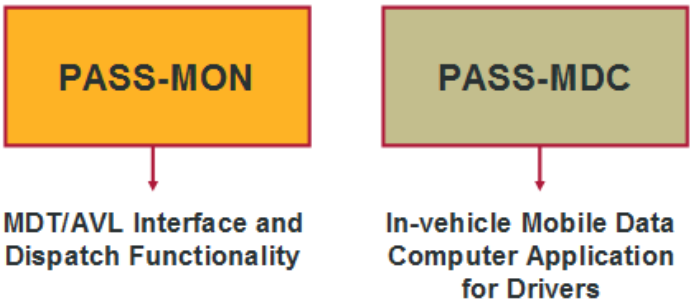
TRAPEZE PASS MOBILE COMPUTING SOLUTION (PASS-MON)

The Trapeze mobile computing solution proposed for this project consists of two main components: enhancements to the existing Trapeze PASS dispatching and addition of AVL monitoring (desktop product), and the mobile unit application which resides on the in-vehicle unit (in-vehicle application).



These two components are discussed below.

Key Benefits of Mobile Computing

- **Enhanced Functionality:** Provide dispatchers with the tools to remain in constant contact with vehicles and to be aware of their exact location at all times.
- **Real-Time Communications:** Coordinate up to the minute information exchange between vehicle operators, dispatchers, and their customers.
- **Lower Costs:** Improve operational efficiencies through persistent access to real-time information about schedules, vehicle location, client information, and other factors.
- **Long-Term Flexibility:** Accommodate change and growth, such as additional in-vehicle units, upgrades, without affecting the mobile application.
- **Extended Integration:** Ensure in-vehicle software is compatible with any changes made in the workstation application.
- **Global Standards:** The in-vehicle units employ the latest technologies available to wireless devices and adhere to global standards in wireless and software development.
- **Increased Safety:** Our solution provides integration with 'covert alarms' and GPS/AVL monitoring designed to improve the ability to respond to emergency situations.

- **Network Expansion:** with a mobile solution, vehicles become another 'node' on the network, enabling sites to monitor vehicle status and improve their preventative maintenance programs.

DISPATCH CENTRE APPLICATION (TRAPEZE MOBILE COMPUTING)

Applications for the desktop enhance the current Trapeze PASS dispatch system by providing tools that enable wireless data communication between drivers and dispatchers. TRAPEZE MOBILE COMPUTING provides two-way data messaging capabilities and GPS data communication to provide 'real-time' vehicle positioning and schedule adherence information. More specifically, the product adds three components to the existing dispatch functionality.

Mobile Data Terminal Server

This application integrates the PASS scheduling and dispatching software with Mobile Computing Units, enabling communication via a public or private data network that employs the TCP/IP communications standard. Integrated with the Trapeze dispatch system, this component enables:

- Trip, AVL and odometer data exchange between Trapeze PASS and the mobile computer
- Configuration of how many trips a driver is able to see based on number of trips or time period
- Configuration of how often AVL data is received
- Notification when a driver has arrived early or late for a pickup
- Additional configuration parameters to control performance
- Logging of data exchanged for troubleshooting

MDT Dispatch Functionality

The following MDT dispatch features and functionality are enabled:

From Dispatch to Mobile Data Computer

- Electronic Manifest
- Automatic Dispatch of Add-ons
- Automatic Dispatch of Cancels/No-shows
- Dispatch of Event Modifications
- Two-Way Text Messaging

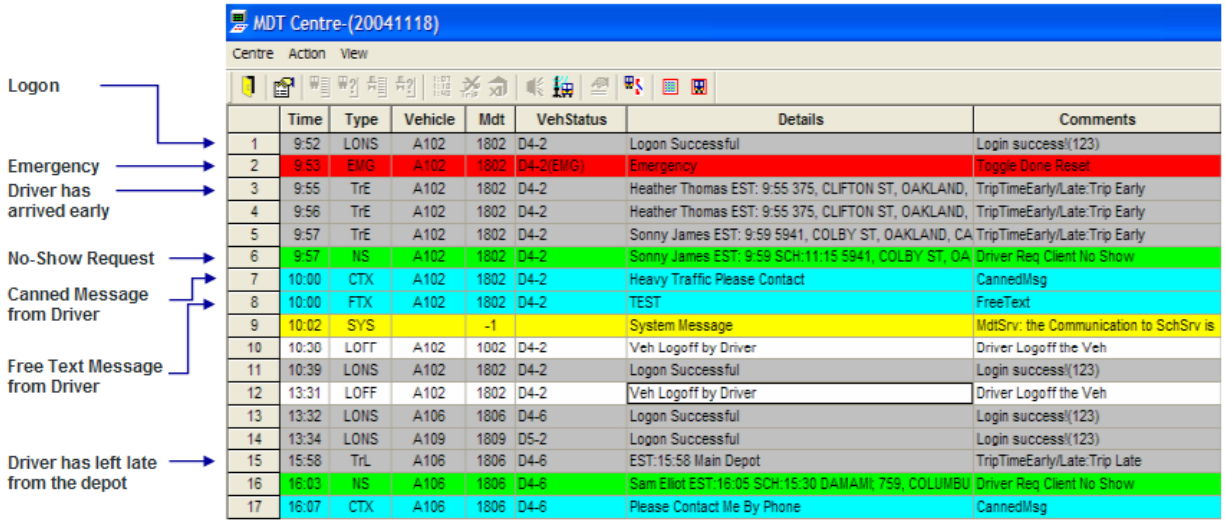
From Mobile Data Computer to Dispatch:

- Arrive/Perform Status and Times
- Driver Cancel or No Show Request
- Fare Collected
- Updated Passenger Information
- Odometer Entries
- Vehicle Location Monitoring (AVL)
- Speed and Direction data
- Overt/Covert Alarm
- Driver log-on/log-off notification

MDT Centre

The MDT Centre facilitates two-way communications between the dispatcher and drivers. More importantly, this includes notification of exceptions such as no-shows and early/late trip arrivals. Among the types of messages received are:

- Vehicle Emergency (Covert or Overt Alarm)
- Schedule Adherence (Trip Early / Trip Late)
- Canned or freeform Text Messages
- Driver Logon /Logoff
- System Messages and Alerts
- No-show and Cancel Requests



	Time	Type	Vehicle	Mdt	VehStatus	Details	Comments
1	9:52	LONS	A102	1802	D4-2	Logon Successful	Login success!(123)
2	9:53	EMG	A102	1802	D4-2(EMG)	Emergency	Toggle Done Reset
3	9:55	TrE	A102	1802	D4-2	Heather Thomas EST: 9:55 375, CLIFTON ST, OAKLAND,	TripTimeEarly/Late:Trip Early
4	9:56	TrE	A102	1802	D4-2	Heather Thomas EST: 9:55 375, CLIFTON ST, OAKLAND,	TripTimeEarly/Late:Trip Early
5	9:57	TrE	A102	1802	D4-2	Sonny James EST: 9:59 5941, COLBY ST, OAKLAND, CA	TripTimeEarly/Late:Trip Early
6	9:57	NS	A102	1802	D4-2	Sonny James EST: 9:59 SCH:11:15 5941, COLBY ST, OA	Driver Req Client No Show
7	10:00	CTX	A102	1802	D4-2	Heavy Traffic Please Contact	CannedMsg
8	10:00	FTX	A102	1802	D4-2	TEST	FreeText
9	10:02	SYS		-1		System Message	MdtSrv: the Communication to SchSrv is
10	10:30	LOFF	A102	1002	D4-2	Veh Logoff by Driver	Driver Logoff the Veh
11	10:39	LONS	A102	1802	D4-2	Logon Successful	Login success!(123)
12	13:31	LOFF	A102	1802	D4-2	Veh Logoff by Driver	Driver Logoff the Veh
13	13:32	LONS	A106	1806	D4-6	Logon Successful	Login success!(123)
14	13:34	LONS	A109	1809	D5-2	Logon Successful	Login success!(123)
15	15:58	TrL	A106	1806	D4-6	EST:15:58 Main Depot	TripTimeEarly/Late:Trip Late
16	16:03	NS	A106	1806	D4-6	Sam Elliot EST:16:05 SCH:15:30 DAMAM; 759, COLUMBU	Driver Req Client No Show
17	16:07	CTX	A106	1806	D4-6	Please Contact Me By Phone	CannedMsg

Message can be color coded by type. An audio alert can also be associated with selected message types for priority exceptions.

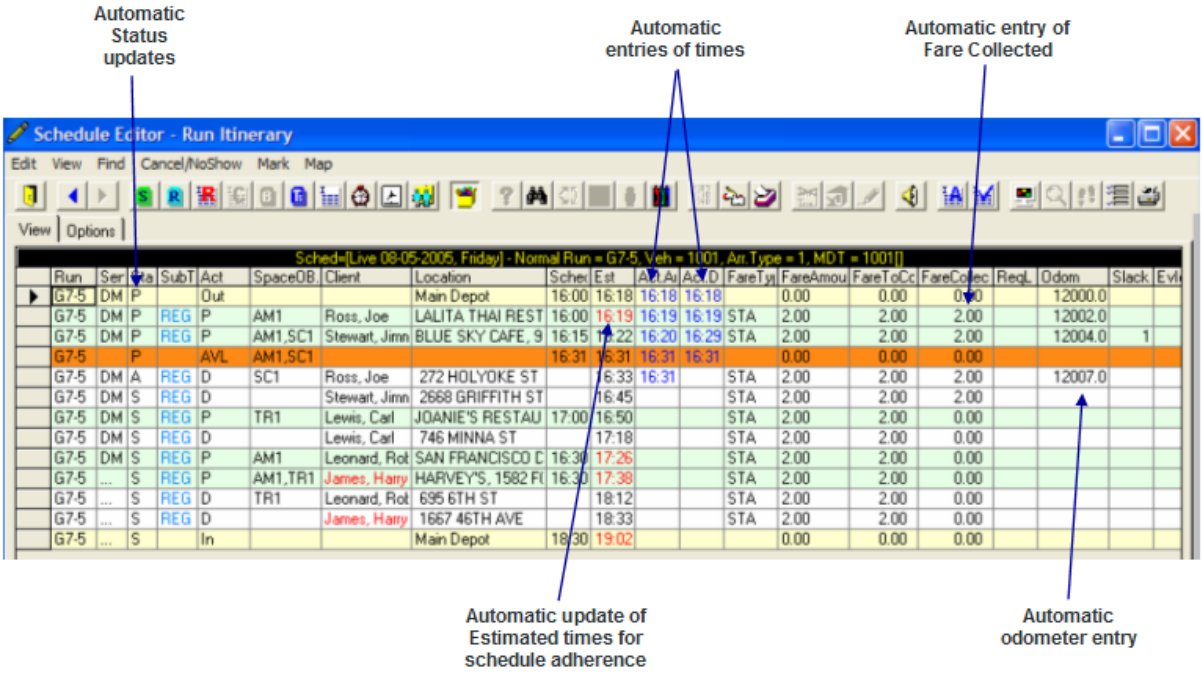
Actions in the MDT Centre

Dispatchers can perform the following actions from the MDT Centre:

- Send a text message
- Manually log vehicles on/off
- Filter messages by Vehicle or Run Group
- View message histories
- Cancel or No Show a trip that a driver has requested a Cancel or No Show for
- View Client Info screen
- Jump to Run Itinerary
- Jump to Client Itinerary

Schedule Editor

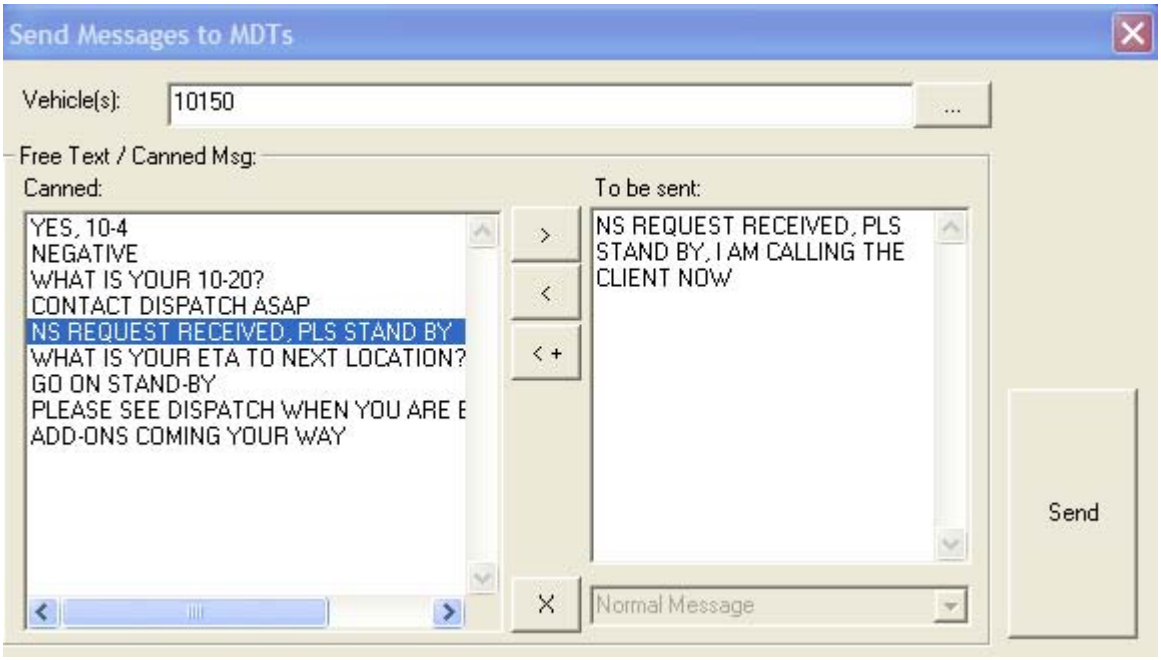
MDT Dispatch features in Schedule Editor enables automatic entries of real time performance data including Actual Arrive Time, Actual Depart Time, Odometer, and Fare Collected. The real-time data will provide timely notification of possible Schedule Adherence violations.



Text Messaging Dialogue

The “Send Message” feature can be accessed from the Workstation or the MDT Centre. Messages can be sent to one or multiple vehicles.

Dispatchers can choose from a predefined list of canned messages that can be customize and changed at anytime. Messages can be compose a message from scratch, or combine the canned message with their own.

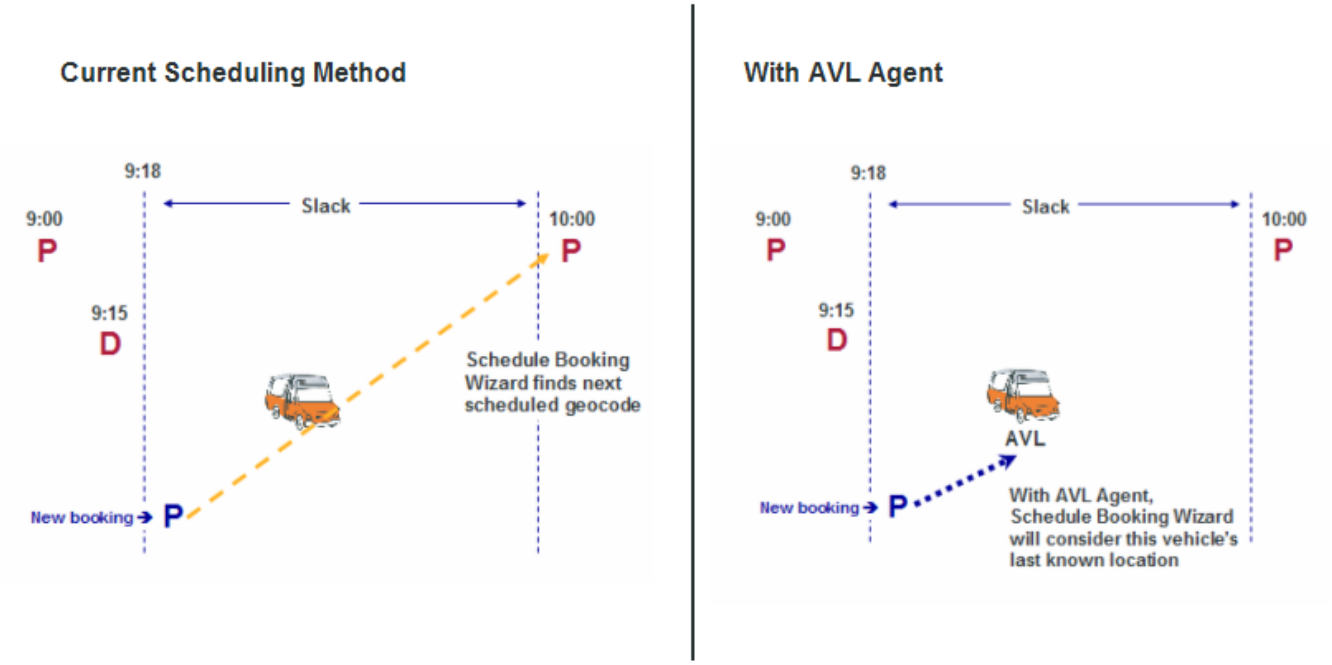


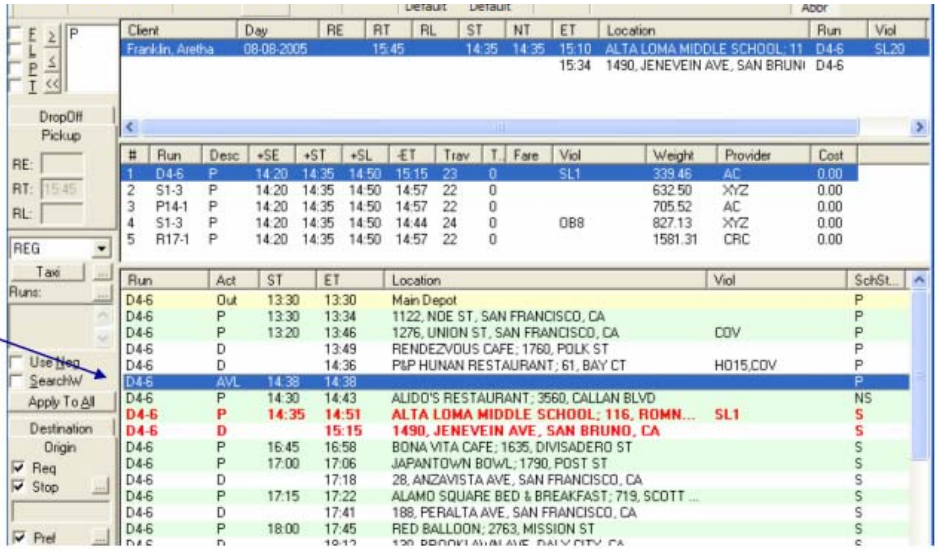
AVL Agent

The AVL Agent improves system scalability by allowing processing of AVL data to be handled separately from other data received from the mobile data computer. In addition, this server component adds a new real-time function to scheduling:

- The Trapeze PASS Schedule Server module will recognize the vehicle’s last known location. Currently, the Schedule Server does not consider "in-transit" location reported by AVL information when offering solutions.

Same day solutions would be based upon current vehicle location rather than geocoded events. This also makes it easier to “find” a vehicle in a certain area, especially during vehicle slack times when the exact whereabouts of a vehicle may not be known.





Vehicle Location Monitor

The Vehicle Location Monitor supports the integration of the 'real-time' GPS information with the PASS scheduling software, providing up-to-the-minute information about driver runs and vehicle locations. Dispatchers can use the Monitor screen to:

- View the location of any vehicle on the system map in real time.
- View speed and direction associated with AVL data (if data is available from provider).
- Check the status of a vehicle in relation to future trips.
- View the itinerary of a run based on a user defined time span.
- Monitor the schedule adherence of a vehicle/run.
- View multiple vehicle/runs at any one time.
- Review historical AVL data.
- Produce a turn list and send to a MDT.
- Set properties to customize the appearance of the monitor screen and GIS.