PARSONS®

PORT OF OAKLAND FITS

Freight Intelligent Transportation System for Port of Oakland

06/05/2025

WHY FITS WAS NEEDED: STANDSTILLS AT THE PORT

4 major terminals -
Everport, Trapac, IOCT, Matson.

- Over **1 mile of combined queue** length at the Port.
- Wait times between 1 to 2 hours
- 25% of Port signals in *Flash*
- Full Import growth 12.9% 2023 to 2024

WHY FITS WAS NEEDED: DATA SILOS

Systems do not communicate or share data. This includes traffic data, terminal operations, shipping information, and analytics on overall port operations.

FITS

Traffic Operations

Terminal Operations

Analytics

Shipping Data

REGIONAL CONTEXT

2023 DATA SHARING MOU SIGNED

California Port Data Partners

- Port of Hueneme
- Port of Long Beach
- Port of Los Angeles
- Port of Oakland
- Port of San Diego

Data Sharing to include:

- Development of use cases and applications that support operational improvement, efficiency, and emissions reductions;
- Outlining of key alignment points in order to achieve resultant interoperability with other container ports;
- Ensuring equitable access to data for users;
- Identification of data elements and data sources;
- Identification of external entities in the supply chain for data sharing;
- Development of common definitions and standards for identified data elements;
- Ensuring data security and privacy;
- User discovery and stakeholder engagement;
- Identification of public and private funding resources to support port data system development;
- Increasing public and industry awareness on port data system development; and
- Connecting and liaising with other local, state, and federal entities of government, private industry partners, and other interested parties to support interoperability and port data system development.

$30 M

State Investment supporting data aggregation and analysis to "support freight and supply chain efficiency."

PROJECT OBJECTIVES

Existing System

- Does not automatically respond to changes in traffic conditions.
- Terminals unable to share data with the Port or the public.
- Limited information regarding Vessel schedules and locations.
- Drayage truck parking does not allow for online payments.

New System

- Sensors and cameras allow automatic changes to signals and dynamic message signs.
- The Azure cloud centralizes data from terminals and external data providers along with analytics.
- Port operations and updates are viewable on the Oakland Portal and Mobile App.
- Smart Parking System makes paying for parking simple and seamless.
- Video Analytics provides real time traffic conditions information

PARSONS FITS BY THE NUMBERS

- 7 Changeable message signs
- 11 traffic signals
- 62 Queue detectors
- 16 cameras
- 4 Sub contractors
  - Mobile Programming
  - Kalmar
  - EModal Advent
  - Bear Electrical
- 1 Weigh in Motion device
- 1 Mobile application
- 1 Web Application
- Dozens of Smart Parking System users

FITS PROJECT SUCCESS

CLICK TO ADD SUBTITLE

FITS ELEMENTS

Traveler Information Dissemination	- Oakland Portal / Mobile Application - Changeable message signs (CMS)
Communications and Collaborations	- Communications (WiFi) - Communications (Fiber) - Center to center (C2C) communications (interagency communications)
Observation and Detection	- Closed circuit television (CCTV) upgrade to high definition (HD) - Radio frequency identification (RFID) readers - Supplemental vehicle detection (SVD) (speed) - Queue detection (QD)
Traffic and Incident Management	- Adaptive signal system - Advanced train detection system (ATDS) - Advanced Traffic Management System (ATMS)
Goods Movement Support	- Weigh in motion (WIM) technology - Smart parking system

OAKLAND PORTAL DATA SOURCES (CURRENT AND FUTURE)

Source	Type of Data	Description	Status
Local ITS Field Elements	RFID, Queue/ Train Detection, Vehicle Speeds/Counts	Localized I.T. equipment to collect in-gate/outgate turn times, queue times outside terminals, vehicle speeds in Seaport, etc.	Installation of ITS field elements is scheduled to be complete in March 2023, followed by six months of integration and testing
Terminal Data	Container/Vessel Info at Terminal	Container status at terminal, terminal dwell time, container type, vessel cutoff, etc.	Still seeking to collect - will require agreement by terminals and securing contract with vendor to integrate into Port's secure platform
Carrier Data	Vessel/container movement data on the ships and within terminals	Vessel schedules and updates, specific container movements in the terminals such as full import, full out gate, empty in gate, etc.	Still seeking to collect - will require agreement by carriers and securing contract with vendor to integrate into Port's secure platform
Railroad Data	UP/BNSF Rail Data	Advance train arrive notification (within/outside Port area); train length, speed, location; train cargo data	Still seeking to collect (will require agreement by railroads and securing contract with vendor to integrate into Port's secure platform)
Other Data	Other external source data	Custom Border Patrol ("CBP") data, Marine Exchange data, etc.	Some of this data has already been secured, but will require cleanup and integration

SITUATIONAL AWARENESS WITH THE ATMS

View from the Advanced Traffic Management System Interface
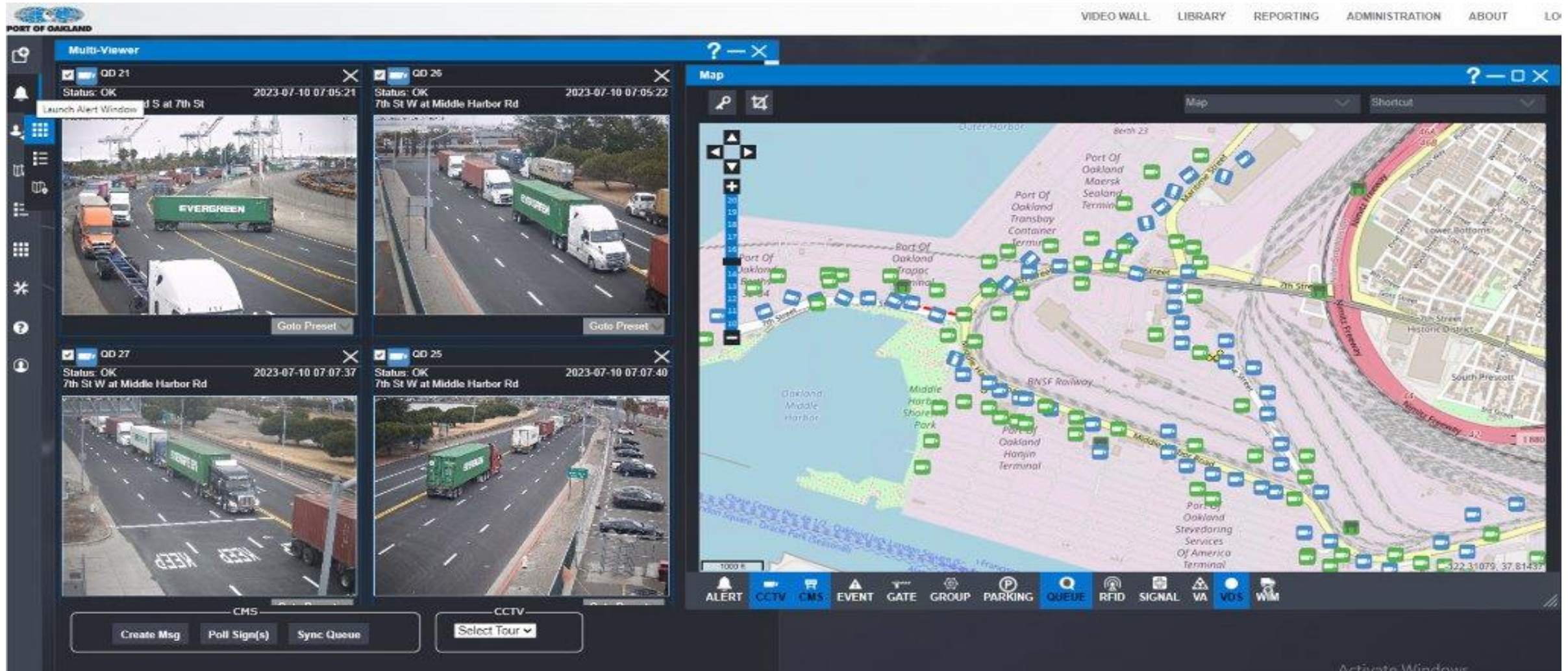
ATMS SMART CAMERA

Queue detection supplements RFIDs for wait times and turn times.

With Video Analytics, train crossings can be identified and communicated to DMS signs.

View from the
Advanced Traffic Management System

TRAFFIC SIGNAL CONTROLS

Provides Signal Status updates

Real time monitor
of Signal phases

Adaptive controls
to change signal timings as
needed

View from the
Advanced Traffic Management System

DYNAMIC MESSAGE SIGNS

RFIDS + Video Analytics

RFIDS give accurate predictions on wait times.

Video Analytics supplement the RFIDs

CMS's communicate to Truck Drivers estimated wait times

CMS's also display custom alerts

View from the Advanced Traffic Management System
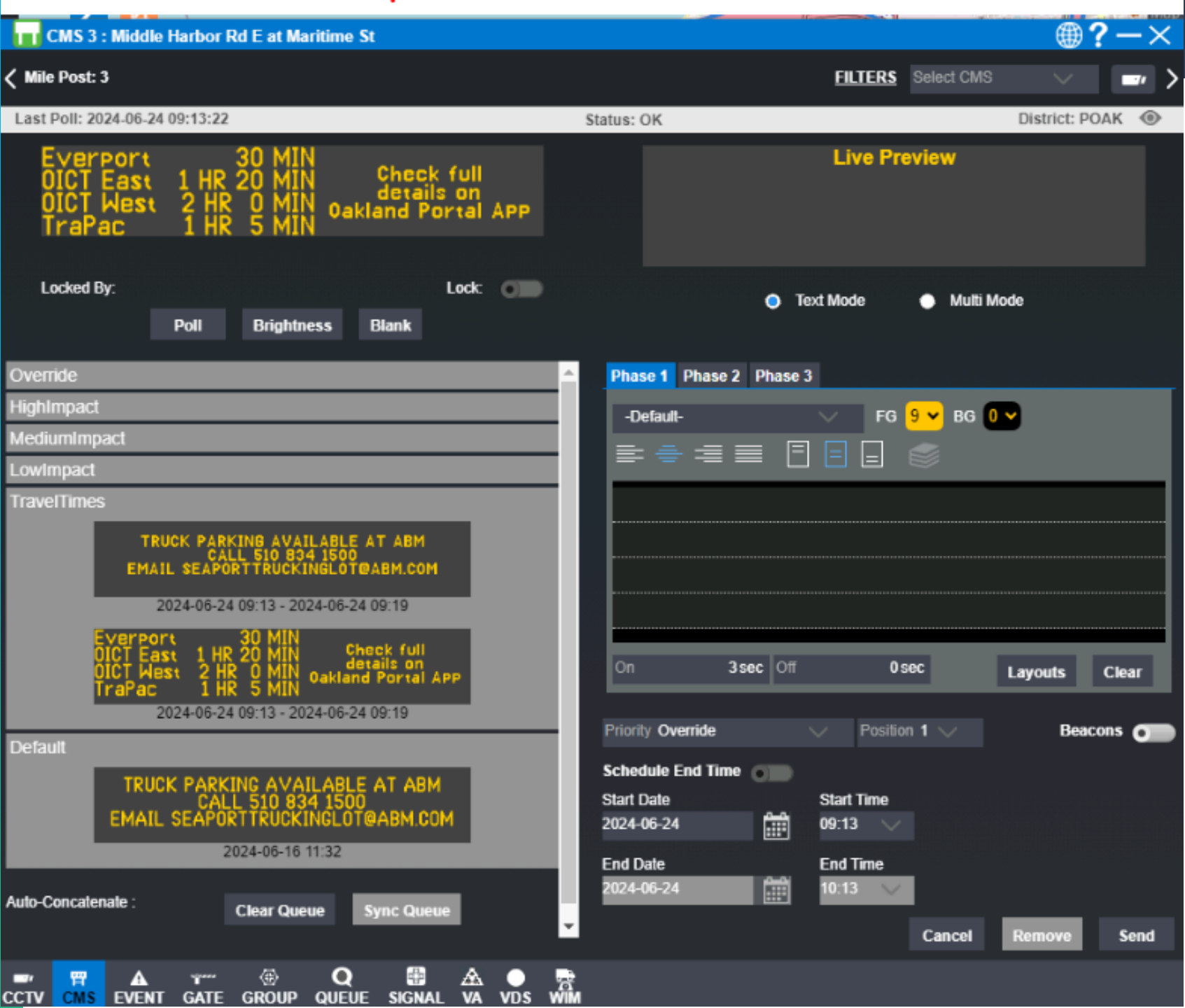
DATA HUB

Data Sources:

➤ Data Sources from AeM, San Francisco Marine Exchange, and Port Terminals.

➤ Data is ingested and transformed for BI Reporting.

➤ Data and insights are sent to the Port of Oakland Web Portal and mobile App.

➤ Data is secured with Azure web hosting security.

OAKLAND WEB PORTAL

Data from the Data Hub is displayed on the Oakland Portal

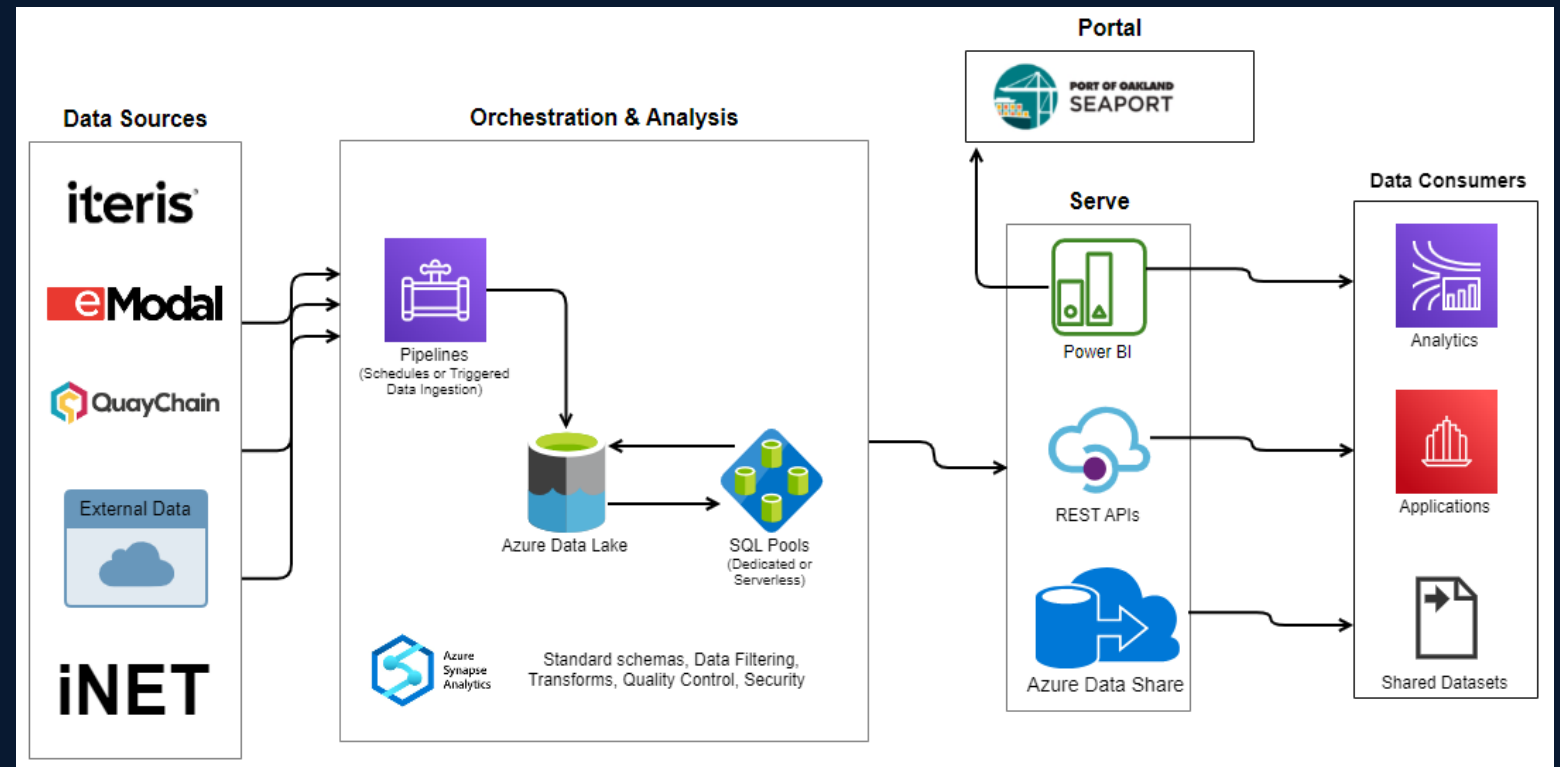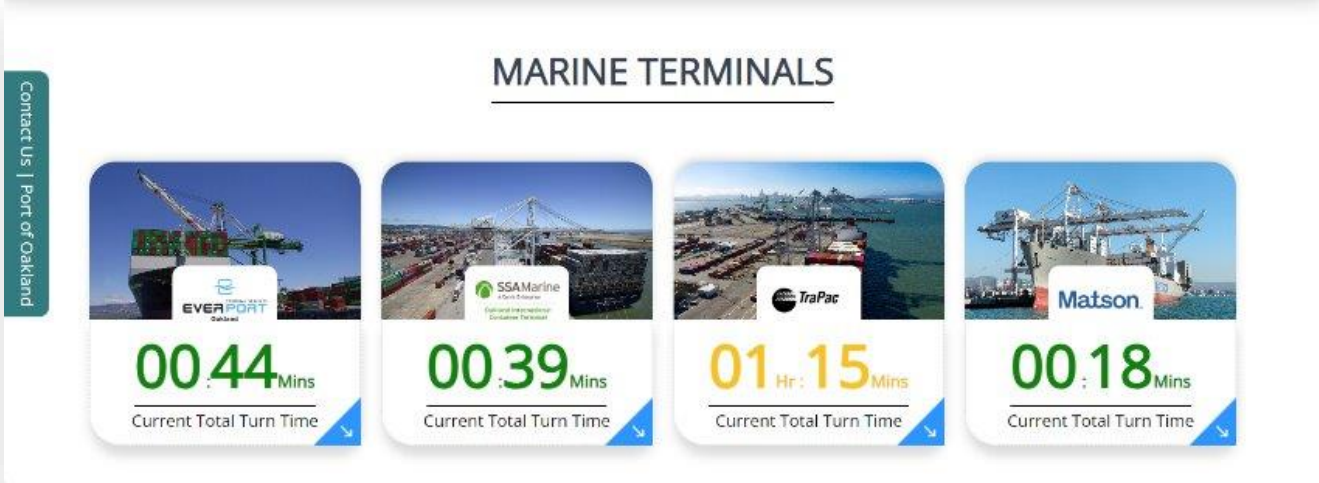- Data from FITS devices are displayed on the Portal.

- Transparent metrics on Port performance.

- Analytic data is updated daily.

- Historic data provides insights as to problem areas.

- A private portal for key stakeholders to view Port metrics.

MARINE TERMINALS

EVERPORT	SSA Marine	TraPac	Matson
00:44 Mins	00:39 Mins	01 Hr: 15 Mins	00:18 Mins
Current Total Turn Time	Current Total Turn Time	Current Total Turn Time	Current Total Turn Time

Download   Search by Terminal name   Q Search

Terminal/Gate Name	Total Wait Time	Today's Average Total Turn Time	Street Queue Length	Trucks in Street Queue	Street Wait Time	Ingate/Outgate Time	Total Trucks
Everport	0 min	48 min	0.00 Miles	0 Trucks	18 min	30 min	155
TraPac	0 min	57 min	0.00 Miles	0 Trucks	19 min	38 min	141
Matson	0 min	55 min	0.00 Miles	0 Trucks	31 min	24 min	26
OICT East Gate	0 min	79 min	0.00 Miles	0 Trucks	20 min	59 min	147
OICT West Gate	12 min	88 min	0.19 Miles	21 Trucks	37 min	51 min	122
OICT Back Gate	0 min	89 min	0 Miles	0 Trucks	44 min	45 min	8

Last updated on: 06/24/2024 9:59 AM

OAKLAND PORTAL MOBILE APP

Data from the Data Hub is displayed on the Oakland Portal

- Real time insights such as
  - Vessel locations.
  - Vessel arrival ties.
  - Terminal status, including wait times and alerts.
  - Traffic related alerts.

- Provides interface for the Smart Parking System.
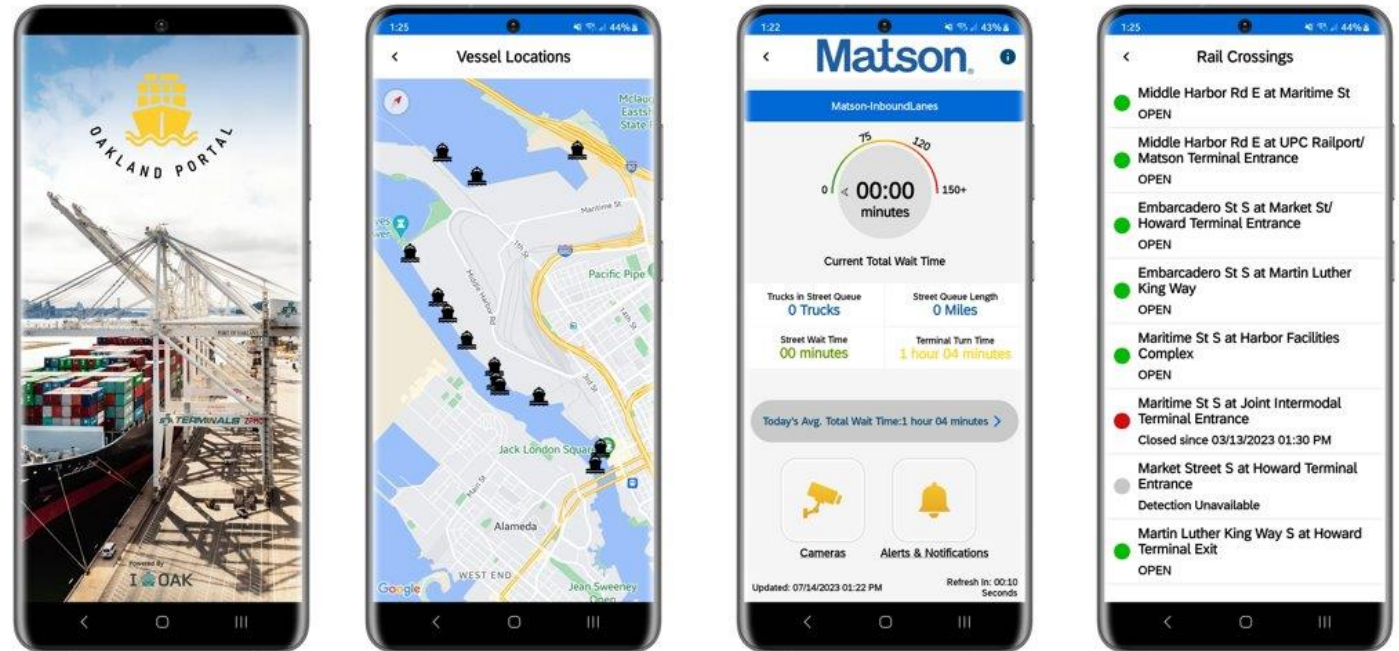
SMART PARKING SYSTEM

Parking Management

- Add, edit, and delete Parking zones through the online interface.

Gate Management:

- Check in, Inventory assessment, and view list of approved drivers.

Fines:

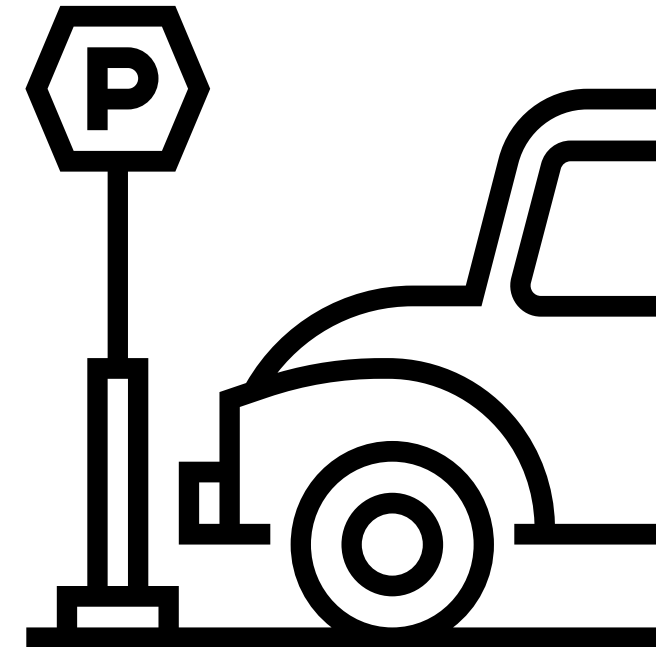- Add, edit, and assess fines.

Bookings:

- Make reservations with an interactive calendar.

Accounts:

- Send Notifications to Administrators, Gate Clerks and Gate Managers

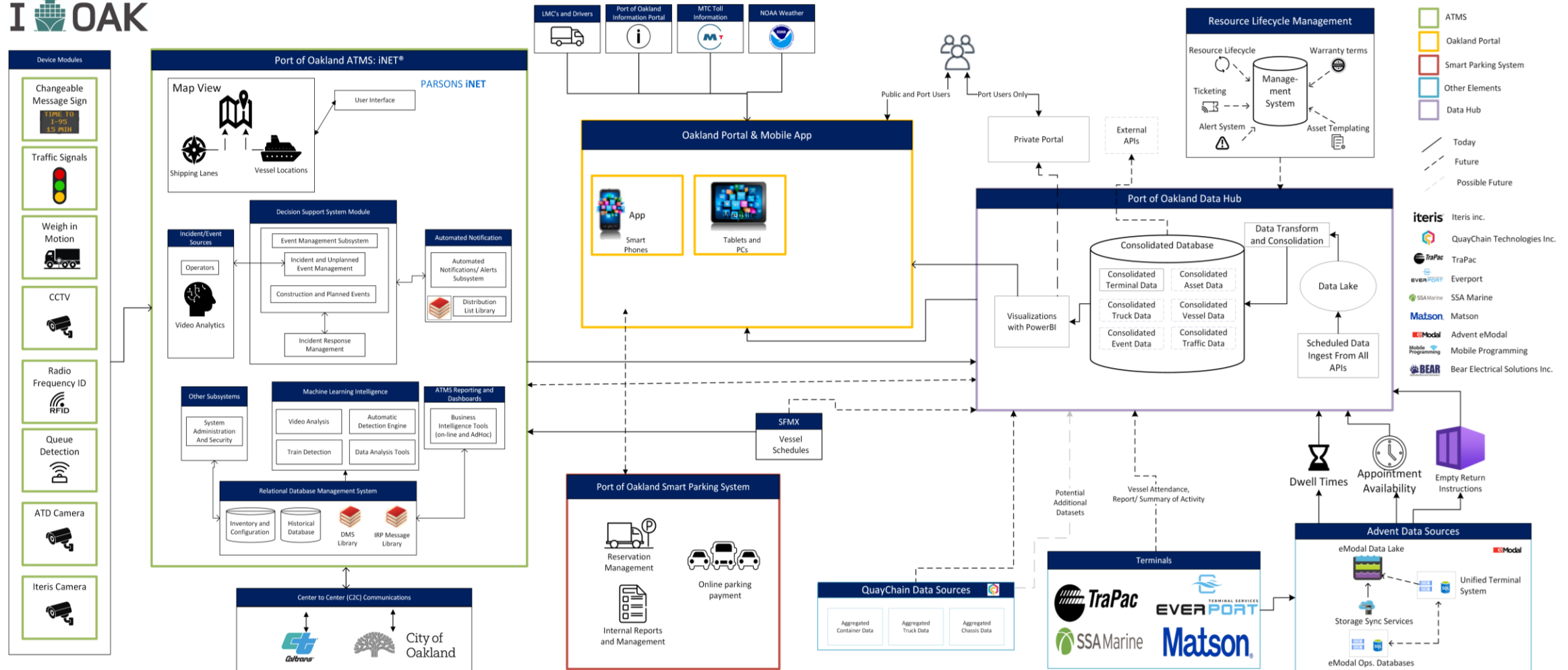- User Management:
  Create SPS users
  Edit/Remove Access

Payment Gateway:

Transitioned to a new payment processing system

INTELLIGENT TRANSPORTATION SYSTEM'S INTEGRATED DATA ENVIRONMENT

COVERAGE OF FITS OAKLAND PORTAL ANNOUNCEMENT

Coverage Recap: Port of Oakland Announcement – 1/8/24

Industry Media Coverage

- **Port Technology:** Port of Oakland welcomes app to improve operations - Port Technology International [porttechnology.org] – 1/8/24
- **Maritime Logistics Professional:** New App Launched to Improve Operations at Port of Oakland [maritimeprofessional.com] – 1/8/24
- **Port Strategy:** Oakland rolls out new freight system [portstrategy.com] – 1/8/24
- **Container Management:** Port of Oakland goes live with new smart port system solution and mobile application [container-mag.com] – 1/8/24
- **World Ports:** Port of Oakland goes live with new smart port system solution and mobile application [worldports.org] – 1/8/24
- **Sea News:** Port of Oakland launches new app to improve port operations - Sea News [seanews.co.uk] – 1/5/24
- **Portal Portuario**: United States: Application launched to improve port operations in Oakland [portalportuario.cl] – 1/5/24
- **Railway Age:** Goods Movement Tracker Debuts at Port of Oakland [railwayage.com] – 1/5/24
- **American Journal of Transportation:** Port of Oakland Launches New App to Improve Port Operations [ajot.com] – 1/5/24
- **WorldCargo News**: FITS for Port of Oakland [worldcargonews.com] – 1/5/24
- **Maritime Network**: Port of Oakland, Parsons and Partners Launch New App to Improve Port Operations [news.maritime-network.com] – 1/5/24
- **Hellenic Shipping News:** Port of Oakland, Parsons and Partners Launch New App to Improve Port Operations [hellenicshippingnews.com] – 1/5/24
- **Bunker Ports News Worldwide**: Port of Oakland, Parsons and Partners Launch New App to Improve Port Operations [bunkerportsnews.com] – 1/5/24