# Indiana Department of Transportation

**Modernization of the FRA Grade Crossing Inventory**

Implementing new technology to develop an automated process for field-to-office workflows by the Esri platform and the FRA web API.

Thursday, May 17, 2018

U.S. Department of Transportation
Federal Railroad Administration

HNTB

INDIANA DEPARTMENT OF TRANSPORTATION
INDOT

# Our Team

**INDOT**

- Tom Rueschhoff – Project Manager
- Rich Blanford – Lead Inspector
- Matt Cook – GIS Lead

**HNTB**

- Darin Welch – Geospatial Team Lead
- Adam Horn – Sr. Geospatial Solutions Developer
- Wuxuan Xiang – Sr. Developer

# Goals and Objectives

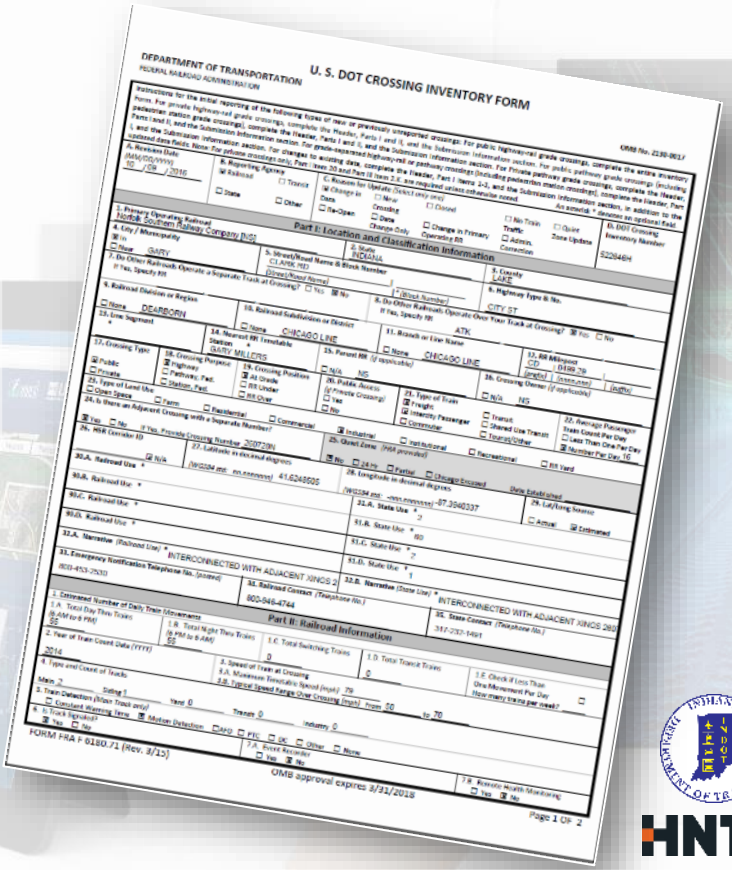
- Transition from paper field collection
- Maintain Rail Crossing GIS data
- Automate FRA submission process

# Agenda

- Previous Process
- New semi-automated process
- Next steps

# Previous Process – Challenges

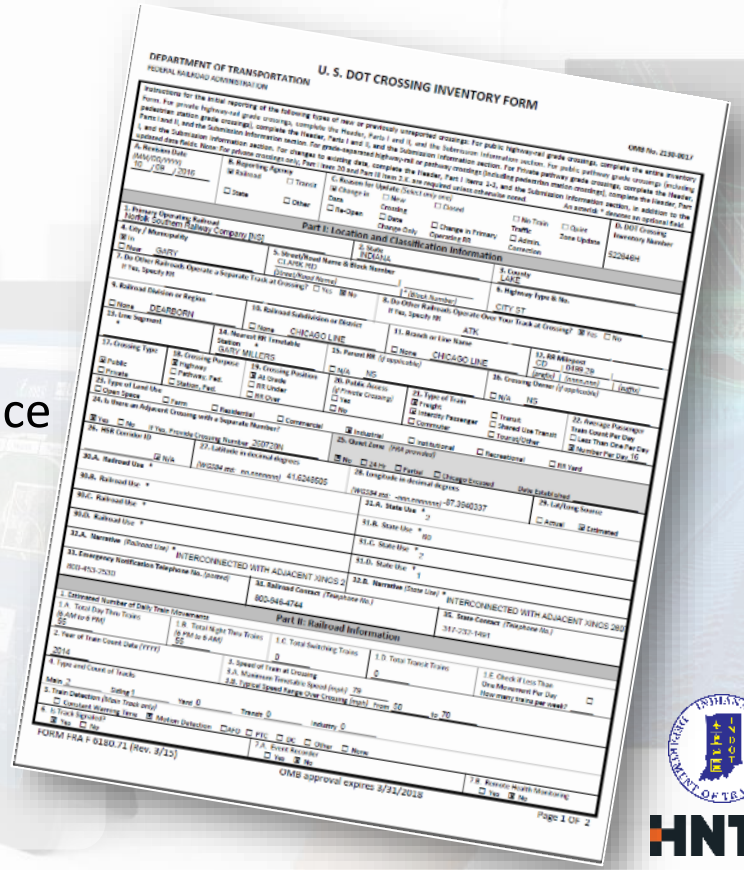
- Paper based form update required dual entry
- Image capture and storage was cumbersome
- Not integrated well with other systems



# Previous Process – Workflow

**Manual Steps**

- Search FRA website for crossing form
- Print crossing form
- Update paper form in the field
- Take pictures
- Update form on website back in the office
- Submit form
- Download images
- Create image directories
- Rename images
- Store images



# New Process – Workflow

**Manual Steps**

- Search FRA website for crossing form
- Print crossing form
- Update paper form in the field
- Take pictures
- Update form on website back in the office
- Submit form
- Download images
- Create image directories
- Rename images
- Store images

**Manual Steps**

- Update electronic form in the field
- Take pictures; associate with crossing
- Submit changes to crossing

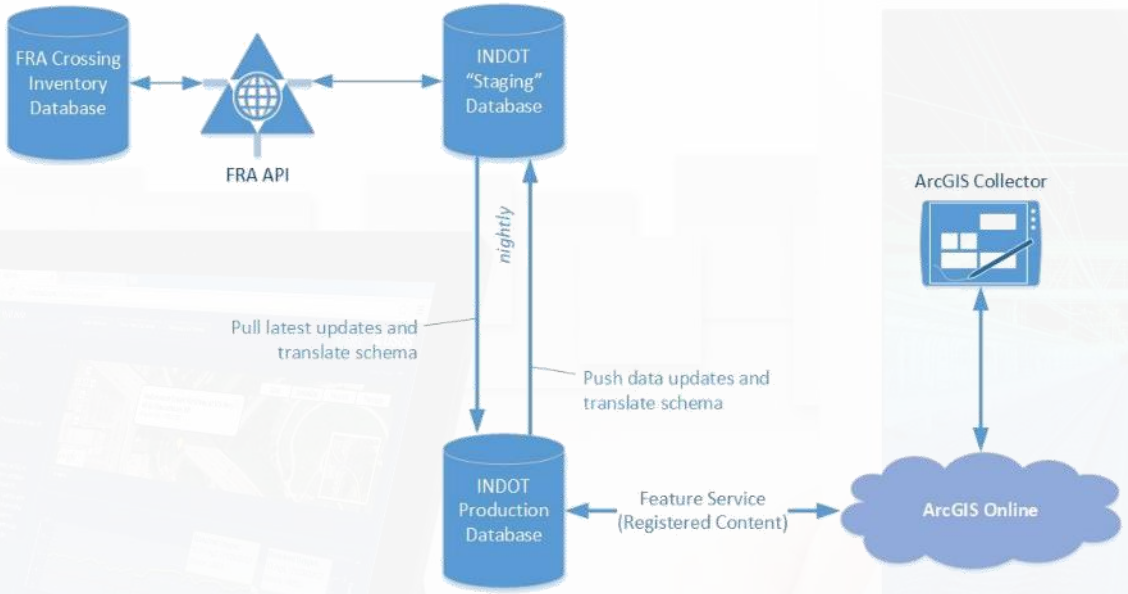
**Automated Steps**

- Nightly sync with FRA web API (to/from)

# Automated Approach – Overview

**Semi-automated process**

- Develop script to connect to FRA through API call
- Develop data model to create a feature class
- Show records on web map
- Configure webmap for field collection
- Use collector to update records in the field
- Take pictures with tablet using collector
- Update the FRA database nightly

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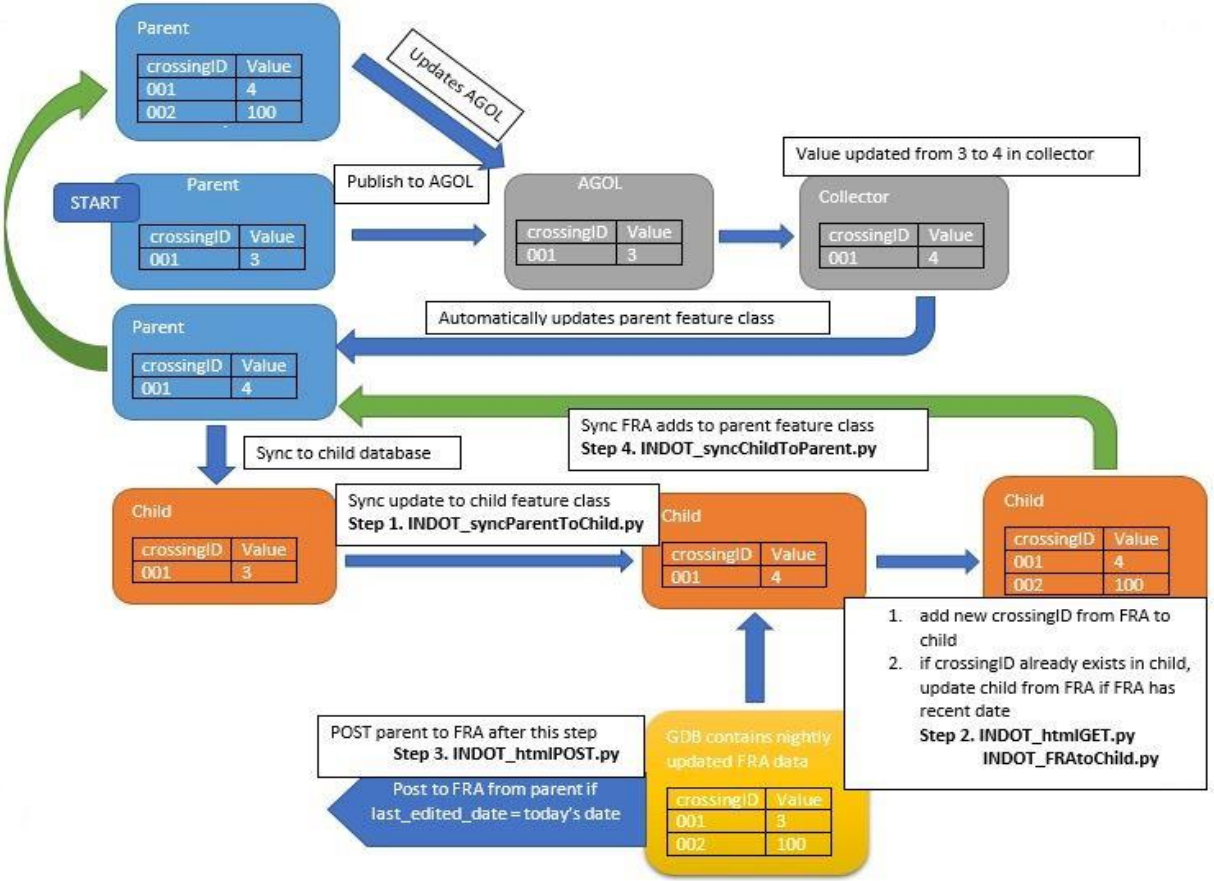
# Automated Approach – Detail

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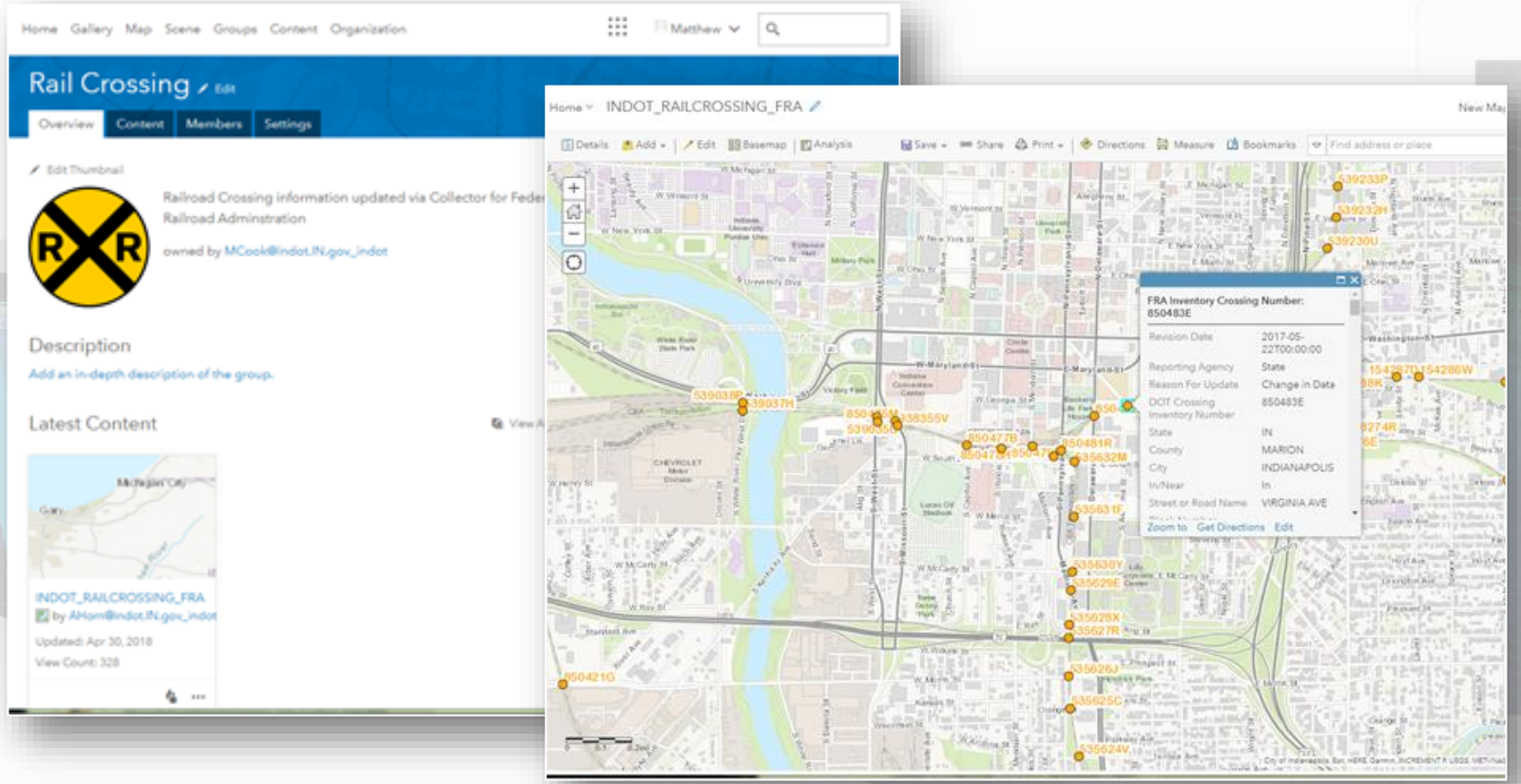
# Deployment – AGOL Configuration

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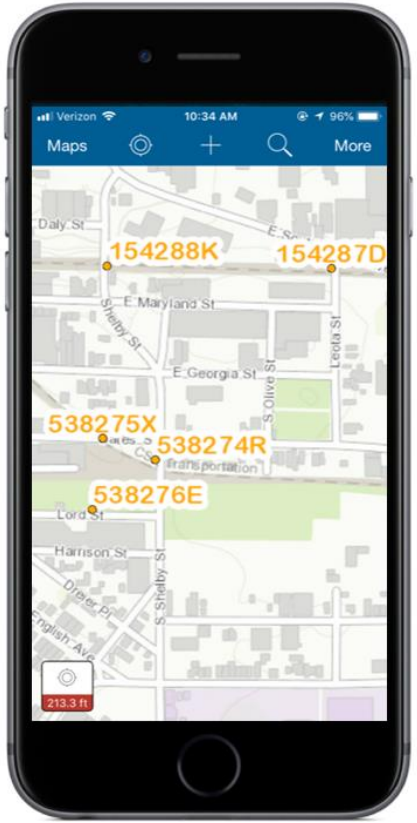
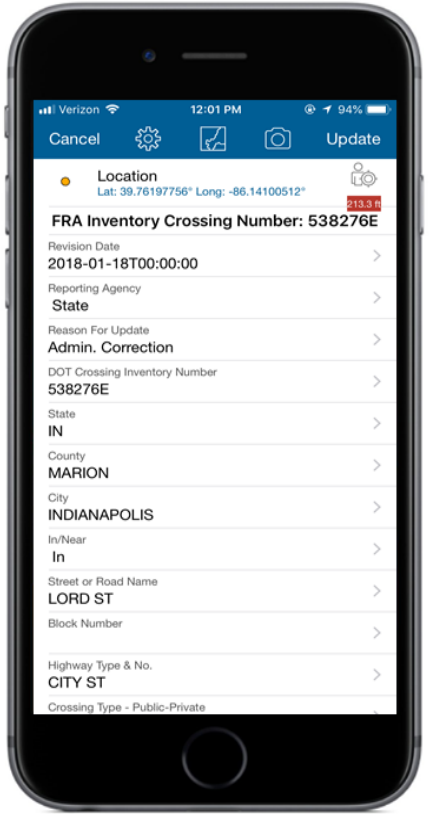
# Deployment – ArcGIS Collector



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# Deployment – In Practice

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# Next Steps

- Offline deployment
- Replace public webmap