Facility Condition Assessment at Iowa DOT

Under the transit asset management (TAM) regulation (49 CFR 625), transit agencies are required to conduct condition assessments of their assets. This process involves regular inspections that evaluate an asset's visual and physical conditions, performance characteristics, and potential risks and impacts of failures. The Iowa Department of Transportation (DOT) developed its own tablet-based facility condition assessment app to ensure consistency across subrecipient facilities and to reduce the time and resources needed to collect condition information.

Background

The Federal Transit Administration (FTA) requires transit agencies to inventory and assess the condition of all assets for which they have direct capital responsibility. The Iowa DOT sponsors a Group Plan and works with its rural and small urban transit system subrecipients to establish targets and condition assessments. With 23 of the 35 transit systems across the State participating in the Group Plan, Iowa DOT was interested in developing a tool to streamline the condition assessment process and maintain consistency in data collection. The State conducts condition assessments for revenue vehicles in annually based on age and miles; however, the last transit facility inventory was over 10 years old and did not collect all of the facility subcomponent information in the FTA Facility Condition Assessment Guidebook. To achieve this goal, Iowa DOT created a tablet-based application (known as) that transit agency staff could use to collect facility data and automatically calculate the condition assessment in terms of the Transit Economic Requirements Model (TERM) scale. The tool development team brought together members of Iowa DOT's Office of Public Transit and the Office of Systems Planning who had previous experience developing similar apps to support the Iowa Railroad Alliance.
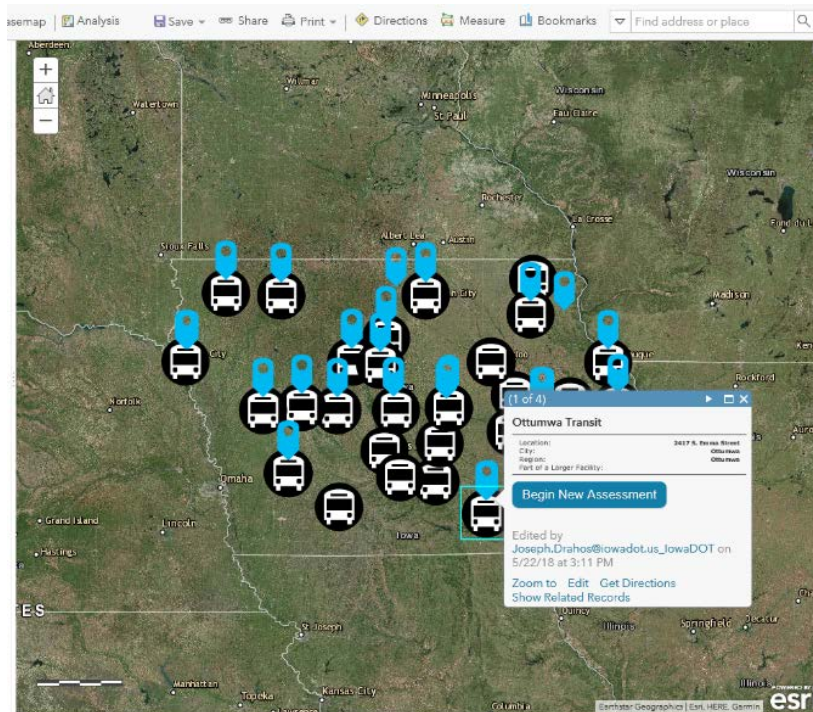

Figure 1. Landing page for the Facility Condition Assessment Tool, showing the selection of a facility to assess (Source: Iowa DOT).

The Development Process

Early conversations regarding the application development drew from the Office of Systems Planning's previous experience with developing apps, as well as in-house geographic information system (GIS) capabilities. The team decided to construct the tool using Esri software because it would provide a geolocation for each facility and allow real-time visual representation of assessment progress statewide. The early stages of the app development focused on establishing metadata and criteria to structure the application, based on the FTA Facility Condition Assessment Guidebook. Iowa DOT did not include anything on Equipment/Fare Collection, since the group plan participants are smaller systems and do not have these components at their facilities. In the app, the agency utilized screen captures of the images from the guidebook as a descriptive reference for each of the components.

By developing a comprehensive data structure early on, the Iowa DOT ensured that the tool's design would meet the specific needs of the agency in conducting the facility condition assessment. The team used the FTA Facilities Performance Measure Reporting Guidebook (Guidebook) to model the app's fields and attributes. The developers also relied on extensive in-person testing with facility managers to ensure the tool would collect data in an efficient and succinct manner.

Figure 2. Opening page for a facility assessment, including auto-populated information (Source: Iowa DOT).

The tool focuses on the nine facility categories described in the Guidebook and provides a 1-5 scale for each facility rating. Prior to deploying the tool to the field, staff also loaded basic information (e.g. geolocation, address, facility type, square footage) for all the transit facilities across the State into the app to help expedite the condition assessment process. Therefore, as the condition assessment is conducted, the user is able to pick the specific facility from a map of the state, choose an attribute for evaluation, and provide an assessment of that attribute based on the guidance provided in the app. As assessment scores are entered for each attribute of facility, the app automatically calculates a facility condition assessment score based on the mean TERM score for the subcomponents.[1] The app then

---

[1] Note that the mean score used in Iowa DOT's tool varies from the recommended use of the median score in the Facility Condition Assessment Guidebook. This was chosen due to a limitation in the tool platform. However,

updates the facility scores to a management dashboard in real time, so that managers and DOT staff are able to see which facilities have been assessed and overall performance. The scores from the condition assessments are used by staff to paint a clearer picture of the performance characteristics of assets throughout Iowa and to inform decisions about asset replacement.
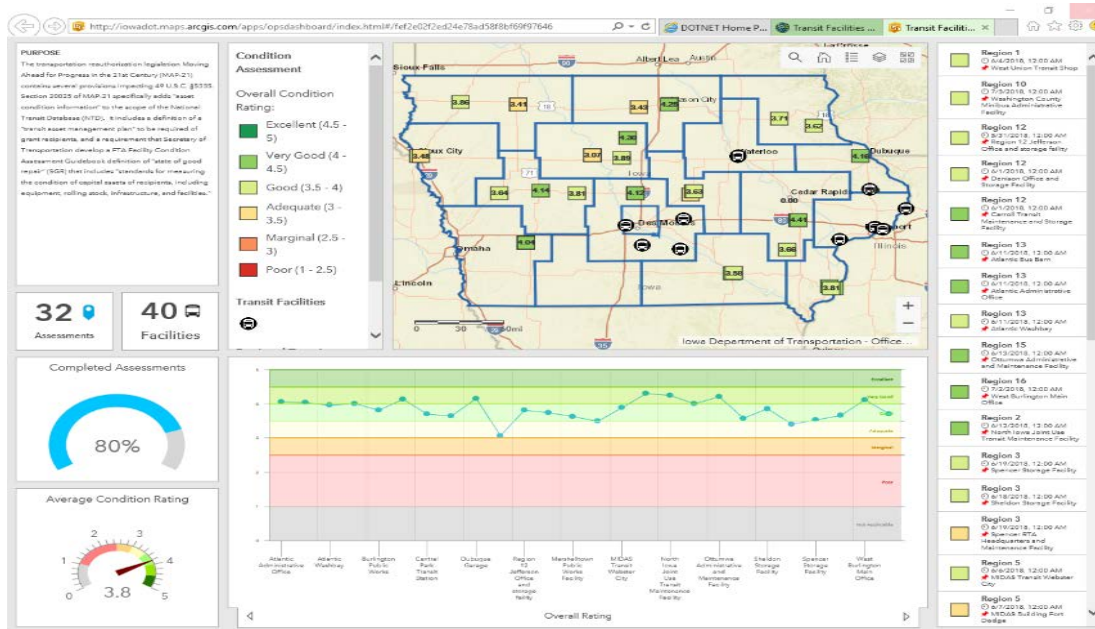

Figure 3. Overview of the app's dashboarding feature indicating how the assessments look statewide. (Source: Iowa DOT).

A major priority throughout the development of the application was to **ensure a consistent data collection process across the State**. Iowa DOT determined that there would be a risk for disparities if multiple people conducted the data collection, which led the agency to prioritize/develop/create a centralized reporting process. To test the statewide data collection process, two staff members completed independent condition assessments of the same facility. The overall facility scores were within 0.02 points of one another, which gave the agency confidence that the app's structure would foster an effective condition assessment process. As there are only 31 facilities across the State covered in Iowa DOT's Group Plan, this task was manageable for a single staff member to conduct all of the condition assessments. Larger agencies may require several individuals to carry out the condition assessment; however, with proper training and testing, the tool will help provide reliable results in an efficient way.

Why it Matters

Iowa DOT's in-house development of the facility condition assessment app provides an example of how to save time and resources, while providing support to subrecipients and emphasizing consistency in reporting. The dashboard also provides a reliable and consistent data point about state of good repair for facilities in the state, providing valuable insight for decision-makers. Finally, Iowa DOT's app development process shows the opportunity to use technology to support implementing TAM and meeting the federal requirements. In particular, the detailed facility condition data is downloadable as a

---

results show little variation between the mean and median as Iowa DOT did not have significant outliers in facility types or scores.

spreadsheet, so it can be used for Group Plan target setting or to generate individualized reports for each subrecipient agency.

The app is in the early stages of deployment, but other transit agencies and State Departments of Transportation are investigating how this type of tool could be adapted to fit the needs of other agencies across the country.

Contact Information

Sree Mitra, Grants Manager, Office of Public Transit
Iowa Department of Transportation
Sreeparna.mitra@iowadot.us

Joe Drahos, Passenger Planning, Office of Systems Planning
Iowa Department of Transportation
joseph.drahos@iowadot.us