Intercity Transit Authority

Avail/ InterCity Overview | July 2022

Agenda

- Introductions
- Avail / InterCity Overview
  - ✓Operations
  - ✓Maintenance
  - ✓Planning
  - ✓Customer Service
  - ✓Management

Avail Overview

- Kevin McKay, Chief Operating Officer

About Avail

- Founded in 1999
  - Focused on transit
  - ESOP
- Cutting-edge Technologies and Cost-effective services
  - Systems integrators
  - Integrated solution (FleetNet in 2017)
- Lowest Long-term Cost of Ownership
  - All Inclusive maintenance and support
  - Downward compatibility

- Only vendor evolving the vision of Enterprise Transit Management Software

Enterprise Transit Management Software

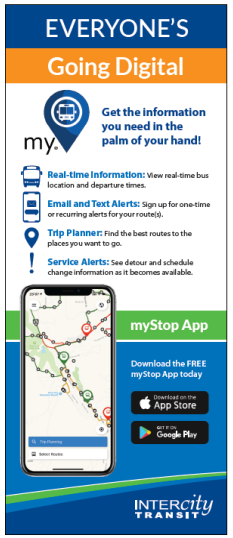
- ✓ **Enterprise Transit Management Software (ETMS)**
- ✓ Cohesive system providing a comprehensive, yet intuitive software solution
- ✓ **ETMS** is the only end to end, from the vehicle to the back office, complete solution for transit agencies.

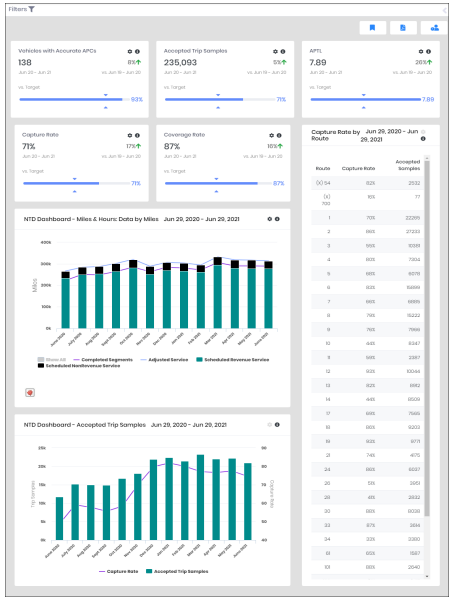
Achieving Your Goals

- ✓ Partner with a highly experienced Provider
- ✓ Utilize Technologies to improve:
  - Operational effectiveness
  - Efficiency
  - Safety
  - Performance Management
  - Customer Experience

Accomplishments

- ✓ Replaced analog communications system with new digital VoIP solution
- ✓ Common Vehicle equipment across fixed route and paratransit that is designed for transit yet "non-proprietary"
- ✓ New equipment including standard operating procedures to enhance transit service
- ✓ Improved and timely passenger information to keep your riders informed
- ✓ Management Information Systems to improve efficiency and effectiveness





ETMS Overview

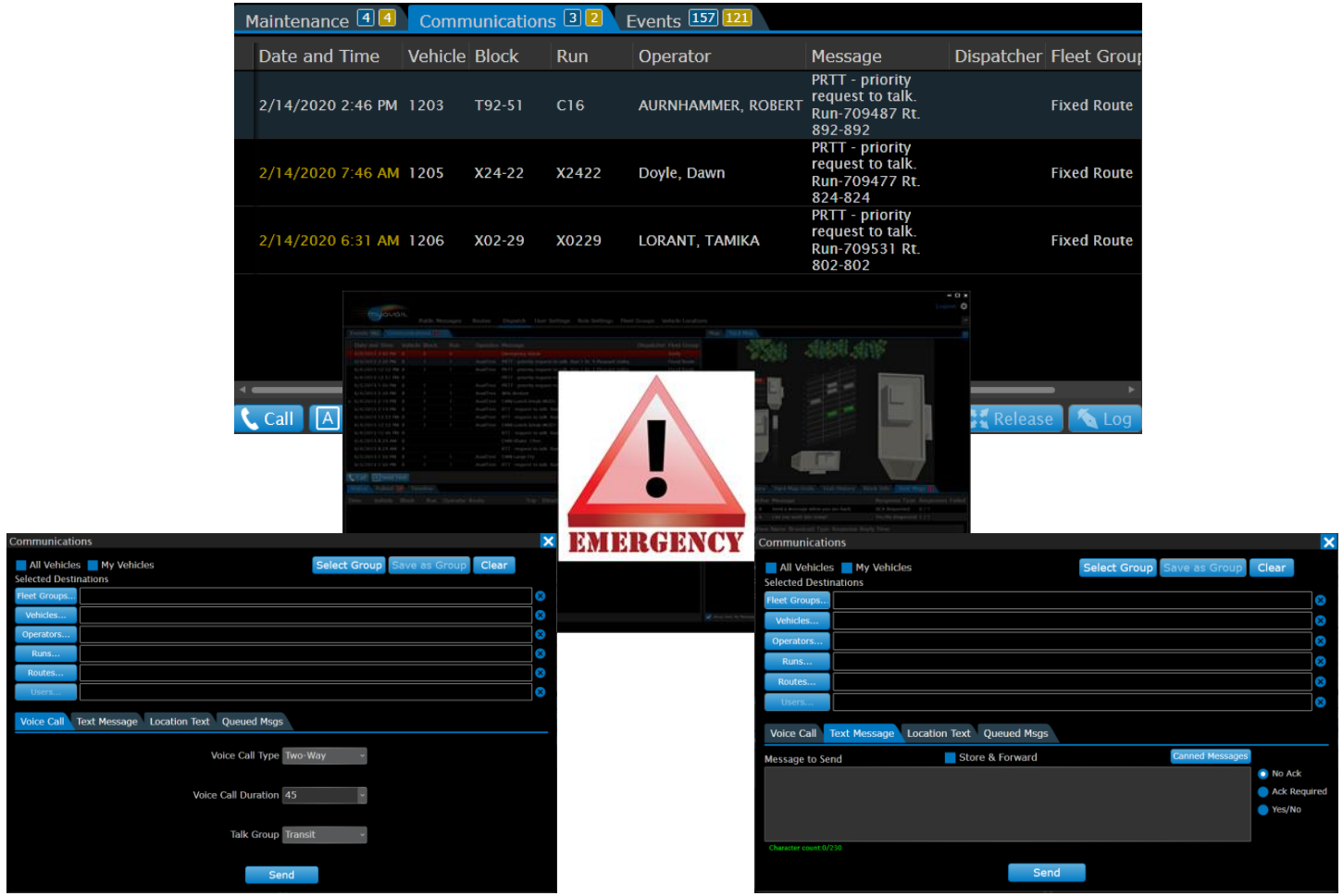
- Vic Kumar, Program Manager (Avail)
- Cameron Crass, Manager - Fixed Route Operations (InterCity)
- Kevin Karkoski, Dial a Lift Operations Manager (InterCity)
- Jonathan Yee, Director Maintenance & Facilities (InterCity)

CAD/AVL Functionality

- Role-based user interface
- Detour Management
- Decision Support/ Service Recovery
- Timeline
- Business Intelligence
- AND MORE!!

Communications Queue

- Listing of communication related messages that the dispatcher(s) are managing:
  - ✓ Text Messaging
  - ✓ Voice Radio (RTT, PRTT)
  - ✓ Emergency Alarm



Events Queue

- Listing of non-communication related events/actions that the dispatcher(s) are managing
  - ✓ Examples include invalid logon attempt, vehicle movement alarm, over-crowding, late, early, transfers, headway, etc.

Date and Time	Vehicle	Block	Run	Operator	Message	Dispatcher	Fleet Gro
2/14/2020 3:54 PM	1658	7-01	C45	BRADY, CATHERINE	Overcrowding		Fixed Rout
2/14/2020 3:54 PM	1621	29-04	C60	CARTER, LESLIE	Overcrowding		Fixed Rout
2/14/2020 3:39 PM	1847	10-05	C43	Shevchenko, Vladimir	Overcrowding		Fixed Rout
2/14/2020 3:38 PM	1630	29-05	C40	LOFTUS, THOMAS	Overcrowding		Fixed Rout
2/14/2020 3:37 PM	1701	2-03	C64	Murphy, John	Overcrowding		Fixed Rout
2/14/2020 3:29 PM	1701	2-03	C64	Murphy, John	Bus Bunching Over Threshold		Fixed Rout
2/14/2020 3:27 PM	1714	6-02	J603	LOURENCO, GEORGE	Bus Bunching Over Threshold		Fixed Rout
2/14/2020 3:26 PM	1711	7-03	J705	MARTINEZ, MIGUEL	Overcrowding		Fixed Rout
2/14/2020 3:16 PM	1577	2-07	C10	Levine, Ronald	Bus Bunching Over Threshold		Fixed Rout
2/14/2020 3:15 PM	1203	T92-51	C16	AURNHAMMER, ROBERT	Overcrowding		Fixed Rout
2/14/2020 3:14 PM	1577	2-07	C10	Levine, Ronald	Bus Bunching Over Threshold		Fixed Rout

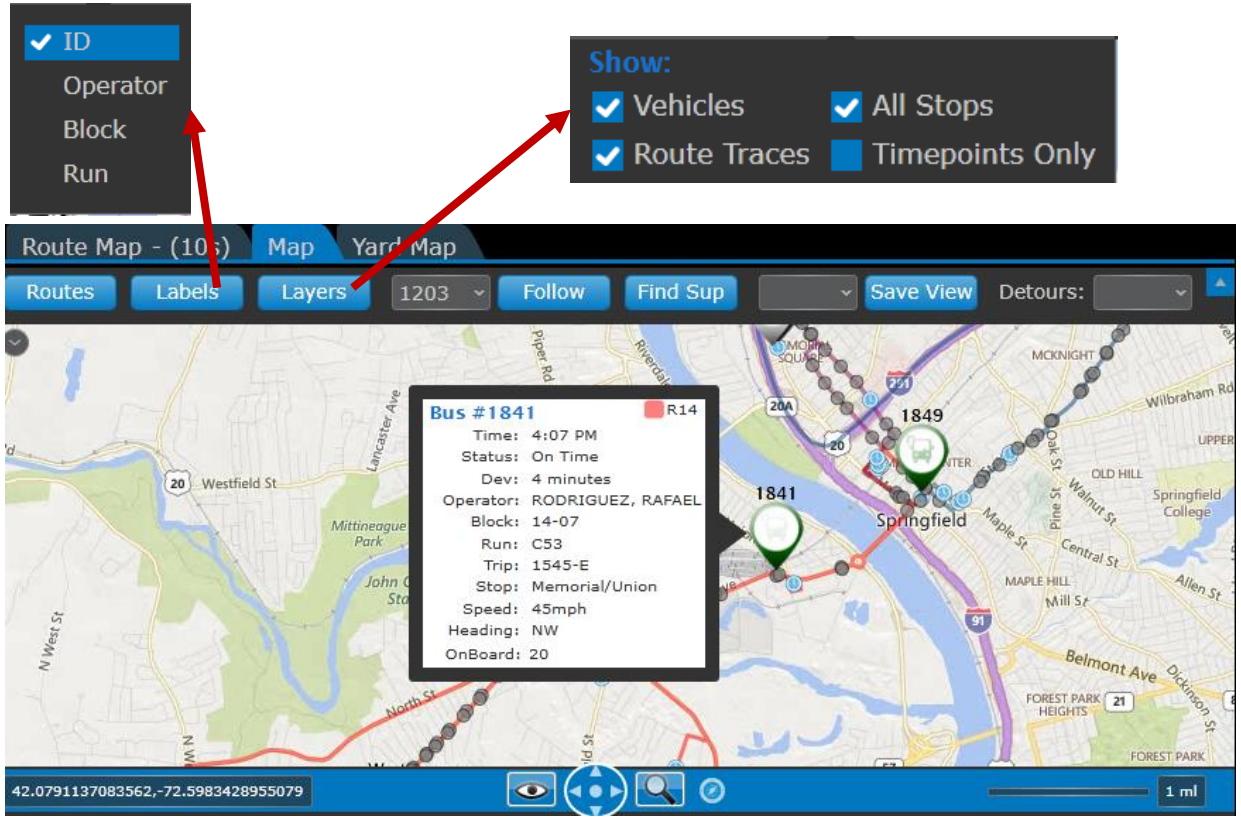
Maintenance Queue

- Displays mechanical events.
- Allows the Maintenance department to manage events related to the health of vehicle equipment.
- Examples include APC, Wheelchair, Vehicle Health Monitoring (VHM) failures, etc.
- Receive Alerts via
  - ✓ Email
  - ✓ SMS

Date and Time	Vehicle	Block	Run	Message	Priority
2/14/2020 7:24 AM	1310	X05-21	X0521	Engine AmberWarning/Very Urgent - Engine Injector Cylinder #02 - SPN: 652, FMI: 2	2
2/14/2020 6:55 AM	1401	X21-22	X2122	Engine AmberWarning/Urgent - Engine Injector Timing Rail 1 Pressure - SPN: 156, FMI: 3	2
2/14/2020 6:45 AM	1207	X01-21	X0121	Engine AmberWarning/Very Urgent - Engine Injector Cylinder #05 - SPN: 655, FMI: 3	2
2/14/2020 6:40 AM	1310	X05-21	X0521	Engine AmberWarning/Slightly Urgent - Engine Variable Geometry Turbocharger (VGT) 1 Actuator Position - SPN: 2795, FMI: 13	2

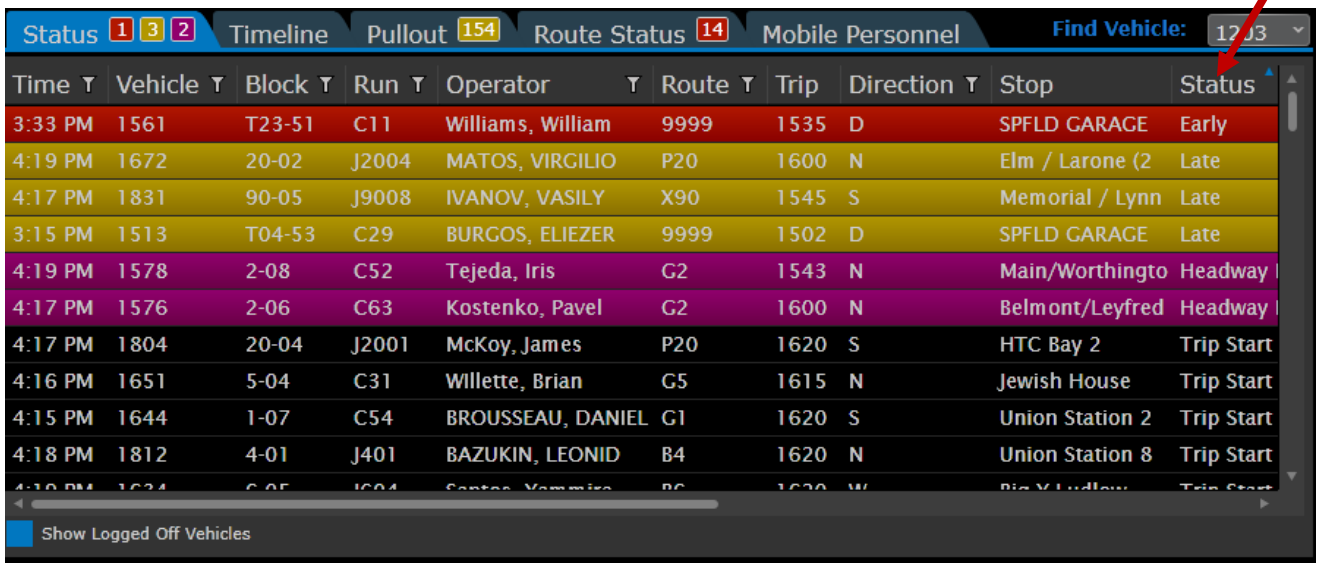
Dispatch Map

- Displays the current location of vehicles being monitored in real-time
  - ✓ Layer options include Vehicle, Route Traces, Stops and Timepoints
- Vehicle Bubble
  - ✓ Label options include ID, Operator, Block, Run
- Follow Vehicle
  - ✓ A vehicle in distress (EA) is automatically switched to follow-mode
- Find Supervisor (Vehicle, VoIP Smartphone)

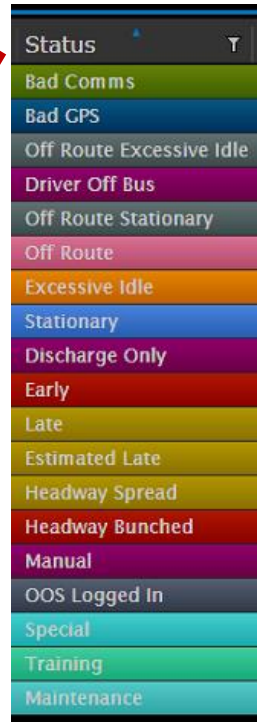


Dispatch Status

- Shows the most recent status of the vehicles being monitored.
- Color coding for each status category is configurable.

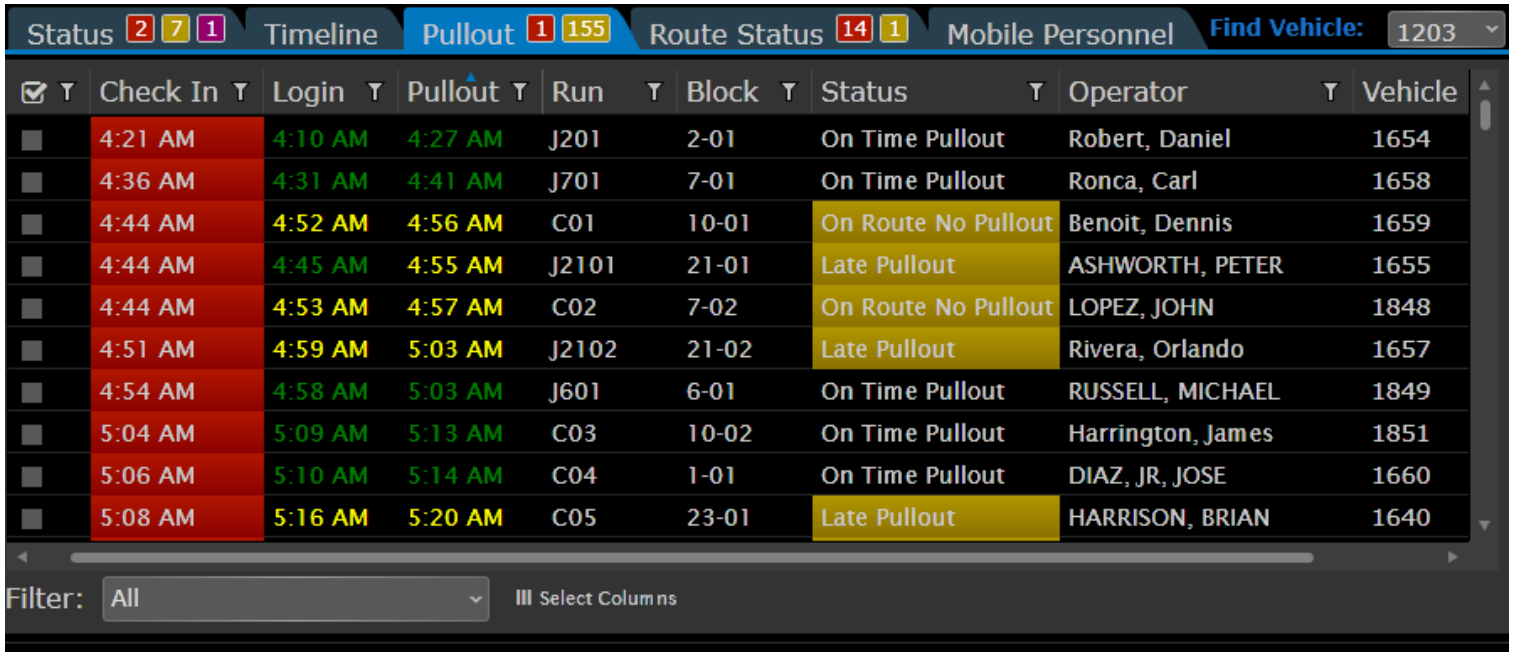


Time	Vehicle	Block	Run	Operator	Route	Trip	Direction	Stop	Status
3:33 PM	1561	T23-51	C11	Williams, William	9999	1535	D	SPFLD GARAGE	Early
4:19 PM	1672	20-02	J2004	MATOS, VIRGILIO	P20	1600	N	Elm / Larone (2	Late
4:17 PM	1831	90-05	J9008	IVANOV, VASILY	X90	1545	S	Memorial / Lynn	Late
3:15 PM	1513	T04-53	C29	BURGOS, ELIEZER	9999	1502	D	SPFLD GARAGE	Late
4:19 PM	1578	2-08	C52	Tejeda, Iris	G2	1543	N	Main/Worthingto	Headway
4:17 PM	1576	2-06	C63	Kostenko, Pavel	G2	1600	N	Belmont/Leyfred	Headway
4:17 PM	1804	20-04	J2001	McKoy, James	P20	1620	S	HTC Bay 2	Trip Start
4:16 PM	1651	5-04	C31	Willette, Brian	G5	1615	N	Jewish House	Trip Start
4:15 PM	1644	1-07	C54	BROUSSEAU, DANIEL	G1	1620	S	Union Station 2	Trip Start
4:18 PM	1812	4-01	J401	BAZUKIN, LEONID	B4	1620	N	Union Station 8	Trip Start



Dispatch Pullout

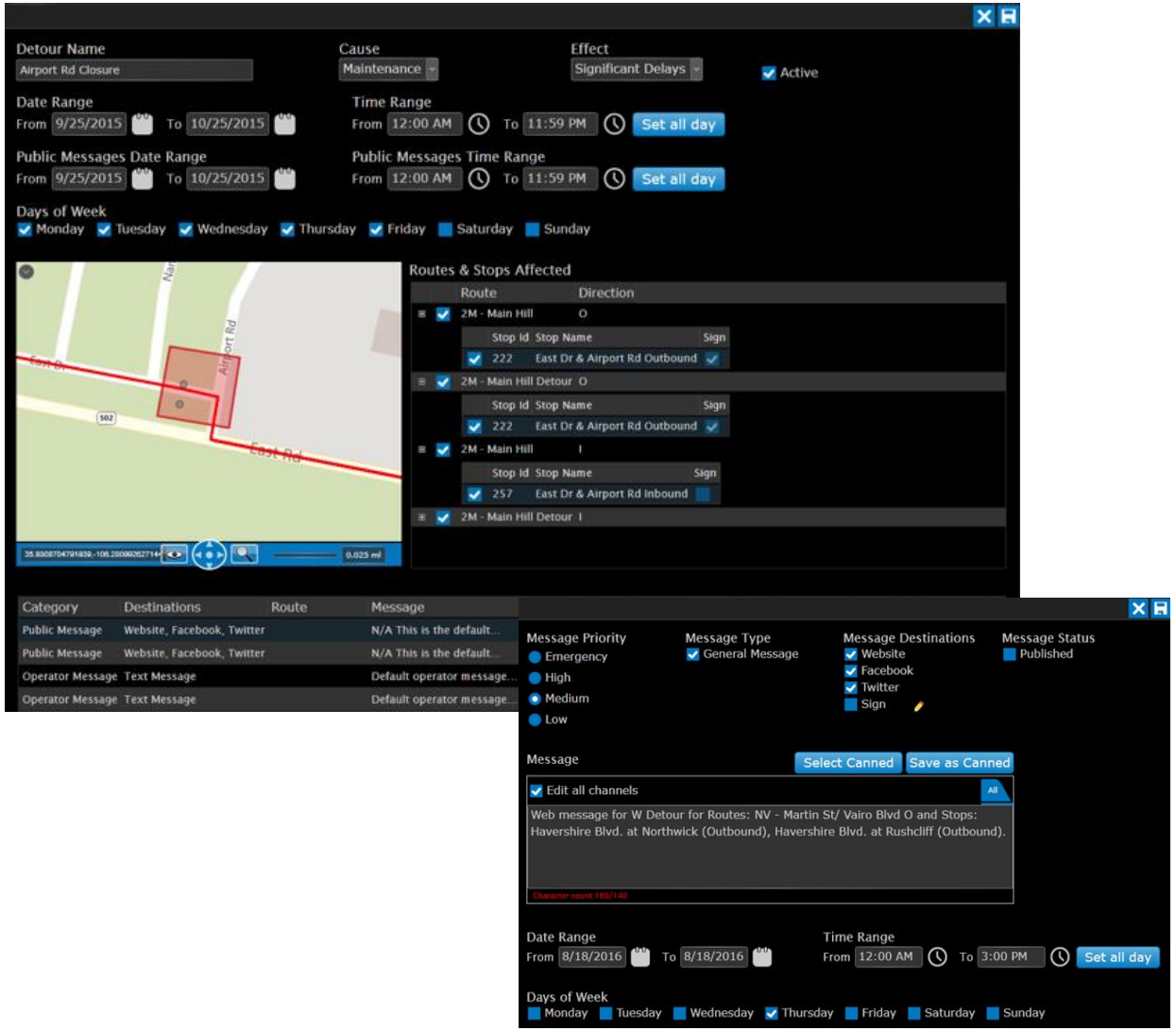
- Shows the most recent status for vehicle login and pullout
- Support for operator check-in, assigning/unassigning operators and or vehicles



Check In	Login	Pullout	Run	Block	Status	Operator	Vehicle
4:21 AM	4:10 AM	4:27 AM	J201	2-01	On Time Pullout	Robert, Daniel	1654
4:36 AM	4:31 AM	4:41 AM	J701	7-01	On Time Pullout	Ronca, Carl	1658
4:44 AM	4:52 AM	4:56 AM	C01	10-01	On Route No Pullout	Benoit, Dennis	1659
4:44 AM	4:45 AM	4:55 AM	J2101	21-01	Late Pullout	ASHWORTH, PETER	1655
4:44 AM	4:53 AM	4:57 AM	C02	7-02	On Route No Pullout	LOPEZ, JOHN	1848
4:51 AM	4:59 AM	5:03 AM	J2102	21-02	Late Pullout	Rivera, Orlando	1657
4:54 AM	4:58 AM	5:03 AM	J601	6-01	On Time Pullout	RUSSELL, MICHAEL	1849
5:04 AM	5:09 AM	5:13 AM	C03	10-02	On Time Pullout	Harrington, James	1851
5:06 AM	5:10 AM	5:14 AM	C04	1-01	On Time Pullout	DIAZ, JR, JOSE	1660
5:08 AM	5:16 AM	5:20 AM	C05	23-01	Late Pullout	HARRISON, BRIAN	1640

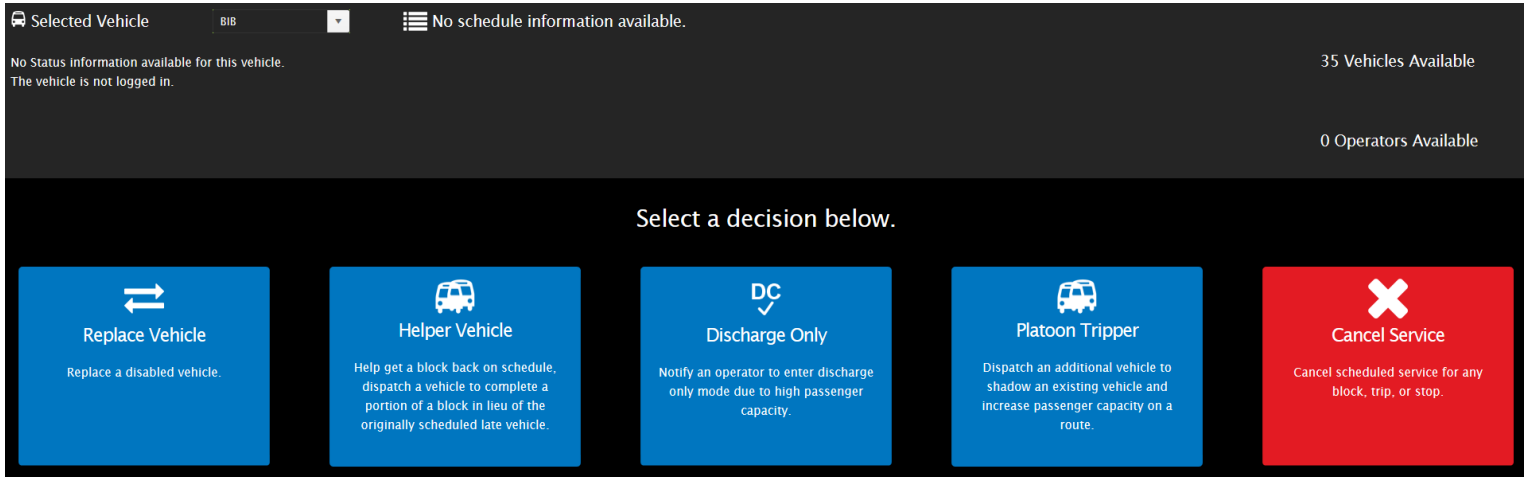
Detour Management

- Define detours in the ETMS system and to inform operators and the public about these changes to service routes
- Generate Turn by Turn Directions
- Public & Operator Messages



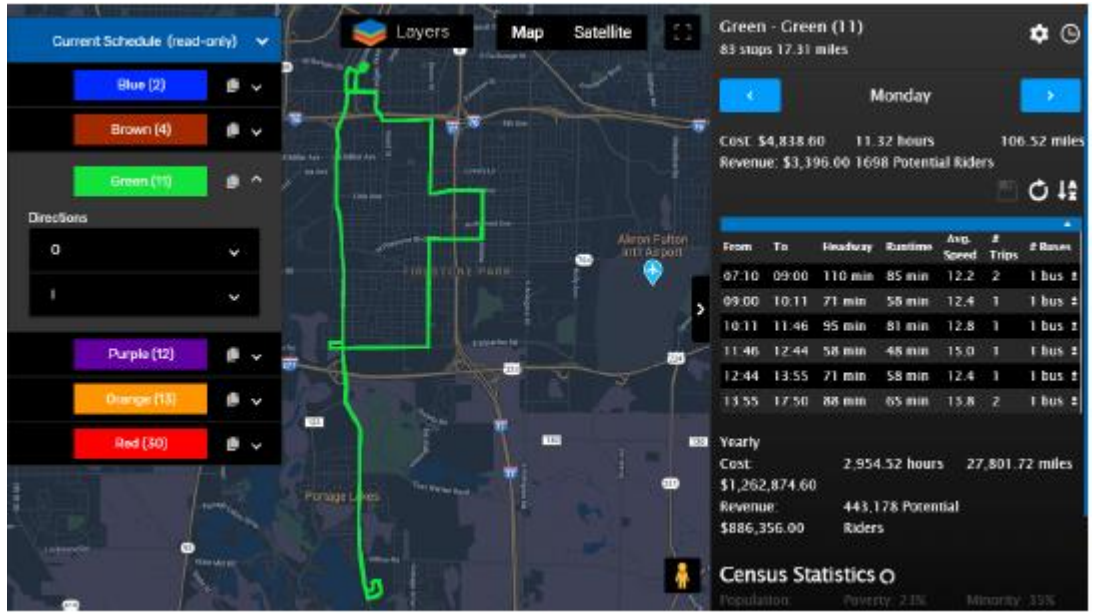
Decision Support

- Use the tools in Decision Support to make service adjustments when there have been disruptions or unexpected load



Transit Planning

- What-If Analysis
  - ✓ Add or remove a stop, add or remove a trip, change a pattern, or add an entirely new route
  - ✓ Cost impacts
  - ✓ Title IV reporting impacts
  - ✓ Real time data
- Current schedule data loaded into a workspace. User can make desired changes and immediately see the impact to costs, hours or service and revenue miles
- Transit planning tool displays census data including population served, % in poverty and % of minority within a user defined radius



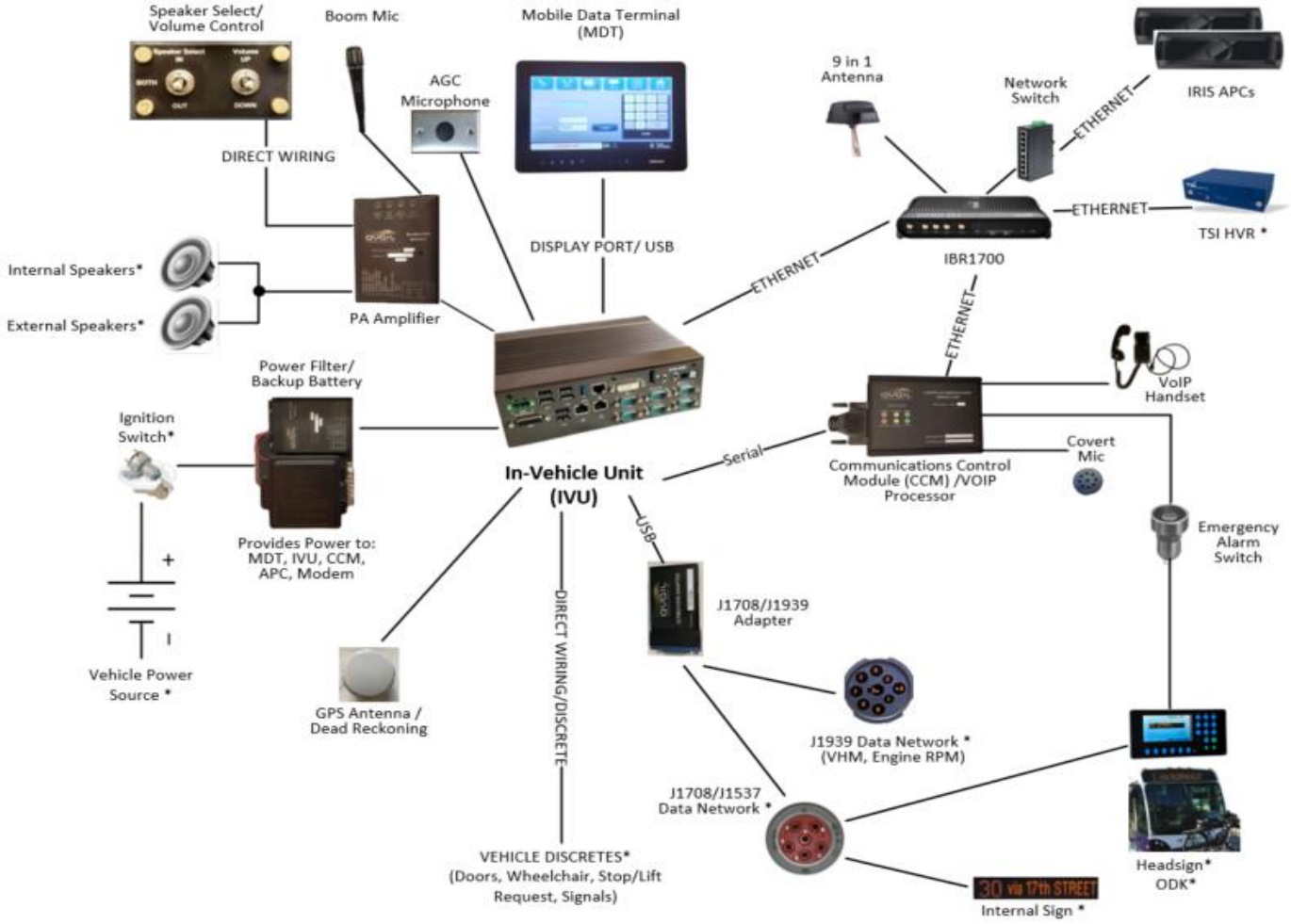
Mobile Personnel

- Provides dispatchers with information about the location and status of on duty supervisors.

Vehicle Overview

Vehicle Equipment

- ✓86 Fixed Route Vehicles
- ✓54 Dial a Lift Vehicles
- ✓17 Non-Revenue Vehicles

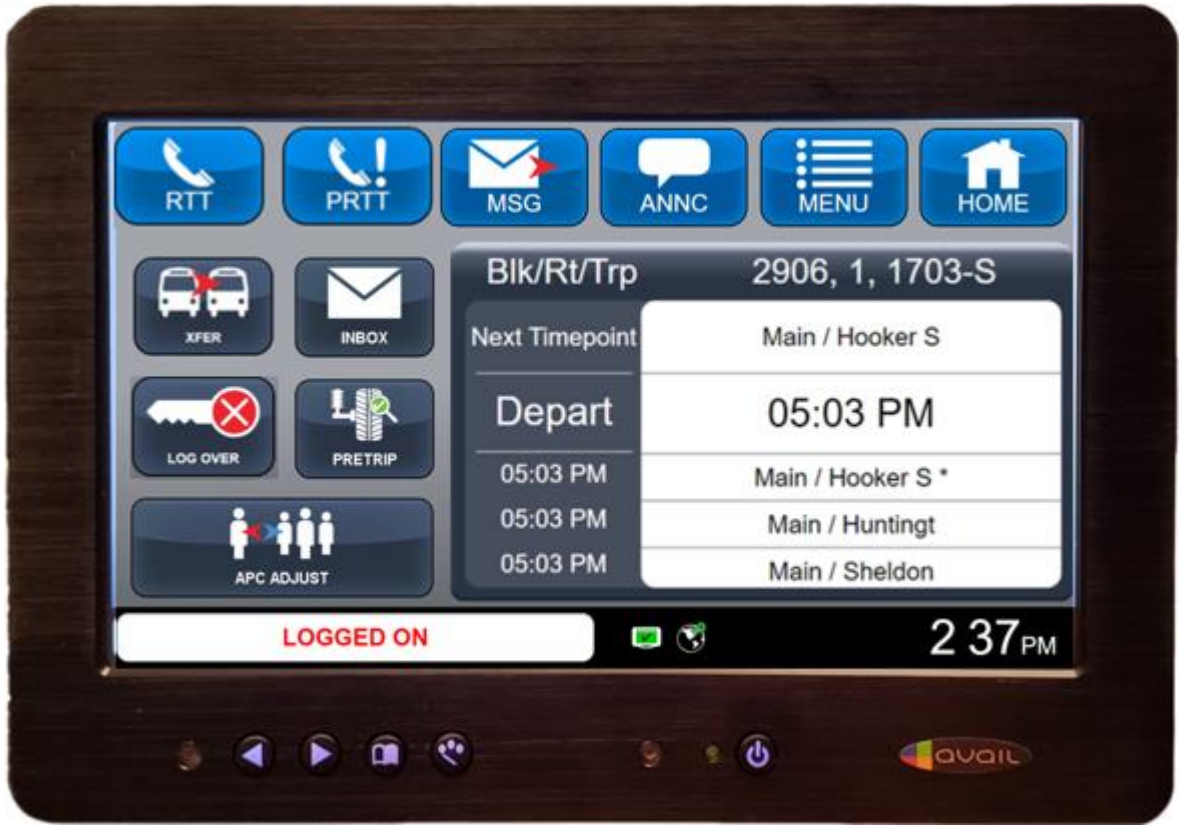


Fixed Route Vehicle Functionality

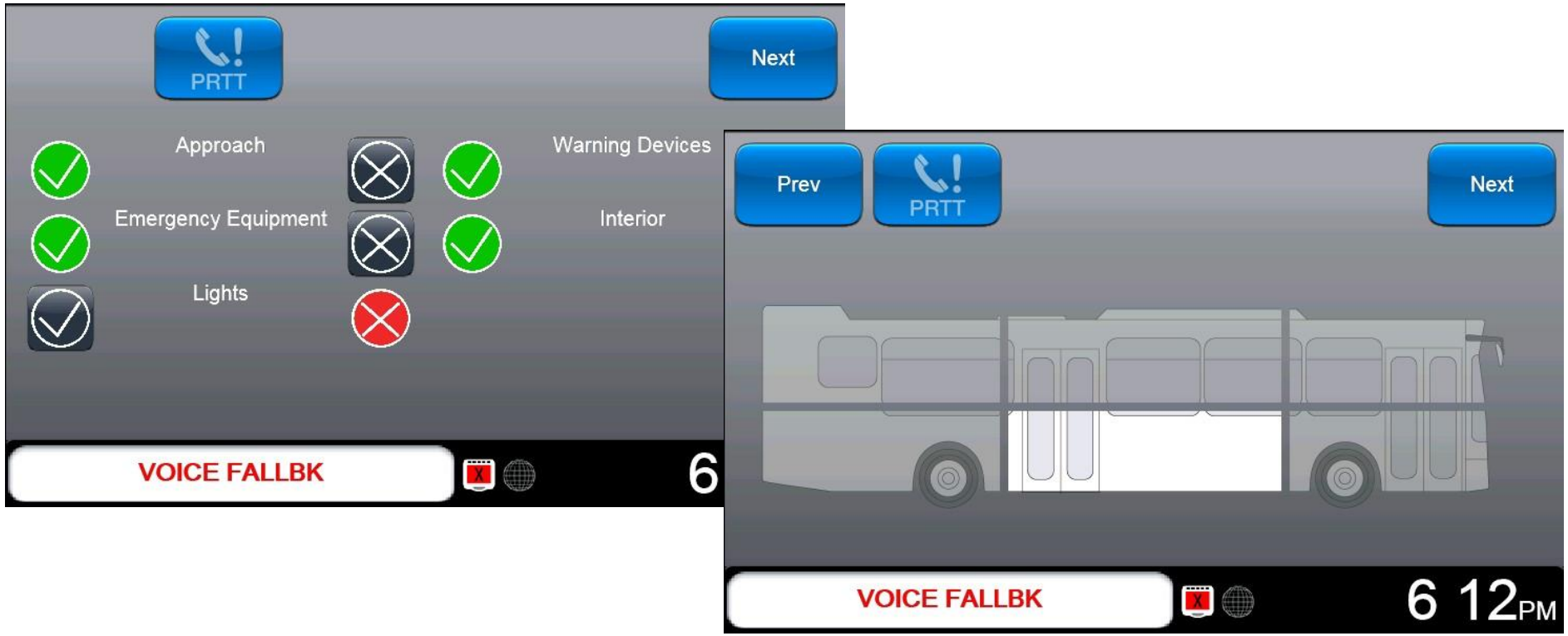
Mobile Data Terminal (MDT)

✓ Xenarc Technologies Display

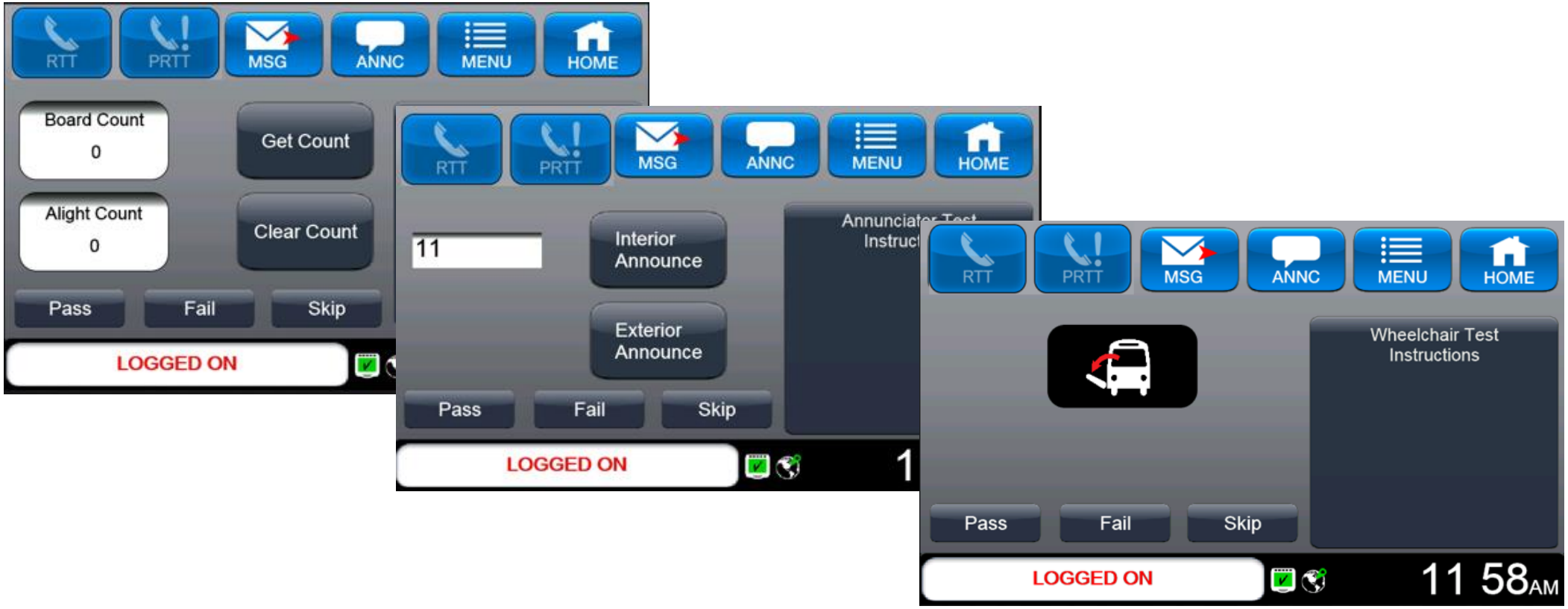
- 10.1” Sunlight-Readable Touchscreen monitor
- Controlled entirely by IVU
- Turns on automatically with ignition
- Shutdown follows IVU
- 6 soft key buttons
- Driver interface to
  - Login
  - Pre-Trip Inspections
  - Pre-Trip Tests (W/C, Announcements, APCs)
  - Text Messaging / Voice Messaging
  - Safety Announcements
  - Manifests (Dial-a-Lift)
- Password protected MDT configuration and maintenance screens
- Status icons (Comms, GPS, Messages)
- Displays timepoint and schedule adherence information



Pre-Trip / Body Checks



APC / Annunciator / Wheelchair Tests



Announcements

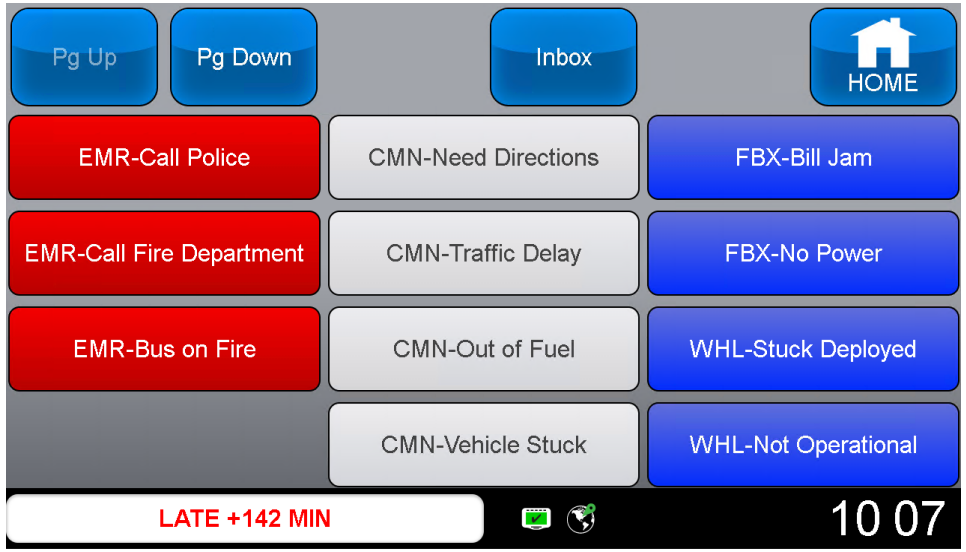
Safety Announcements

- Operator selects the 'ANNC' key
- INTERCITY defined safety announcements displayed
- Option to play announcement on internal or external or both speakers.
- Operator selects an announcement
- Corresponding text displayed on Internal Sign

Text Messaging

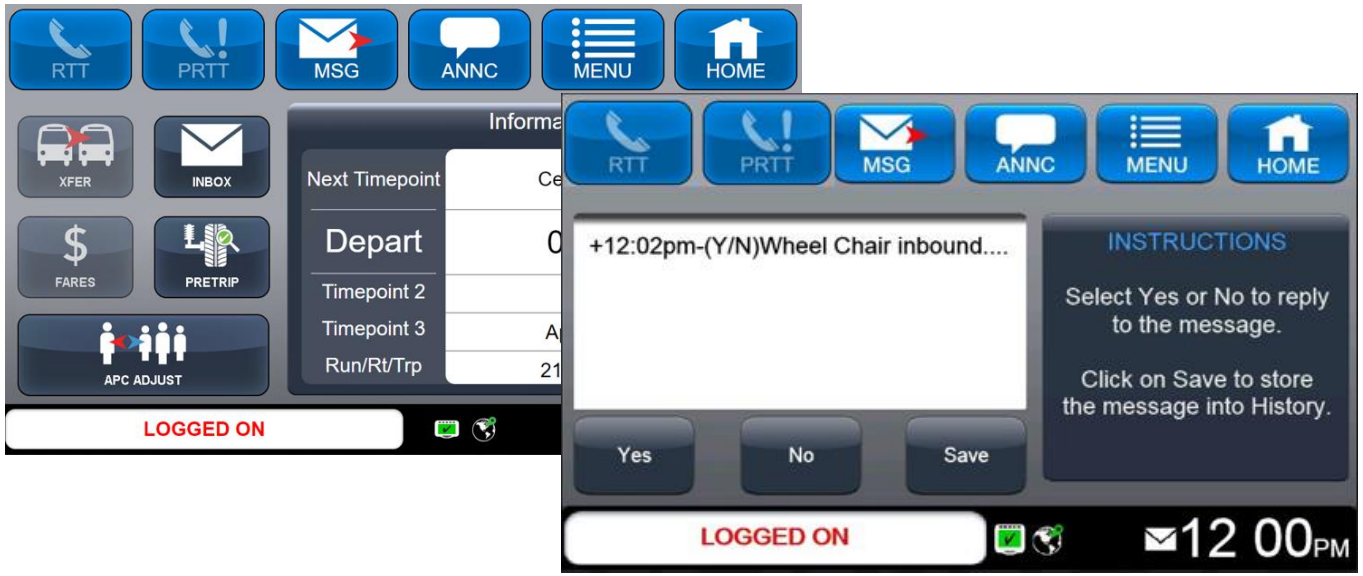
Send message to Dispatch

- Operator selects the 'MSG' key
- INTERCITY defined messages shown
- Operator selects a message



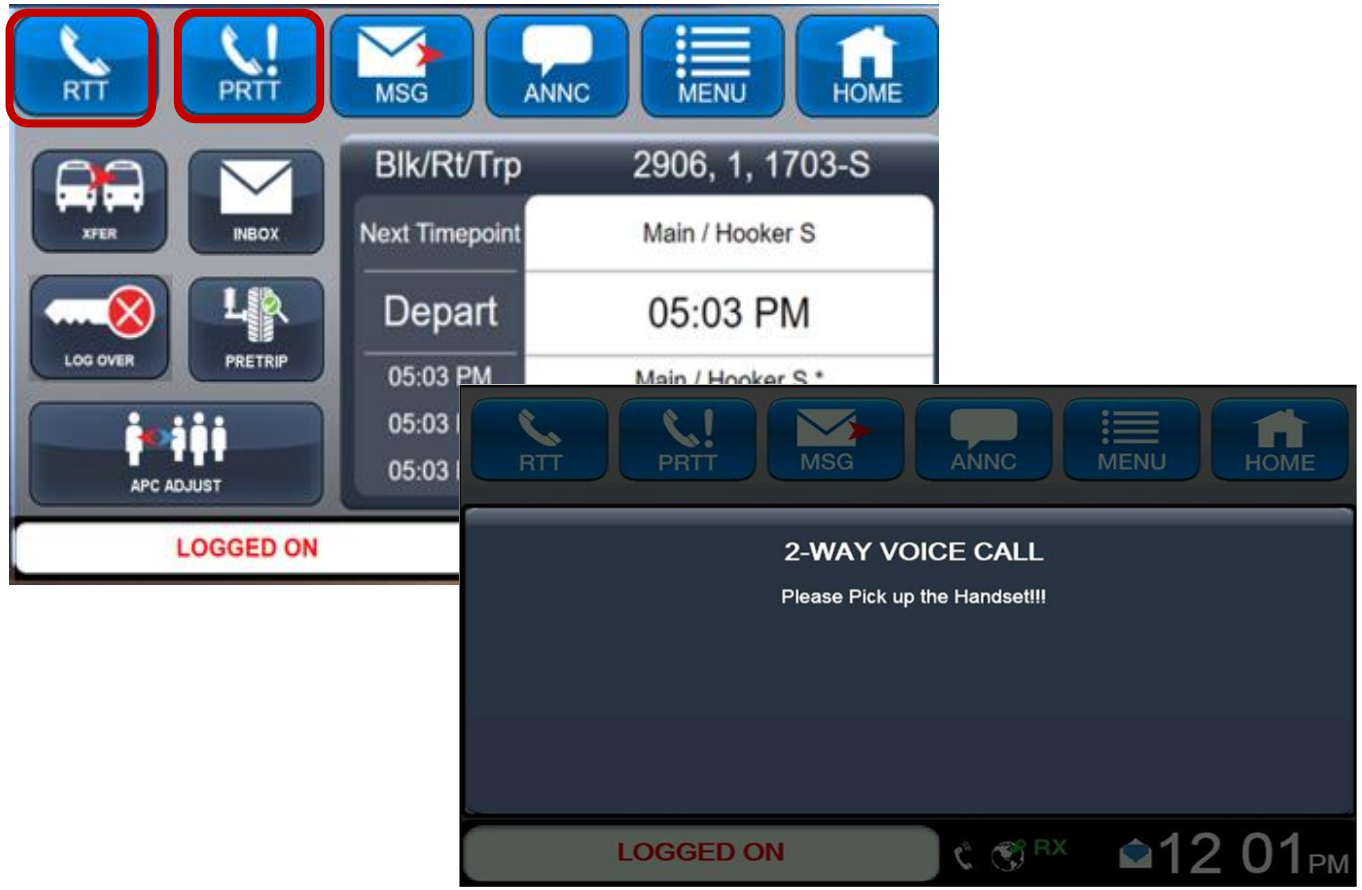
Read messages from Dispatch

- MSG key
  - ✓ Inbox
- INBOX button on home screen provides quick access to received messages



Voice Messaging

- Request to Talk (RTT), and Priority Request to Talk (PRTT) buttons are available on the MDT, which send an event to the dispatcher.
- Dispatchers can then respond to these requests and establish one-way or two-way voice calls with the vehicles. The MDT status display updates to “RTT DLVD” or “PRTT DLVD” when an RTT or PRTT is successfully delivered.
- When the dispatcher initiates a voice call with the requesting vehicle, the MDT issues an audio and visual prompt to the user to pick up the handset.

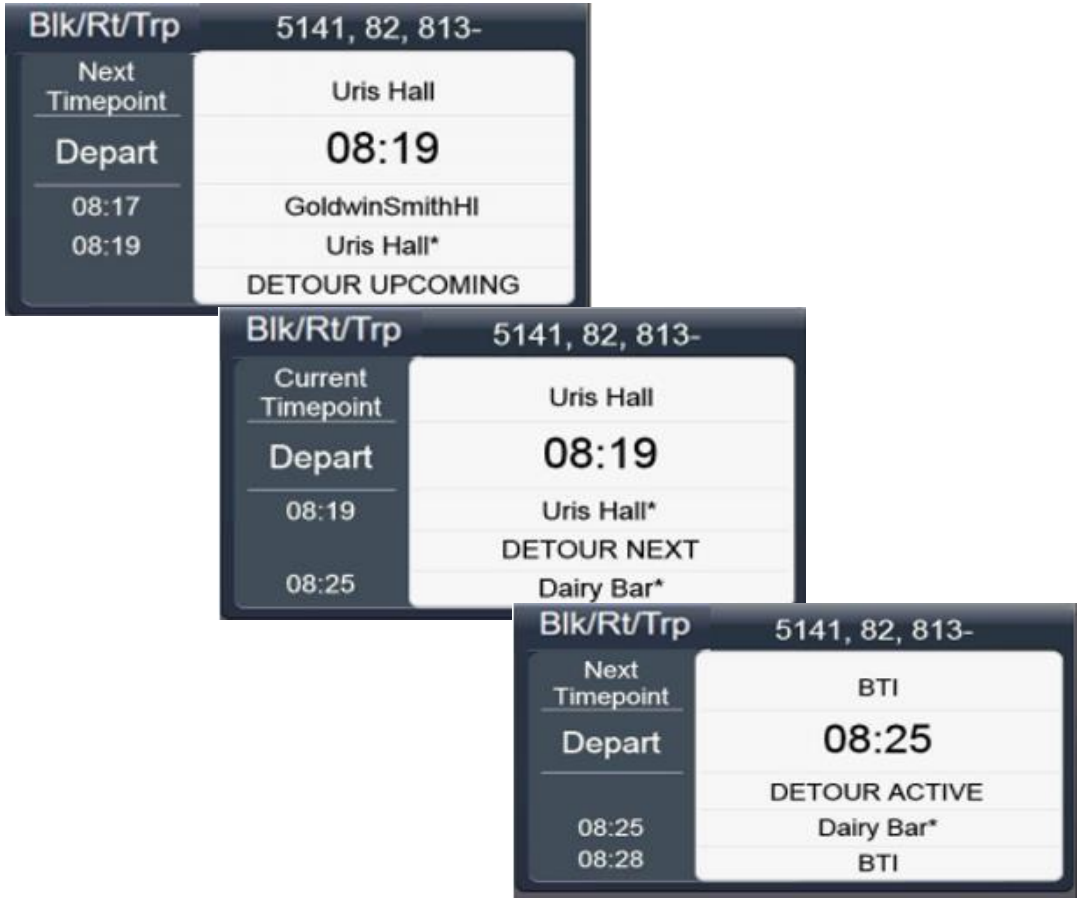


Voice-over IP (VoIP)

- Closed mic voice communications module that utilizes onboard 4GLTE cellular data router
- Staff can utilize smartphone in place of portable radio
- Call management through myAvail
- Integrated call recording

Detours

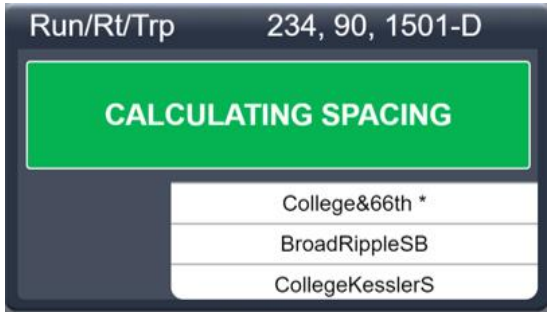
- The system sends a message to all routes that a detour affects based on date and time
- This is a standard message that the MDT displays for all operators who log onto to a run that has a detour
- When the information window indicates that there is a detour within the next 3 stops, turn by turn directions are provided in the INBOX of the MSG section (displayed automatically due possible multiple active detours)
- Boards and alights done while on detour are attributed to the first stop after the detour



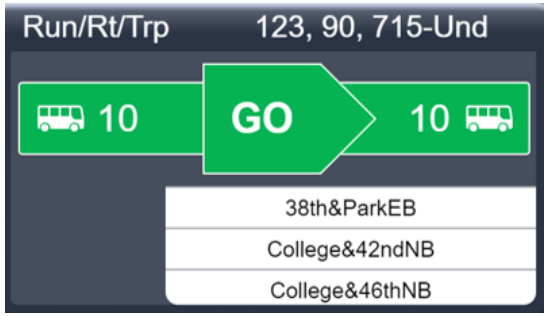
Headway

Scenarios (Examples)

- Calculating Spacing

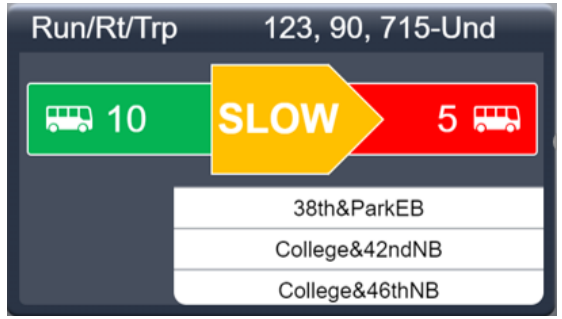


- Optimal Spacing



• Scenarios (Examples)

- Leading Bunched



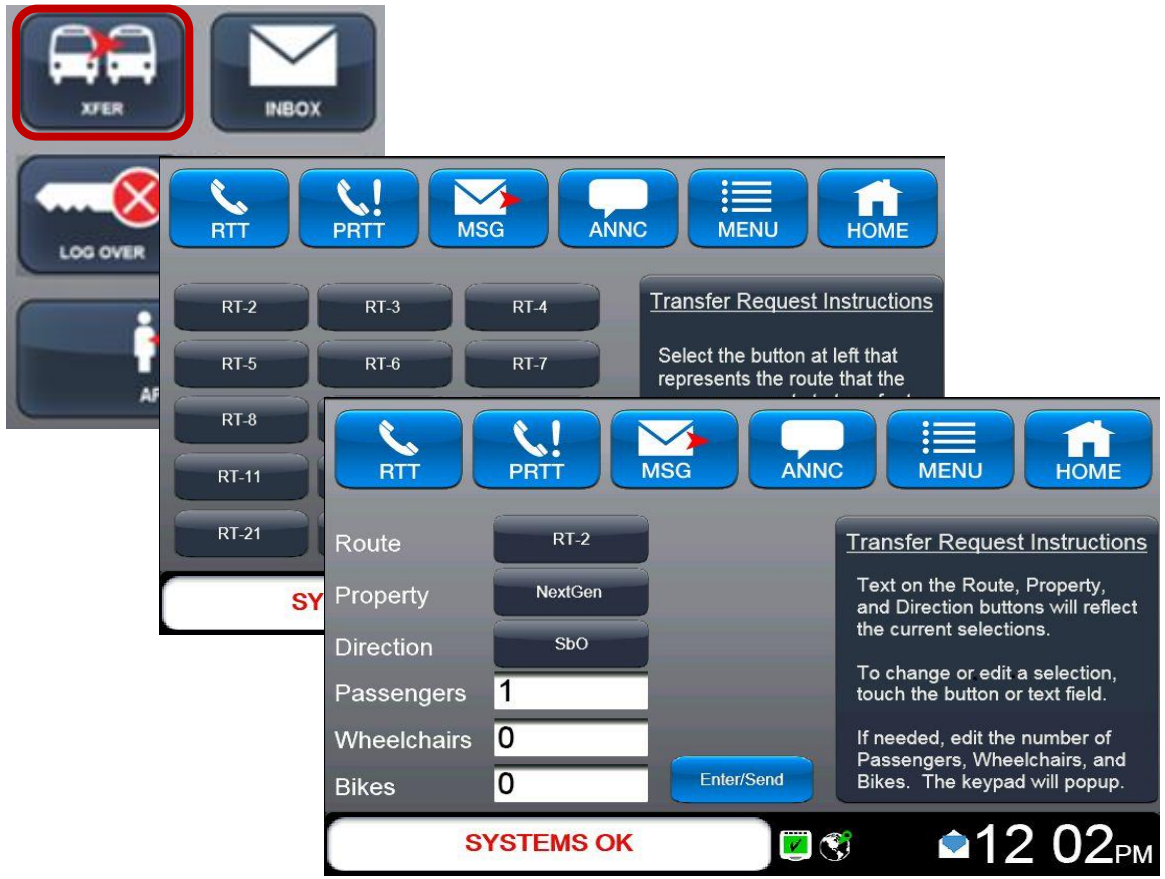
- Leading Gapped

• Scenarios (Examples)

- Leading Bunched (Hold within Stop)

Transfer Connection

- Driver Initiated Transfers
- The XFER button on the MDT is used to initiate a Transfer Request
- When selected, the MDT uses a table of defined Transfer Points to present the operator with a list of available Transfer Routes and Directions
- The operator will select the route that the transferring passenger requests.
- Once selected another display appears with the selected route where the driver specifies the number of transferring passengers, wheelchairs, and bicycles.
- Pressing the Enter/Send button initiates the transfer process.



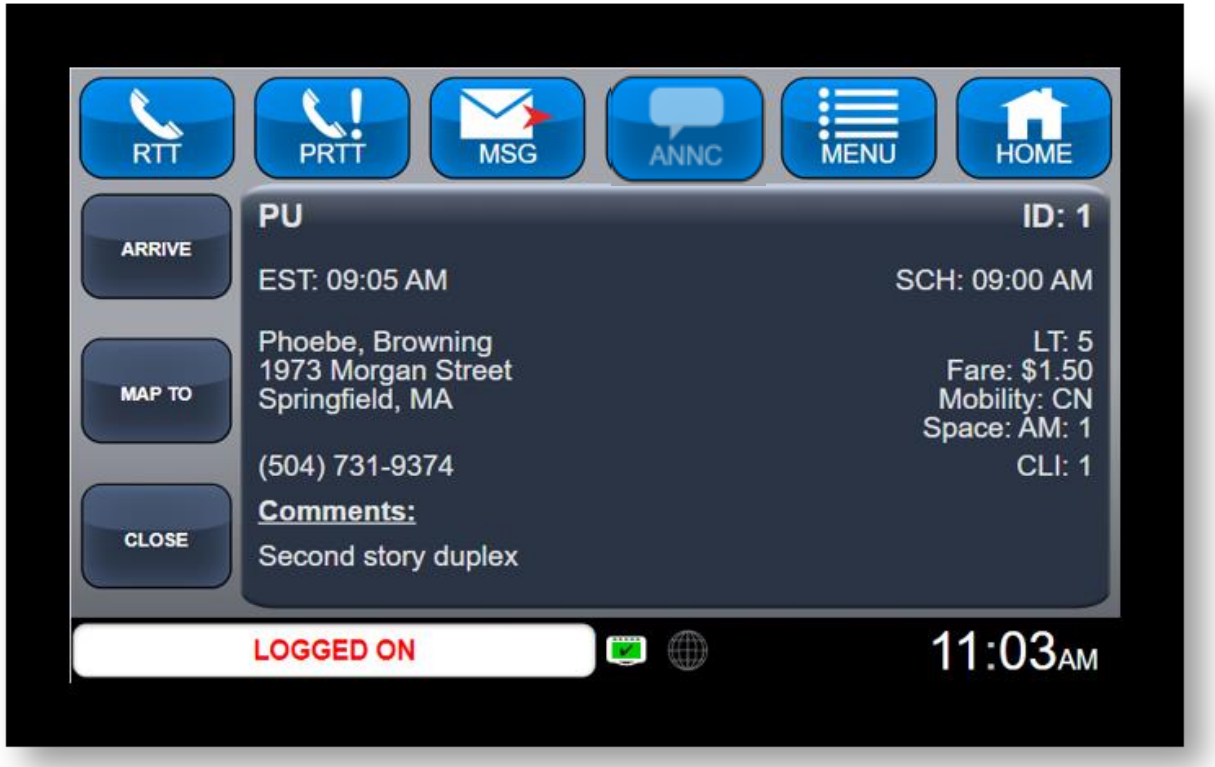
Dial-a-Lift Vehicle Functionality

Populated Manifest (Trip Selected)

- Once a trip is selected, the trip will widen to show the full address and the comments. Operators select trips by pressing the trip itself

Populated Manifest (Details Screen)

- This is the screen that appears when the "Details" button is pressed. It shows everything relevant about the trip



Populated Manifest (Map Example)

- Design effort ongoing for this feature

Fixed Route Operations

From the fixed route perspective, Avail is going to give us a lot of measurables that we really never had.

- ✓ We should have more direct access to good data regarding on time performance and things such as pull-out management to ensure buses are pulling out on time.
- ✓ We also now have a mapping system that updates every 10 seconds instead of every 60 seconds like we had previously, which helps us accurately track bus locations which also improves operator safety and improves customer service.
- ✓ Avail includes a decision support tool as well which helps us in detouring buses, bus breakdown issues, late buses, and any last-minute issues that arrive.
- ✓ Lastly, it includes an updated MDT interface on the bus that uses a common tablet as the hardware which has proven to be more intuitive to operators and staff.

Dial a Lift Operations

INTERcity TRANSIT

For DAL we anticipate the following improvements:

- ✓ Dispatch's ability to monitor all DAL van locations in real time.
- ✓ The ability to send text messages to the DAL operators via the Mobile data terminal. This will decrease the amount of radio traffic and allow the driver to read the message when they have the opportunity. This makes dispatching more efficient.
- ✓ The ability of the DAL operators to send canned text messages to DAL dispatch. This makes dispatching more efficient and helps decrease radio traffic.
- ✓ The ability for the DAL vans to once again have an operable EA alarm.
- ✓ The VOIP system will help reduce the number of dead zones for communications between DAL vehicles and DAL dispatch. This is accomplished by replacing the line-of-sight radio system with the cellular based VOIP system.

Maintenance

Avail provides multiple opportunities for process improvement in both Fleet and Facility Maintenance:

- Facilities
  - ✓ Integrated incident management will allow the team to coordinate responses to bus stop and facility concerns with Operations Dispatch for enhanced public and employee safety, as well as related critical data.
  - ✓ Avail provides the connected platform to implement additional mobile workforce solutions, and additional ways to communicate with field-based staff.
- Fleet
  - ✓ Integrated incident management will allow the team to coordinate responses to vehicle related concerns with Operations Dispatch for enhanced public and employee safety, as well as related critical data.
  - ✓ Vehicle Health Monitoring allows us to see emerging vehicle problems and coordinate with Operation Dispatch to minimize service disruptions.
  - ✓ Electronic pre-trip inspections provide real-time mechanical issues.

Business Intelligence (BI)

- M. Zafer Batmaz, Systems Engineer (Avail)
- Steve Swan, Planning (InterCity)

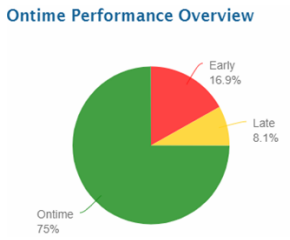
Business Intelligence

- ETMS Data Warehouse that combines CAD/AVL and ERP data into one
- Business Intelligence tool with dashboards and reports that span the agency
- Self service reporting
- NTD Reporting

Business Intelligence (BI) – MyDash

MyDash

- Allows users to view and manage their dashboard, scheduled reports, and bookmarked reports. Users can personalize their dashboard by selecting from a list of predefined KPIs. KPIs can be grouped and added to different tabs as deemed appropriate.



Blocks without Vehicles Yesterday

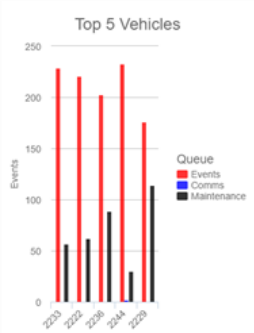
Block	Scheduled Miles	Scheduled Hours
18	177.05	10.07
30	47.89	3.57
62	55.57	4.30
64	56.29	4.27
81	64.38	3.52
107	53.89	2.33
120	57.39	2.53
121	99.28	5.27

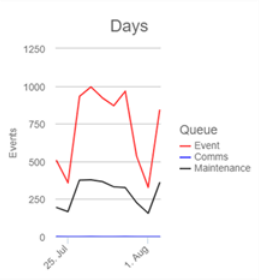
Revenue Pullout Performance Yesterday

Revenue Pullout Performance Yesterday

On-time	48.4%	30 Pullouts
Early	30.6%	19 Pullouts
Late	3.2%	2 Pullouts

Realtime KPI - Overall Ontime Performance





Business Intelligence (BI) – Operations

Operations

- Visualizations related to operations such as on-time status, number of vehicles that are late/early, open incidents, detours, events, Live QA, and Logon / Logoff.

System Events Dashboard

Date: 03/02/2020

Decision Support

Event	Occurrences
Cancel Service	0
Discharge Only	0
Helper Vehicle	0
Platoon Trip	0
Replace Vehicle	0

Voice Communications

Event	Occurrences	Avg time to take	Avg time to log
Dispatch VoiceCall 1Way	0	00:00:00	00:00:00
Dispatch VoiceCall 2Way	0	00:00:00	00:00:00
PRTT	0	00:00:00	00:00:00
RTT	0	00:00:00	00:00:00
Silent Alarm	1	00:02:09	00:02:15

Service Deviation

Event	Occurrences
Public Messages	0
Detour	0
Off-route over threshold	0
Stationary Vehicle	0

Maintenance Events

Event	Occurrences
Comms Statistics	0
Equipment Failures	1

Incidents

Event	Occurrences
Incidents with Revenue Service Adjustment	0
Other Incidents	0

Pull Out / Pull In

Event	Occurrences
Expired Pullin	0
Expired Pullout	48
Late Check In	0
Late Login	69
Late PreTrip	0
Late Pullin	0
Late Pullout	14
Late Relief	61
Missed Check In	0
Missed Login	84
Missed PreTrip	0
Missed Pullin	0
Missed Pullout	77
Missed Relief	128

Service Monitoring

Event	Occurrences
Bus Bunching	0
Detour Message Failed	0
Early over threshold	0
Expired Dispatch Message	0
Late over threshold	0
Overcrowding	0
Trip Early	0
Trip Late	0

Text Communications

Event	Occurrences	Avg time to take	Avg time to log
Canned Message From Vehicle	3	02:05:45	02:05:47
Dispatch Message	24	00:00:00	00:00:00
Emergency Canned Message	0	00:00:00	00:00:00

Schedule Adherance KPIs

OVERALL ONTIME PERCENTAGE
90.52%
15.52% ↑

CURRENT ONTIME PERCENTAGE
77.78%
2.78% ↑

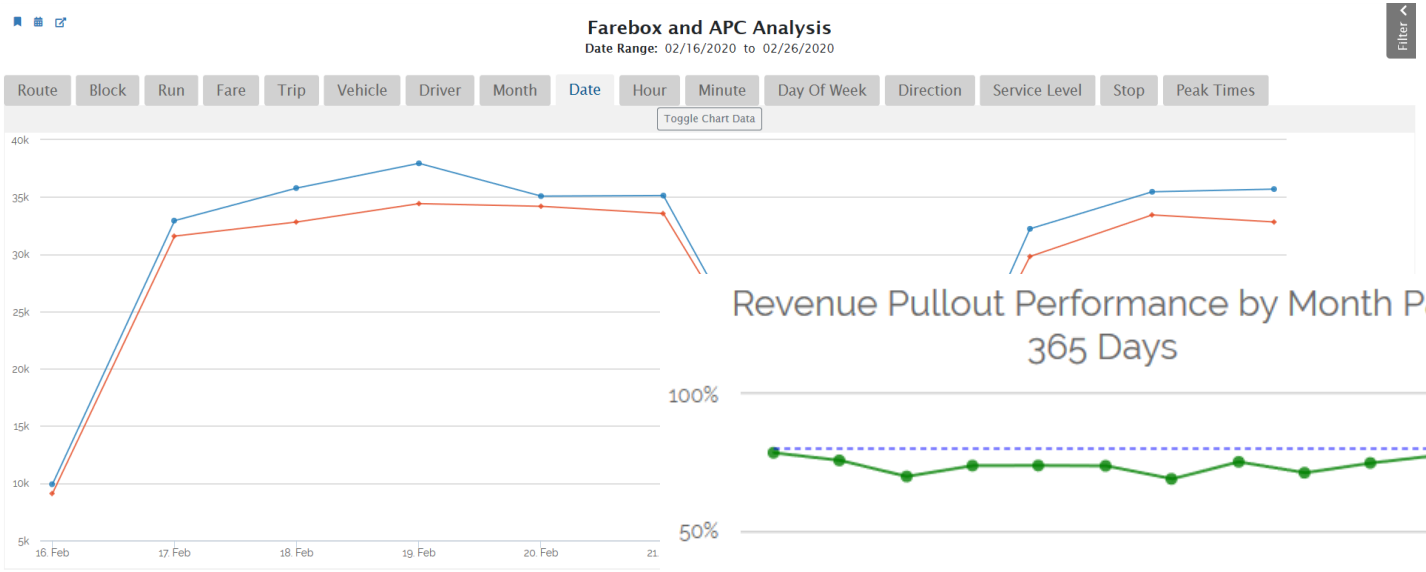
VEHICLES LATE
0
0.00% of Fleet

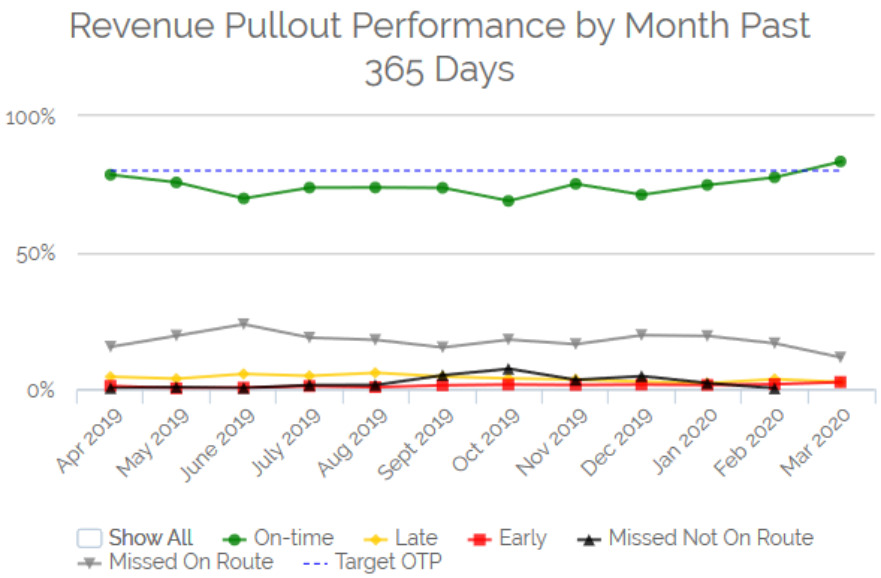
VEHICLES EARLY
2
22.22% of Fleet

Business Intelligence (BI) – Planning

Planning

- Identify the worst performing routes, worst drive times, schedule health, vehicle utilization, APC analysis, ridership analysis and more.
- Maximize route efficiency

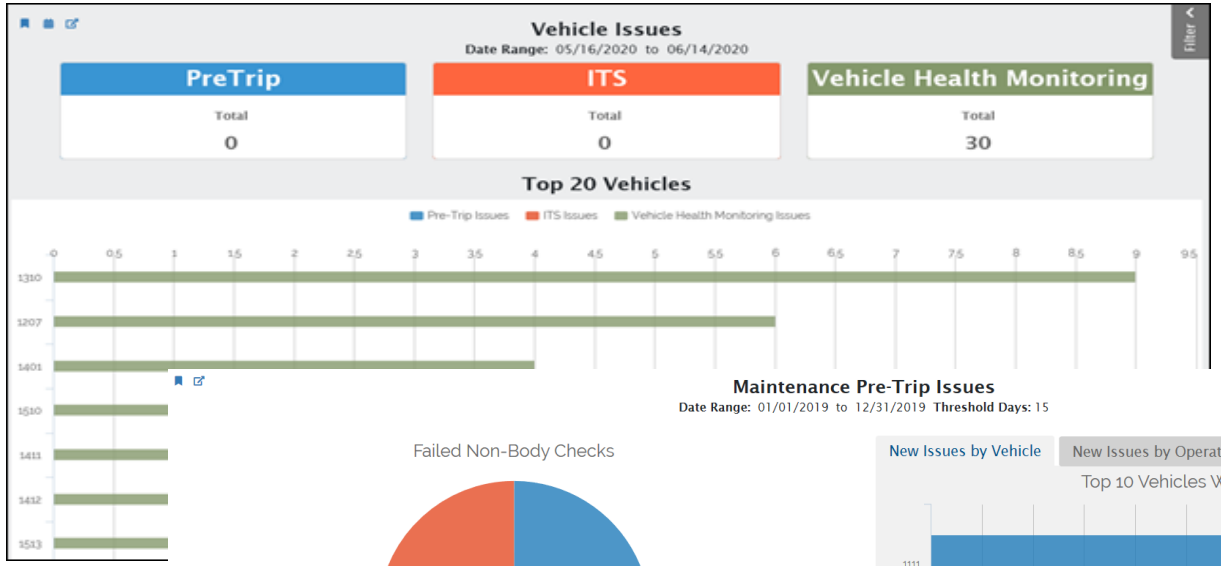


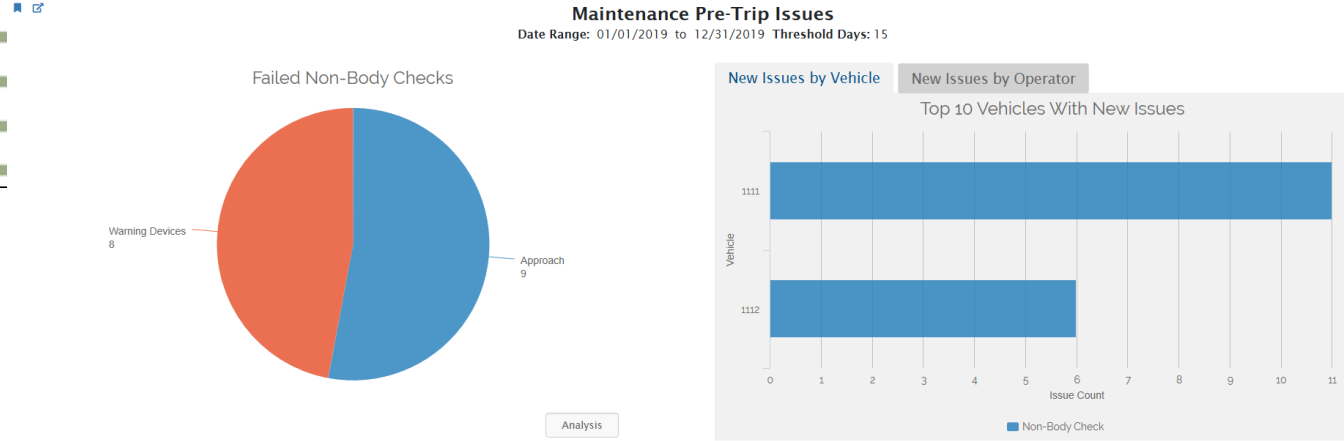


Business Intelligence (BI) – Maintenance

Maintenance

- Display recent pre-trip inspection issues and vehicles with the most issues.

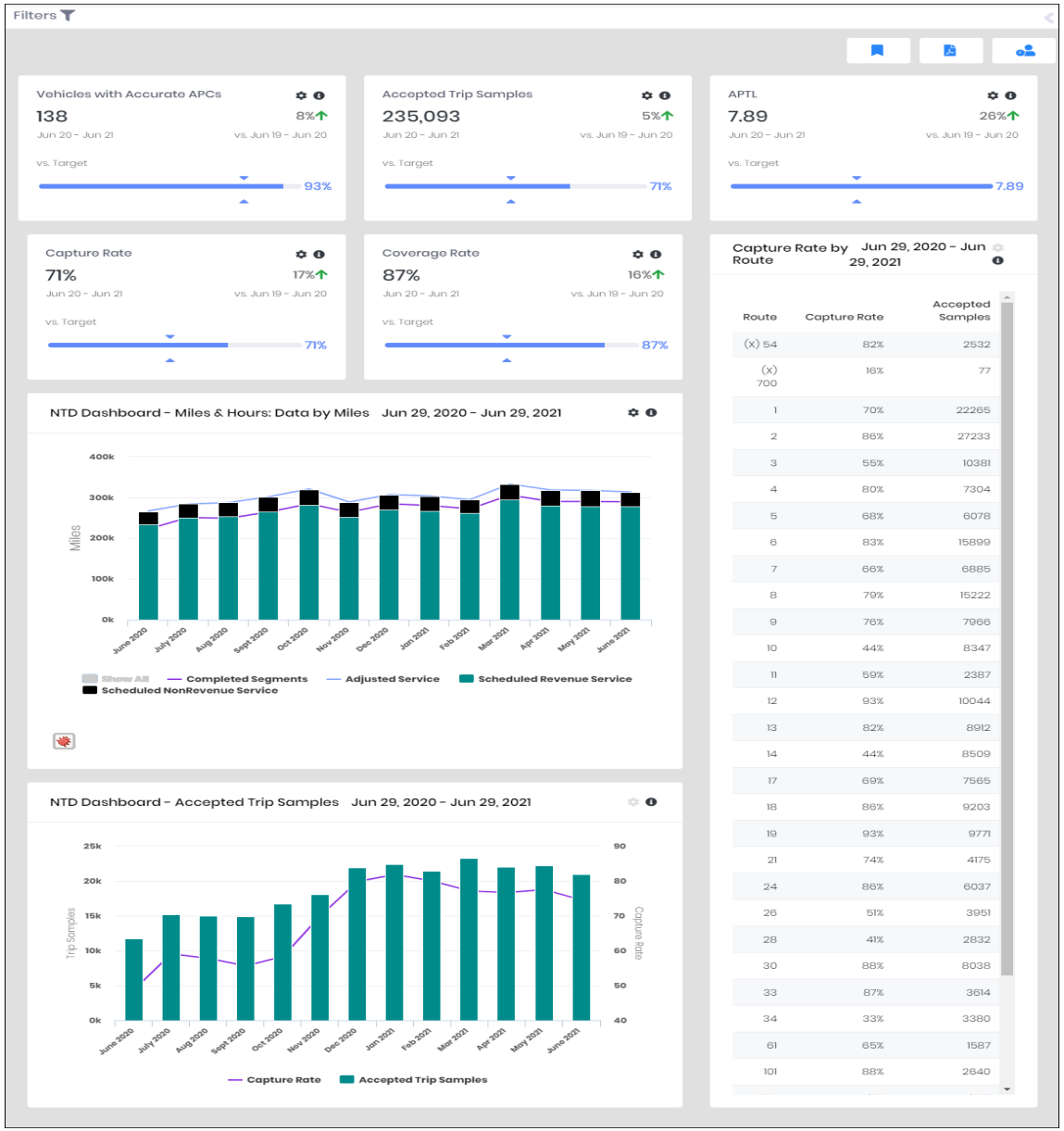




Business Intelligence (BI) – NTD

NTD Reports / Dashboards

- NTD Dashboard - Assess scheduled revenue and non-revenue service together with total adjusted service and total distance of completed segments. Identify the total number of trip samples and the percent of all trip's valid samples. Track trends by time, category, and routes; compare all the data to the last year's data; assess if you are below or above the target and adjust targets accordingly.



Route	Capture Rate	Accepted Samples
(x) 54	82%	2532
(x) 700	16%	77
1	70%	22265
2	86%	27233
3	55%	10381
4	80%	7304
5	68%	6078
6	83%	15899
7	66%	6885
8	79%	15222
9	76%	7966
10	44%	8347
11	59%	2387
12	93%	10044
13	82%	8912
14	44%	8509
17	69%	7565
18	86%	9203
19	93%	9771
21	74%	4175
24	86%	6037
26	51%	3951
28	41%	2832
30	88%	8038
33	87%	3614
34	33%	3380
61	65%	1587
101	88%	2640

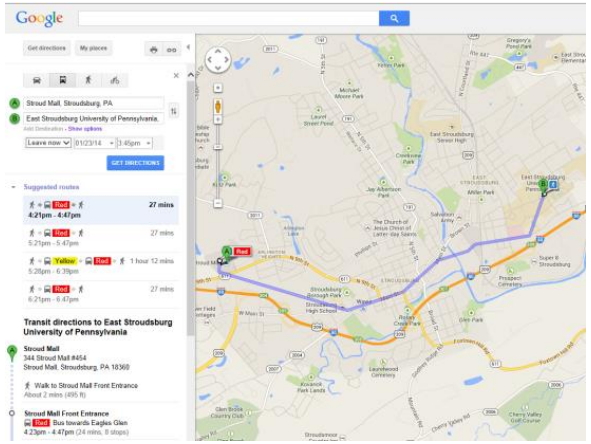
Real-Time Passenger Information (RTPI)

- Zafer Batmaz, Systems Engineer (Avail)
- Nicky Upton, Customer Service Manager (InterCity)

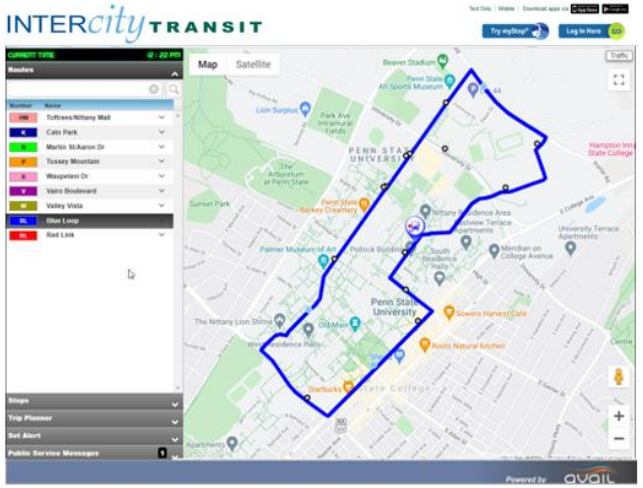
Passenger Information Systems

- Fully cloud hosted solution from Avail
- Provides riders with real-time information
  - Bus location
  - Predictive arrival times
  - Service alerts and notifications
- Riders can access information via:
  - Desktop, tablet, smartphone
  - SMS text
  - Email
  - Phone (optional)
- ADA-compliant
- Includes GTFS-RT feed and Google certification

APP



Trip Planner



Web

SMS

Customer Resources

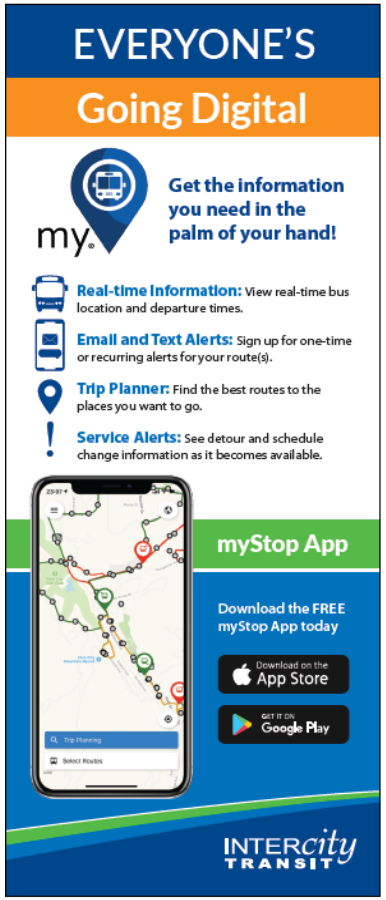
- ✓ Phase 1: Late summer
  - myStop app
    - Provides real-time location and departure times
    - Email and text alerts by subscription
    - Trip Planner
    - Service Alerts
- ✓ Phase 2: Fall
  - Infopoint website
    - Provides real-time location and departure times
    - Email and text alerts by subscription
    - Trip Planner
    - Service Alerts
- ✓ Phase 3: Launch date TBD
  - Text myStop
    - Texts the actual time the next bus will depart from that stop.

Customer Resources…continued

✓ Phase 1 Marketing Materials

Digital Ads

Rack Card



Customer Resources…continued

✓ Phase 1 Marketing Materials

Website Banner & Content

Question and Answer

Thank you!