Greater Cleveland Regional Transit Authority

Radio Communication and CAD/AVL Replacement Program

Presented to: Operational Planning
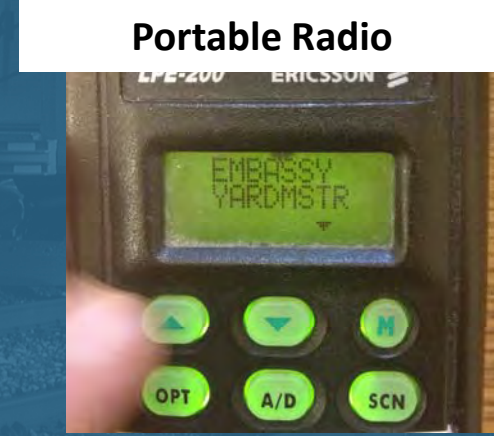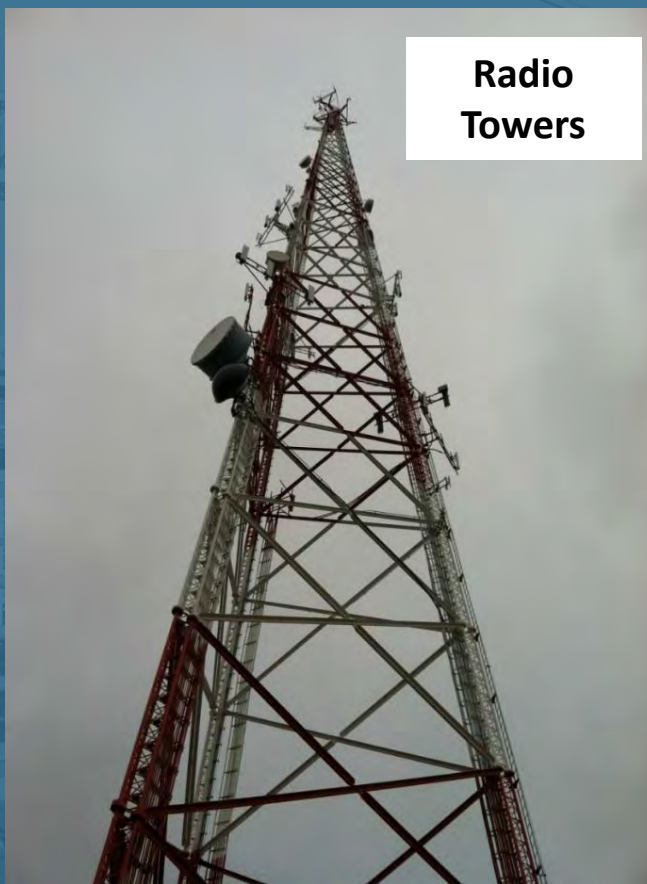and Infrastructure Committee
December 4, 2018

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History of Current Radio System

o Current system installed in early 2000's

o Aging system with obsolete technology

   o Many parts are no longer sold and difficult to purchase/repair

o As parts fail, the radio coverage declines

   o Loss of communication with operators and supervisors (rail and bus)

   o Loss of visual location of each vehicle

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Current Radio System Equipment

Vehicle Radio

IVLU (Computer)

Handset

MDT

Radio Towers

HealthLine

Time 8:43AM

OnStreet Signs

Portable Radio

EMBASSY YARDMSTR

Project Funding

o Federal Highway Administration awarded RTA a competitive $11.6 million (50/50) grant

o RTA has allocated $2.64 million of FTA formula funds (80/20)

o NOACA awarded $760,000 of section 5310 funds (80/20)

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Project Activity

Project Task	Status	Notes
CDW Router Procurement	Complete	Board approved in September. Resolution #2018-102 $1,454,825
Motorola Radio Procurement	Complete	Board approved in September Resolution #2018-101 $4,017,252.80
Trapeze ITS On-board Equipment	In-process	Seeking board approval in December Estimated - $7,800,000
CSU-UTC Research Agreement	In-process	Seeking board approval in December $500,000
MARCS Agreement Revision	In-process	Seeking board approval in January
Cellular RFP	In-process	Posted in December 2018

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Project Scope

Three Pillars of the Project:

1. Radio Replacement

   o Vehicle, handheld and dispatch consoles

2. ITS Computer Equipment

   o Vehicle computers, real-time signage, routers

3. Radio and Cellular Service

   o Agreements with radio and cellular providers

RTA Vendor: Trapeze Group

o Largest transit software provider in US

o RTA's current vendor for fixed route and paratransit software

    o RTA installed *TransitMaster* software along with current radio system in mid 2000's

o Proprietary software and hardware

    o Sole Source

    o Perform installation, testing and product support

Trapeze: TransitMaster

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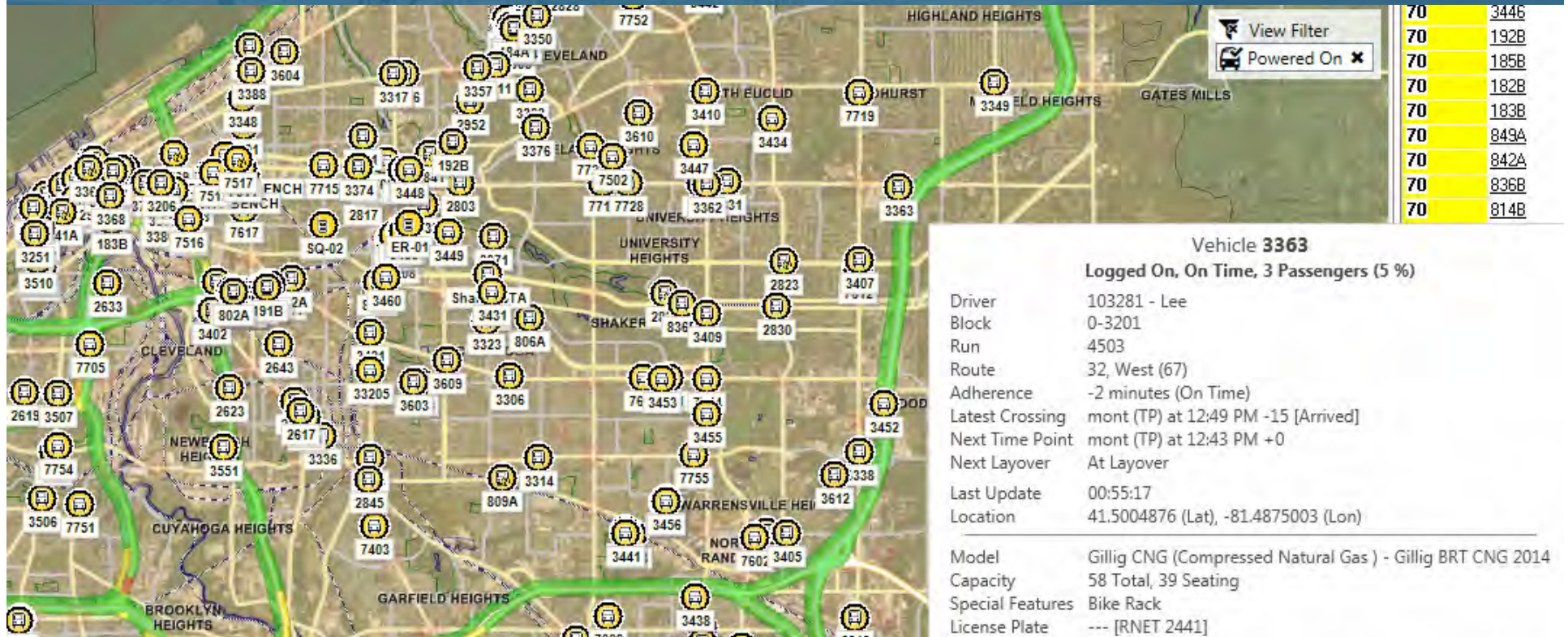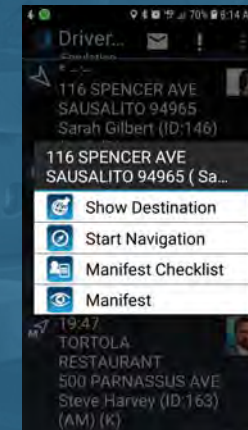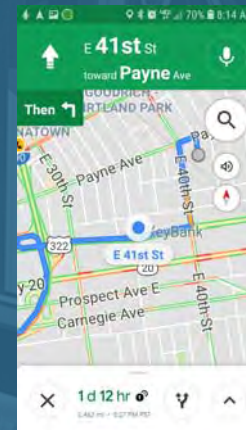
Trapeze: ITS On-board Equipment

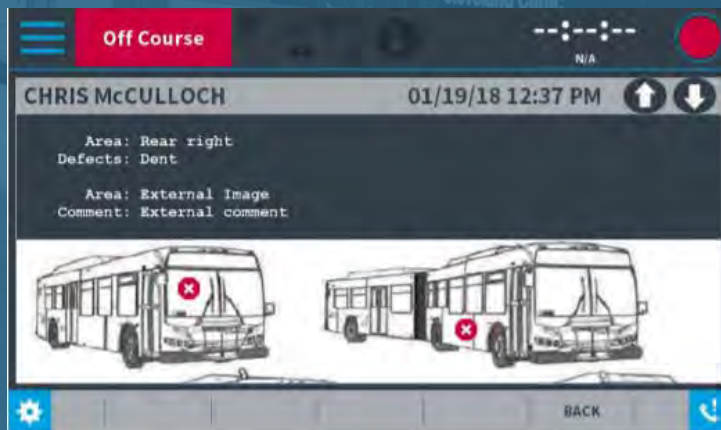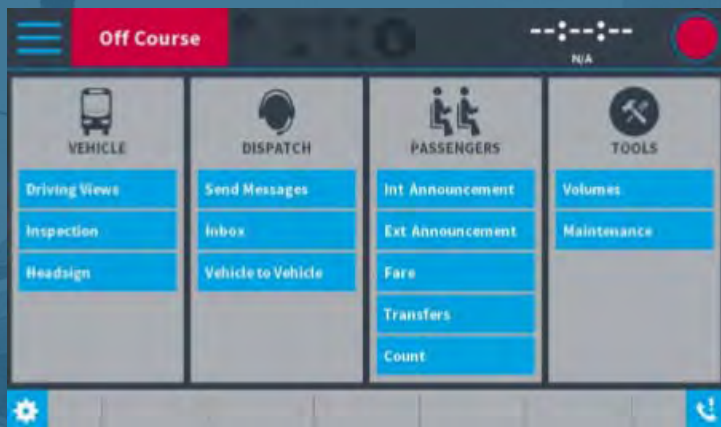**Current IVLU and MDT**

Future IVLU and MDT

Trapeze: Operator Screen

Key New Features

Feature	Current Technology	Enhanced Technology
Vehicle Alarms	Covert alarms are audio only.	Coverts alarms are audio and visual
Navigation	No navigation available. Route books and maps are utilized.	Turn-by-turn navigation including re-routes, special events, etc.
Pre-Trip Inspection	Operators review their vehicle and complete paper forms for defects.	Operator performs the inspection on the new vehicle tablet (paperless)
Predictive Maintenance	Limited monitoring tools	Real-time predictive maintenance and monitoring of vehicle components.
Vehicle Location	Poll rate = 1 minute	Poll rate = 15 seconds

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Projected Project Schedule

Task	Start
Preliminary Design and Research	On-going
Hardware Procurement	November – December 2018
Project Pilot – Proof of Concept	January 2019 – April 2019
Final Design Review	March 2019
Hardware Installation and Testing	August 2019
Project Closeout	April 2020

Cleveland State University

o Implementing On-Board Sensor and Real Time Data Acquisition Capabilities to study four items

  o Assessment of Rail Ballast condition

  o Health Monitoring of Rail Car Wheels

  o Assessing Bus Emissions

  o Monitoring On-time Performance and Passenger Wait time

Questions

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