

# Mailing Address Change Automation

Project Implemented October 1, 2024

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Van Buren County Digital Information Department

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## Executive Summary

The Van Buren County Digital Information Department launched the Mailing Address Change Automation project to modernize a fragmented, manual process that previously relied on phone calls, emails, and spreadsheets. These methods were time-consuming, error-prone, and inconsistent across local units.

By implementing JotForm, Google Sheets, and App Script automation, the department created a centralized, efficient workflow that allows both the public and local units to submit address change requests digitally. These submissions are reviewed, approved, and processed through a system that now automatically formats and distributes data to relevant parties, including the BS&A system.

This solution has:

- Saved approximately **86 staff hours annually**
- Eliminated redundant manual data entry and formatting
- Improved communication between the County and its 29 local units
- Created a repeatable automation framework for future projects

## Background & Problem Statement

Prior to this project, the process of updating a taxpayer's mailing address in Van Buren County was decentralized, inconsistent, and manual. Requests for address changes came through a variety of sources: phone calls to the Digital Information Department (DID), emails from local treasurers, spreadsheets submitted periodically by local units, returned mail from the post office, and even faxes or physical letters. Each of these required individual attention and manual data entry, increasing the likelihood of missed updates or data inconsistencies.

Because not all of the County's 29 local units chose to receive the name and address export from the County's systems, coordination was uneven. A taxpayer might contact the County directly but fail to inform their local township, or vice versa. In either case, there was no guarantee that all relevant parties had matching, up-to-date records. This inconsistency had the potential to disrupt service delivery, cause delays in tax communication, and generate additional workload for staff across departments.

Furthermore, once address changes were received, DID staff had to manually consolidate data from various formats, validate and approve requests, and prepare them for upload into the BS&A system. The process was not only time-consuming—taking up to three minutes per record—but also vulnerable to errors and data loss due to the variety of input methods and lack of a centralized workflow.

The need for a streamlined, reliable, and standardized method of collecting and processing address changes was clear. This project was initiated to solve that challenge by introducing automation and structured digital workflows.

## Project Goals

The primary goal of the Mailing Address Change Automation project is to create a centralized and reliable system for receiving, reviewing, and processing address change requests across Van Buren County. This system replaces a fragmented, manual workflow with a consistent digital process that improves efficiency and accuracy.

The project specifically aims to:

- Consolidate address change submissions into a single, digital entry point for both public users and local government staff.

- Reduce the amount of manual data entry performed by the Digital Information Department.
- Ensure timely and consistent notifications to relevant township, city, and village officials following an address update.
- Improve the accuracy of mailing address records in the BS&A system by automating formatting and import steps.
- Provide a framework that can be reused or adapted for similar workflows in other County departments.

Success is measured in terms of time saved, reduction in manual tasks, improved service reliability, and the potential for reusability in future automation efforts.

## Tools & Technologies

The Mailing Address Change Automation project uses a combination of cloud-based tools and lightweight scripting to build an efficient, repeatable workflow. Each tool is selected for its ease of integration, low maintenance requirements, and flexibility in adapting to future needs.

### JotForm

JotForm serves as the front-end interface for collecting address change requests. It offers two customized forms: one for the general public and a condensed version for internal use by township, city, and village officials. JotForm supports conditional logic, field validation, and automatic email notifications, ensuring accurate submissions and reducing the need for follow-up communication.

JotForm also powers the approval workflow. Each week, the addressing administrator reviews new submissions in JotForm and approves or denies each request. Upon approval, JotForm sends an automated email to a dedicated Gmail service account, containing the submission ID. This triggers a downstream update in the data pipeline.

### Google Sheets

Google Sheets receives form submissions in real time, with separate sheets handling internal and public forms. A custom column tracks the approval status of each record. Using equations and filters, the sheets automatically separate and prepare approved submissions by type—owner changes or taxpayer changes.

## Google Apps Script

Custom Apps Scripts perform several key automation tasks:

- Periodically scan the Gmail inbox for approval emails from JotForm, then update the corresponding record's status in Google Sheets.
- Merge and format the approved records into two standardized CSV files.
- Apply headers compatible with the BS&A system import format.
- Email the final CSVs to the designated staff member each Monday morning.

## BS&A Software

BS&A remains the final destination for updated address records. While the import itself is performed manually, the CSVs are pre-formatted and ready for direct upload, requiring only a few minutes of staff time.

Together, these tools form a highly integrated, automated pipeline that significantly reduces manual work and ensures data quality across multiple departments.

## Solution Design

The automation pipeline for managing mailing address changes is designed to standardize intake, streamline approvals, and eliminate redundant manual work. It uses a sequence of cloud-based tools to receive, filter, approve, and format data, ultimately preparing it for import into BS&A with minimal staff time.

### Form Submission and Intake

Submissions begin with two JotForms—one for public use and one for internal staff. The public form guides taxpayers through detailed address questions using conditional logic and validations. The internal version is a shortened form optimized for frequent use by local government officials.

Submissions from both forms populate Google Sheets: “Internal Form Responses” and “Public Form Responses.” From there, formulas filter the data into four specialized sheets:

- Internal Owners
- Internal Taxpayers
- Public Owners

- Public Taxpayers

These filtered sheets prepare data based on record type to meet BS&A's required import structure. Here is a generalized version of the formula used in each filtered sheet:

```
=ARRAYFORMULA(
  UPPER(
    FILTER(
      {source range},
      record type column = "Owner" or "Taxpayer",
      approval status column = "Approved"
    )
  )
)
```

A specific example from the “Internal Owners” sheet:

```
=ARRAYFORMULA(
  UPPER(
    FILTER(
      {'Internal Form Responses'!A:A, 'Internal Form Responses'!D:D, 'Internal Form
      Responses'!R:Z, 'Internal Form Responses'!F:F, 'Internal Form Responses'!G:G, 'Internal
      Form Responses'!H:H, 'Internal Form Responses'!I:I, 'Internal Form Responses'!O:O},
      'Internal Form Responses'!E:E = "Owner",
      'Internal Form Responses'!Q:Q = "Approved"
    )
  )
)
```

## Approval Workflow

Each week, the addressing administrator logs into JotForm to approve or deny submissions. Upon approval, JotForm sends a uniquely formatted email to a dedicated Gmail account managed by the department. An Apps Script monitors this inbox, extracts the submission ID from the email body, and updates the corresponding row in the Google Sheet to reflect the approval status.

The approval-checking script looks like this (see Appendix for full source):

```
var threads = GmailApp.search('subject:"...Approval Trigger"...');
var submissionIDMatch = body.match(/Submission ID(\d+)/);
...
sheet.getRange(k + 1, statusColumnIndex + 1).setValue(statusValue);
```

This step ensures only approved records appear in the next processing phase. (See Appendix for a screenshot of the approval workflow in JotForm.)

## Automated Consolidation and Formatting

Once records are approved and filtered, another Apps Script runs weekly to merge, format, and email the data. It reads from the four filtered sheets, checks that records have not already been sent, and creates two separate CSVs: one for owner changes and one for taxpayer changes.

The script also marks the rows as “Sent” to prevent duplicates and immediately deletes the temporary files from Drive to avoid clutter. A segment of the logic appears below:

```
const filteredData = [  
  [...headers, 'ParcelMaster.namechgdate'],  
  ...processRows(filterRowsByStatus(range1)),  
  ...processRows(filterRowsByStatus(range2))  
];  
  
MailApp.sendEmail({  
  to: emailAddresses,  
  subject: subject,  
  body: body,  
  attachments: attachments  
});
```

Full script source is provided in the Appendix.

## Final Import into BS&A

Each Monday morning, the staff member responsible for BS&A imports downloads the two CSV files from email. These files are already formatted to match BS&A’s required structure and can be imported with minimal intervention—typically within two minutes.

ParcelMaster.pnum	ParcelMaster.taxpaystreetaddr	ParcelMaster.taxpacity	ParcelMaster.taxpaysate	ParcelMaster.taxpazip	ParcelMaster.taxpaycareof	ParcelMaster.namechgdate
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## Process Visualization

A process flow diagram illustrating this workflow from submission to import is included here:

## Implementation Steps

The implementation of the Mailing Address Change Automation project proceeds in a phased, iterative fashion. The team prioritizes rapid prototyping and internal testing, allowing for early validation of functionality before rolling out broader process changes.

### Phase 1: Process Mapping and Requirements Gathering

The project begins with a detailed review of the existing address change workflow. The Digital Information Department maps out all known intake sources—calls, emails, spreadsheets, faxes, and returned mail—to identify bottlenecks and duplication points. Meetings with internal stakeholders, including the addressing administrator and representatives from local units, clarify the critical requirements for a unified system.

### Phase 2: Form Design and Testing

Using JotForm, the department creates two form versions: a public form and an internal-use-only version. The public form is designed to guide taxpayers through the submission process with clarity and minimal error potential. The internal form is optimized for speed and ease of use by staff who enter changes regularly.

Forms are tested internally using sample data, with feedback cycles focused on field clarity, conditional logic accuracy, and error handling. The forms are published only after approval by key users in both the DID and local units.

### Phase 3: Data Pipeline Configuration

Google Sheets integrations are configured next. Each form feeds into its own raw response sheet. From there, four filtered sheets are set up—Internal Owners, Internal Taxpayers, Public Owners, and Public Taxpayers—each with formulas that select only approved and properly categorized records.

At this stage, the App Script that checks for email-based approvals is deployed. It is tested by manually triggering approval notifications from JotForm and confirming that the correct rows update within Google Sheets. Staff validate that the approval status column filters records as expected.

### Phase 4: Output and Import Automation

A second App Script is developed to generate the final CSVs and email them weekly to the staff member handling BS&A imports. This script includes logic to format the output correctly, track which records have been sent, and clean up temporary files from Google Drive. After testing, it is set to run on a Saturday morning schedule.

## Phase 5: Soft Launch and Monitoring

The project rolls out in a soft launch format. Internal users begin submitting test requests using the new forms, while staff monitor both the JotForm interface and Google Sheets for any inconsistencies. Additional validation checks are added to the forms during this time to address common user mistakes (e.g., missing parcel numbers or incorrect email formatting).

## Phase 6: Full Rollout and Documentation

Once the system proves stable, the project moves into full production. Local units are notified and given access to the internal form, while the public form is posted to the County's website. Documentation is created for future reference, including this white paper, internal instructions for BS&A import, and backups of all form configurations and scripts.

## Results & Impact

The Mailing Address Change Automation project delivers measurable improvements in efficiency, accuracy, and service quality across Van Buren County's address management process. The redesigned system eliminates multiple forms of manual handling, reduces communication gaps, and frees up staff time for higher-value work.

### Time Savings

By shifting from a manual intake and data entry process to an automated pipeline, the project saves approximately **86 staff hours per year**. The breakdown below reflects improvements across different request channels:

<i>Task</i>	<i>Before (min/request)</i>	<i>After (min/request)</i>	<i>Time Saved (min)</i>	<i>Incidents/Year</i>	<i>Annual Time Saved (hrs)</i>
<i>Phone Address Changes</i>	2.5	0	2.5	624	26.0
<i>Spreadsheet/Email/Fax/Mail Changes</i>	1.5	0	1.5	1,976	49.4
<i>Data Consolidation</i>	15.0	0	15.0	52	13.0
<i>Form Approval</i>	0	1.0 sec	-0.02	2,600	-0.7
<i>CSV Import to BS&amp;A</i>	0	2.0	-2.0	52	-1.7
<b><i>Total Time Saved</i></b>					<b>~86.0 hrs/year</b>

## Reduction in Manual Processes

The project eliminates several repetitive tasks, including:

- Hand-keying data from email, spreadsheets, and phone conversations
- Manually formatting data for BS&A imports
- Manually consolidating records for weekly processing

These reductions allow staff to focus on data quality review and high-impact support for local units.

## Improved Data Accuracy and Communication

With form validation, conditional logic, and automated status notifications, the project improves the quality and completeness of address submissions. All 29 local units receive timely updates when changes occur in their jurisdiction, reducing the chance of data mismatches between County and local records.

## Repeatable Framework

Perhaps most importantly, the project establishes a reusable model for process automation in Van Buren County. The form-template, data-filtering, and scripting model can be adapted for other workflows in the County where structured submissions and centralized approvals are needed.

## Challenges & Lessons Learned

While the Mailing Address Change Automation project achieves its core objectives, several challenges arise during development and implementation. These challenges help refine the team's approach and inform future automation projects.

### Challenge: JotForm's Integration Limitations

JotForm does not natively update Google Sheets based on form approval status. Submissions are pushed to the sheet immediately upon form submission, regardless of whether they are ultimately approved. This limitation complicates filtering for finalized records and introduces a risk of processing unapproved data.

### Solution:

The team develops a workaround using email notifications and a custom Apps Script that monitors a Gmail account. When an approval or denial is issued through JotForm, a

uniquely formatted email is sent to the service account. The script scans for these messages, extracts the submission ID, and updates the corresponding record in Google Sheets. Although this adds an extra component, it works reliably once implemented and becomes a reusable pattern.

### Lesson:

Automated workflows often require creative bridges between tools. Maintaining flexibility in tool selection and being willing to augment platform limitations with custom scripts helps preserve overall system simplicity while meeting specific process needs.

## Challenge: Record Categorization and Filtering

Because address changes in BS&A must be categorized separately for owners and taxpayers, the submission data needs to be divided and processed accordingly. A single intake form must feed into four separate output views, depending on the form type (public or internal) and the change type (owner or taxpayer).

### Solution:

The team builds four parallel Google Sheets views using structured formulas to filter based on form source and approval status. This approach supports clean separation and formatting for import-ready CSVs while keeping the system modular and easy to maintain.

### Lesson:

Automation is not just about eliminating tasks — it's about rethinking data structure to align with downstream systems. Planning output formats early in the design process avoids downstream complications.

## Challenge: Managing Duplicate or Resubmitted Requests

Some address changes are submitted multiple times, either because applicants were unsure if the request went through or because local units and taxpayers both submitted for the same property.

### Solution:

While this is partly mitigated by the approval review step, the team remains cautious when importing data to BS&A. The staff member performing imports visually inspects the weekly batch and flags potential duplicates manually before upload.

## Lesson:

Automated workflows should always include points of human review where judgment is critical. Pairing automation with oversight creates both speed and reliability.

## Challenge: Single-Submission Limitations for Multi-Parcel Users

Initial form usage analysis reveals that some taxpayers and municipal users submit the form multiple times to update several parcels with the same address change. To streamline their experience, the team updates the form to allow submission of multiple parcel numbers in a single request.

## Solution:

JotForm is enhanced to accept up to ten parcel numbers per submission. The CSV export script is modified to create separate entries for each parcel while keeping the address information unified.

## Lesson:

User behavior can reveal workflow design flaws that aren't apparent during development. Observing form use in practice allows the team to make impactful usability improvements post-launch.

## Future Opportunities

While the Mailing Address Change Automation system functions effectively in its current form, several enhancements are identified that could improve its accuracy, scalability, and ease of use.

### Improving Multi-Township Notifications

Currently, when a user enters multiple parcel numbers into a single submission, the system uses only the first parcel's prefix to determine which township, city, or village receives the notification email. This design simplifies routing but introduces a potential gap: if the listed parcels span multiple jurisdictions, only one receives the update.

Although this issue has not yet caused any known problems, the team recognizes the limitation and plans to refine the notification logic in a future update. Enhancements under consideration include:

- Parsing each parcel number to determine its jurisdiction

- Sending individualized notifications to each relevant local unit
- Including a summary of all parcels affected in each notice

## Direct Integration with BS&A

Currently, address changes are imported into BS&A via CSV files. Although this step is fast (less than two minutes), a direct integration—such as writing to the underlying SQL database or using an available API—could eliminate this manual step altogether.

However, based on the current volume of changes and limited time savings (estimated at 100 minutes annually), this improvement is not a high priority. It remains a viable enhancement for future system evolution or in contexts where higher volumes or additional data synchronization needs emerge.

## Template Expansion to Other Workflows

The technical and procedural foundation established in this project provides a strong model for other process automation efforts across the County. Opportunities include:

- Integrating similar approval workflows for change-of-name requests or corrections to ownership records
- Automating internal interdepartmental data requests
- Building intake-and-approval loops for permit applications, service tickets, or document reviews

The use of JotForm, Google Sheets, and Apps Script provides a low-cost, high-flexibility platform that scales well across departments.

## Long-Term Data Resilience

By embedding key forms, workflows, and scripts in this report and its appendices, the department ensures long-term continuity. If tools are replaced, or if digital records are lost or changed, this documentation provides a blueprint for rebuilding the process with minimal institutional memory loss.

# Appendix

## Forms

Internal



## Van Buren County DID

This form is for AUTHORIZED users ONLY to make mailing address changes within Van Buren County.

### User Information



Enter your email in case there are issues with the data.

example@example.com

## Property Information



Enter a maximum of 10, if more than 10 please submit another address change request form.

Parcel Number 1 \*

80-01-222-123-12

Format MUST be exactly as it is shown in the tax bill.  
Ex. 80-00-000-000-00

Parcel Number 2

Format MUST be exactly as it is shown in the tax bill.  
Ex. 80-00-000-000-00

Is this an OWNER address change? OR a TAXPAYER ONLY address change? \*

- Owner  
 Taxpayer only

New Mailing Address Owner Only



Owner Street Address \*

219 Paw Paw Street

Owner City \*

Paw Paw

Owner State \*

MI

Owner Zip Code \*

49079

Care Of



Would you like to specify a "Care Of" name to be added to documents that are mailed by the county? \*

No



Submission



## **\*\*Disclaimer\*\***

The Van Buren County Digital Information Department is not responsible for ensuring the accuracy of the data entered into this form. Please verify all information carefully before submission to ensure its accuracy.

---

Submit

Public



## Van Buren County DID

Complete the below form to request a mailing address change for your owned or authorized property. Acceptance or rejection will be sent via the email provided in this form.

### Requestor Information



Name \*

First Name

Last Name

Email \*

All updates, including rejections, will be sent to this email. Ensure it is a monitored email inbox.  
example@example.com

Phone Number \*

Please enter a valid phone number.

Are you the Owner? \*

Relationship to Owner \*

## Property Information



**Enter a maximum of 10, if more than 10 please submit another address change request form.**

### Parcel Number 1 \*

Format MUST be exactly as it is shown in the tax bill.  
Ex. 80-00-000-000-00

### Parcel Number 2

Format MUST be exactly as it is shown in the tax bill.  
Ex. 80-00-000-000-00

### Parcel Number 3

Format MUST be exactly as it is shown in the tax bill.  
Ex. 80-00-000-000-00

**How do I find my parcel number?**

Show Example



**HARTFORD TOWNSHIP**

61310 CR 687  
HARTFORD MI 49057

Property Address: **57150 CR 681**



**Legal Description:**

176 13-3-16 433-96 474-149 THAT PT OF NE 1/4 LY SLY OF RED ARROW HWY. \*\*\*  
CONTAINS STRUCTURE ON LEASED LAND #80-11-999-055-00

Operating Fiscal Years	
State	10-1 thru 9-30
County	10-1 thru 9-30
School	7-1 thru 6-30
Township/City	7-1 thru 6-30

TAXES COLLECTED AT THE TOWNSHIP HALL ON MONDAYS FROM 2-6PM,  
ALSO FROM 9AM - 5PM ON DECEMBER 27 AND FEBRUARY 29.

ON MARCH 1, TAXES ARE TURNED OVER TO THE COUNTY FOR  
COLLECTION WITH AN ADDITIONAL 4% ADMINISTRATION FEE & 1%  
INTEREST PER MONTH ADDED.

THE DUE DATE OF THESE TAXES CAN BE DEFERRED UNTIL APRIL 30, 2024  
WITHOUT INTEREST, IF THIS IS YOUR HOMESTEAD, AND YOU ARE AT LEAST  
62 OR DISABLED AND YOU HAVE APPLIED FOR AND NOT YET RECEIVED  
THE MICHIGAN PROPERTY TAX CREDIT BEFORE FEB 15TH. A COPY OF THE  
INCOME TAX FORM MUST ACCOMPANY YOUR APPLICATION FOR THE  
DEFERRAL.

**2023 Winter Property Tax Statement**



Parcel Number: **80-11-013-001-00**

Taxable Value: 0

State Equalized Value: 0

School District: **80120 - HARTFORD PUBLIC SCHOOL DIS**

% PRE/MBT: 0 %

Property Class: **201 - COMMERCIAL-IMPROVED**

TAXING AUTHORITY	RATE	AMOUNT
HARTFORD SC OPER	18.00000	EXEMPT
Subtotal		0.00
Administration Fee		0.00
<b>Total Amount Due by 02/29/2024</b>		<b>\$0.00</b>

To avoid late charges, payment must be received by  
the close of business day or postmarked by the US  
postmaster no later than February 29, 2024

Please Return Lower Portion



TREASURER - 269-

**2023 Tax Remittance**

Please return this voucher with payment.

Please do not staple or paper clip your check to this stub.

Make checks payable to:  
**HARTFORD TOWNSHIP**

Parcel Number: 80-11-013-001-00

2023 Winter Tax Due:

**\$0.00**

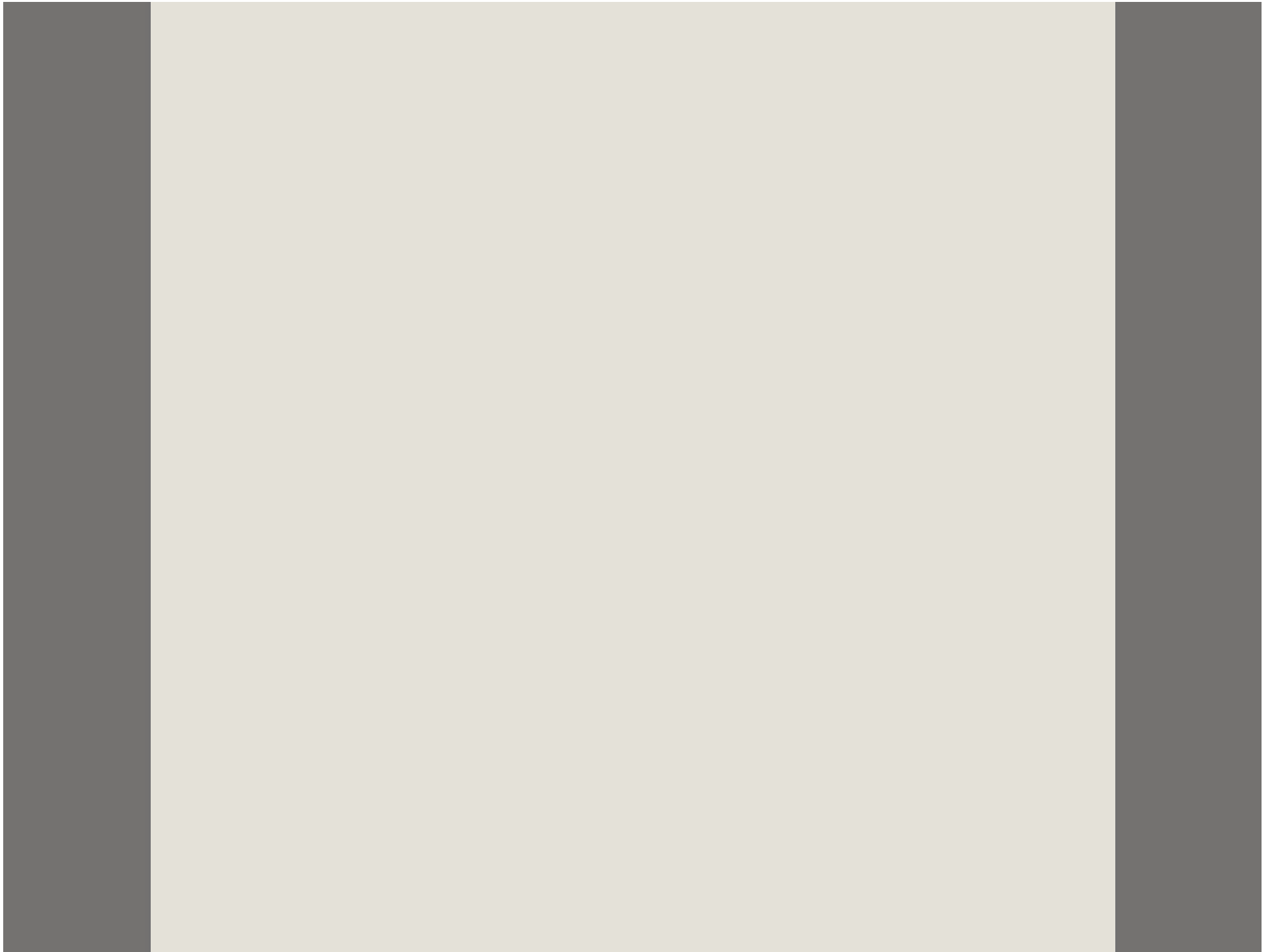


**HARTFORD TOWNSHIP**

Treasurer

61310 CR 687

HARTFORD MI 49057



Pay this tax to:



Statement Date

05/02/2024

Delinquent Tax for Property Number:



80-00-000-000-00

TAXPAYER NOTE: Are your name & mailing address correct? If not, please make corrections below. Thank You.

Due if paid by	05/31/24
Due if paid by	06/30/24
Due if paid by	07/31/24

TAXPAYER

STREET

CITY, STATE ZIP

Make check payable to:

VAN BUREN COUNTY TREASURER

Amount Remitted: \_\_\_\_\_

Property Address: STREET ADDRESS

PLEASE RETURN THIS PORTION WITH YOUR PAYMENT. THANK YOU.

Please detach along perforation. Keep the bottom portion for your records.

### VAN BUREN COUNTY DELINQUENT TAX NOTICE

		DELINQUENT TAXES DUE		
TAX YEAR	BASE TAX	TOTAL DUE IF PAID BY 05/31/24	TOTAL DUE IF PAID BY 06/30/24	TOTAL DUE IF PAID BY 07/31/24
2023				
<b>TAXPAYER</b> STREET CITY, STATE ZIP				
<b>PROPERTY INFORMATION</b> Property Number: 80-00-000-000-00 School Dist: School District Property Address: STREET CITY LEGAL DESCRIPTION:  *** BALANCE OF DESCRIPTION ON FILE ***		TOTAL		
Your personal check is accepted for property taxes. If your		You are officially notified that the 2023 tax described herein became delinquent on March 1, 2024. A monthly interest charge of 1% (12% per year) of the tax due and a 4% administration fee is currently being applied. On October 1, 2024 a \$15.00 pre-foreclosure statutory fee is		

check is dishonored, the taxes will continue as unpaid and an additional fee charged.

**PARTIAL PAYMENTS ARE WELCOMED.**

For credit card or electronic check payments, visit [VanBurenCountyMI.gov](http://VanBurenCountyMI.gov) and select Property and Tax Information and follow the instructions. Please note a 3% fee is added to credit card payments and a flat fee is charged for electronic checks.

applied. On October 1, 2024 a \$10.00 pre-foreclosure statutory fee is added. If 2023 taxes remain unpaid on March 1, 2025, the property will be forfeited and additional fees as well as an increase in the interest rate to 1.5% per month (18% per year) will be applied. 2023 taxes must be paid in full by March 31, 2026 or the property will be foreclosed and sold at auction. FORECLOSURE IS FINAL.

New Mailing Address Owner



Owner Street Address \*

Owner City \*

Owner State \*

Owner Zip Code \*

Care of



Would you like to specify a "Care Of" name to be added to documents that are mailed by the county? \*

Please Select





## Authorization - To be completed by the person who filled out this form.

I, the person identified in the "Form Submitter Name" section below, attest that all information provided in this form is true, accurate, and complete to the best of my knowledge. I understand that by submitting this form, and entering my name in the "Form Submitter Name" section below, I am authorized to request the above changes.

---

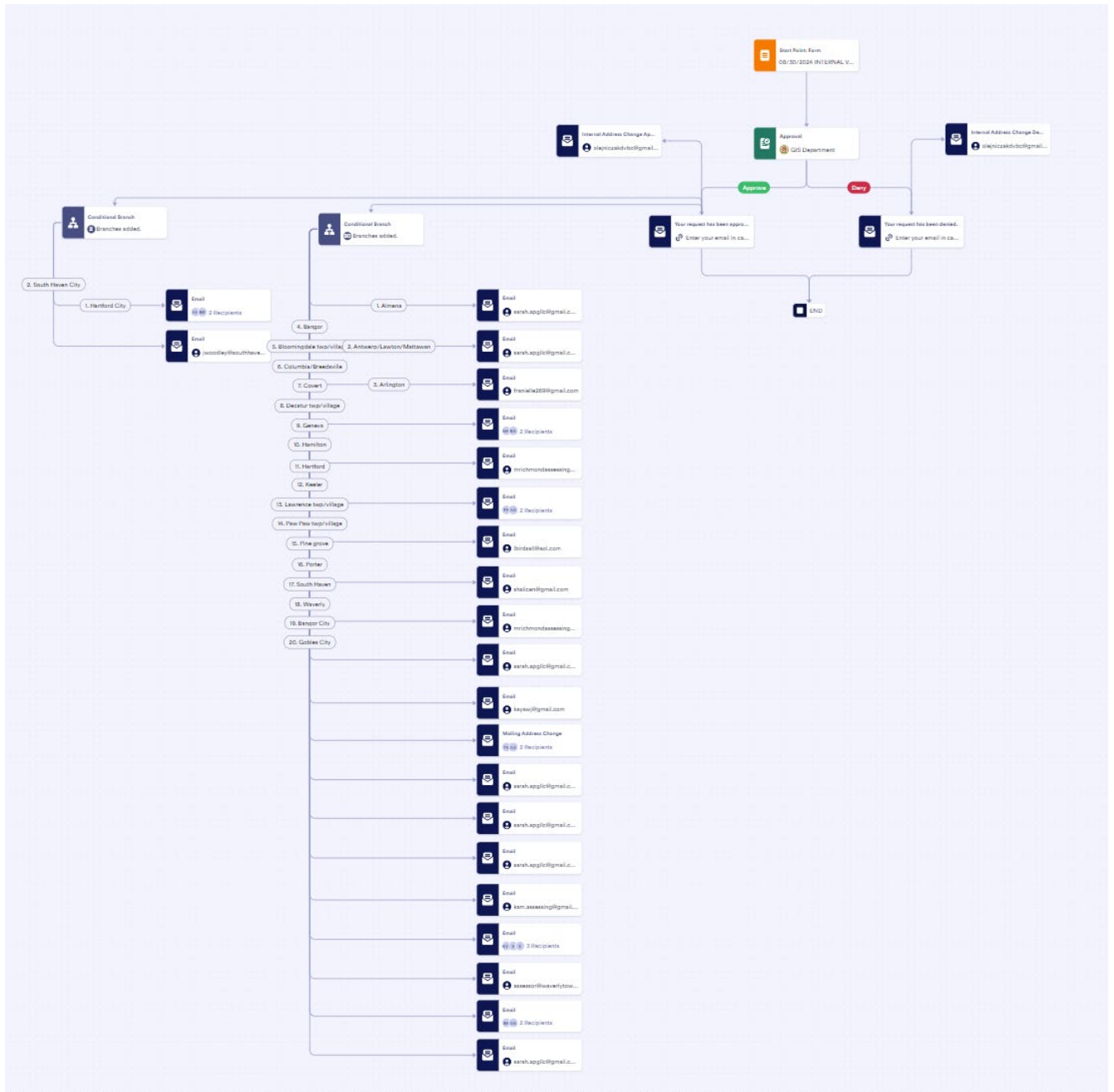
Form Submitter Name \*

First Name

Last Name

# Processes

## Approval Flow





Code

Apps Script

## Filter.gs

```
//This function checks for approval emails and then marks those rows in the "raw submission" sheets of the workbook by changing the status column to
"Approved." The filter in the other sheets then uses that column to only populate with the approved submissions.
function checkForApprovalEmails() {
  // Search for threads with the specific subject patterns, excluding those already labeled as 'ProcessedAddressChangeTriggers'
  var threads = GmailApp.search('subject:"Internal Address Change Approval Trigger" OR subject:"Public Address Change Approval Trigger" OR
subject:"Internal Address Change Denial Trigger" OR subject:"Public Address Change Denial Trigger" -label:ProcessedAddressChangeTriggers');

  var sheetInternal = SpreadsheetApp.getActiveSpreadsheet().getSheetByName('Internal Form Responses');
  var sheetPublic = SpreadsheetApp.getActiveSpreadsheet().getSheetByName('Public Form Responses');
  var subjectPattern = /(Internal|Public) Address Change (Approval|Denial) Trigger/;

  for (var i = 0; i < threads.length; i++) {
    var messages = threads[i].getMessages();

    for (var j = 0; j < messages.length; j++) {
      var message = messages[j];
      var subject = message.getSubject();
      var match = subject.match(subjectPattern);

      if (match) {
        var sheetType = match[1]; // Extract 'Internal' or 'Public' from the subject
        var actionType = match[2]; // Extract 'Approval' or 'Denial' from the subject
        var body = message.getPlainBody();
        Logger.log("Email Body: " + body);

        var submissionIDMatch = body.match(/Submission ID(\d+)/);

        if (submissionIDMatch) {
          var submissionID = submissionIDMatch[1];
          Logger.log("Submission ID extracted: " + submissionID);

          // Determine the correct sheet based on the Sheet Type
          var sheet, submissionColumnIndex, statusColumnIndex;

          if (sheetType === 'Internal') {
            sheet = sheetInternal;
            submissionColumnIndex = 27; // Column AB in the Internal Sheet (index 18 for column 19)
            statusColumnIndex = 16; // Column Q in the Internal Sheet (index 16 for column 17)
          } else if (sheetType === 'Public') {
            sheet = sheetPublic;
            submissionColumnIndex = 35; // Column AJ in the Public Sheet (index 26 for column 27)
            statusColumnIndex = 24; // Column Y in the Public Sheet (index 24 for column 25)
          } else {
            Logger.log("Unrecognized sheet type: " + sheetType);
            continue; // Skip this email if sheet type is not recognized
          }

          // Set the status based on the action type
          var statusValue = (actionType === 'Approval') ? 'Approved' : 'Denied';

          // Search for the row with the matching Submission ID in the chosen sheet
          var data = sheet.getDataRange().getValues();
          for (var k = 0; k < data.length; k++) {
            if (data[k][submissionColumnIndex] == submissionID) {
              // Update the Status column in the same row
              sheet.getRange(k + 1, statusColumnIndex + 1).setValue(statusValue);
              Logger.log("Row " + (k + 1) + " updated successfully with status: " + statusValue + " for " + sheetType + " sheet.");
            }
          }
        }

        // Add the 'ProcessedAddressChangeTriggers' label to the processed thread
        var processedLabel = GmailApp.getUserLabelByName('ProcessedAddressChangeTriggers');
        if (!processedLabel) {
          // Create the label if it doesn't exist
          processedLabel = GmailApp.createLabel('ProcessedAddressChangeTriggers');
        }
        threads[i].addLabel(processedLabel);
        Logger.log("Email thread moved to the 'ProcessedAddressChangeTriggers' label.");
      }
    }
  }
}
```

## Code.gs

```
function sendCSV() {
  // Escape fields with commas by wrapping them in double quotes
  function escapeCommas(field) {
    if (typeof field === 'string' && field.includes(',')) {
      return `"${field}"`;
    }
    return field;
  }

  // Format the date to MM/DD/YYYY format
  function formatDate(dateString) {
    const date = new Date(dateString);
    return date.toLocaleDateString('en-US');
  }

  // Create merged and filtered CSV data from two sheets
  function getFilteredCSV(sheet1Name, sheet2Name, headers) {
    const sheet1 = SpreadsheetApp.getActiveSpreadsheet().getSheetByName(sheet1Name);
    const sheet2 = SpreadsheetApp.getActiveSpreadsheet().getSheetByName(sheet2Name);
    const range1 = sheet1.getDataRange().getValues();
    const range2 = sheet2.getDataRange().getValues();

    // Filter rows based on the "Sent" status column
    function filterRowsByStatus(rows) {
      const statusColumnIndex = rows[0].length - 1;
      return rows.filter((row, index) => {
        if (index === 0) return false; // Skip header row
        return row[statusColumnIndex] !== 'Yes'; // Only include rows that haven't been sent
      });
    }

    // Process rows to generate CSV data, handling multiple parcel numbers
    function processRows(rows) {
      const processedRows = [];
      rows.forEach(row => {
        const dateFormatted = formatDate(row[0]); // Format the date from the first column
        const addressData = row.slice(1, -1).map(escapeCommas); // Extract address data, skipping parcel numbers and status column
        const statusColumnIndex = row.length - 1;

        // Iterate over parcel number columns (2nd to 11th columns)
        for (let i = 1; i <= 10; i++) {
          const parcelNumber = row[i];
          if (parcelNumber && row[statusColumnIndex] !== 'Yes') {
            // Add a new row for each parcel number with the same address information
            processedRows.push([parcelNumber, ...addressData, dateFormatted]);
          }
        }
      });
      return processedRows;
    }

    // Filter and process data from both sheets
    const filteredData = [
      ...headers, 'ParcelMaster.namechgdate', // Add headers including name change date
      ...processRows(filterRowsByStatus(range1)),
      ...processRows(filterRowsByStatus(range2))
    ];

    // If there's no data, return an empty string
    if (filteredData.length === 1) {
      return "";
    }

    // Convert the filtered data to CSV format
    return filteredData.map(row => row.join(';')).join('\n');
  }

  // Mark rows as "Sent" in the specified sheet
  function markRowsAsSent(sheetName) {
    const sheet = SpreadsheetApp.getActiveSpreadsheet().getSheetByName(sheetName);
    const range = sheet.getDataRange();
    const values = range.getValues();
    const statusColumnIndex = values[0].length - 1;
  }
}
```

```

// Update only the "Sent" status column for each row that hasn't been sent yet
for (let i = 1; i < values.length; i++) {
  if (values[i][statusColumnIndex] !== 'Yes') {
    sheet.getRange(i + 1, statusColumnIndex + 1).setValue('Yes');
  }
}

// Define headers for owners and taxpayers CSV files
const ownersHeaders = [
  'ParcelMaster.pnum',
  'ParcelMaster.ownerstreetaddr',
  'ParcelMaster.ownercity',
  'ParcelMaster.ownerstate',
  'ParcelMaster.ownerzip',
  'ParcelMaster.ownercareof'
];

const taxpayersHeaders = [
  'ParcelMaster.pnum',
  'ParcelMaster.taxpaystreetaddr',
  'ParcelMaster.taxpaycity',
  'ParcelMaster.taxpaystate',
  'ParcelMaster.taxpayzip',
  'ParcelMaster.taxpaycareof'
];

// Generate CSV data for owners and taxpayers
const ownersCSV = getFilteredCSV('Internal Owners', 'Public Owners', ownersHeaders);
const taxpayersCSV = getFilteredCSV('Internal Taxpayers', 'Public Taxpayers', taxpayersHeaders);

let ownersFile = null;
let taxpayersFile = null;

const attachments = [];

// Create CSV files and add them as attachments if there is valid data
if (ownersCSV) {
  ownersFile = DriveApp.createFile('Owners.csv', ownersCSV, MIME_TYPE_CSV);
  attachments.push(ownersFile.getAs(MIME_TYPE_CSV));
}

if (taxpayersCSV) {
  taxpayersFile = DriveApp.createFile('Taxpayers.csv', taxpayersCSV, MIME_TYPE_CSV);
  attachments.push(taxpayersFile.getAs(MIME_TYPE_CSV));
}

```

```
// Set up email parameters
const emailAddresses = 'olejniczakd@vanburencountymi.gov, elsnerw@vanburencountymi.gov';
const subject = 'Automated CSV Export of Address Change Requests';
const body = 'Here are the address changes from the latest batch.';

// Send the email only if there are attachments
if (attachments.length > 0) {
  MailApp.sendEmail({
    to: emailAddresses,
    subject: subject,
    body: body,
    attachments: attachments
  });
}

// Delete the temporary files to keep Drive clean
if (ownersFile) {
  ownersFile.setTrashed(true);
}
if (taxpayersFile) {
  taxpayersFile.setTrashed(true);
}

// Mark the rows as "Sent" in all relevant sheets
markRowsAsSent('Internal Owners');
markRowsAsSent('Public Owners');
markRowsAsSent('Internal Taxpayers');
markRowsAsSent('Public Taxpayers');
}
}
```