



Implementing Automated Internal and External Bus Announcements

*Transportation Committee
August 11, 2014*

Background Information

- ADA Requirements
 - Operators required to announce transfer points, major intersections, destination points and intervals
 - Agency is required to provide means by which an individual with a visual impairment or other disability can identify his/her proper bus
 - Project updates presented to Transportation Accessibility Advisory Committee (TAAC)
- Announcements are currently implemented on Routes 10, 17, 18, and Red Line BRT service
- 664 of the 960 buses (or 69%) of buses will be announcement ready at end of 2014; Entire fleet will be announcement ready by 2017 as new bus procurement occurs

External Announcements

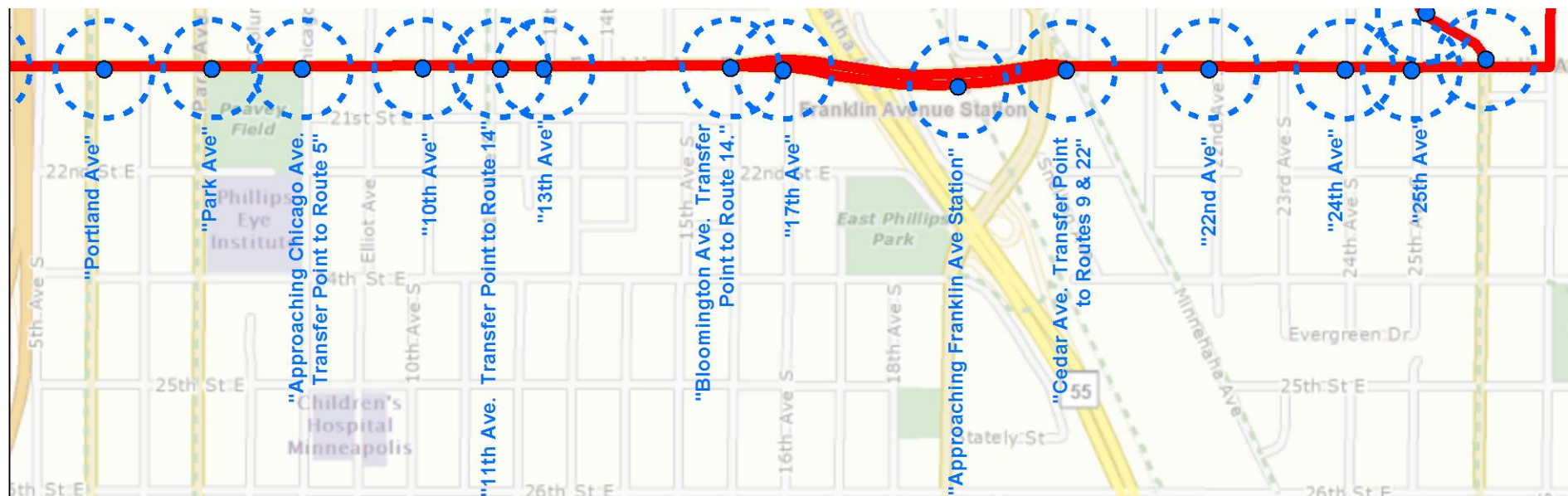
- Made every time Operator opens the front door
- Content will include:
 - “Welcome Aboard”
 - [Route]
 - [Branch]
 - [Direction]
 - [Destination(s)]
 - “Please have your fare ready.”
- 1,200 external phrases maintained to support route system
- External volumes reduced 8:00 PM – 7:00 AM

*“Welcome Aboard Route 5 E.
Southbound to Mall of America.
Please have your fare ready.”*



Internal Announcements

- Made on bus when bus enters designated bus stop zones – GPS Activated
- Route 2 Eastbound Example

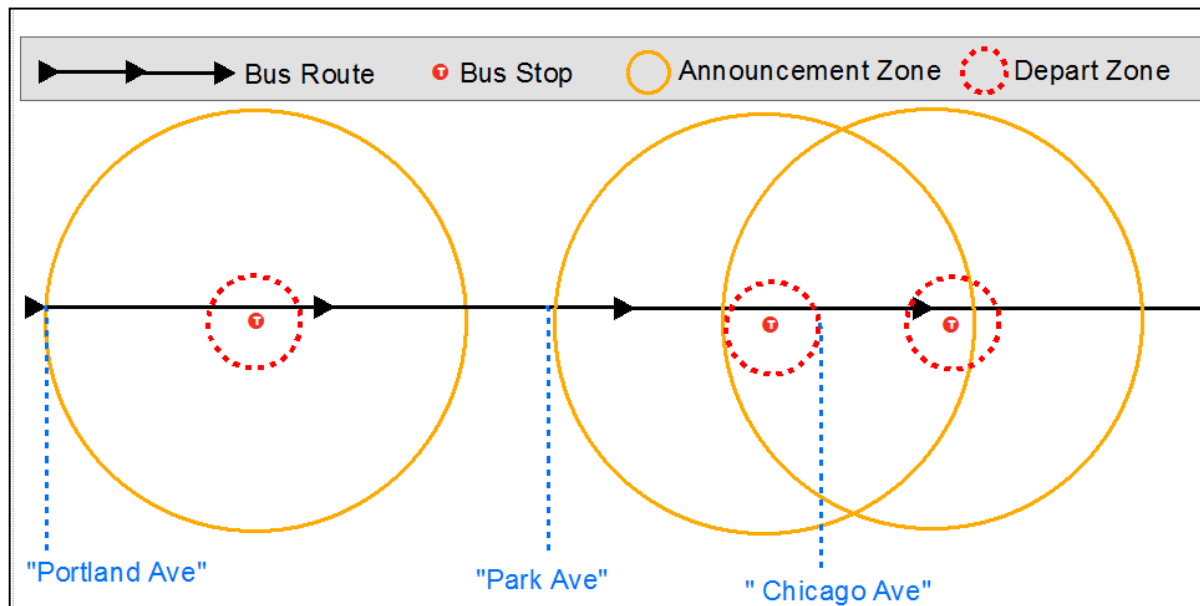


Internal Announcements

- Made at all bus stop locations
- Will not be made when bus is in “off-route” condition (caused by inaccurate geocode settings and route detours)
- Approximately 200 landmarks will be announced (selected by the Transit Information Center (TIC) department)
- Approximately 8,700 individual transfers will be announced
 - Transfer information maintained by the TIC
 - Transfers will not be announced in the Downtown Fare Zone (accounts for 80,000 transfers)

Internal Announcements

- Have the ability to adjust radius zone distance for each stop
- Default setting 600 feet (long city block 660' feet, short city block 330' feet)
- Revisions will be ongoing
 - Identify bus stops with high speed approaches
 - Leverage field tests
- Zones will overlap; depart zones used to mitigate premature announcements



Internal Announcements

- Internal announcement content will scroll on “Stop Request” LED sign and match announcement



Audio Solution

- **Text to speech software is planned to be used**
 - Female voice talent (male talent used for safety related messages)
 - Ensures stable voice
 - Talent could become ill
 - Talent could leave audio role
 - Same voice is consistently used
 - Efficient maintenance
 - Original cost estimations lower
 - Bids currently being reviewed for software; paid for by federal grant
- **Sample Announcements below match current talent used on Routes 10, 17, 18 and Red Line**
 - 🔊 “Approaching 38th Street. Transfer point to Route 23.”
 - 🔊 “Approaching Chicago Avenue. This stop for HCMC.”

How do buses get their announcements?

1. Bus schedules and stops changed on weekly and quarterly basis
2. About every 3 weeks, in light of service changes, announcement and schedule data updates are sent to MDT as part of schedule merge process



3. When starting a bus after a merge, MDT's will download schedule and announcement updates
4. Once logged in, the bus "knows" the schedule and announcement itinerary of the logged Duty/Run number

Quality Assurance

- Evaluate customer comments
- Buses equipped with annunciator hardware will have sticker on dashboard
- Working to incorporate hardware testing into bus maintenance
- May have procedure for Operators to test hardware
- Operator Bulletins will be issued upon implementation
- Operators can report announcement issues on MDT Defect Card

MDT Mobile Defect Card
Report Go-To-Card issues on the green Red Order Feedback Report
(Form completed on-board or downloaded at web-website)

General Information
Vehicle # _____ Operator ID _____
Date ____/____/____
Time of problem _____ AM PM
Location when problem occurred:
on _____ at _____
Duty _____

MDT Display
 No display (blank)
 Display text unreadable
 Display frozen
 No date/time
 Incorrect date/time
 Adherence information incorrect
 Adherence information missing
 Schedule/route list information missing

MDT Advisory Message
 Advisory remains displayed after action is taken
Indicate which advisory:
 Incomplete route files
 Log out to update routes
 EEPROM Hardware failure
 EEPROM Ck Sum or format
 Cycle wheelchair lift
 Check odometer/calibration
 Check GPS status
 Incorrect agency ID
See back side for more defects

Communication
 PTT failure
 PRTT failure
 ERTT failure
 Operator cannot hear TCC
 Poor audio from TCC
 Logon MSG not delivered (manual logon req'd)
 Logon failure - invalid driver ID
 Logon failure - invalid bus #

Hardware
 MDT loose (bracket mounting)
 MDT screen damage
 MDT buttons loose/stuck
 Loose/loose footswitch
 Handset PTT button loose/stuck
 Handset or cradle broken
 No Alert Tone
 Overw microphone damaged/missing
 Radio enclosure damaged/missing

Annunciation
 Wrong streets broadcast
 External announcements not being played
 Internal sign blank
 Internal sign scrambled
 Internal sign: time and/or data wrong

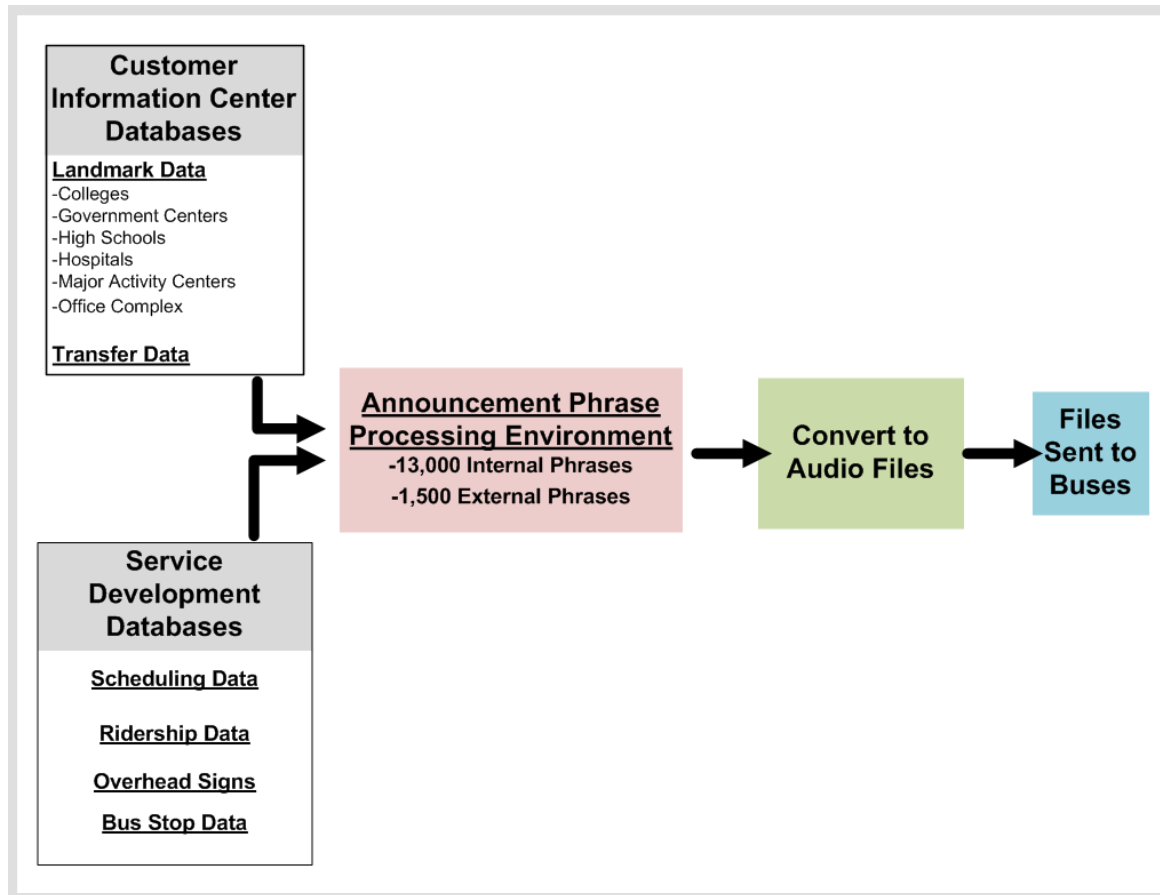
General Comments _____

Form 1206-CC 10-01-03-14 MetroTransit

Includes section for reporting
announcement concerns

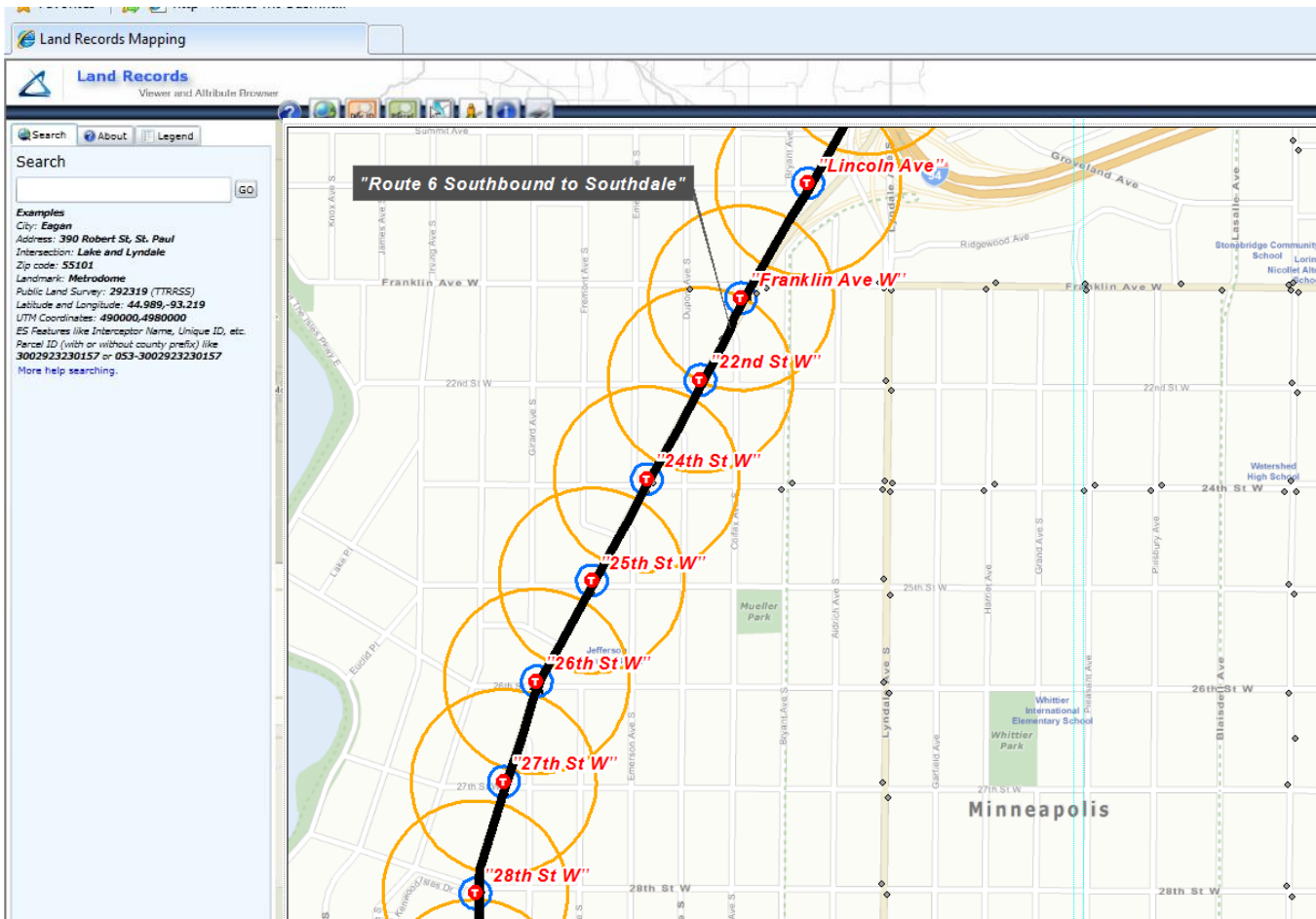
Quality Assurance

- Approximately 15,000 announcement phrases will be managed with automated phrase development environment



Quality Assurance

- Internal interactive map getting developed for troubleshooting (similar feel to Google Maps)
- Includes mapping of phrases, buffers, landmarks, route alignments



Estimated Implementation Timeline

- October 2014 - 11 HI-Frequency Routes
- November 2014 - 53 Urban Local Routes
- November 2014 - 5 Suburban Local Routes
- December 2014 – 72 Express Routes
- Early 2015 – MTS Contracted Routes, 6 Express, 21 Suburban Local, 2 Urban Local

Future Considerations

- Potential for service change and marketing announcements
- Announce controlled intersections without bus stops per ADA requirements
- Improved “interval” announcements per ADA requirements i.e. “Approaching I-694, approaching Hwy. 36, etc.”
- Add downtown route transfer information
- Announcements in languages other than English

Questions?

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