

Revenue Equipment Maintenance

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2011 Fare Collection Workshop

What is Maintenance?

Definition: The work of keeping something in proper condition

- Qualified Staff
- Work Order systems and operational tools
- History of the defects
- Response time and staff support
- Inventory control
- What is good maintenance
- Preventative maintenance
- Retrofitting of equipment

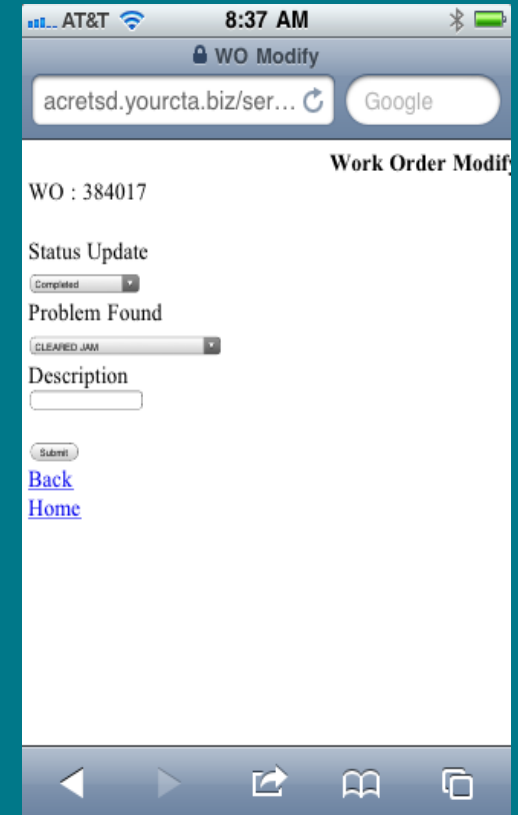
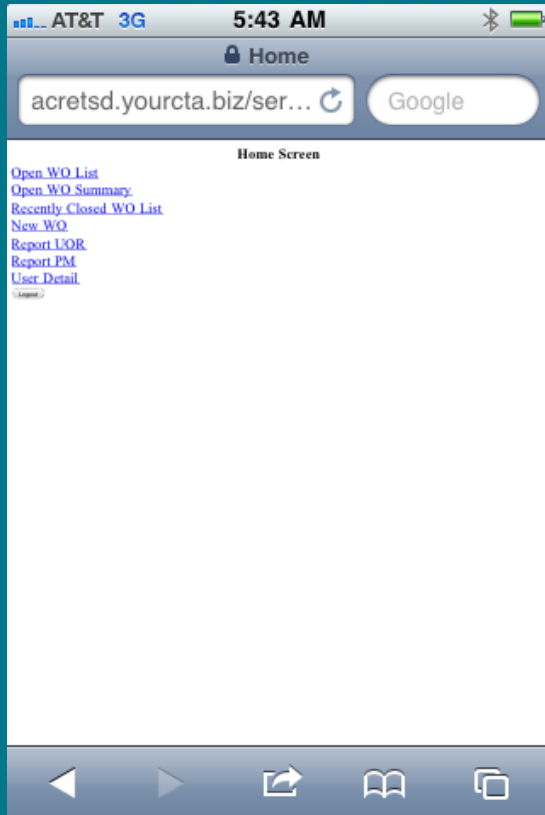
Why Is Maintenance Important To A Transit Agency?

- *Good Maintenance relates to good customer service*
- Customer confidence and perception of the transit agency begins at the fare equipment
- Every customer touches the fare equipment at least twice each day
- Customers will have confidence in the operation of the equipment
- Customer satisfaction
- *Lower operating and capital costs*
 - ✓ Fewer defects
 - ✓ Less free riders
 - ✓ Longer life of fare equipment

Work Order Systems and Operational Tools

- Problem Notification
 - ✓ Manual
 - ✓ Manual / automated
 - ✓ Fully automated
- Handheld device for employee
 - ✓ Blackberry
 - ✓ Web based phone

Manual and Automated Work Order System



Fully Automated Work Order system

Automated Fare Management Maintenance Reporting System



TVM Alarm sent through
VIP-7 interface to MRS
MRS then sends an email
to a technician.



Work Order Email:
TVM name, date/time,
event description, and
a list of any other flags
at time of event



OPEN Work Order's Link will
bring up a list of all open
work orders sent to a specific
email address.



Maintenance Link will bring
up the Work Order for the
technician to add remarks
and update the status and
resolution of the work order.



MRS is monitored for
TVM status,
Technician updates
and data analysis at
main station.



Tracking History Of Defects

- Monitoring total system for defects
- Addressing major defects
- Catalogue of defects
 - ✓ Subassembly
 - ✓ Zones
 - ✓ Traffic patterns
 - ✓ Employee
- Compare performance
 - ✓ Equipment type
 - ✓ Employee

Response Time And Support

- Customer Impact
- Goal setting
 - ✓ Lowering defects
 - ✓ Lowering response time
- Employee performance
- Support staff has to be responsive to maintenance staff

Proper Inventory Control

- Extra subassemblies
- Consumables
 - ✓ Cleaning supplies
 - ✓ Wearable parts
- Catalog of inventory
- Proper distribution of supplies and subassemblies
- Tracking of unit exchange items
- Subassemblies for maintenance rooms within transit system

Good Maintenance

- Proper defect repair
- Good reports
- Staying within response time
- Equipment appearance
- Keeping up with preventative maintenance

What's Preventative Maintenance

- Daily
- Weekly
- Monthly
- Visual inspection
 - ✓ Decals
 - ✓ Fair table
 - ✓ Instructions
 - ✓ ADA information
- Lighting
- Display
- External look of equipment

Daily Preventative Maintenance

- Removal of dust
 - ✓ Bill Handling Unit (BHU)
 - ✓ Ticket Transport Unit (TTU)
 - ✓ Ticket Processing Unit (TPU)
 - ✓ Coin Mechanism
- Run cleaning cards through components
- Check audio
- Visual inspection

Weekly Preventative Maintenance

- Cleaning of belts
 - ✓ Bill Handling Unit
 - ✓ Ticket Processing Unit
 - ✓ Ticket Transport Unit
- Cleaning of Coin Mechanism
- Cleaning of read right heads on TTU and TPU

Monthly Preventative Maintenance

- Disassembly of Components
 - ✓ TTU
 - ✓ Coin Mechanism
 - ✓ Validator
- Polish and wipe inside of equipment
- Check voltage on power supply
- Check lighting identification

Retrofitting

- Identifying a problem
 - ✓ What are the major defects
 - ✓ What's the reason for the defects
- Determine if solution is possible and financially feasible
 - ✓ Man power
 - ✓ Updating subassembly
- Implementing retrofit
 - ✓ Temporary instillation of retrofit at a location
 - ✓ Monitor defects with retrofit

Turnstile Handicap gate

- Retrofit hydraulic unit from floor to top of gate
- Hydraulic was failing from extreme cold
- Cost to agency
 - ✓ Man power
 - ✓ Replacement of equipment



Thank you

Thank You!

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