needs + Labor Force Impacts

- Economies Shutter, Cargo Trade Volumes Plunge
- Consumer-Driven Cargo Surge, Record-Setting E-Commerce
- Local & Global Supply Chain Disruptions
- Global Container Shortage, Carrier Price Hikes
- Import Surge Continues, Exporter Challenges Continue
Our Operational Focus Points

- Ongoing terminal modernization projects
- Re-purposing surplus land to support short and mid-term cargo needs
- Creating Terminal Alliances
- Supply Chain Optimization efforts -- 100+ stakeholders
- Continuing strong engagement with State & Federal Policymakers, including FMC and Departments of Commerce, Labor & Transportation
- Digital Infrastructure & Port Community Systems
- Increased development & application of Blue & Green technology
Real-Time Information Sharing

Port Optimizer™

Establish a **global data repository** to provide accurate, actionable information and analytics, accessible to designated parties across the port’s supply chain.
Product Principals

- **“System of systems”** ... fits within the existing Supply Chain ecosystem to enable interoperable supply chain visibility. GE architecture / delivery mechanism is purposely flexible.

- **Partnerships** ... open to and actively exploring technology partnerships across the Maritime shipping / broader Supply Chain ecosystem.

- **Data Stewardship** ... you own your data and should define how it is used. GE role is to act as independent data stewards and software providers. Transparent & consultative about how data is used. GE is not seeking to share sensitive information.

- **Highly elastic for easy and rapid growth:**
  - Scalable to support expected Port growth
  - Headroom for big data traffic

- **Cloud based, Modular and service oriented:**
  - Upgrades with no customer disruption
  - Minimized setup and maintenance cost
  - User online services
  - Easy to access/switch over

- **Short release cadence:**
  - Rapid production deployment
  - Experiment oriented feedback and Analytics
Data Sources

Ocean Carrier Data

CBP Data covering all shipments into Port of LA (including Manifest EDI 309 and Customs EDI 350 messages)

Direct connections with Carriers including Manifest data, Booking information, Stowage, Destination Terminal, and Rail/Truck destination information

Marine Terminal Data

Full data for all Port of LA Terminals, including movement events, gate moves, yard location, last free day, and holds

Additional Data Sources
Port Optimizer
Modules
Track & Trace

Container Visibility and Planning

Provides visibility for better operational decisions of Intermodal Containers from the Ocean to Inland

- Graph that quickly shows volume over time with color coded statuses.
- Multiple data sets merged and standardized.
- Visual timeline tracker with key milestones.
- Container location and near real time updates.
New levels of visibility

- Three-week forward view of import volumes
- Better planning for port stakeholders (chassis, truck, rail)
- Open to entire community
- Ability to grow as port needs grow

The Port of Los Angeles Return Signal

High-Level Visibility/Data Metrics

Empty Returns Made Easy

- Empty Return information for all terminals in a single view
- Searchable by size, carrier, type and terminal
- Multi-day views
- Historical views including screen captures of terminal sites

https://tower.portoptimizer.com/dashboard/empty-returns
Control Tower

High-Level Visibility/Data Metrics

Measures and reports Port wide Key Performance Indicators

Port Performance Metrics
- Truck Turn Times
- Cargo Dwell Times
- Import/Export Volumes
- Rail Metrics
- Financial Metrics

Current and Historical views with weekly/monthly/yearly comparisons
Total Volumes by ATA: 6 Month Prediction

Port of Los Angeles

Latest Prediction - 23,822
4 Month Average Percent Difference - 2.22%
4 Month Predicted Range - 22,500 - 24,000
THANK YOU

@PortofLA

portoflosangeles.org
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Traffic Management: Teamwork and Technology

Theresa Dau-Ngo, AICP
Director, Transportation and Master Planning
Port of Long Beach
May 26, 2022
PORT STAFF

Executive Management
Transportation Planning
Engineering Design
Program Management
Construction Management
Project Controls
Security
Tenant Services and Operations
Communications

OUR PARTNERS

Project Management/ Construction Management (PM/CM)
Shimmick/ FCC/ Impregilo (SFI)
Westbound Communications
Caltrans
City of Long Beach Public Works
Los Angeles County
SOUTHBOUND I-710 TO WESTBOUND OCEAN BLVD CONNECTOR CLOSURE — FEBRUARY 2014
JOINT SITE VISIT – MIDDLE HARBOR AND GDB REPLACEMENT PROJECTS - DECEMBER 2015
EASTBOUND OCEAN CONNECTOR CLOSURE—JANUARY 2016

Ocean Blvd. Detour to Downtown Long Beach

Start Date: 5 a.m., Tuesday, January 19, 2016
Duration: 36 months

Closure: Eastbound Ocean Boulevard between the Gerald Desmond Bridge and downtown Long Beach will be closed for nine months to construct the new bridge.

Closure of the section of Ocean Blvd. above Picc Avenue will require all vehicles heading to downtown Long Beach from the Desmond Bridge to briefly exit onto Picc Avenue and again onto Ocean Blvd. at the existing on-ramp. Westbound Ocean will remain open, although motorists may expect a limited impact of the lanes.

LEGEND
- CLOSURE
- DETOUR
- INTERSECTION

Stay connected:
- www.mergbridge.com
- Facebook.com/mergbridge
- Twitter.com/mmergeedr
- Instagram.com/mergbridge

Stay Connected:
- Grae Dellatto
  Community Liaison
  562.383.7680
- Grae.Dellatto@CityOfLongBeach.com
- Lynn Peterson
  Communications/Community Relations
  562.383.7749
- Lynn.Peterson@LBB.gov
OPENING OF MIDDLE HARBOR
PHASE 1 – APRIL 2016

Overview
The highly anticipated Long Beach Container Terminal Pier E facility at Middle Harbor opens in spring 2016, beginning an era of advanced, automated container cargo handling at the world's greenest terminal.

Safety is a top priority, so the Port of Long Beach has designed a special truck entry and egressing lanes on Pico Avenue, just south of the fast-rising Gerald Desmond Bridge Replacement Project.

Pico Ave. Entry Lane
The ONLY way to enter Pier E is for truck drivers to use the southbound Pico Avenue entry lane.
- Get into the entry lane at Harbor Plaza and Pico Avenue.
- Most drivers will come south and loop around the Pier E entrance gates to get into the entry lane.
- From the entry lane, make a left turn into Pier E.

All trucks departing Pier E will exit via Pier D Street.

All truckers who need chassis for Pier E will go to LBCT's new chassis yard on Pier B, northeast of the Pico Avenue exit from the I-710.

For the latest Port traffic updates, download the LB Bridge app to your smartphone from the Apple App Store or Google Play. Or subscribe to traffic email alerts at www.newbridge.com.

Please drive safely.
NORTHBOUND I-710 CONNECTOR CLOSURE – JUNE 2018
OPENING OF THE NEW BRIDGE
OCTOBER 2020
Thank you!
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