

# Forfeiture Data Collection

Mobile App with Collector for ArcGIS

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Allegan County GIS  
[www.allegancounty.org/gis](http://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**Statement of Problem** Current Tax Forfeiture workflow is built on MapInfo software which has been replaced by ESRI software.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.

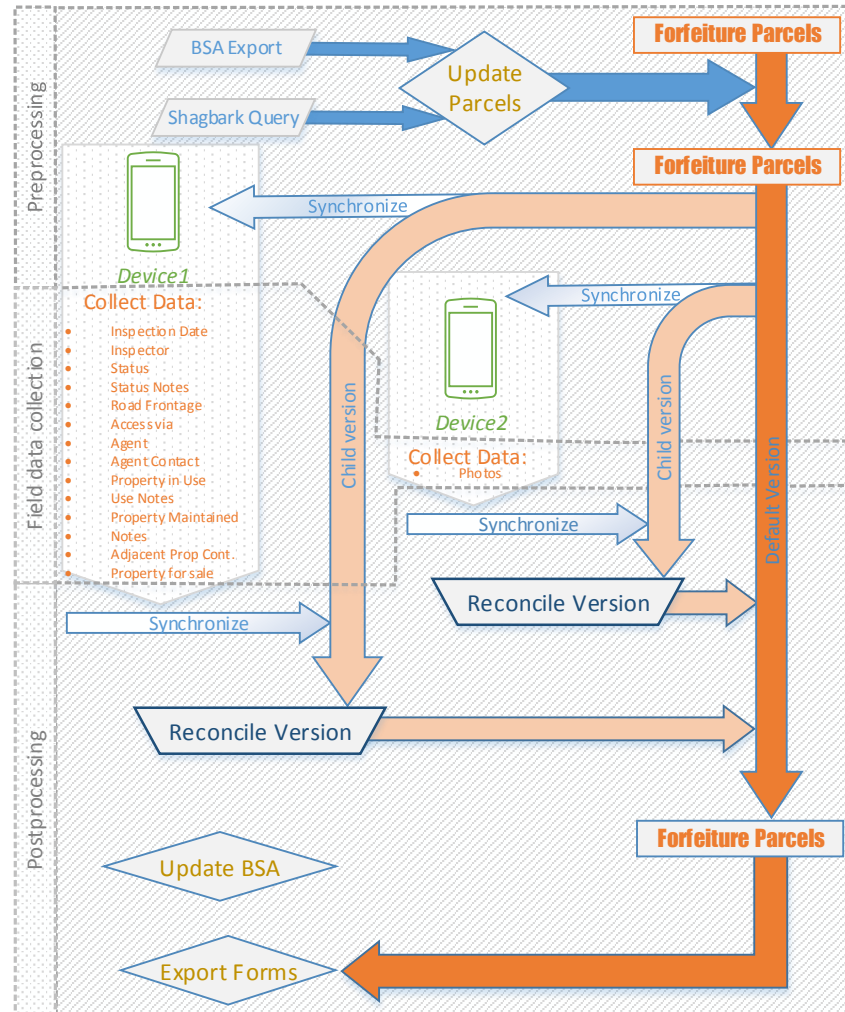


Figure 1: Project Design

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 synchronized 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 synchronizes 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 synchronizing 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 TaxReversion-Parcels. 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.

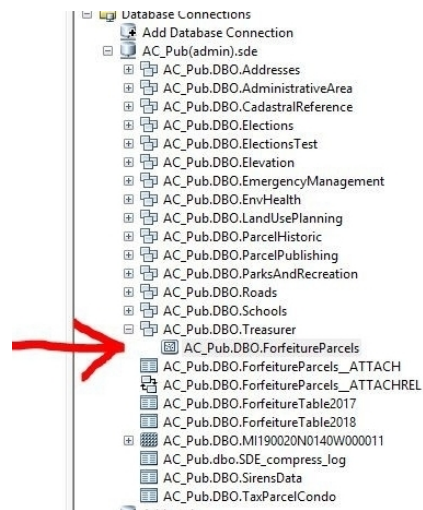


Figure 2: Live Data Location Screenshot

**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.

##### Collector Setup Details

###### Install Collector for ArcGIS

- Available from the Google Play Store

###### Configure Collector

- Connect to Allegan County GIS

– Choose or add the connection:

[https://gis.allegancounty.org/portal\\_webadaptor](https://gis.allegancounty.org/portal_webadaptor)

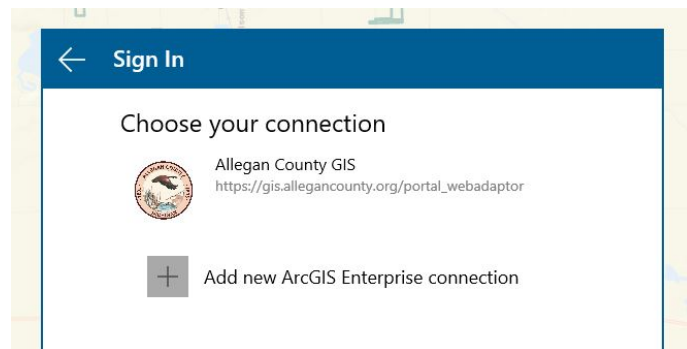


Figure 3: Collector Connection Screenshot

- Username is JMorris or CAndress
- Password: (enter password)
- Find the map Forfeiture Field Map under Treasury Services
- Download the field map
- Select area needed and detail needed and download the webmap

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

## 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.

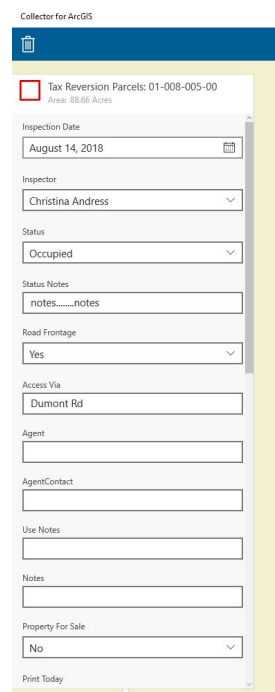
Attribute List		
Field Name	Entry Type	Note
Property Number	Prefilled	NA
Inspection Date	Autofill or Dropdown	NA
Inspector	Dropdown	NA
Class	Prefilled	NA
Acres	Prefilled	NA
Address	Prefilled	NA
Status	Dropdown	NA
Status Notes	Open entry	254 Char limit
Road Frontage	Dropdown	Yes or No
Access via	Open 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, a blue header bar contains the text 'Collector for ArcGIS' and a trash icon. Below this, a yellow banner shows a red square icon, the text 'Tax Reversion Parcels: 01-008-005-00', and 'Area: 58.66 Acres'. The main form area is white and contains several fields: 'Inspection Date' with a date picker showing 'August 14, 2018'; 'Inspector' with a dropdown menu showing 'Christina Andress'; 'Status' with a dropdown menu showing 'Occupied'; 'Status Notes' with a text input field containing 'notes.....notes'; 'Road Frontage' with a dropdown menu showing 'Yes'; 'Access Via' with a text input field containing 'Dumont Rd'; 'Agent' with an empty text input field; 'AgentContact' with an empty text input field; 'Use Notes' with an empty text input field; 'Notes' with an empty text input field; and 'Property For Sale' with a dropdown menu showing 'No'. At the bottom of the form is a 'Print Today' button.

Figure 4: 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, there is a blue header with a trash icon and the text 'Collector for ArcGIS'. Below this is a red square icon followed by the text 'Tax Reversion Parcels: 01-008-005-00' and 'Area: 88.66 Acres'. The main form area contains several fields: 'Property in Use' (a dropdown menu), 'Adj Property Contaminated Notes' (a text input field), 'Property Contaminated' (a dropdown menu), 'Notes' (a text input field), 'Adjacent Property Contaminated' (a dropdown menu), 'Property Contaminated Notes' (a text input field), and 'Property Maintained' (a dropdown menu). Below these fields is a section titled 'Attachments'. It contains two icons: a camera icon and a folder icon. Underneath these icons is a list of attachments: 'attachment1' (1.2 MB), 'attachment2' (858 KB), 'attachment3' (1.1 MB), 'attachment4' (878 KB), and 'Photo' (22 KB). Each attachment has a small icon to its left and a download arrow to its right.

Figure 5: 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.