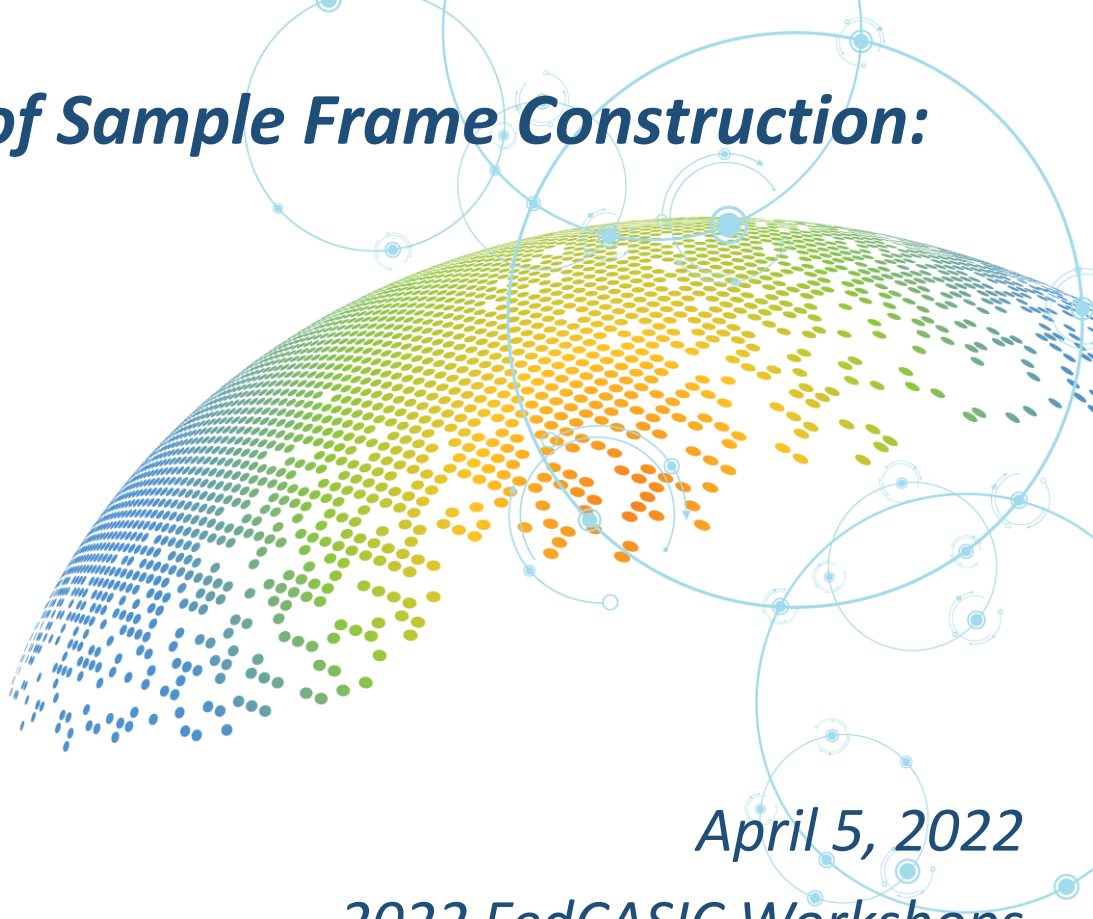
Digital Transformation of Sample Frame Construction: RTI's New eListing App

Charles Loftis
Shawn Cheek
Jason Kennedy
Brandon Peele



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2022 FedCASIC Workshops

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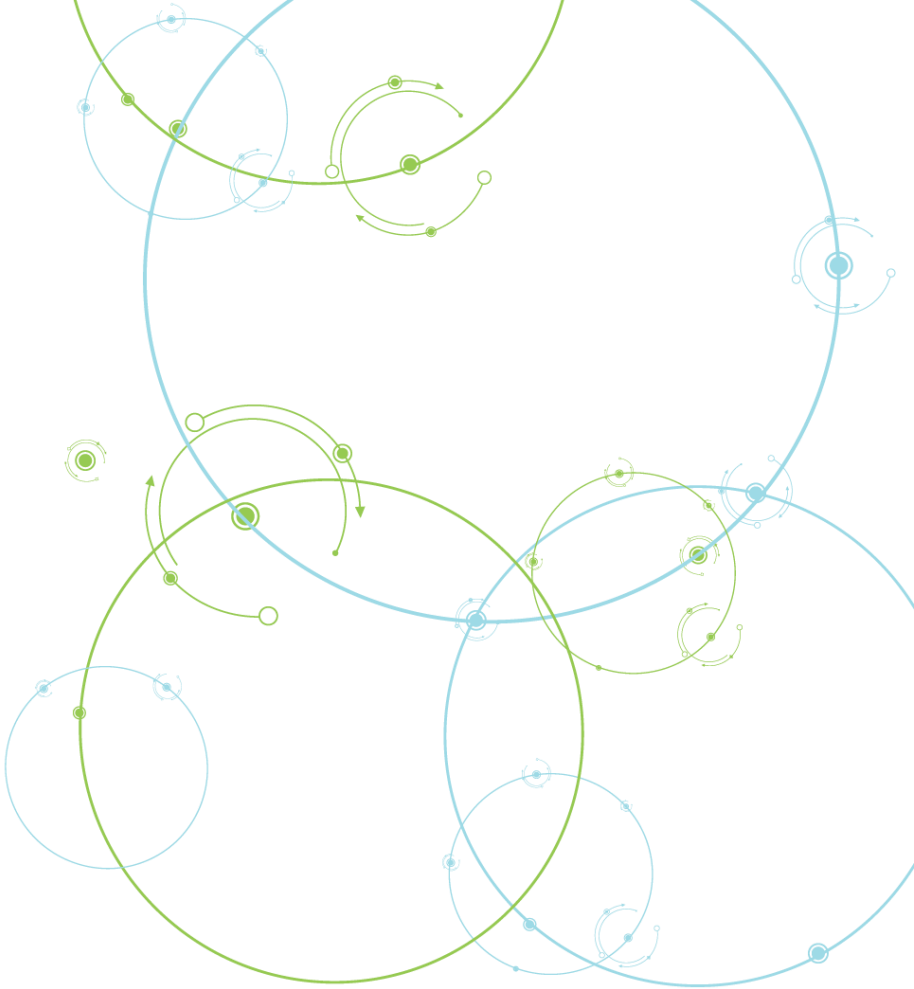
Overview

- Why maps?
- Digital Listing Workflow
- eListing app
- eListing User Feedback



Why Maps?

Maps support area household surveys

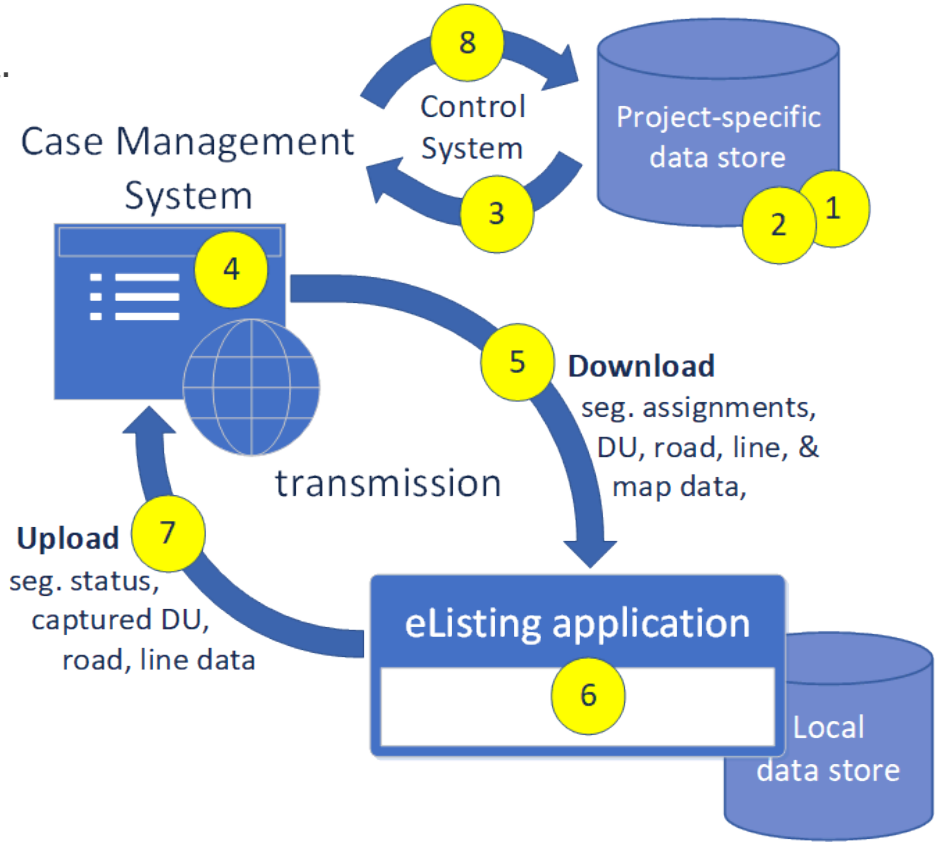
- Used to
  - Show location of sample dwelling units (SDUs)
  - Build field-enumerated (FE) frames – record address & location / DU
  - Validate addressed-based sampling (ABS) frames
- Assist with applying a frame supplementation procedures
  - Half-Open Interval
  - Check for Housing Units Missed (CHUM)

Electronic Maps

- Cost-efficient, state-of-the-art, and relevant in today's marketplace
- Viewed on any device (tablet, phone) or computer
- Provide better oversight of field work, improved data quality

Digital Listing Workflow

1. Load dwelling unit (DU) addresses & ABS data.
2. Group ABS & previously listed addresses into segments, build/load map packages.
3. Control System (CS) facilitates presentation of data on Case Management System (CMS).
4. Managers assign segments to listers.
5. Listers download segment assignments, related DU, road, and line data.
6. Listers work assigned segments using the eListing application.
7. Listers upload segment status, captured DU, and road and line data back to RTI.
8. CS returns data to project-specific data store.



eListing: Assigned Segments

Estimated unit counts

Segment status

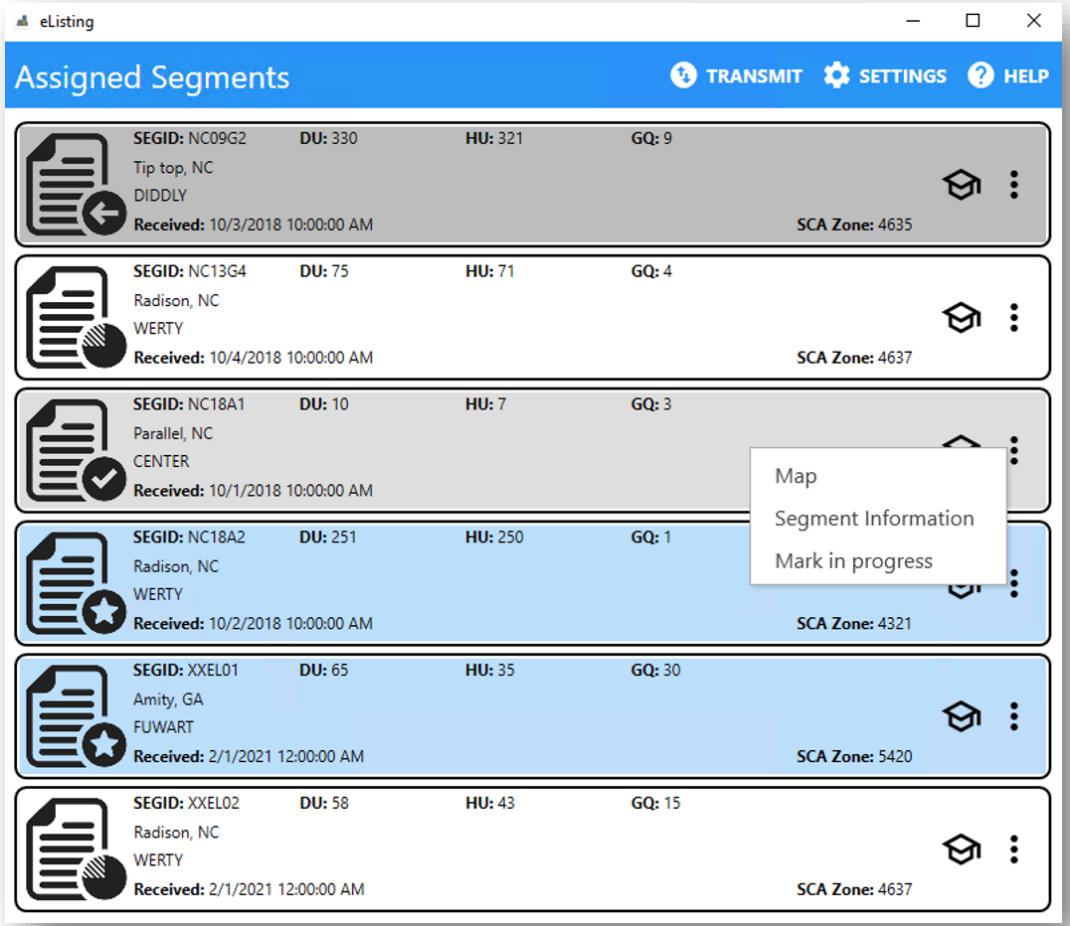
- Background (blue = new, white = in progress, light gray = complete, dark gray = returned)
- Icon (star = new, pie = in progress, check = complete, arrow = returned)

Actions options (menu under ellipses)

- Map – displays previously recorded DU, road, and line data
- Segment Information – record general segment notes
- Mark Complete – indicates work on the segment is complete

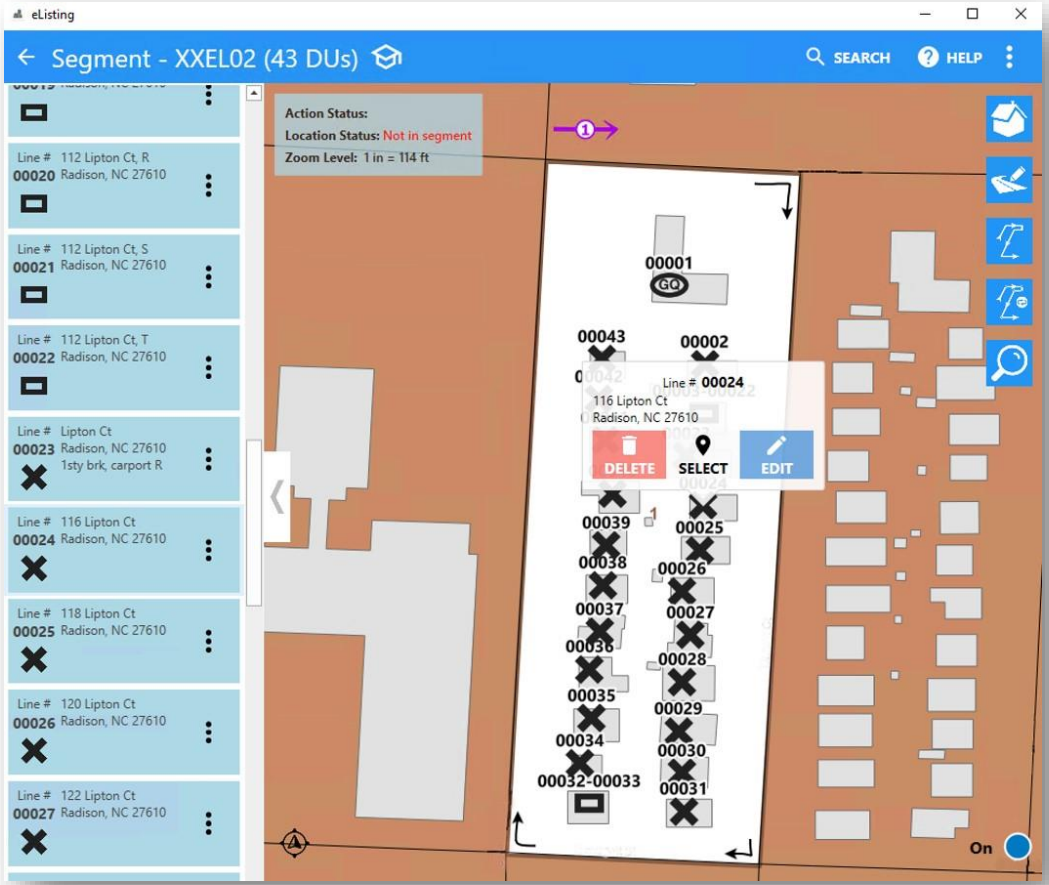
Action menu options include

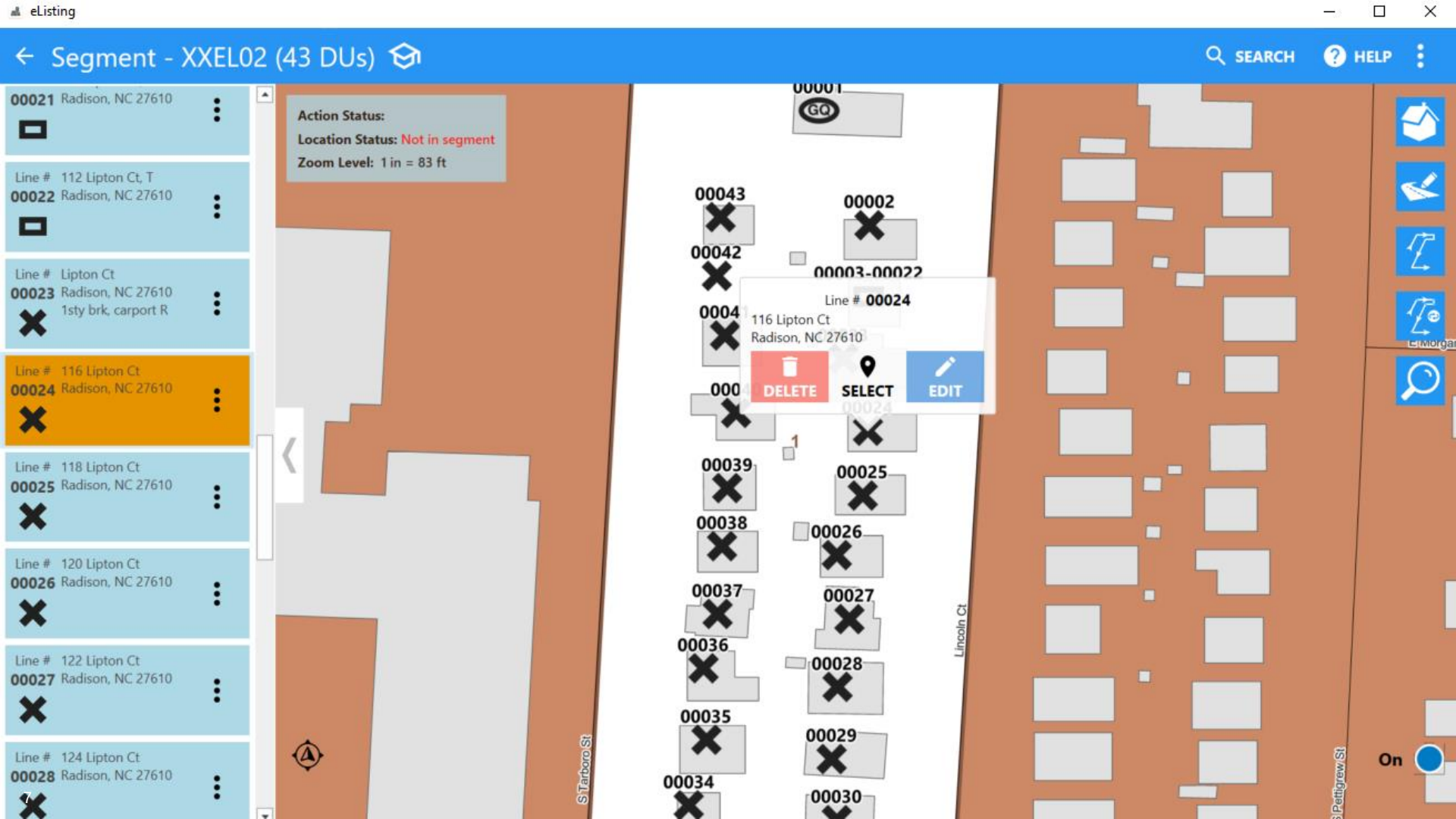
- Transmit – Synchronize data with RTI.
- Settings – Configure lister ID, view project ID, show/hide training segments, and initialize training data.
- Help (common to all screens) – Provides screen specific help, app version, and common abbreviations.



eListing: Map

- Segment name, DU count, and training segment icon
- Action options:
  - Search, Help. and Segment Information
  - Map actions buttons (right-hand side):
  - Add DU, Draw road, path of travel, travel continuous, and Zoom
- GPS indicator defaults to On but can be changed to Off or Follow.
- Compass rose re-orients map to North
- DU List displays detailed address information; allows editing and deleting
- DU & line map symbols allow move, edit and delete actions.




eListing
Segment - XXEL02 (43 DUs)
SEARCH
HELP
00021 Radison, NC 27610
Line # 112 Lipton Ct, T
00022 Radison, NC 27610
Line # Lipton Ct
00023 Radison, NC 27610
1sty brk, carport R
Line # 116 Lipton Ct
00024 Radison, NC 27610
Line # 118 Lipton Ct
00025 Radison, NC 27610
Line # 120 Lipton Ct
00026 Radison, NC 27610
Line # 122 Lipton Ct
00027 Radison, NC 27610
Line # 124 Lipton Ct
00028 Radison, NC 27610
Action Status:
Location Status: Not in segment
Zoom Level: 1 in = 83 ft
00001
GQ
00043
00002
00042
00003-00022
Line # 00024
116 Lipton Ct
Radison, NC 27610
DELETE
SELECT
EDIT
00039
00025
00038
00026
00037
00027
00036
00028
00035
00029
00034
00030
Lincoln Ct
S Tarboro St
S Pettigrew St
On

eListing: User Feedback

- SUS scores varied greatly
  - 30 - 97.5
  - Mean score of 61 was below average (>68)
- Generally positive feedback
- Most difficult
  - GPS challenges (hardware)
  - Moving ‘stacked’ DUs
  - Draw Path of travel arrow
- Enhancements suggested:
  - Ability to filter DU list & map
  - UI feedback indicating ‘verified’ address
  - Optimize map and symbol load

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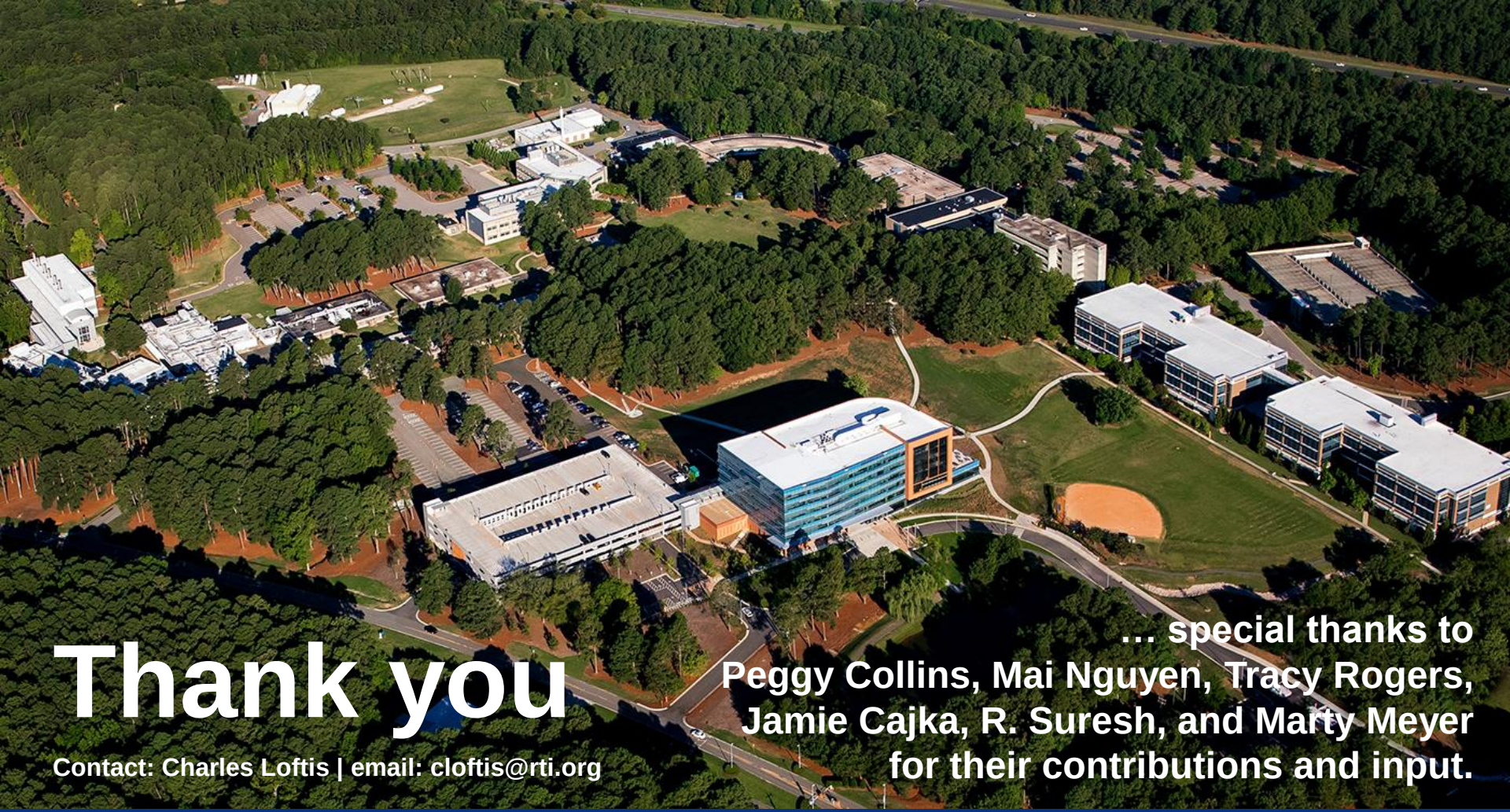

Thank you

Contact: Charles Loftis | email: cloftis@rti.org

… special thanks to
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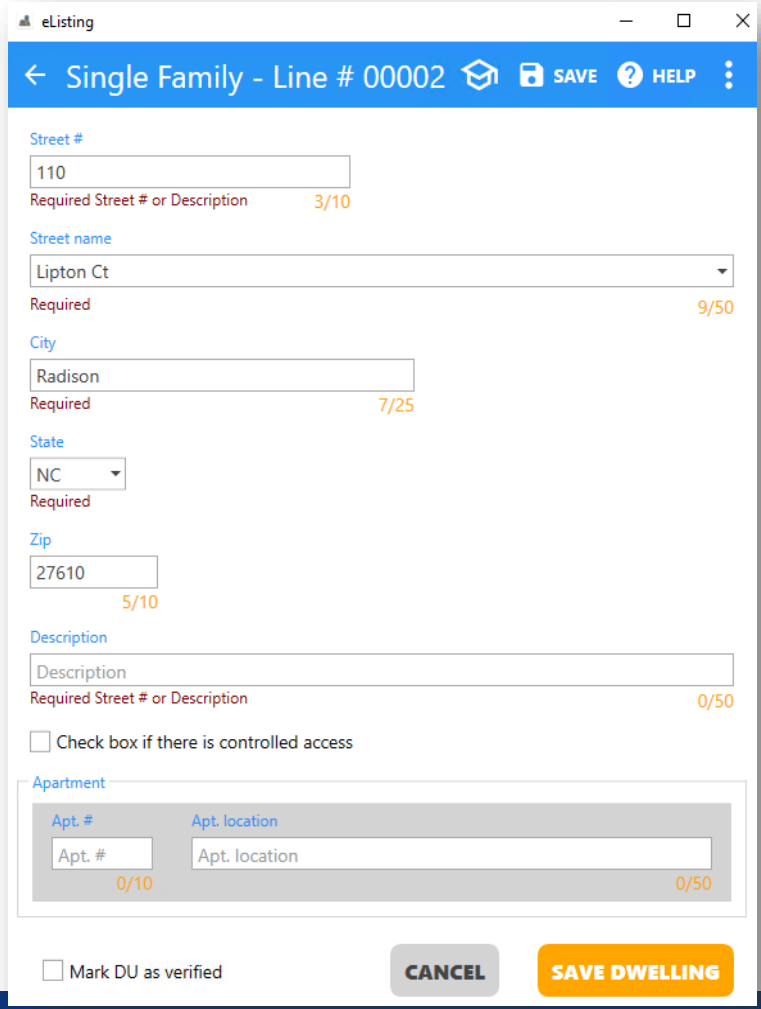
Jamie Cajka, R. Suresh, and Marty Meyer
for their contributions and input.

eListing: Data Collection

- Fields length counts and limits.
- Address uniqueness validations before save.
- Other data collection forms (mutli-unit, group quarter) are similar but have additional DU specific fields and requirements.



Street #

110

Required Street # or Description 3/10

Street name

Lipton Ct

Required 9/50

City

Radison

Required 7/25

State

NC

Required

Zip

27610

5/10

Description

Description

Required Street # or Description 0/50

Check box if there is controlled access

Apartment

Apt. #

Apt. #

0/10

Apt. location

Apt. location

0/50

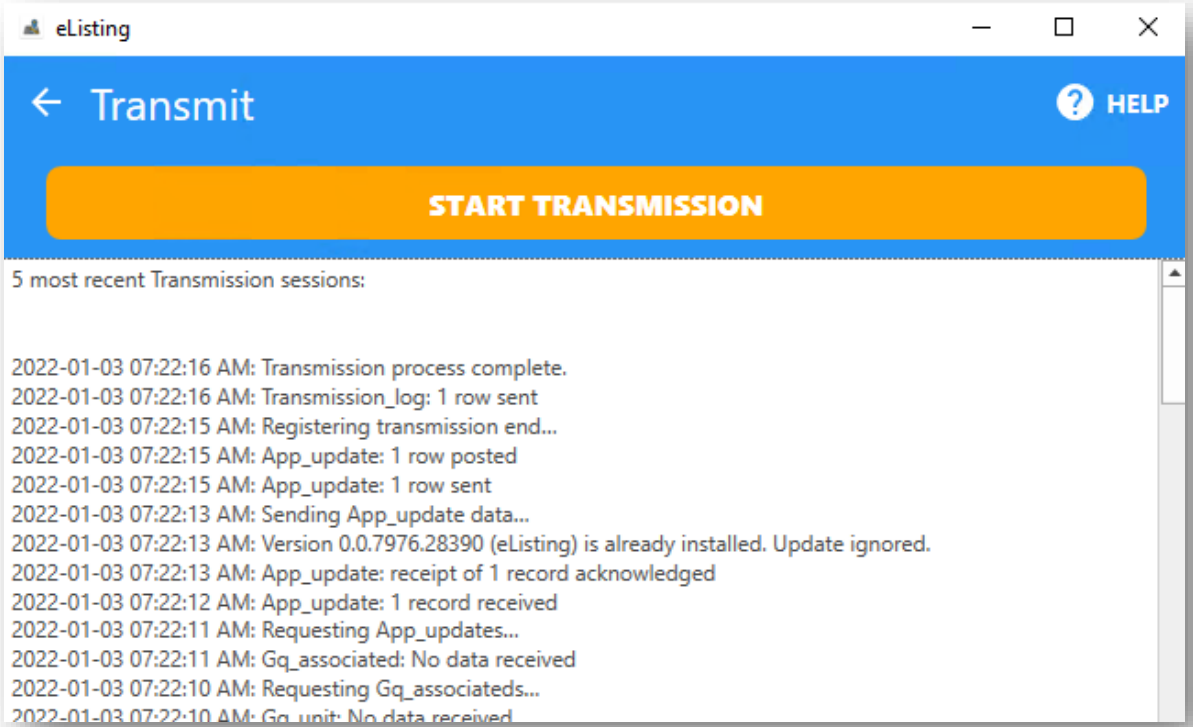
Mark DU as verified

CANCEL

SAVE DWELLING

eListing: Transmit

- New segments assignments are received
- Related DU, road, and line metadata.
- Segment status changes
- Captured DU, road and line data returned to RTI



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Hard copy maps uses a lot of paper!

- 1 project: ~2 tons of maps / year
- Address-based sampling, large geographic areas - require ># of maps

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- Electronic maps are ubiquitous
- Viewed on any device (tablet, phone) or computer
- Provide better oversight of field work, improved data quality