

Forfeiture Data Collection

Mobile App with Collector for ArcGIS

Allegan County GIS
www.allegancounty.org/gis

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0.1 Forfeiture Data Collection

0.1.1 Problem and Analysis

Background Treasurer department has an annual responsibility to properly document the tax forfeiture process. The LIS Department built an application in MS Access and MapInfo that consumed a daily export from BSA and was deployed to the field on a laptop. A digital camera was used for site photos and later imported into the laptop.

Statement of Problem Current Tax Forfeiture workflow is built on MapInfo software which has been replaced by ESRI software. The Forfeiture data collection application must be recreated in the ESRI framework.

Analysis Tax Forfeiture Application will facilitate:

- Mobile data collection on handheld device via Collector for ArcGIS configured with Allegan County GIS Portal (**device app**)
 - Device app will:
 - * Synchronize with data in the office (online)
 - * Navigate to forfeiture sites (offline)
 - * Collect data and photos of forfeiture sites (offline)
 - * Synchronize the collected data with data in the office (online)
- Daily form production and printing for each site visited with required data and images.

0.1.2 Design

Overview This Application utilizes Treasurer Department data to document the forfeiture process. An enterprise GIS deployment enables offline data collection by up to two users.

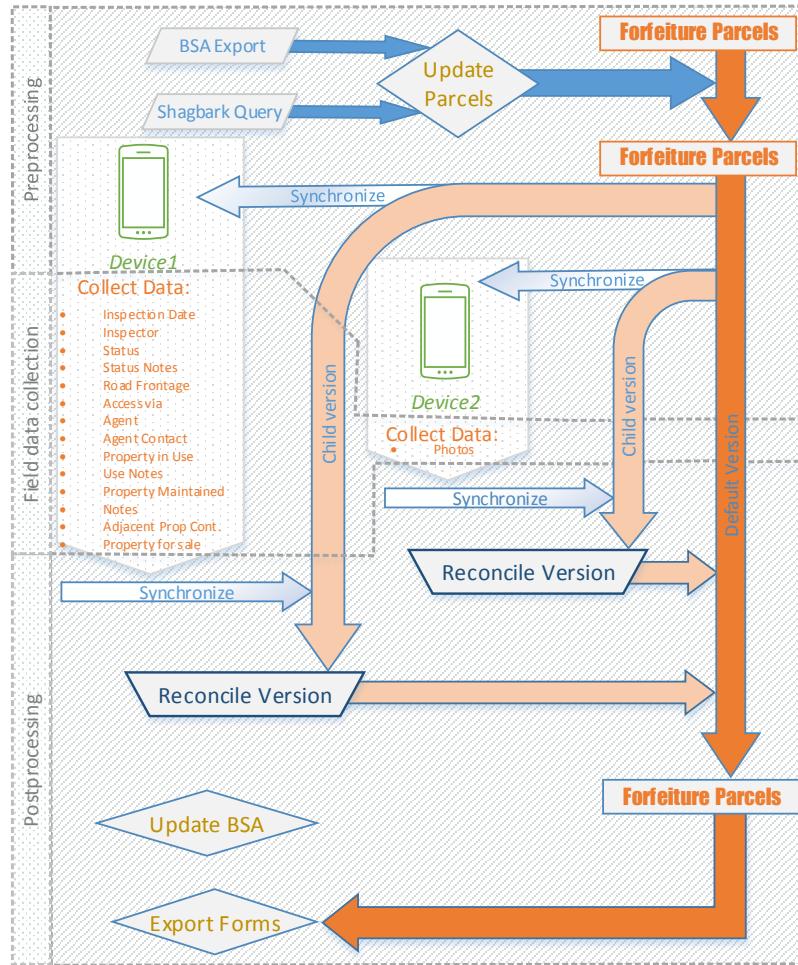


Figure 1: Project Design

There are three stages to daily workflow: Preprocessing, Field Collection, and Postprocessing. Forfeiture Parcels, is a map feature class that is processed in the office via the network and remotely via the internet.

Workflow Summary

Preprocessing The data is updated to match the Treasures data in BSAforfeiture.net and synchronized to two android mobile devices.

Field data collection The two mobile devices are used to collect info required, one for all the attributes, the other for photos.

Postprocessing The mobile devices are syncronized back to the network data and a form is exported for each site visited that day.

Technologies Used

BSA Data Details of parcels in the forfeiture process are managed in BSA Delinquent Tax.net. The Treasurer office does a BSA export of the parcels in need of a site visit in the preprocessing.

ArcGIS Desktop Tools are designed to preprocess and postprocess forfeiture parcel data for fieldwork. The user will execute a preprocess script tool that prepares the data for field deployment. After fieldwork, a post process script tool syncronizes data from the fieldwork with the live data on the Allegan County network.

ArcGIS Collector A free mobile application developed and tested on Android is deployed to the field for data collection. The application is configured to work offline(without an internet or cellular connection) by syncronizing before and after fieldwork.

ArcGIS Portal Webmaps and Apps Live data from a publishing enterprise geodatabase(ACPub), running on SQL Server database server (acintsql01) is provided through a feature service (REST service) named TaxReversionParcels. A webmap called the Forfeiture Field Map consumes the TaxReversionParcels feature service, exposing the data to editing. The Forfeiture Field Map is configured to work in the ArcGIS Collector App. The app downloads the webmap, allowing the user to collect the necessary information on each forfeiture parcel in the field disconnected and uploads the changes when reconnected.

Field Data Collection Three parts of the daily routine:

1. Pre-processing (in the office):
 - Export current forfeiture list from BSA
 - Update webmap layers with results from BSA export
 - Synchronize from webmap layers to field collection devices (**device app**)

2. Field data collection with device app:

- Navigation to forfeiture sites is aided by users location shown in map
- A Checklist of data points about the site
- Attach photos to the site
- Save results for synchronization in post-processing

3. Post-processing (in the office)

- Synchronize data and images collected in device app to webmap layers

Data Details

Location of Production Data

The data is located in ACPUB.

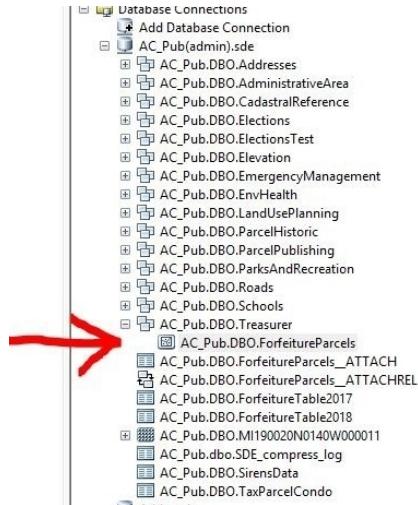


Figure 2: Live Data Location Screen-shot

ForfeitureParcels Feature Class

Collector for ArcGIS

Webmap Details

0.1.3 Hard Copy Record

0.1.4 User Manual

Admin Tasks

Setup Users in ArcGIS Users that will run Pre and Post processing scripts must be created and given privileges on ACPub Treasurer Feature Data Set.

Setup Users in Portal for ArcGIS Users that will use the Collector for ArcGIS must have profiles added to and managed in the Allegan County GIS Portal site.

Schema Change Procedure

Form Edits Procedure

Collection Device Setup

Camera Settings

Internet Settings

Collector Setup Details

Install Collector for ArcGIS

- Available from the Google Play Store



Figure 3: Download the App

Configure Collector

for Organization Website, Type:

`https://gis.allegancounty.org/
portal_webadaptor`

then:

Press Continue

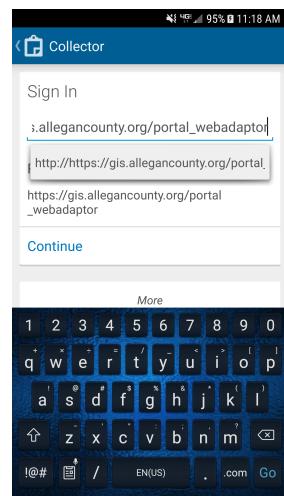


Figure 4: Collector Connection

Enter Credentials

then:

Press SIGN IN

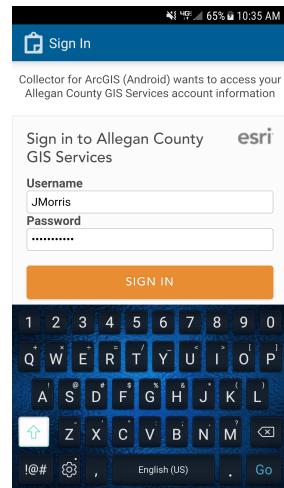


Figure 5: Enter Credentials

Download the Forfeiture Field Map

The Download option indicates it is not on the device but is available for offline use.

Press Download

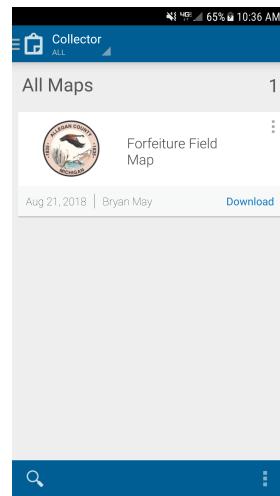


Figure 6: Collector Maps Menu

Specify work area to download

Note that a larger area takes longer to download but the basemap only needs to be downloaded once.

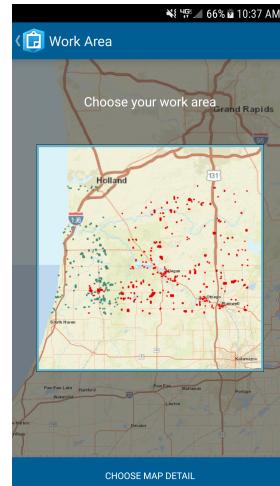


Figure 7: Choose Work Area (large)

Choose Map Detail

Zoom into the level of detail desired.

Press Download

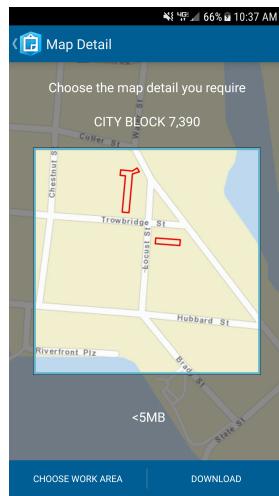


Figure 8: Choose Map Detail

Here is how the map should look on the device:

This area is ready for field data collection.



Figure 9: Map on Device

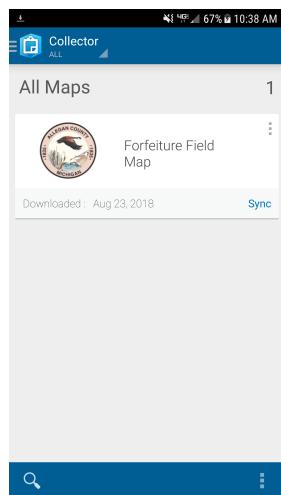
Daily Preprocessing Routine

Execute Preprocessing Script A tool in ArcGIS that:

- Exports current forfeiture list from BSA
- Updates webmap layers with results from BSA export

Synchronize the Forfeiture Field Map

Note the date and time:



Press Sync

Figure 10: Map Downloaded

Note the date and time

Map is now synchronized

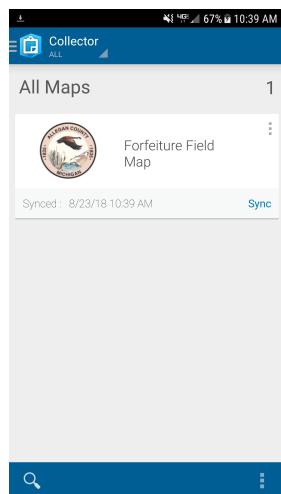


Figure 11: Map Synchronized

Forfeiture Data Collection

Forfeiture Parcels Data Details Attributes are of four entry types:

- prefilled
- autofill
- dropdown
- text box

In the Forfeiture Field Map, for each site visited, select the desired parcel, push the edit button and collect attributes. If the boxes are autofill, select from dropdown or typed.

Attribute List		
Field Name	Entry Type	Note
Property Number	Prefilled	NA
Inspection Date	Autofill or Dropdown	NA
Inspector	Dropdown	NA
Class	Prefilled	NA
Acres	Prefilled	NA
Address	Prefilled	NA
Status	Dropdown	NA
Status Notes	Open entry	254 Char limit
Road Frontage	Dropdown	Yes or No
Access via	Open entry	30 Char Limit
Agent	Open entry	30 Char Limit
Agent Contact	Open entry	30 Char Limit
Property in use	Dropdown	Yes or
Use Notes	Open entry	254 Char limit
Property Maintained	Dropdown	Yes or No
Notes	Dropdown	254 Char limit
Prop Contam	Dropdown	Yes or No
Notes	Open entry	254 Char limit
Adj Prop Contam	Dropdown	NA
Notes	Open entry	254 Char limit
Property for sale	Dropdown	Yes or No
Posted	Prefilled	in Pre and Postproc
InList	Prefilled	in Preproc
PostedInList	Prefilled	in Preproc
Print Today	Dropdown	Yes or No

Table 1: Dataset Details

Device 1 Field Operation

In the Forfeiture Field Map, for each site visited, select the desired parcel, push the edit button and then edit attributes.

This figure shows the data collection interface. Device one will be used to add data to all of the boxes. Touch the boxes to enter text or select a dropdown.

The screenshot displays the 'Collector for ArcGIS' application interface. At the top, it shows a red square icon with the text 'Tax Reversion Parcels: 01-008-005-00' and 'Area: 88.66 Acres'. Below this is a list of data fields:

- Inspection Date: August 14, 2018
- Inspector: Christina Andress
- Status: Occupied
- Status Notes: notes.....notes
- Road Frontage: Yes
- Access Via: Dumont Rd
- Agent: (empty)
- AgentContact: (empty)
- Use Notes: (empty)
- Notes: (empty)
- Property For Sale: No

At the bottom right is a 'Print Today' button.

Figure 12: Device 1 Data Entry

Device 2 Field Operation

In the Forfeiture Field Map, for each site visited, select the desired parcel, push the edit button and then the add attachment button. Select photo and take a photo.

This figure shows the data collection interface. Device two will be used to add photos to a parcel.

The screenshot shows the 'Collector for ArcGIS' application interface. At the top, it displays the parcel information: 'Tax Reversion Parcels: 01-008-005-00' and 'Area: 88.66 Acres'. Below this, there are several input fields and dropdown menus for entering notes and property status. The 'Attachments' section at the bottom lists four attachments named 'attachment1' through 'attachment4', each with its file size (e.g., 1.2 MB, 858 KB) and a download icon. A fifth item, 'Photo', is listed with a file size of 22 KB and a camera icon, indicating it is a new attachment being added.

Attachment	File Size
attachment1	1.2 MB
attachment2	858 KB
attachment3	1.1 MB
attachment4	878 KB
Photo	22 KB

Figure 13: Device 2 Data Entry

Daily Postprocessing Routine Back at the office

Synchronize Webmap In Collector for ArcGIS, push the sync button on the Forfeiture Field Map

Execute Postprocessing Script A tool in ArcGIS that:

- Reconciles geodatabase versions
- Generates forms for each site visited

0.1.5 Software

ESRI Licensed Products

ArcDesktop Users of this application need a license to ArcGIS Standard level.

Enterprise ArcGIS Deployment This app uses ArcGIS Server and ArcGIS Portal.

Collector for ArcGIS Developed and tested on Android(7.0). Collector is available at the Google Play Store.