Homeowners of America: Requirements and Requirements Test Plan Report

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Analysis and Logical Design of Information Systems

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Introduction

Homeowners of America is an organization dedicated to handling the financial and administrative affairs of various homeowners associations all over the country. They have requested that we design and implement an information system for them that would increase their productivity and allow them to grow as a company and take in more and more associations to manage. Before we can begin designing such a system, it is imperative that we have a clear understanding of the requirements of HOA, so that we can develop a system for them that will fulfill all of their requirements.

Methods Used

In order to determine the requirements of this system, we conducted a detailed noun analysis of the current system description we were given. We compiled a list of important terms and data types, and used that to create use cases which would describe the requirements of each facet of the system.

Data Dictionary

- Association file
  - Association Information
    - Association name
    - Association size
  - Required services
  - Association bylaws
    - Monthly fee
    - Payment period
      - Date due by
    - Late penalties
    - Allowed late period
- HOA services
  - Attend board meetings and distribute minutes
  - Manage financial information
  - Perform required maintenance and upkeep on community facilities
  - Communicate with homeowners about rule violations
  - Create and mail community newsletter
  - Maintain records of committee membership
- Homeowner account
  - Name
  - Address
  - Account number
- Association worksheet
  - Association name
  - Homeowner accounts
    - Name
    - Address
    - Account number

- Payment coupon
    - Payment amount
    - Check number
    - Account number
- Date received

Association fees

- Water fees
- Gas fees
- Electricity fees
- Trash Pickup fees
- Maintenance fees
- HOA fees

Delinquency Letter

- Delinquent record
    - Name
    - Address
    - Account number
- Delinquent amount due
- Number of delinquent days
- Late fee

Notice of Violation

- Homeowner accounts
- Complaint
- CC&Rs Violation
- Penalty warnings

List Reference Information

- Delinquent bill due date
- Allowed late period for delinquent account
- Current date

Committee List

Association name

Committee information

Committee names

Committee member names

Use Case Diagram

In figure 1, you can see a use case diagram, which describes all of the various actors that will need to interface with the system. This diagram also shows which actors will interact with which systems. This is an excellent way to demonstrate how the system will work and a very high level. You can see that some use cases are interacted upon by several actors, and some by no actors at all.

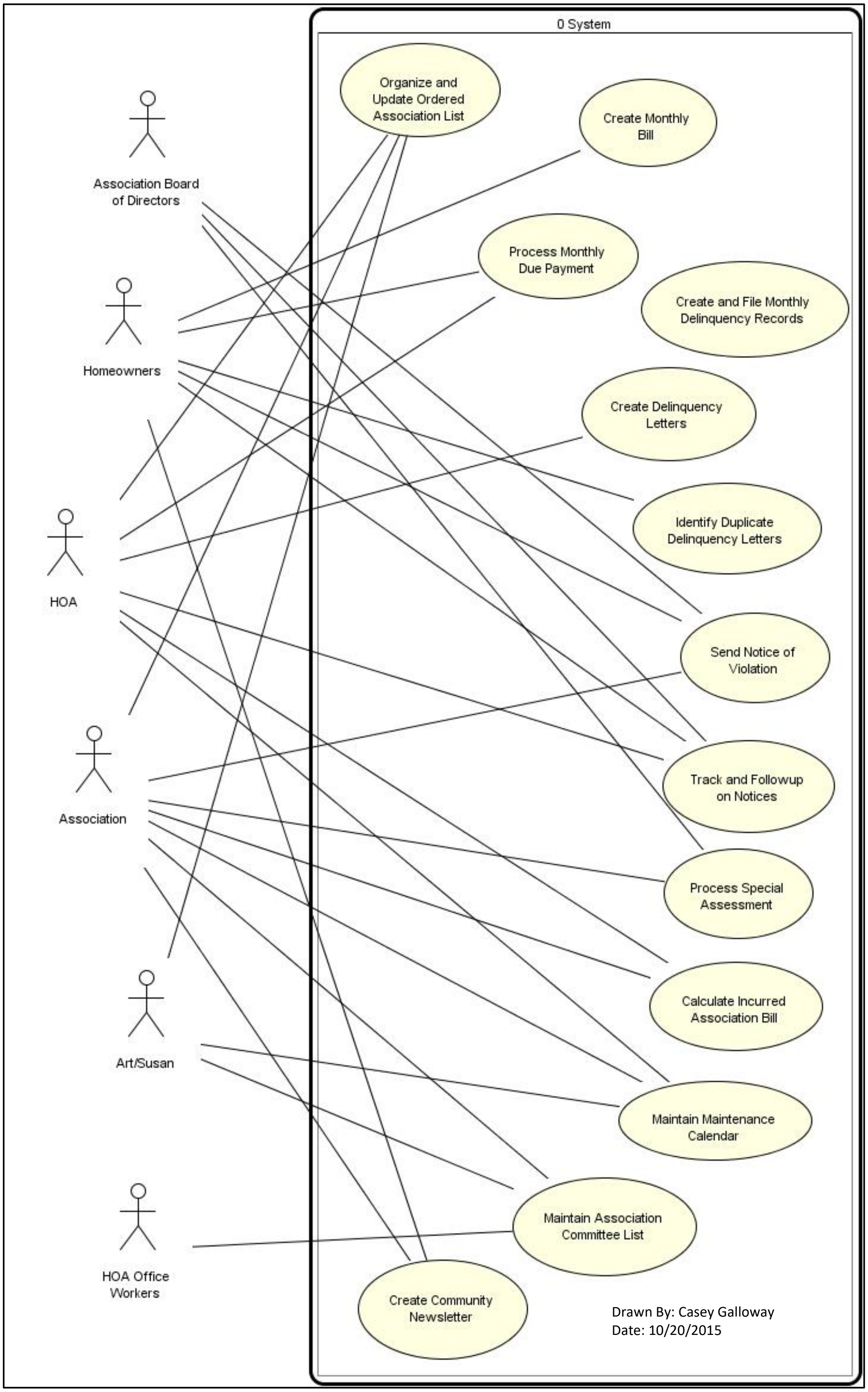

0 System
Association Board of Directors
Homeowners
HOA
Association
Art/Susan
HOA Office Workers
Organize and Update Ordered Association List
Create Monthly Bill
Process Monthly Due Payment
Create and File Monthly Delinquency Records
Create Delinquency Letters
Identify Duplicate Delinquency Letters
Send Notice of Violation
Track and Followup on Notices
Process Special Assessment
Calculate Incurred Association Bill
Maintain Maintenance Calendar
Maintain Association Committee List
Create Community Newsletter
Drawn By: Casey Galloway
Date: 10/20/2015

Figure 1: Use Case Diagram

Use Case Short Descriptions

The following is a list of every use case, including the names of the actors involved with that use case, and a short description of what that use case does.

1. Organize and Update Ordered Association List

   Actors: HOA, Association, Art/Susan

   Description: This allows the creation of new association files; then organizes and updates an orderly list of all associations from the raw data provided by each association.

2. Create Monthly Bill

   Actors: Homeowners

   Description: This creates each association's monthly bill for the homeowners.

3. Process Monthly Due Payment

   Actors: Homeowners, HOA

   Description: This describes how the monthly due payments are processed and recorded.

4. Create and File Monthly Delinquency Records

   Actors: *(none)*

   Description: This creates a list of records of delinquent homeowners for each month and files each delinquency records list under a distinct file name.

5. Create Delinquency Letters

   Actors: HOA

   Description: This creates the delinquency letters from the monthly delinquency records list.

6. Identify Duplicate Delinquency Letters

   Actors: Homeowners

   Description: This ensures that a delinquent homeowner is not receiving more than one delinquency letter by filtering through the printed delinquency letters and consolidating all the letters going to one homeowner into a single delinquency letter.

7. Send Notice of Violation

   Actors: Homeowners, Association board of directors, Association

   Description: This describes what happens when the HOA received a complaint about a homeowner.

8. Track and Follow-up on Notices

   Actors: HOA, Association board of directors, Homeowners

   Description: This describes how violation notices are tracked and followed up on, and what happens if a notice is not complied with.

9. Process Special Assessment

   Actors: Association board of directors, Association

   Description: This describes what happens when the association board of directors decides to impose a special assessment on the homeowners.

10. Calculate Incurred Association Bill

    Actors: Association, HOA

    Description: This calculates the amount incurred by each association that the HOA has to pay.

11. Maintain Maintenance Calendar

    Actors: Association, HOA, Art/Susan

    Description: This describes how the HOA maintenance calendar is maintained.

12. Maintain Association Committee List

    Actors: Association, Art/Susan, HOA office workers

    Description: This describes how an association can add a new committee or update an already existing committee in their committee list.

13. Create Community Newsletter

    Actors: Association, Homeowners

    Description: This describes when a community contracts HOA to create a newsletter.

Going down a level further are the complete specifications for each use case. This specification descriptions show more small details of the use case, such as the steps involved in completing the use case, and the various sources and destinations of data that is needed and output by that use case.

Use Case Specifications

Organize and Update Ordered Association List Use Case

Use Case Name: Organize and Update Ordered Association List	ID Number: 1
Short Description: This allows the creation of new association files; then organizes and updates an orderly list of all associations from the raw data provided by each association.	
Trigger: New association joins HOA or current association updates information Type: External / Temporal	

Major Inputs:	
Description	Source
Association information	Association
Required services	
Homeowner accounts	
Association bylaws template	HOA
Creation date	
Late penalty options	
Ordered association list	Customer File data store

Major Outputs:	
Description	Destination
Updated Association List	Customer file data store
Association file	Art/Susan Association file data store
Association worksheet	Separate worksheets data store

Major Steps Performed	Information for Steps
1. Get association information	Association information
2. Select required HOA services	HOA services
3. Determine association bylaws	Association bylaws
4. Create association file	Association information, Required services, Association bylaws
5. Update ordered association list	Ordered association list, Updated association list
6. Create individual association worksheet with a list of homeowners in the particular association.	Association name, Homeowner accounts, Association worksheet

Create Monthly Bill Use Case

Use Case Name: Create Monthly Bill	ID Number: 2
Short Description: This creates each association's monthly bill for the homeowners.	
Trigger: 10 business days prior to association's due date Type: External / [✓ Temporal]	

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Association credit	Association file data store	Printed bill	Homeowners
Association bylaws		Total amount due	Association file data store
Homeowner accounts	Separate worksheets data store	Bill due date	
Current month	HOA office workers		

Major Steps Performed	Information for Steps
1. Retrieve association bylaws	Association bylaws
2. Determine total amount due	Monthly fee, Association credit
3. Determine due date of bill	Date due by, Current month
4. Create the bill	Total amount due, Bill due date, Homeowner accounts, Late penalties
5. Print and mail the bill to homeowners of the association	Total amount due, Bill due date, Homeowner accounts, Late penalties
6. Update total amount due and bill due date in the association file	Total amount due, Bill due date

Process Monthly Due Payment Use Case

Use Case Name: Process Monthly Due Payment			ID Number: 3
Short Description: This describes how the monthly due payments are processed and recorded.			
Trigger: HOA receives due payment Type: External / Temporal			
Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Due payment	Homeowner	Association worksheet	Separate worksheets data store
Payment coupon			
Date received	HOA		
Association worksheet	Separate worksheets data store	Fiscal year worksheet	Archived worksheets data store
Major Steps Performed			Information for Steps
1. Receive due payment and payment coupon			Due payment, Payment coupon
2. Update association worksheet by recording date received, payment amount, and check number with the corresponding account number (from the payment coupon) under the appropriate month. If there is no payment coupon, look up most recent printout of homeowners and determine which association they are from.			Association worksheet, Date received, Payment coupon, Current month, Homeowner accounts
3. Archive each completed association worksheet at the end of every fiscal year.			Fiscal year worksheet. Association worksheet

Create and File Monthly Delinquent Records Use Case

Use Case Name: Create and File Monthly Delinquency Records	ID Number: 4
Short Description: This creates a list of records of delinquent homeowners for each month and files each delinquency records list under a distinct file name.	
Trigger: Biweekly check of association worksheet accounts due dates and late periods Type: External / [✓ Temporal]	

Major Inputs:

Description	Source
Association worksheet	Separate worksheets data store
Allowed late period	Association file data store
Bill due date	
Current date	HOA office workers

Major Outputs:

Description	Destination
Delinquency records list	Delinquencies file data store
List reference information	

Major Steps Performed	Information for Steps
1. Filter each month in the association worksheet for homeowners with no date received entered.	Association worksheet, Homeowner accounts
2. Create a list reference information file with relevant information pertaining to the delinquency records list.	Bill due date, Allowed late period, Current date, List reference information
3. Of the homeowners with no date received entered determine whether homeowners are past the end of the late period.	Bill due date, Allowed late period, Current date
4. Copy delinquent homeowner accounts into a separate file for each month.	Homeowner accounts, Delinquency records list
5. Save delinquency records list using the file-naming convention of association initials and month abbreviation.	Homeowner accounts, Association name, Selected month, Association initials, Month abbreviation

Create Delinquency Letters Use Case

<table>
<tr><td colspan="4">Use Case Name: Create Delinquency Letters</td><td colspan="2">ID Number: 5</td></tr>
<tr><td colspan="6">Short Description:
This creates the delinquency letters from the monthly delinquency records list.</td></tr>
<tr><td colspan="6">Trigger: Homeowner account is on the monthly delinquency records list
Type: [✓ External] / Temporal</td></tr>
<tr><td colspan="2">Major Inputs:</td><td colspan="4">Major Outputs:</td></tr>
<tr><td>Description</td><td>Source</td><td colspan="2">Description</td><td colspan="2">Destination</td></tr>
<tr><td>Delinquency records list</td><td>Delinquencies file data store</td><td colspan="2">Delinquency letters</td><td colspan="2">Identify Duplicate Delinquency Letters process</td></tr>
<tr><td>List reference information</td><td></td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td>Total amount due
Late penalties</td><td>Association file data store</td><td colspan="2"></td><td colspan="2"></td></tr>
<tr><td colspan="5">Major Steps Performed</td><td>Information for Steps</td></tr>
<tr><td colspan="5">1. Retrieve delinquency records list</td><td>Delinquency records list</td></tr>
<tr><td colspan="5">2. Calculate number of days payment is past late period</td><td>List reference information</td></tr>
<tr><td colspan="5">3. Retrieve original total amount due that was billed to the homeowner and late penalties</td><td>Total amount due, Late penalties</td></tr>
<tr><td colspan="5">4. Calculate delinquent amount due</td><td>Total amount due, Number of delinquent days, Late penalties</td></tr>
<tr><td colspan="5">5. Create delinquency letter for each homeowner with individual specific details. Send letters to be checked for multiple letters being sent to the same homeowner.</td><td>Delinquent amount due, Number of days late, Delinquent record, Original total amount due, Late fee</td></tr>
</table>

Identify Duplicate Delinquency Letters Use Case

<table>
<tr><td colspan="3">Use Case Name: Identify Duplicate Delinquency Letters</td><td>ID Number: 6</td></tr>
<tr><td colspan="4">Short Description:
This ensures that a delinquent homeowner is not receiving more than one delinquency letter by filtering through the printed delinquency letters and consolidating all the letters going to one homeowner into a single delinquency letter.</td></tr>
<tr><td colspan="4">Trigger: Delinquency letters are completed and are ready to be checked for duplicates
Type: External / Temporal</td></tr>
<tr><td colspan="2">Major Inputs:</td><td colspan="2">Major Outputs:</td></tr>
<tr><td>Description</td><td>Source</td><td>Description</td><td>Destination</td></tr>
<tr><td>Delinquency letters</td><td>Create Delinquency Letters process</td><td>Finalized delinquency letters</td><td>Homeowners</td></tr>
<tr><td colspan="3">Major Steps Performed</td><td>Information for Steps</td></tr>
<tr><td colspan="3">1. Receive delinquency letters from previous use case.</td><td>Delinquency letters</td></tr>
<tr><td colspan="3">2. Check letter recipients to find multiple letters going to the same homeowner.</td><td>Delinquency records, Delinquency letters</td></tr>
<tr><td colspan="3">3. Consolidate information from the multiple letters into a single delinquency letter.</td><td>Delinquency records, Delinquency letters</td></tr>
<tr><td colspan="3">4. Print all finalized delinquency letters (consolidated ones and non-duplicate ones) and send it to the homeowner.</td><td>Duplicate letters, Nonduplicate letters, Delinquency letters</td></tr>
</table>

Send Notice of Violation Use Case

Use Case Name: Send Notice of Violation	ID Number: 7
Short Description: This describes what happens when the HOA received a complaint about a homeowner.	
Trigger: HOA received a complaint Type: External / Temporal	

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Complaint	Homeowners Association board of directors	Notice of violation	Homeowner Violations file data store
Penalty warnings			
Covenants, Conditions, and Restrictions (CC&Rs)	Association		
Homeowner accounts	Separate worksheets data store		

Major Steps Performed	Information for Steps
1. Receive complaint about a homeowner	Complaint
2. Investigate the complaint; determine if it is valid and what the violation is.	Complaint, CC&Rs
3. Create notice of violation	Homeowner accounts, Complaint, Violation, Penalty warnings
4. Print and send the notice to the homeowner. Save a copy of notice in the data store.	Homeowner accounts, Complaint, Violation, Penalty warnings

Track and Follow-up on Notices Use Case

Use Case Name: Track and Follow-up on Notices	ID Number: 8
Short Description: This describes how violation notices are tracked and followed up on, and what happens if a notice is not complied with.	
Trigger: Every day starting 15 days after notice is sent Type: External / [✓ Temporal]	

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Notice of violation	Violations file data store	Second violation notice	Homeowner
Notice compliance status	HOA	Notice of violation File update	Violations File data store
Next board meeting date	Association board of directors		
Violation penalties			
Current date	HOA office workers		

Major Steps Performed	Information for Steps
1. Search violation notices for notices that are 15 days old.	Notices of violation, Violation sent date, Current date
2. Determine notice compliance status. If status is satisfactory then discard notice of violation.	Notice of violation, Notice compliance status, File update
3. Create second notice of violation, and send it to the homeowner.	Original violation, Next board meeting date, Violation penalties, Homeowner accounts

Process Special Assessment Use Case

<table>
<tr><td colspan="3">Use Case Name: Process Special Assessment</td><td>ID Number: 9</td></tr>
<tr><td colspan="4">Short Description:
This describes what happens when the association board of directors decides to impose a special assessment on the homeowners.</td></tr>
<tr><td colspan="4">Trigger: Receive a large, unexpected bill
Type: External / Temporal</td></tr>
<tr><td colspan="2">Major Inputs:</td><td colspan="2">Major Outputs:</td></tr>
<tr><td>Description</td><td>Source</td><td>Description</td><td>Destination</td></tr>
<tr><td>Unexpected bill</td><td>Association</td><td>Association worksheet</td><td>Separate worksheets data store</td></tr>
<tr><td>Association worksheet</td><td>Separate worksheets data store</td><td></td><td></td></tr>
<tr><td>Special assessment due date</td><td>Association board of directors</td><td>Special assessment bill</td><td>Homeowners</td></tr>
<tr><td colspan="3">Major Steps Performed</td><td>Information for Steps</td></tr>
<tr><td colspan="3">1. Receive large, unexpected bill</td><td>Unexpected bill</td></tr>
<tr><td colspan="3">2. Determine special assessment charged to each homeowner in the association</td><td>Unexpected bill fee, Number of homeowners, Special assessment charge</td></tr>
<tr><td colspan="3">3. Record special assessment in a new column of the association worksheet and update the worksheet with the new column.</td><td>Association worksheet, Special assessment column, Special assessment charge</td></tr>
<tr><td colspan="3">4. Create bill for special assessment and send it to the homeowners</td><td>Special assessment charge, Homeowner accounts, Special assessment due date</td></tr>
</table>

Calculate Incurred Association Bill Use Case

Use Case Name: Calculate Incurred Association Bills			ID Number: 10
Short Description: This calculates the amount incurred by each association that the HOA has to pay.			
Trigger: Association has bills that need to be paid Type: [✓ External] / Temporal			
Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Association bills	Association	Incurred bill	HOA
Association name	Association file data store		
Major Steps Performed			Information for Steps
1. Get association bill fees from each association			Association name, Association bills, Association bill fees
2. Calculate incurred bill			Association bill fees, Incurred bill
3. Send incurred bill to HOA			Incurred bill, Association name

Maintain Maintenance Calendar Use Case

Use Case Name: Maintain Maintenance Calendar	ID Number: 11
Short Description: This describes how the HOA maintenance calendar is maintained.	
Trigger: Association needs maintenance performed Type: External / Temporal	

Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Maintenance bid request	Association	Maintenance check reminder	Art/Susan
Maintenance contract		Maintenance calendar	Maintenance file data store
HOA employee schedules	HOA		
Maintenance calendar	Maintenance file data store		

Major Steps Performed	Information for Steps
1. Receive maintenance bid request from an association	Maintenance bid request
2. Enter maintenance contract into the maintenance calendar	Maintenance calendar, Maintenance contract, Contract start date, Estimated duration
3. Schedule HOA employee to perform and complete maintenance contract	HOA employee schedules, Maintenance contract, Maintenance calendar
4. Update maintenance calendar	Contracted HOA employee, Maintenance contract, Maintenance calendar, Contract end date
5. Send reminder to Art and/or Susan to do a maintenance check after the maintenance contract is completed	Maintenance contract, Maintenance calendar, Maintenance check reminder, Contract end date

Maintain Association Committee List Use Case

Use Case Name: Maintain Association Committee List			ID Number: 12
Short Description: This describes how an association can add a new committee or update an already existing committee in their committee list.			
Trigger: Committee information needs to be updated (new committee, new member, etc) Type: [✓ External] / Temporal			
Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Association name	Association	Committee list	Committee list data store
Committee names		Committee list printout	Art/Susan HOA office workers
Committee member names			
Updated committee information			
Committee list	Committee list data store		

Major Steps Performed	Information for Steps
1. Get committee names and committee member names	Committee information
2. Create committee list for individual association	Association name, Committee information, Committee list
3. Update committee list	Committee list, Updated committee information
4. Print out committee list	Association name, Committee information

Create Community Newsletter Use Case

Use Case Name: Create Community Newsletter			ID Number: 13
Short Description: This describes when a community contracts HOA to create a newsletter.			
Trigger: Association contracts for a community newsletter Type: External / Temporal			
Major Inputs:		Major Outputs:	
Description	Source	Description	Destination
Newsletter contract	Association	Community newsletter	Homeowners
Major Steps Performed			Information for Steps
1. Receive association’s newsletter contract			Newsletter contract, Association name
2. Determine contract details and requirements			Newsletter contract, Newsletter details and requirements
3. Create community newsletter and print it			Community, Community news, Contracted design

Requirements List

Though our analysis of the problem, we came up with a complete list of the requirements our system would need to fulfill. These requirements are all fulfilled by one or more of the final leaf processes of the system. Following is a complete list of all of the requirements of the system, both functional and nonfunctional.

Functional requirements

The functional requirements state the system requirements that were determined by analyzing the client requests and clarify what the system will do under each requirement.

1. Add New Associations
    - 1.1. The system will allow HOA partners and office workers to view an organized list of associations.
    - 1.2. The system will allow for new associations to be added to the organized list.
    - 1.3. The system will enable new associations to pick and choose their required HOA services.
    - 1.4. The system will reorganize the list when a new association is added.
2. Manage Association Financial Information
    - 2.1. The system will allow HOA partners and office workers to view each association's billing details.
    - 2.2. The system will prepare a monthly bill.
    - 2.3. The system will record a monthly due payment.
    - 2.4. The system will enable HOA office workers to record payment coupon information as they are received.
    - 2.5. The system will allow HOA office workers to quick search association member lists for a homeowner.
    - 2.6. The system will archive all data stored at the end of the fiscal year.
    - 2.7. The system will allow HOA office workers to add a special assessment fee.
    - 2.8. The system will create a new special assessment column in the association worksheet.
    - 2.9. The system will record special assessment in correct association worksheet.
    - 2.10. The system will prepare a statement of all bills incurred by an association.
    - 2.11. The system will allow HOA partners and office workers to view the incurred billing statement and its individual fees.
3. Manage Delinquency Letters
    - 3.1. The system will keep track of which homeowners are late on payments each month.
    - 3.2. The system will allow Margaret to view a list of delinquent homeowners.
    - 3.3. The system will enable Margaret to save and file list of delinquent homeowners with adopted file-naming convention.

3.4. The system will prepare monthly delinquency letters.

3.5. The system will find delinquency letters being sent to the same homeowner.

3.6. The system will create a consolidated delinquency list.

4. Manage Rule Violation Notices

4.1. The system will enable HOA office workers to view complaint.

4.2. The system will enable HOA office workers to view Covenants, Conditions, and Restrictions of each association.

4.3. The system will prepare a notice of violation.

4.4. The system will enable HOA office workers to view pending violation notices.

4.5. The system will conduct notice follow-up process.

4.6. The system will record notice compliance status.

4.7. The system will discard a notice with a satisfactory compliance status.

4.8. The system will create a second notice of violation if compliance status is unsatisfactory.

5. Manage Maintenance Calendar

5.1. The system will enable Rhonda to schedule maintenance contracts.

5.2. The system will create maintenance check reminders for Art and Susan.

5.3. The system will enable Rhonda to maintain routine maintenance calendars.

6. Maintain Committee Lists and Community Newsletters

6.1. The system will enable Julie to view and change committee lists for each association.

6.2. The system will record committee list documents.

6.3. The system will record association contracts for community newsletters.

6.4. The system will allow Julie to view newsletter contracts.

6.5. The system will enable Julie to create and design community newsletters.

Nonfunctional requirements

The nonfunctional requirements state what the system should do with respects to the operational, performance, security, cultural and political aspects of the system.

1. Operational
    1.1. The system should run on all computers being used by HOA.
    1.2. The system should automate mostly all office procedures.
    1.3. The system should incorporate will existing files and procedures.
    1.4. The system will should enable HOA to manage associations comfortably for at least the next five years.
2. Performance
    2.1. The system should reduce amount errors being made.
    2.2. The system should support all six HOA partners and office workers.
    2.3. The system should allow at least 10 more associations to be added.
    2.4. The system should speed up completion of office procedures.
    2.5. The system should not create more work for the HOA office workers.
3. Security
    3.1. Only Julie can access and edit committee lists and community newsletters.
    3.2. Only HOA partners and office workers can access, view, and edit any association-related files. (i.e. no HOA maintenance employees)
    3.3. Only Rhonda can access and update maintenance calendars.
4. Cultural and Political
    4.1. N/A

Requirements Tracking

In order to demonstrate how each final leaf process supports the requirements of the system, a requirements tracking table was created. As requirements are met, they are checked off the list, and the processes that fulfil that requirement are recorded. Due to spacing constraints we split up the complete requirements tracking table into smaller requirements tracking tables for each use case. These smaller tracking tables appear as Tables 1 through 13.

Table 1: Organize and Update Ordered Association List Requirements Tracking

	Use Cases	1.1.1	1.1.2.1	1.1.2.2	1.1.2.3	1.1.2.4	1.1.3	1.2	1.3.1	1.3.2
Requirements										
Add New Associations		X	X	X	X	X	X	X	X	X
Manage Association Financial Information			X	X	X					
Manage Delinquency Letters			X	X	X	X				
Manage Rule Violation Notices										
Manage Maintenance Calendar							X			
Maintain Committee Lists and Community Newsletters										X

Table 2: Create Monthly Bill Requirements Tracking

	Use Cases	2.1	2.2.1	2.2.2	2.3	2.4.1	2.4.2
Requirements							
Add New Associations							
Manage Association Financial Information		X	X	X	X	X	X
Manage Delinquency Letters		X		X	X		X
Manage Rule Violation Notices		X			X		
Manage Maintenance Calendar							
Maintain Committee Lists and Community Newsletters							

Table 3: Process Monthly Due Payment Requirements Tracking

	Use Cases	3.1	3.2.1.1.1.1	3.2.1.1.1.2	3.2.1.1.3.1	3.2.1.1.3.2	3.2.1.1.3.3	3.2.1.1.2	3.2.1.2	3.2.2.1	3.2.2.2	3.2.2.3.1	3.2.2.3.2	3.2.2.3.3	3.2.2.3.4	3.3.1	3.3.2	3.3.3
Requirements																		
Add New Associations																		
Manage Association Financial Information		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manage Delinquency Letters									X		X			X	X			
Manage Rule Violation Notices																		
Manage Maintenance Calendar																		
Maintain Committee Lists and Community Newsletters																		

Table 4: Create and File Monthly Delinquency Records Requirements Tracking

	Use Cases	4.1.1	4.1.2	4.2.1	4.2.2	4.2.3.1	4.2.3.2	4.2.3.3	4.2.4	4.3.1	4.3.2	4.4.1	4.4.2	4.4.3	4.5
Requirements															
Add New Associations															
Manage Association Financial Information				X	X										
Manage Delinquency Letters		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manage Rule Violation Notices															
Manage Maintenance Calendar															
Maintain Committee Lists and Community Newsletters															

Table 5: Create Delinquency Letters Requirements Tracking

	Use Cases	5.1	5.2.1	5.2.2	5.2.3	5.3.1	5.3.2	5.3.3	5.4
Requirements									
Add New Associations									
Manage Association Financial Information					X	X	X	X	
Manage Delinquency Letters		X	X	X	X	X	X	X	X
Manage Rule Violation Notices									
Manage Maintenance Calendar									
Maintain Committee Lists and Community Newsletters									

Table 6: Identify Duplicate Delinquency Letters Requirements Tracking

	Use Cases	6.1.1	6.1.2	6.2.1	6.2.2	6.2.3	6.3
Requirements							
Add New Associations							
Manage Association Financial Information					X	X	
Manage Delinquency Letters		X	X	X	X	X	X
Manage Rule Violation Notices							
Manage Maintenance Calendar							
Maintain Committee Lists and Community Newsletters							

Table 7: Send Notice of Violation Requirements Tracking

	Use Cases	7.1	7.2.1	7.2.2	7.3.1	7.3.2	7.3.3	7.3.4	7.4
Requirements									
Add New Associations									
Manage Association Financial Information									
Manage Delinquency Letters									
Manage Rule Violation Notices		X	X	X	X	X	X	X	X
Manage Maintenance Calendar									
Maintain Committee Lists and Community Newsletters									

Table 8: Track and Follow-up on Notices Requirements Tracking

	Use Cases	8.1.1	8.1.2	8.1.3	8.1.4	8.2.1	8.2.2	8.3.1	8.3.2
Requirements									
Add New Associations									
Manage Association Financial Information									
Manage Delinquency Letters									
Manage Rule Violation Notices		X	X	X	X	X	X	X	X
Manage Maintenance Calendar									
Maintain Committee Lists and Community Newsletters									

Table 9: Process Special Assessment Requirements Tracking

	Use Cases	9.1	9.2.1	9.2.2	9.3.1	9.3.2	9.3.3	9.4
Requirements								
Add New Associations								
Manage Association Financial Information		X	X	X	X	X	X	X
Manage Delinquency Letters								
Manage Rule Violation Notices								
Manage Maintenance Calendar								
Maintain Committee Lists and Community Newsletters								

Table 10: Calculate Incurred Association Bill Requirements Tracking

	Use Cases	10.1	10.2.1	10.2.2	10.2.3	10.2.4
Requirements						
Add New Associations						
Manage Association Financial Information		X	X	X	X	X
Manage Delinquency Letters						
Manage Rule Violation Notices						
Manage Maintenance Calendar						
Maintain Committee Lists and Community Newsletters						

Table 11: Maintain Maintenance Calendar Requirements Tracking

	Use Cases	11.1	11.2	11.3	11.4.1.1	11.4.1.2	11.4.1.3	11.4.1.4	11.4.2	11.5.1	11.5.2.1	11.5.2.2	11.5.2.3	11.5.3
Requirements														
Add New Associations														
Manage Association Financial Information														
Manage Delinquency Letters														
Manage Rule Violation Notices														
Manage Maintenance Calendar		X	X	X	X	X	X	X	X	X	X	X	X	X
Maintain Committee Lists and Community Newsletters														

Table 12: Maintain Association Committee List Requirements Tracking

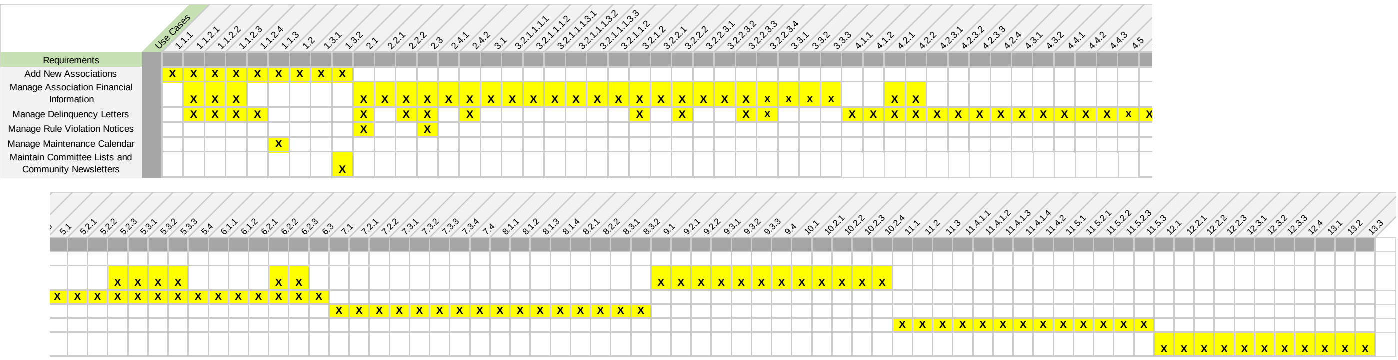
	Use Cases	12.1	12.2.1	12.2.2	12.2.3	12.3.1	12.3.2	12.3.3	12.4
Requirements									
Add New Associations									
Manage Association Financial Information									
Manage Delinquency Letters									
Manage Rule Violation Notices									
Manage Maintenance Calendar									
Maintain Committee Lists and Community Newsletters		X	X	X	X	X	X	X	X

Table 13: Create Community Newsletter Requirements Tracking

	Use Cases	13.1	13.2	13.3
Requirements				
Add New Associations				
Manage Association Financial Information				
Manage Delinquency Letters				
Manage Rule Violation Notices				
Manage Maintenance Calendar				
Maintain Committee Lists and Community Newsletters		X	X	X

For reference purposes the following table (Table 14) is a small scale version of the complete requirements tracking table.

Table 14: Small Scale Complete Requirements Tracking Table



Use Cases	1.1.1	1.1.2.1	1.1.2.2	1.1.2.3	1.1.2.4	1.1.3	1.2	1.3.1	1.3.2	2.1	2.2.1	2.2.2	2.3	2.4.1	2.4.2
Requirements															
Add New Associations	X	X	X	X	X	X	X	X	X						
Manage Association Financial Information		X	X	X						X	X	X	X	X	X
Manage Delinquency Letters		X	X	X	X					X		X	X		X
Manage Rule Violation Notices										X			X		
Manage Maintenance Calendar						X									
Maintain Committee Lists and Community Newsletters									X						

Use Cases	3.1	3.2.1.1.1.1	3.2.1.1.1.2	3.2.1.1.1.3.1	3.2.1.1.1.3.2	3.2.1.1.1.3.3	3.2.1.1.2	3.2.1.2	3.2.2.1	3.2.2.2	3.2.2.3.1	3.2.2.3.2	3.2.2.3.3	3.2.2.3.4	3.3.1	3.3.2	3.3.3
Requirements																	
Add New Associations																	
Manage Association Financial Information	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manage Delinquency Letters								X		X			X	X			
Manage Rule Violation Notices																	
Manage Maintenance Calendar																	
Maintain Committee Lists and Community Newsletters																	

Use Cases	4.1.1	4.1.2	4.2.1	4.2.2	4.2.3.1	4.2.3.2	4.2.3.3	4.2.4	4.3.1	4.3.2	4.4.1	4.4.2	4.4.3	4.5	
Requirements															
Add New Associations															
Manage Association Financial Information			X	X											
Manage Delinquency Letters	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manage Rule Violation Notices															
Manage Maintenance Calendar															
Maintain Committee Lists and Community Newsletters															

Use Cases	5.1	5.2.1	5.2.2	5.2.3	5.3.1	5.3.2	5.3.3	5.4	6.1.1	6.1.2	6.2.1	6.2.2	6.2.3	6.3
Requirements														
Add New Associations														
Manage Association Financial Information				X	X	X	X					X	X	
Manage Delinquency Letters	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manage Rule Violation Notices														
Manage Maintenance Calendar														
Maintain Committee Lists and Community Newsletters														

Use Cases	7.1	7.2.1	7.2.2	7.3.1	7.3.2	7.3.3	7.3.4	7.4	8.1.1	8.1.2	8.1.3	8.1.4	8.2.1	8.2.2	8.3.1	8.3.2
Requirements																
Add New Associations																
Manage Association Financial Information																
Manage Delinquency Letters																
Manage Rule Violation Notices	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manage Maintenance Calendar																
Maintain Committee Lists and Community Newsletters																

Use Cases	9.1	9.2.1	9.2.2	9.3.1	9.3.2	9.3.3	9.4	10.1	10.2.1	10.2.2	10.2.3	10.2.4
Requirements												
Add New Associations												
Manage Association Financial Information	X	X	X	X	X	X	X	X	X	X	X	X
Manage Delinquency Letters												
Manage Rule Violation Notices												
Manage Maintenance Calendar												
Maintain Committee Lists and Community Newsletters												

Use Cases	11.1	11.2	11.3	11.4.1.1	11.4.1.2	11.4.1.3	11.4.1.4	11.4.2	11.5.1	11.5.2.1	11.5.2.2	11.5.2.3	11.5.3
Requirements													
Add New Associations													
Manage Association Financial Information													
Manage Delinquency Letters													
Manage Rule Violation Notices													
Manage Maintenance Calendar	X	X	X	X	X	X	X	X	X	X	X	X	X
Maintain Committee Lists and Community Newsletters													

Use Cases	12.1	12.2.1	12.2.2	12.2.3	12.3.1	12.3.2	12.3.3	12.4	13.1	13.2	13.3
Requirements											
Add New Associations											
Manage Association Financial Information											
Manage Delinquency Letters											
Manage Rule Violation Notices											
Manage Maintenance Calendar											
Maintain Committee Lists and Community Newsletters	X	X	X	X	X	X	X	X	X	X	X

Logic Models

Once all of the use cases have been created, and we have seen that every requirement is met by one or more use case, and every use case is essential to fulfilling at least one requirement, we can begin moving on to the logical design. The logical design of the system shows how the various elements of the system will interact with each other, in diagrams of decreasing scope. The Context Diagram (Figure 2) shows the system at the highest level, and the lower levels show the specifics of each process and sub-process.

Context Diagram

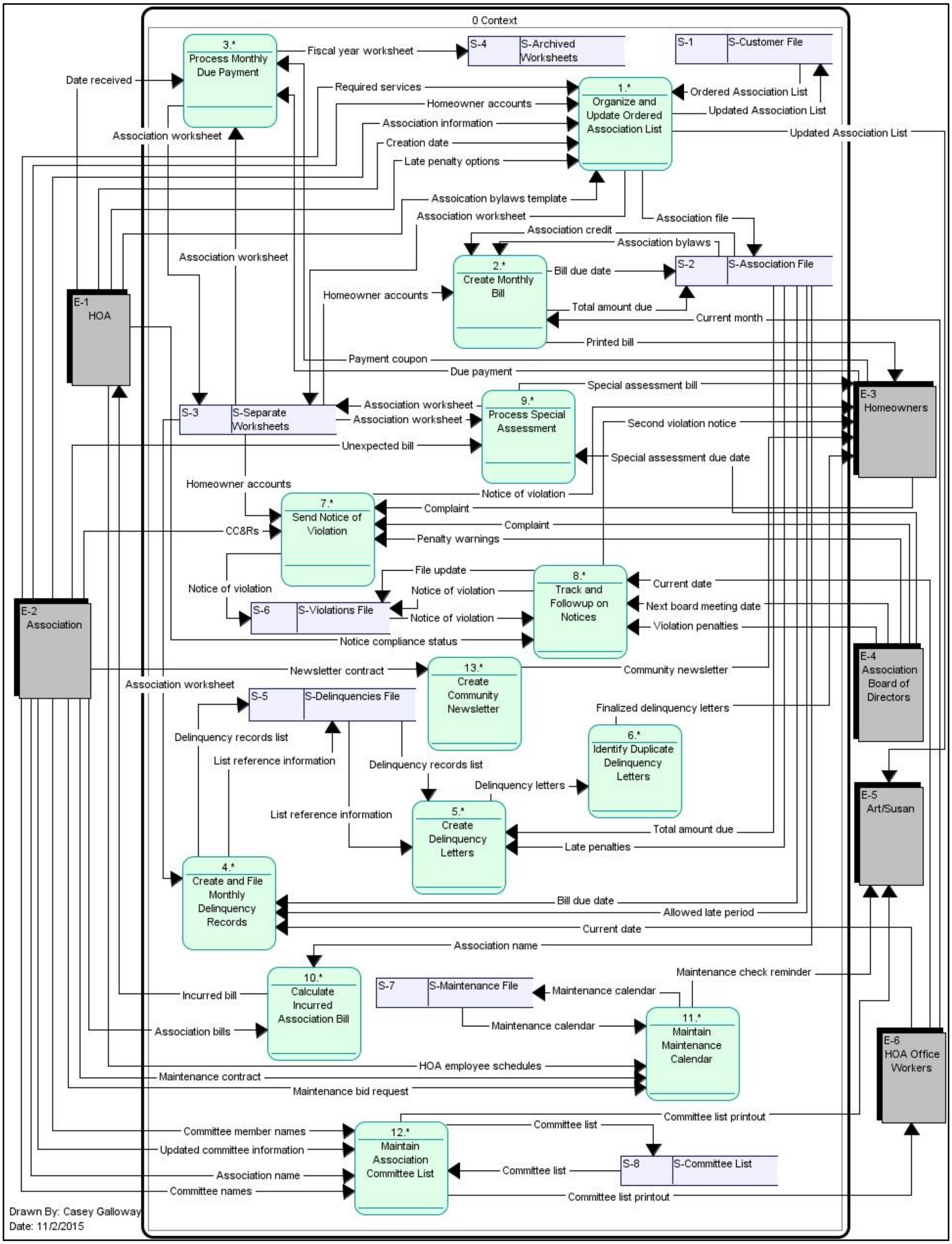


Figure 2: Homeowners of America Context Diagram

Data Flow Diagrams

The following figures show the break-down of the 13 level 0 processes.

Organize and Update Ordered Association List Data Flow Diagrams

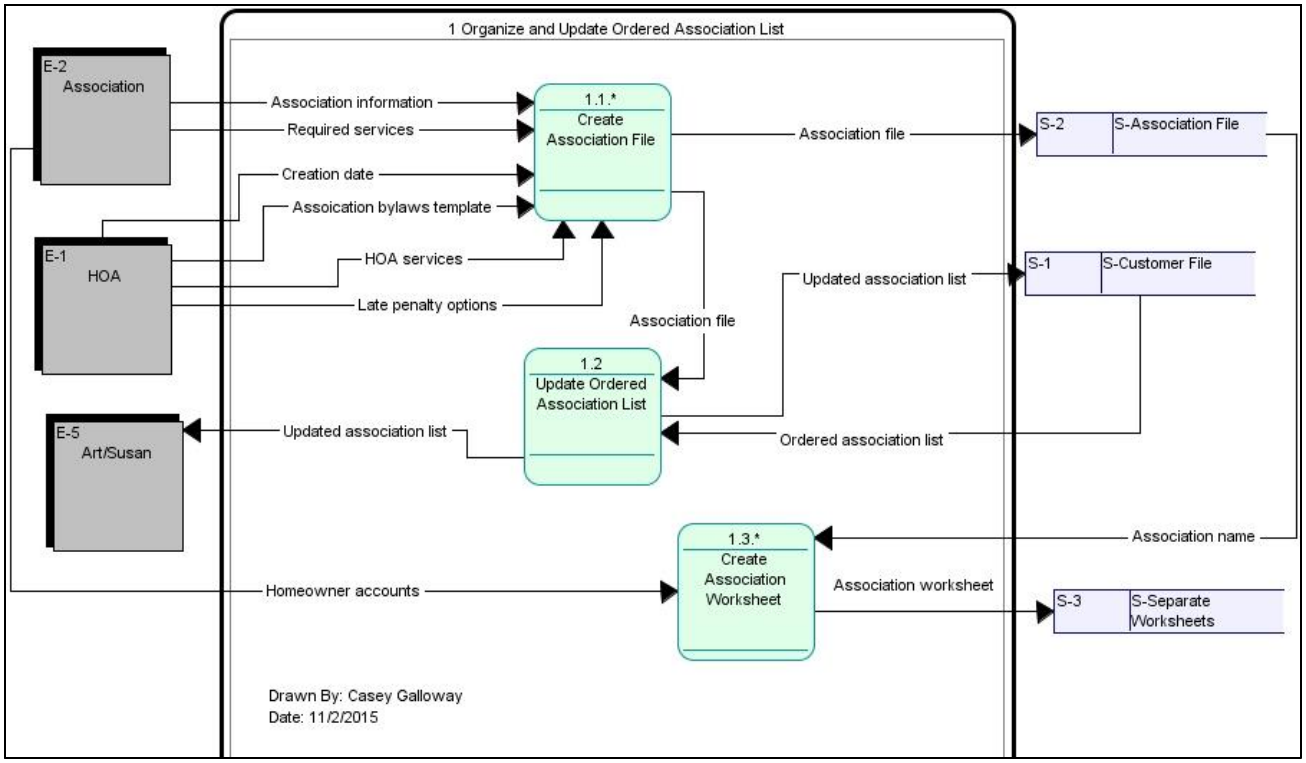


Figure 3: Organize and Update Ordered Association List Level 1 Data Flow Diagram

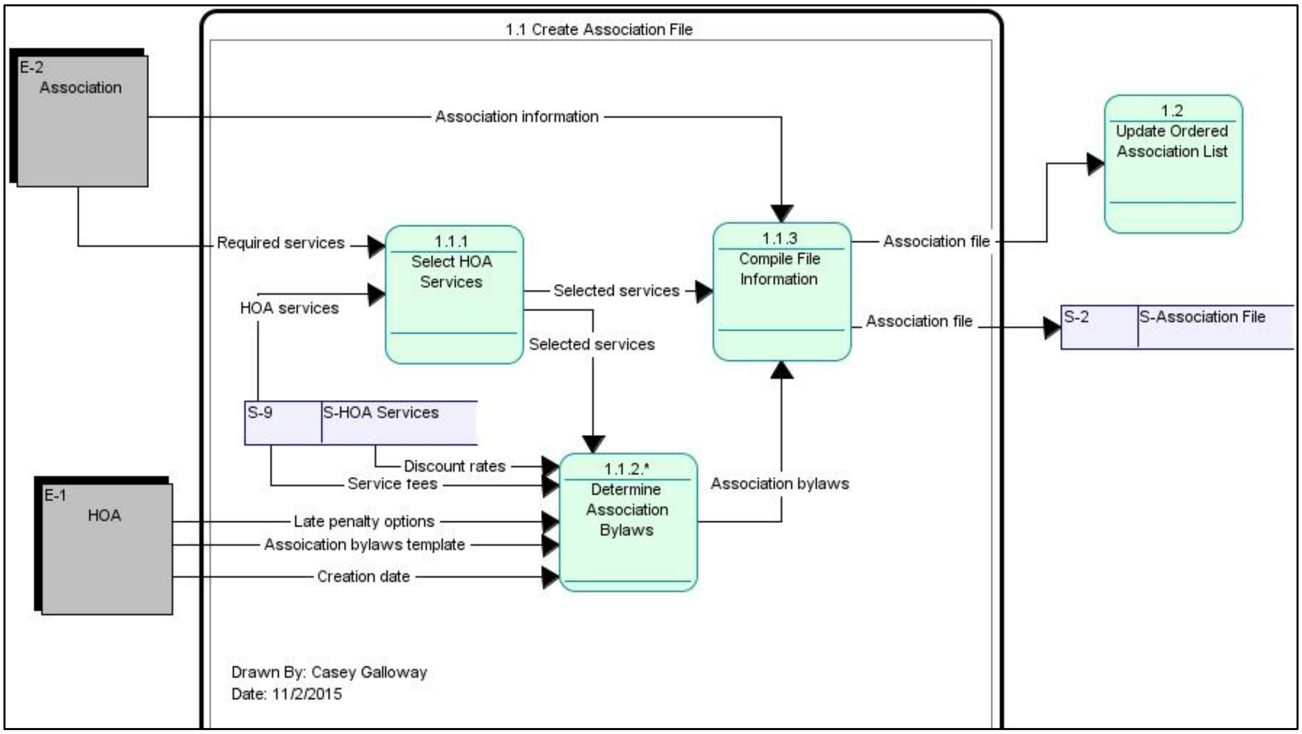


Figure 4: Organize and Update Ordered Association List Process 1.1 Level 2 Data Flow Diagram

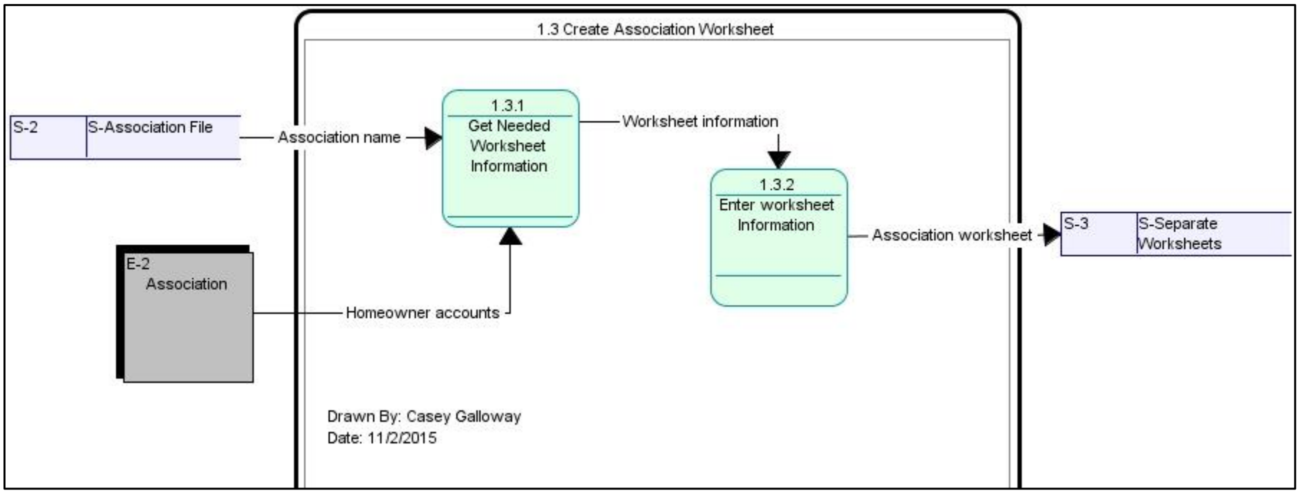


Figure 5: Organize and Update Ordered Association List Process 1.3 Level 2 Data Flow Diagram

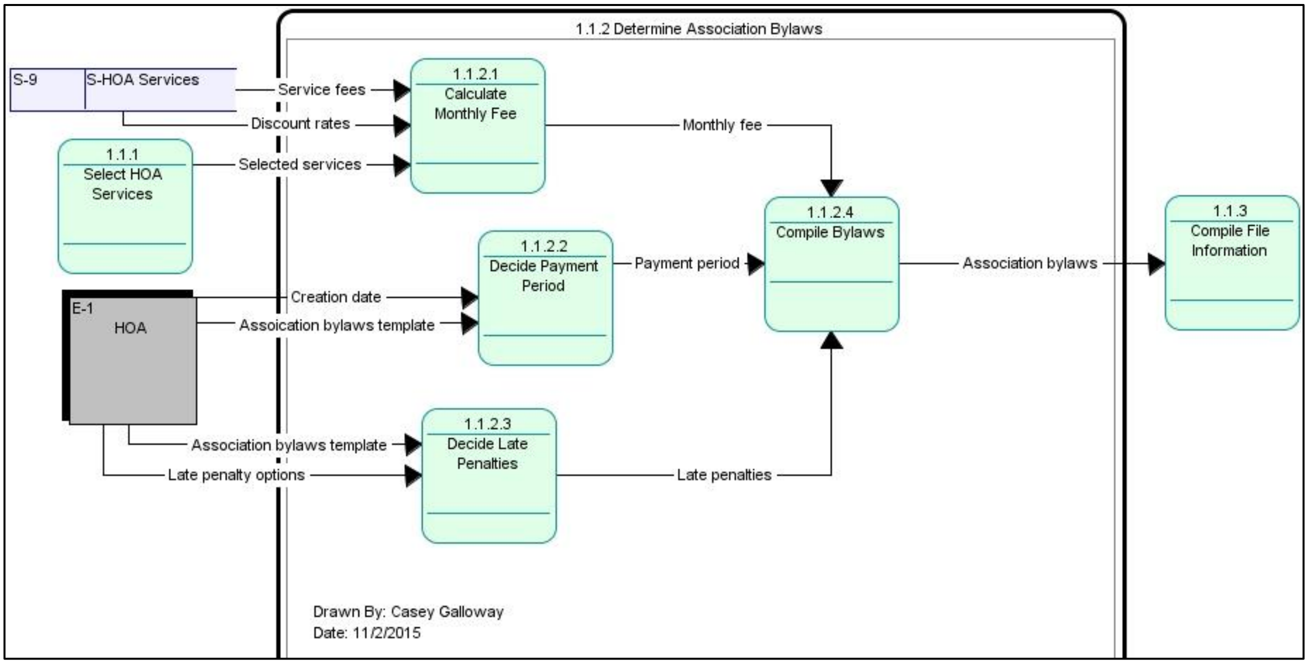


Figure 6: Organize and Update Ordered Association List Process 1.1.2 Level 3 Data Flow Diagram

Calculate Monthly Bill Data Flow Diagrams

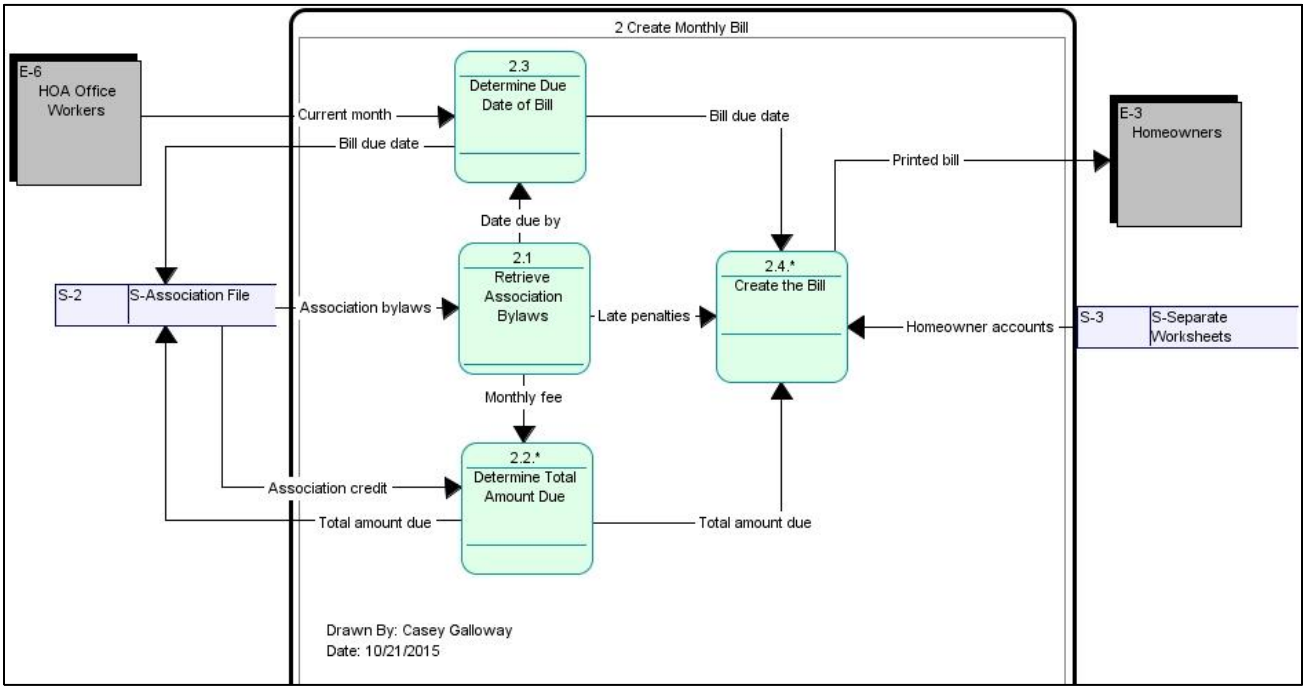


Figure 7: Calculate Monthly Bill Level 1 Data Flow Diagram

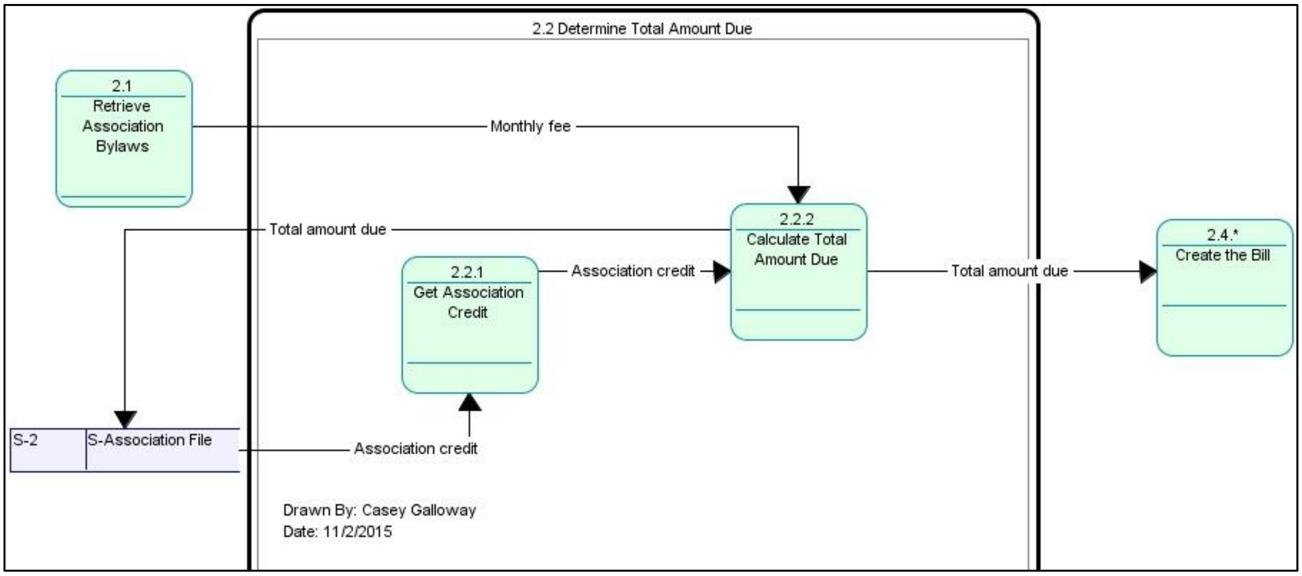


Figure 8: Calculate Monthly Bill Process 2.2 Level 2 Data Flow Diagram

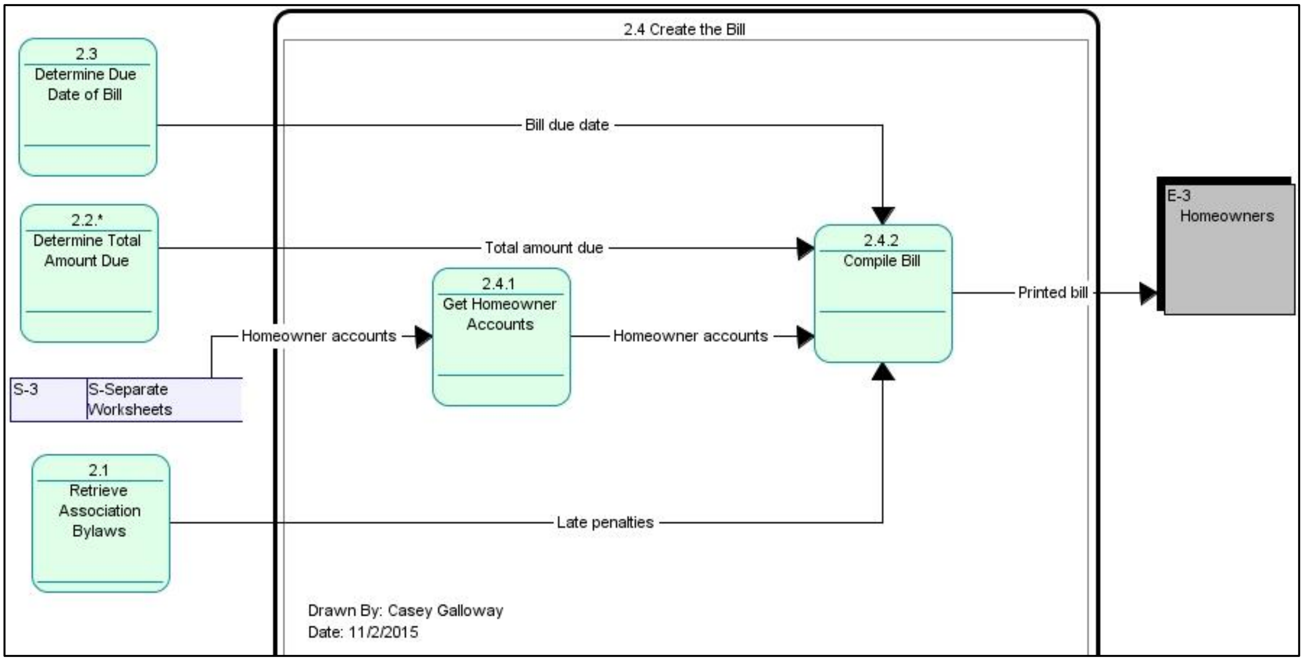


Figure 9: Calculate Monthly Bill Process 2.4 Level 2 Data Flow Diagram

Process Monthly Due Payment Data Flow Diagrams

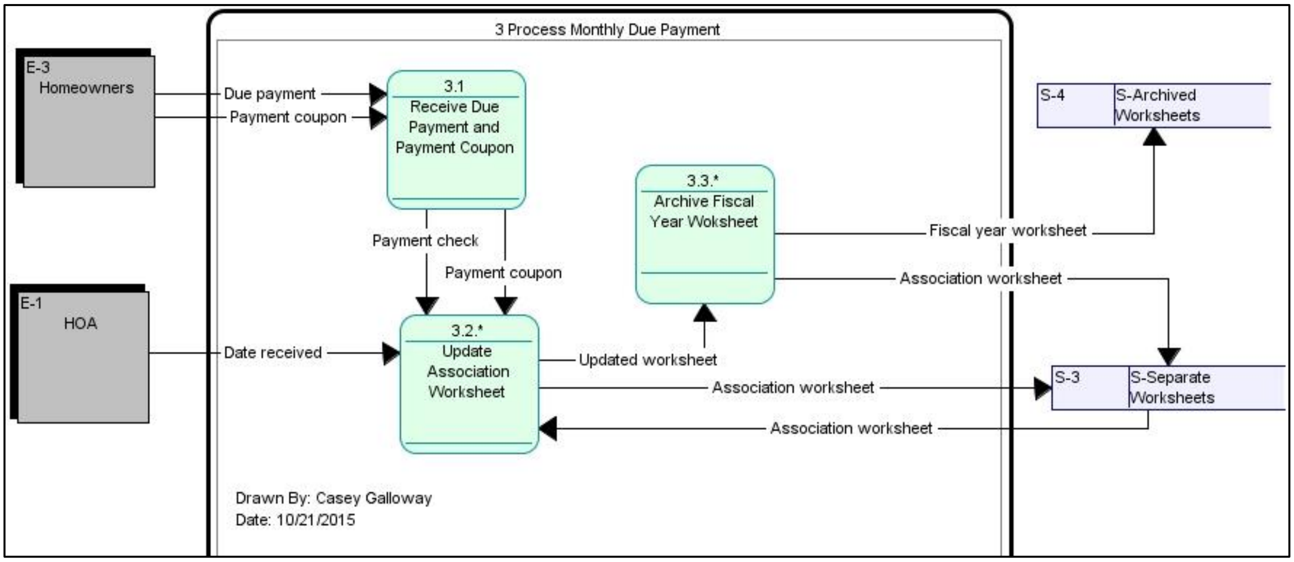


Figure 10: Process Monthly Due Payment Level 1 Data Flow Diagram

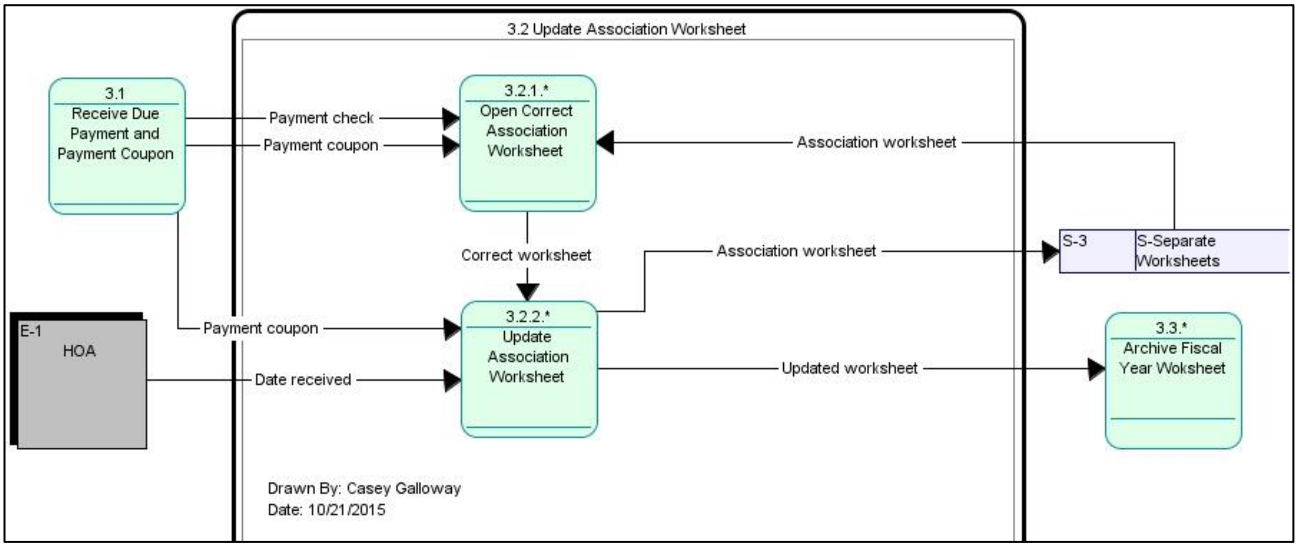


Figure 11: Process Monthly Due Payment Process 3.2 Level 2 Data Flow Diagram

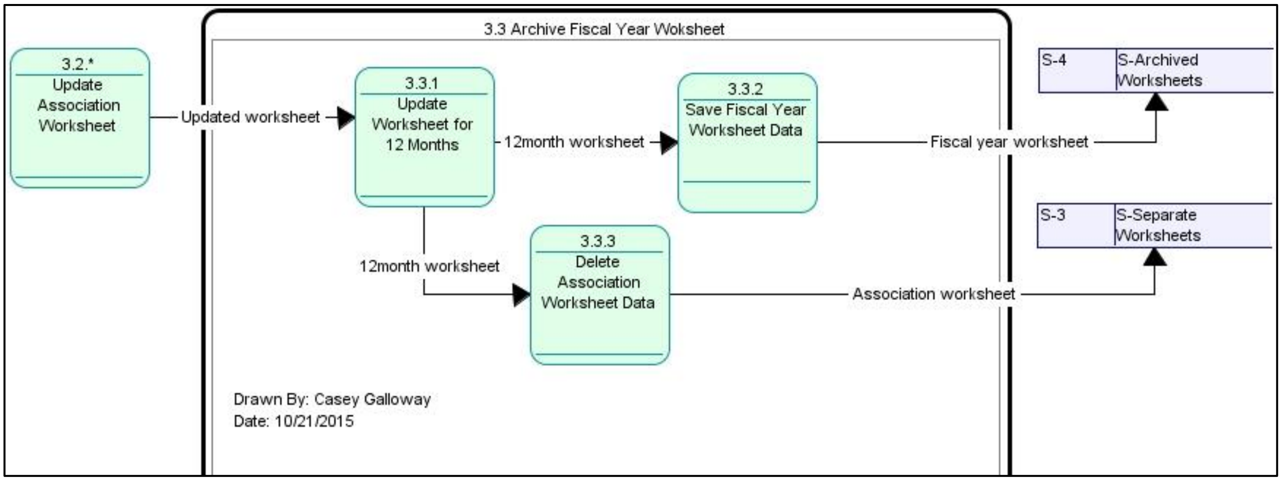


Figure 12: Process Monthly Due Payment Process 3.3 Level 2 Data Flow Diagram

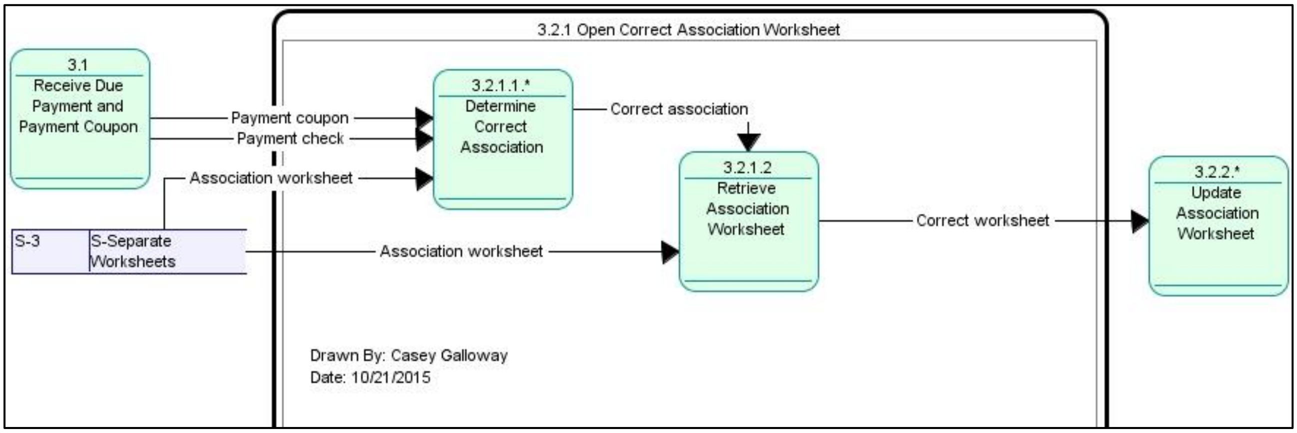


Figure 13: Process Monthly Due Payment Process 3.2.1 Level 3 Data Flow Diagram

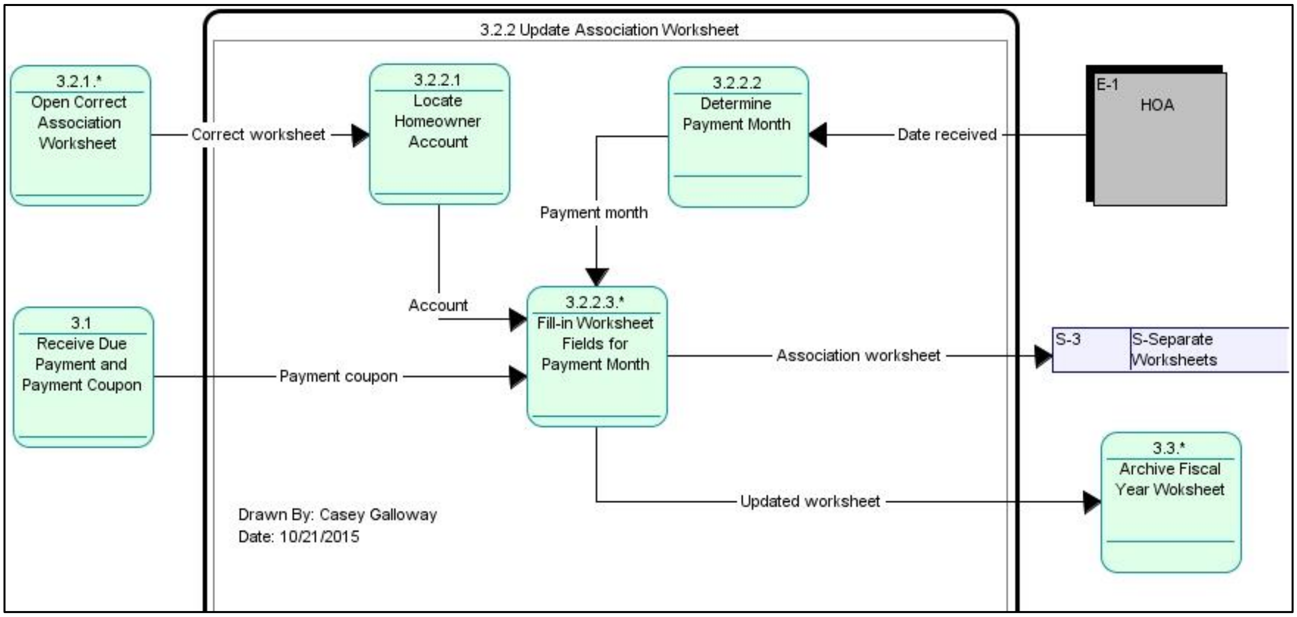


Figure 14: Process Monthly Due Payment Process 3.2.2 Level 3 Data Flow Diagram

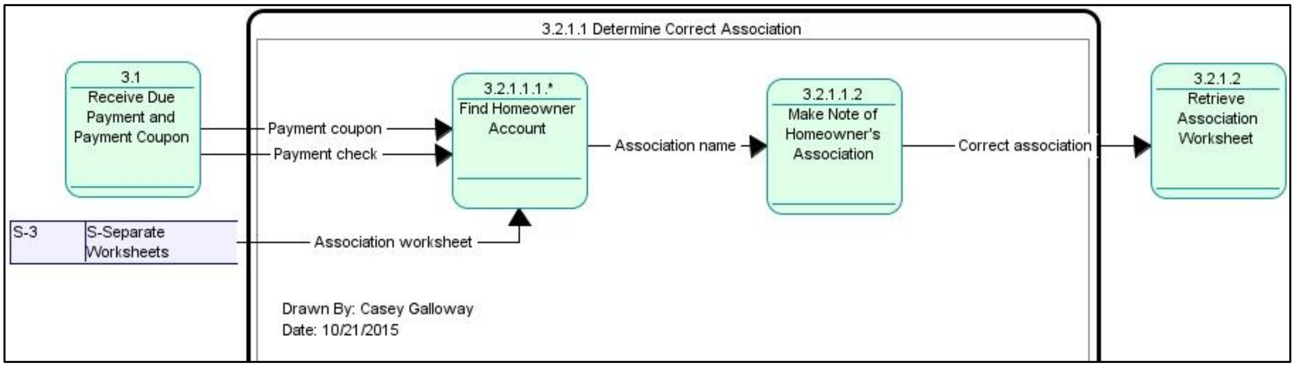


Figure 15: Process Monthly Due Payment Process 3.2.1.1 Level 4 Data Flow Diagram

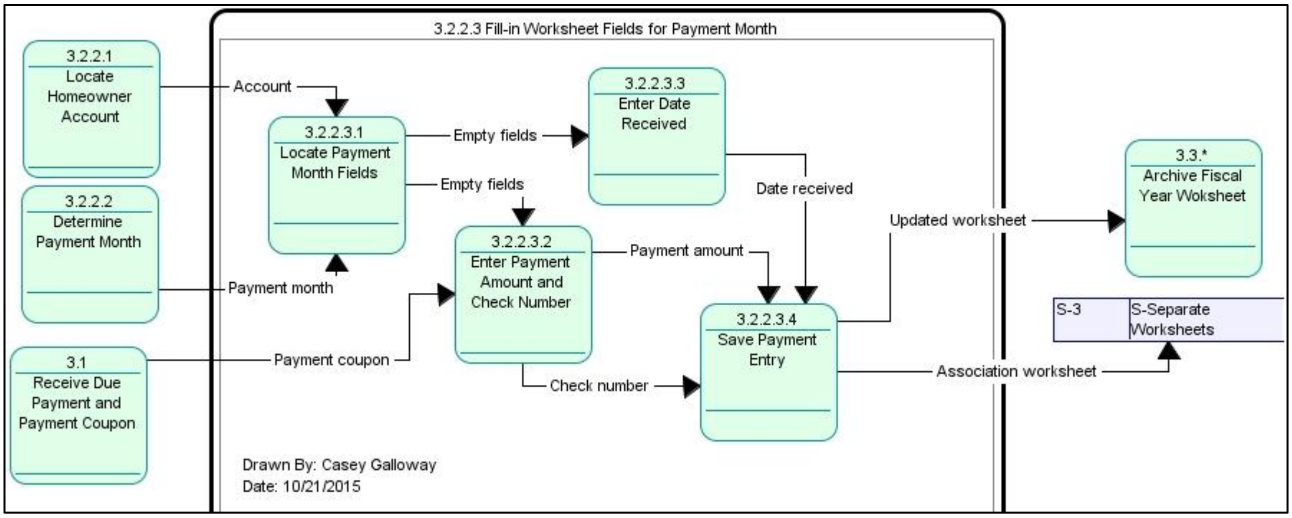

3.2.2.3 Fill-in Worksheet Fields for Payment Month
3.2.2.1 Locate Homeowner Account
3.2.2.2 Determine Payment Month
3.1 Receive Due Payment and Payment Coupon
Account
Payment month
Payment coupon
3.2.2.3.1 Locate Payment Month Fields
Empty fields
Empty fields
3.2.2.3.3 Enter Date Received
Date received
3.2.2.3.2 Enter Payment Amount and Check Number
Payment amount
Check number
3.2.2.3.4 Save Payment Entry
Updated worksheet
Association worksheet
3.3.* Archive Fiscal Year Wokhseet
S-3 S-Separate Worksheets
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 16: Process Monthly Due Payment Process 3.2.2.3 Level 4 Data Flow Diagram

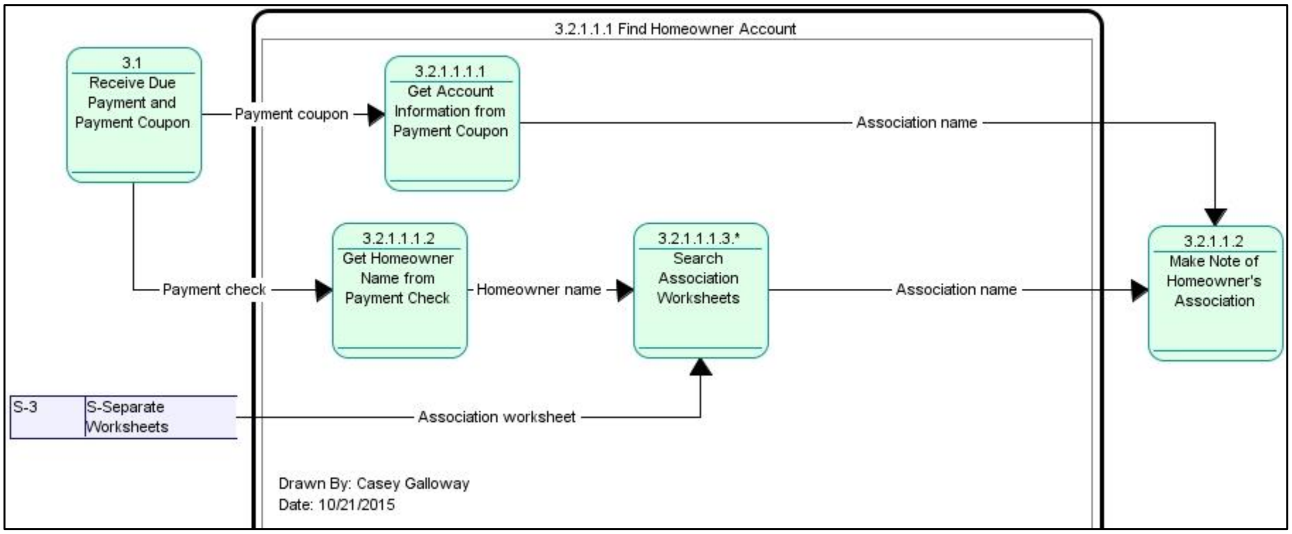

3.2.1.1.1 Find Homeowner Account
3.1 Receive Due Payment and Payment Coupon
Payment coupon
3.2.1.1.1.1 Get Account Information from Payment Coupon
Association name
Payment check
3.2.1.1.1.2 Get Homeowner Name from Payment Check
Homeowner name
3.2.1.1.1.3.* Search Association Worksheets
Association name
3.2.1.1.2 Make Note of Homeowner's Association
S-3 S-Separate Worksheets
Association worksheet
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 17: Process Monthly Due Payment Process 3.2.1.1.1 Level 5 Data Flow Diagram

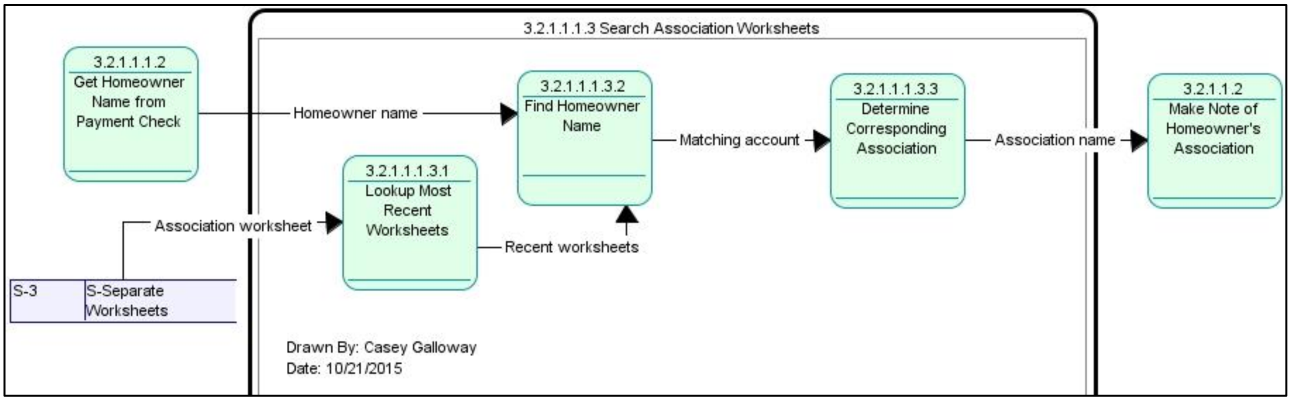


Figure 18: Process Monthly Due Payment Process 3.2.1.1.1.3 Level 6 Data Flow Diagram

Create and File Monthly Delinquency Records Data Flow Diagrams

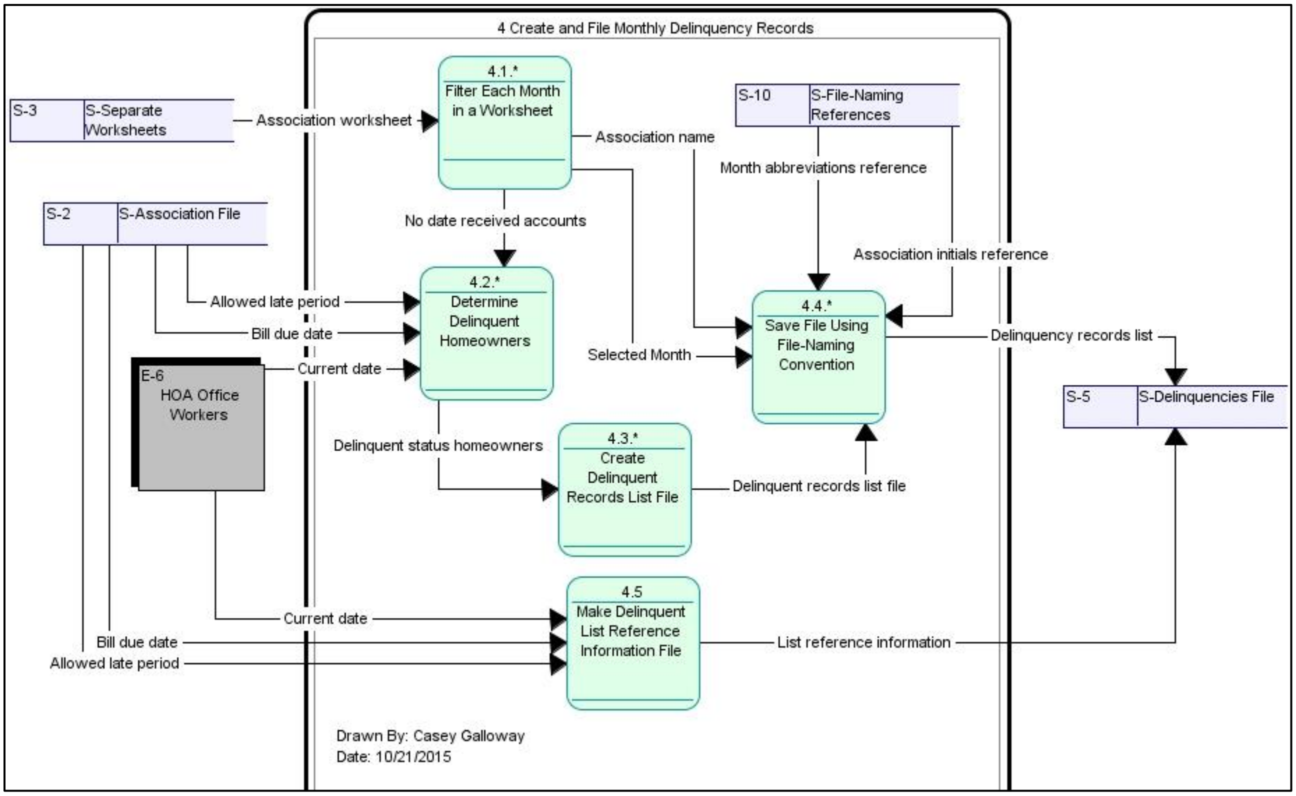

4 Create and File Monthly Delinquency Records
S-3
S-Separate Worksheets
Association worksheet
4.1.*
Filter Each Month in a Worksheet
Association name
S-10
S-File-Naming References
Month abbreviations reference
S-2
S-Association File
No date received accounts
Association initials reference
4.2.*
Determine Delinquent Homeowners
Allowed late period
Bill due date
Current date
E-6
HOA Office Workers
Selected Month
4.4.*
Save File Using File-Naming Convention
Delinquency records list
S-5
S-Delinquencies File
Delinquent status homeowners
4.3.*
Create Delinquent Records List File
Delinquent records list file
4.5
Make Delinquent List Reference Information File
Current date
Bill due date
Allowed late period
List reference information
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 19: Create and File Monthly Delinquency Records Level 1 Data Flow Diagram

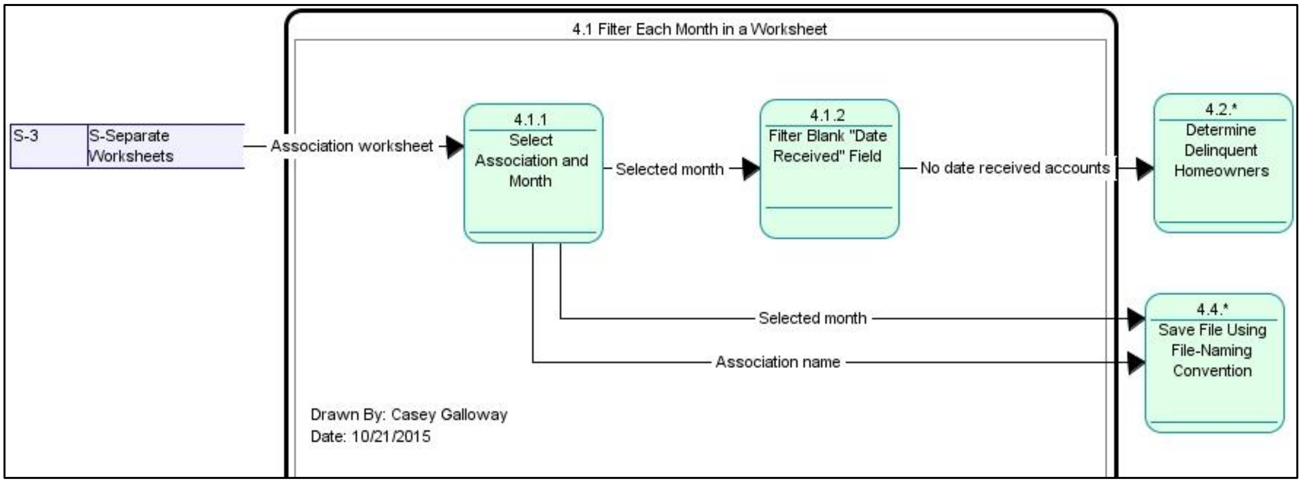

4.1 Filter Each Month in a Worksheet
S-3
S-Separate Worksheets
Association worksheet
4.1.1
Select Association and Month
Selected month
4.1.2
Filter Blank "Date Received" Field
No date received accounts
4.2.*
Determine Delinquent Homeowners
Selected month
Association name
4.4.*
Save File Using File-Naming Convention
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 20: Create and File Monthly Delinquency Records Process 4.1 Level 2 Data Flow Diagram

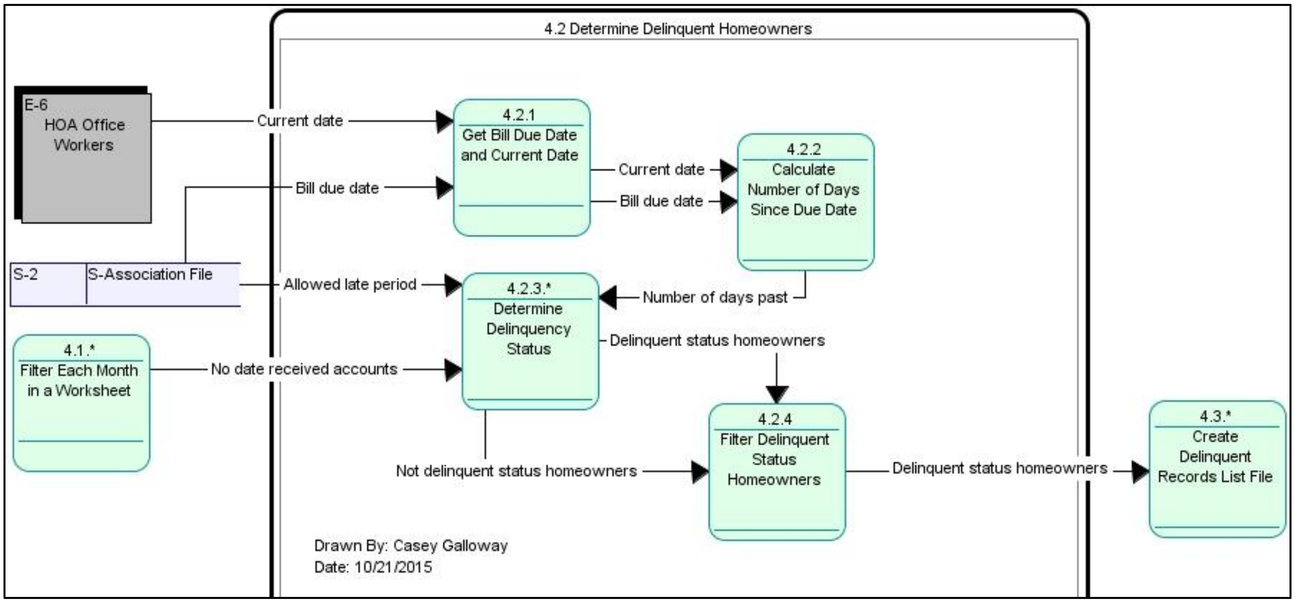

4.2 Determine Delinquent Homeowners
E-6
HOA Office Workers
Current date
Bill due date
4.2.1
Get Bill Due Date and Current Date
Current date
Bill due date
4.2.2
Calculate Number of Days Since Due Date
S-2
S-Association File
Allowed late period
4.2.3.*
Determine Delinquency Status
Number of days past
Delinquent status homeowners
4.1.*
Filter Each Month in a Worksheet
No date received accounts
Not delinquent status homeowners
4.2.4
Filter Delinquent Status Homeowners
Delinquent status homeowners
4.3.*
Create Delinquent Records List File
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 21: Create and File Monthly Delinquency Records Process 4.2 Level 2 Data Flow Diagram

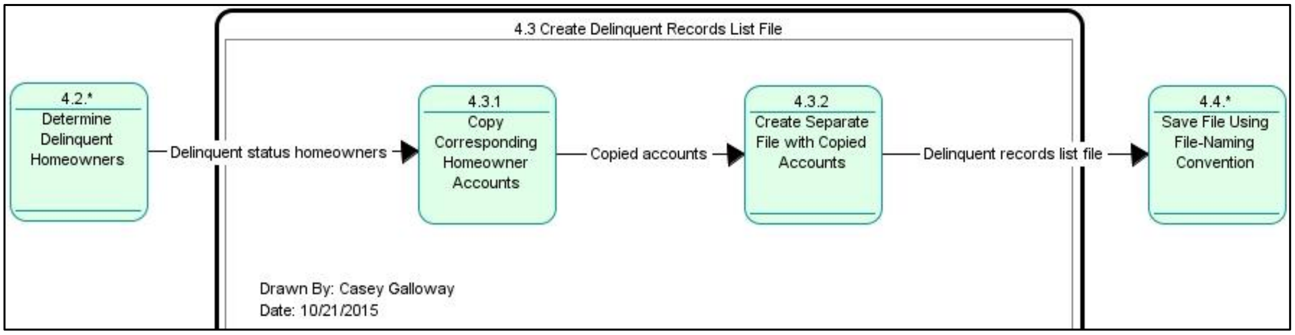

4.3 Create Delinquent Records List File
4.2.*
Determine Delinquent Homeowners
Delinquent status homeowners
4.3.1
Copy Corresponding Homeowner Accounts
Copied accounts
4.3.2
Create Separate File with Copied Accounts
Delinquent records list file
4.4.*
Save File Using File-Naming Convention
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 22: Create and File Monthly Delinquency Records Process 4.3 Level 2 Data Flow Diagram

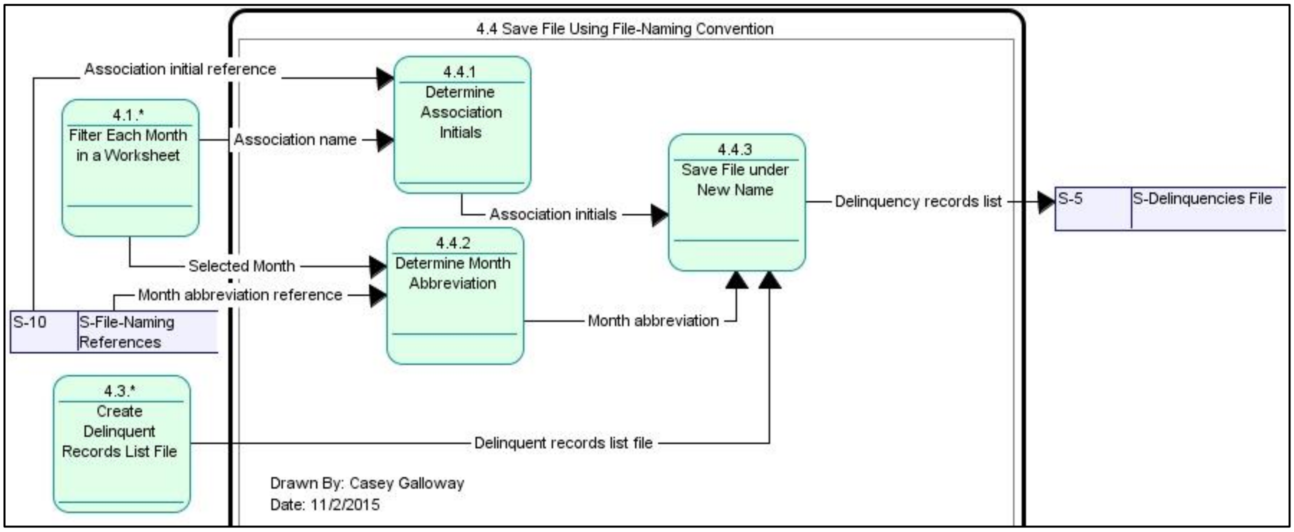

4.4 Save File Using File-Naming Convention
Association initial reference
4.4.1
Determine Association Initials
4.1.*
Filter Each Month in a Worksheet
Association name
4.4.3
Save File under New Name
Association initials
Delinquency records list
S-5
S-Delinquencies File
4.4.2
Determine Month Abbreviation
Selected Month
Month abbreviation reference
S-10
S-File-Naming References
Month abbreviation
4.3.*
Create Delinquent Records List File
Delinquent records list file
Drawn By: Casey Galloway
Date: 11/2/2015

Figure 23: Create and File Monthly Delinquency Records Process 4.4 Level 2 Data Flow Diagram

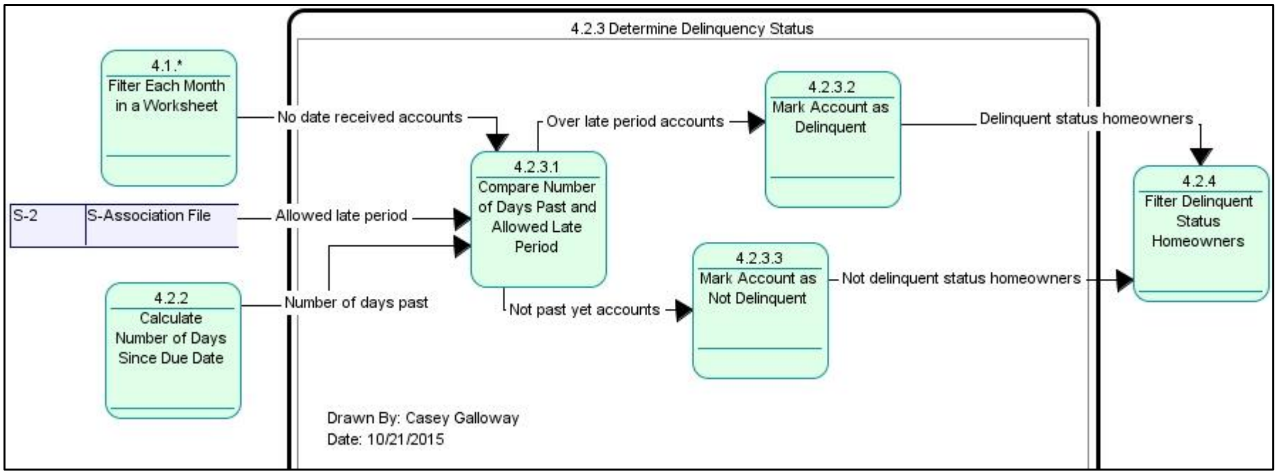

4.2.3 Determine Delinquency Status
4.1.*
Filter Each Month in a Worksheet
No date received accounts
Over late period accounts
4.2.3.2
Mark Account as Delinquent
Delinquent status homeowners
4.2.3.1
Compare Number of Days Past and Allowed Late Period
S-2
S-Association File
Allowed late period
4.2.4
Filter Delinquent Status Homeowners
4.2.2
Calculate Number of Days Since Due Date
Number of days past
Not past yet accounts
4.2.3.3
Mark Account as Not Delinquent
Not delinquent status homeowners
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 24: Create and File Monthly Delinquency Records Process 4.2.3 Level 3 Data Flow Diagram

Create Delinquency Letters Data Flow Diagrams

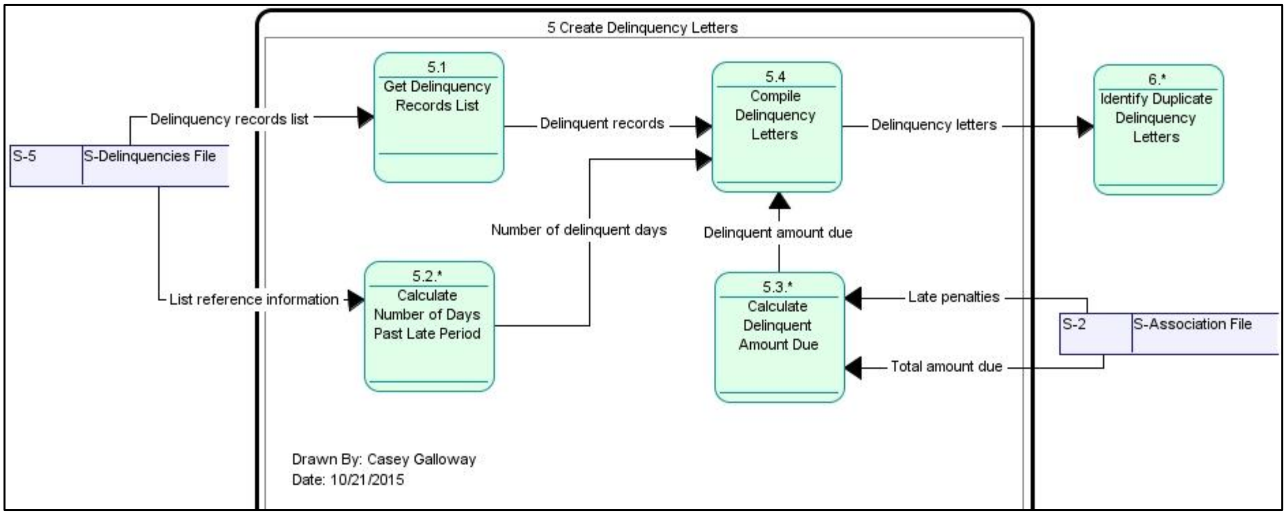

5 Create Delinquency Letters
5.1
Get Delinquency Records List
Delinquency records list
S-5
S-Delinquencies File
Delinquent records
5.4
Compile Delinquency Letters
Delinquency letters
6.*
Identify Duplicate Delinquency Letters
Number of delinquent days
Delinquent amount due
List reference information
5.2.*
Calculate Number of Days Past Late Period
5.3.*
Calculate Delinquent Amount Due
Late penalties
Total amount due
S-2
S-Association File
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 25: Create Delinquency Letters Level 1 Data Flow Diagram

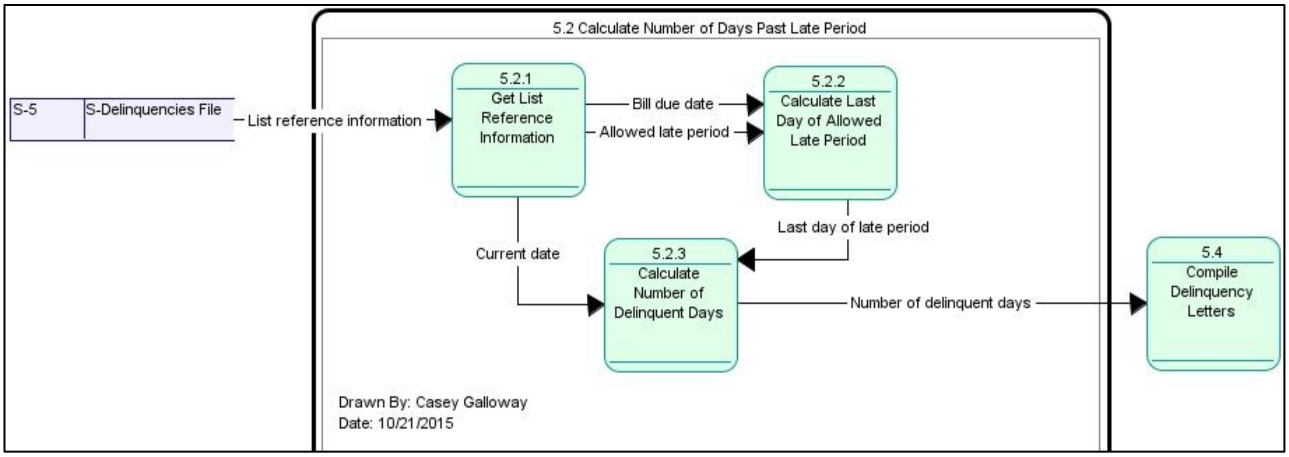

5.2 Calculate Number of Days Past Late Period
S-5
S-Delinquencies File
List reference information
5.2.1
Get List Reference Information
Bill due date
Allowed late period
5.2.2
Calculate Last Day of Allowed Late Period
Last day of late period
Current date
5.2.3
Calculate Number of Delinquent Days
Number of delinquent days
5.4
Compile Delinquency Letters
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 26: Create Delinquency Letters Process 5.2 Level 2 Data Flow Diagram

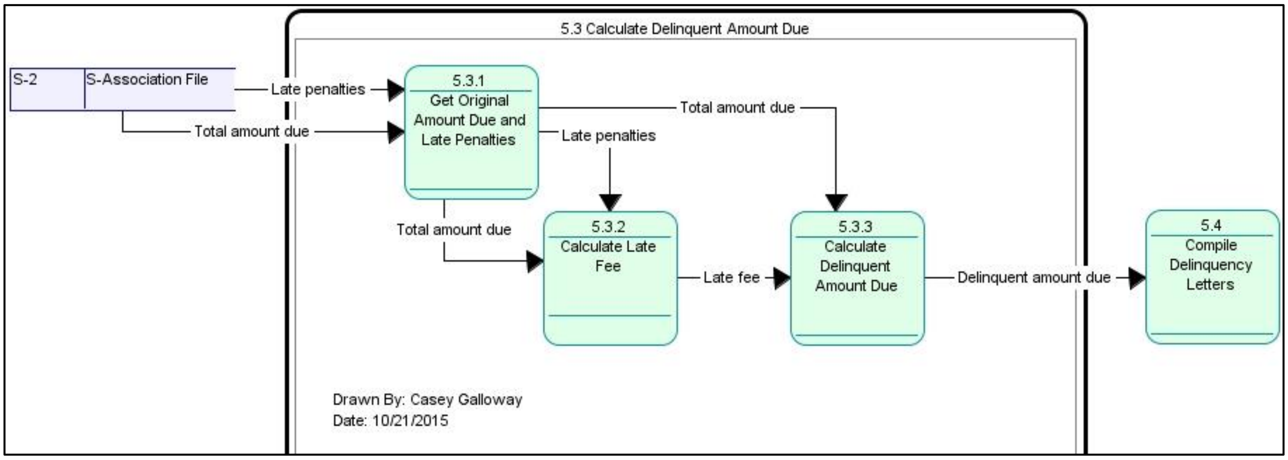


Figure 27: Create Delinquency Letters Process 5.3 Level 2 Data Flow Diagram

Identify Duplicate Delinquency Letters

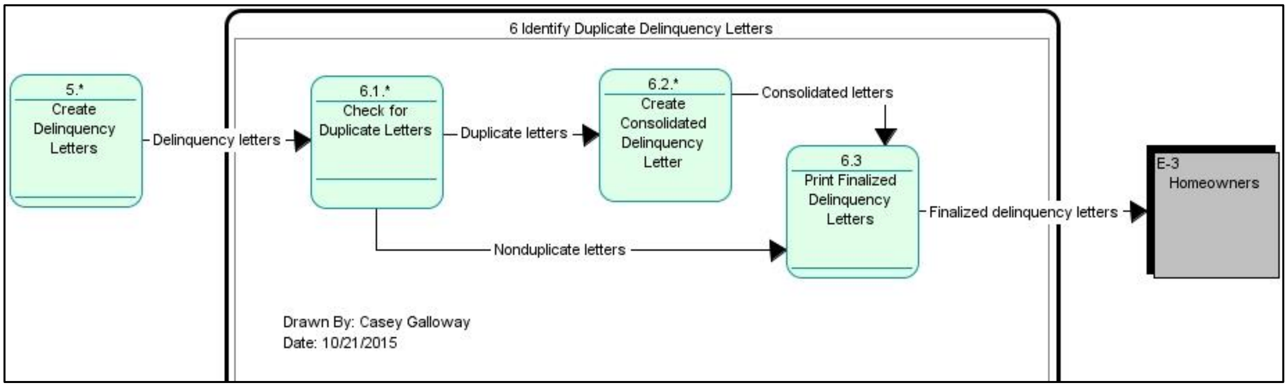

6 Identify Duplicate Delinquency Letters
5.*
Create Delinquency Letters
Delinquency letters
6.1.*
Check for Duplicate Letters
Duplicate letters
6.2.*
Create Consolidated Delinquency Letter
Consolidated letters
6.3
Print Finalized Delinquency Letters
Nonduplicate letters
Finalized delinquency letters
E-3
Homeowners
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 28: Identify Duplicate Delinquency Letters Level 1 Data Flow Diagram

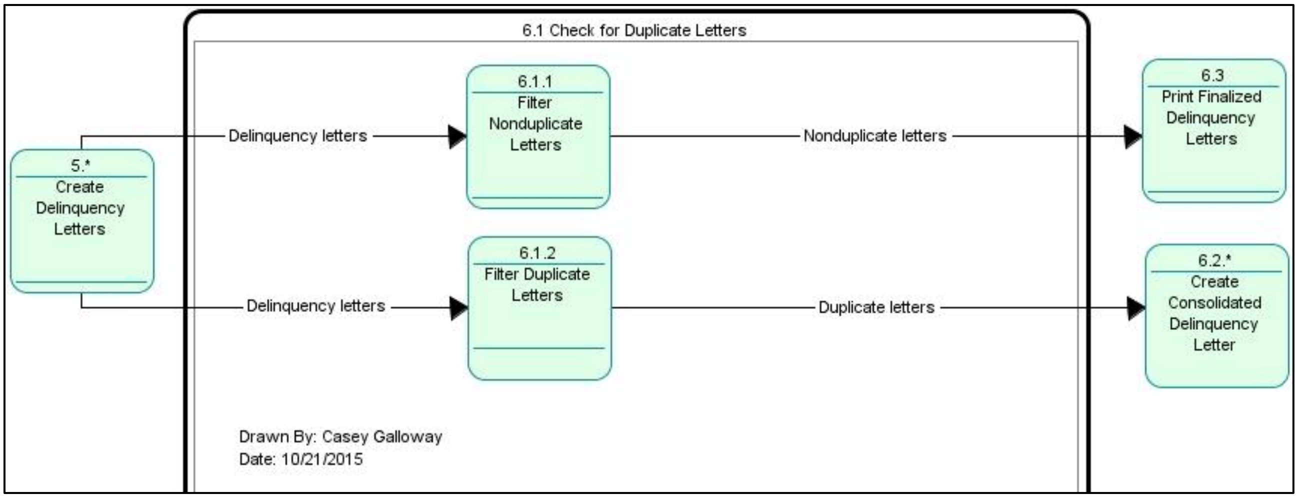


Figure 29: Identify Duplicate Delinquency Letters Process 6.1 Level 2 Data Flow Diagram

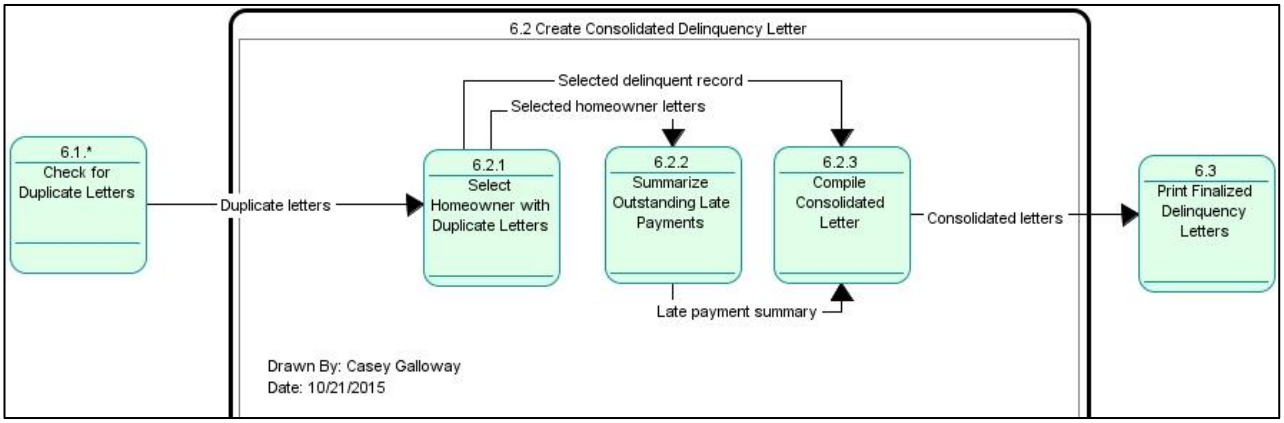

6.2 Create Consolidated Delinquency Letter
Selected delinquent record
Selected homeowner letters
6.1.*
Check for Duplicate Letters
Duplicate letters
6.2.1
Select Homeowner with Duplicate Letters
6.2.2
Summarize Outstanding Late Payments
6.2.3
Compile Consolidated Letter
Consolidated letters
6.3
Print Finalized Delinquency Letters
Late payment summary
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 30: Identify Duplicate Delinquency Letters Process 6.2 Level 2 Data Flow Diagram

Send Notice of Violation

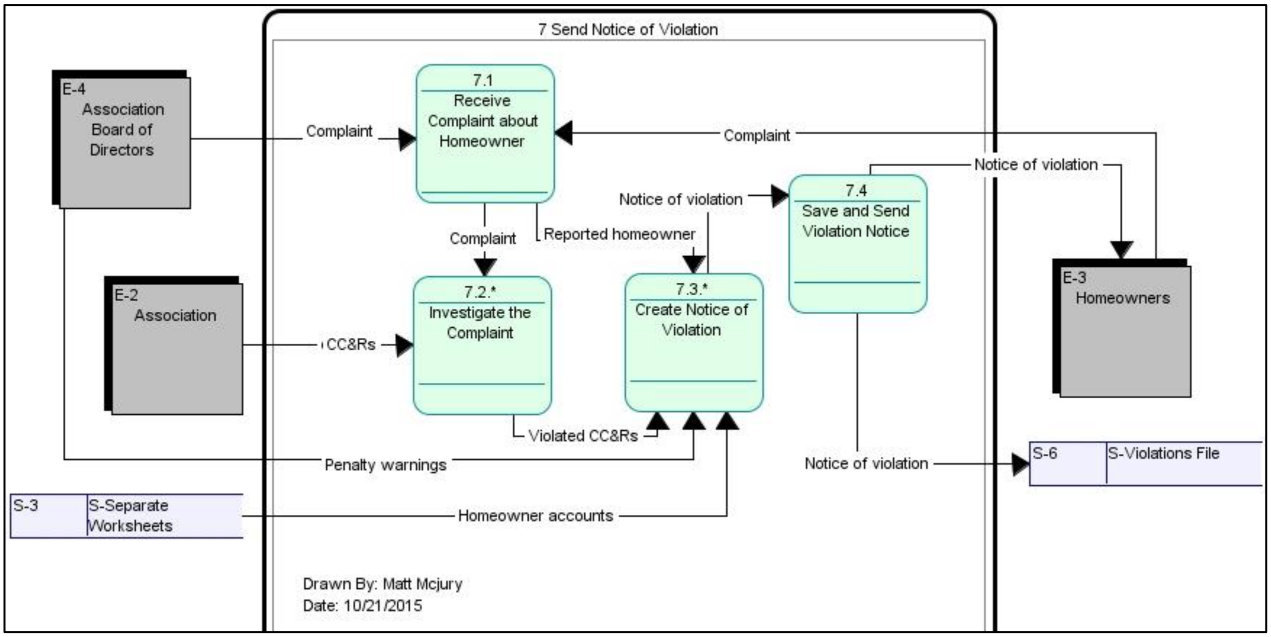


Figure 31: Send Notice of Violation Level 1 Data Flow Diagram

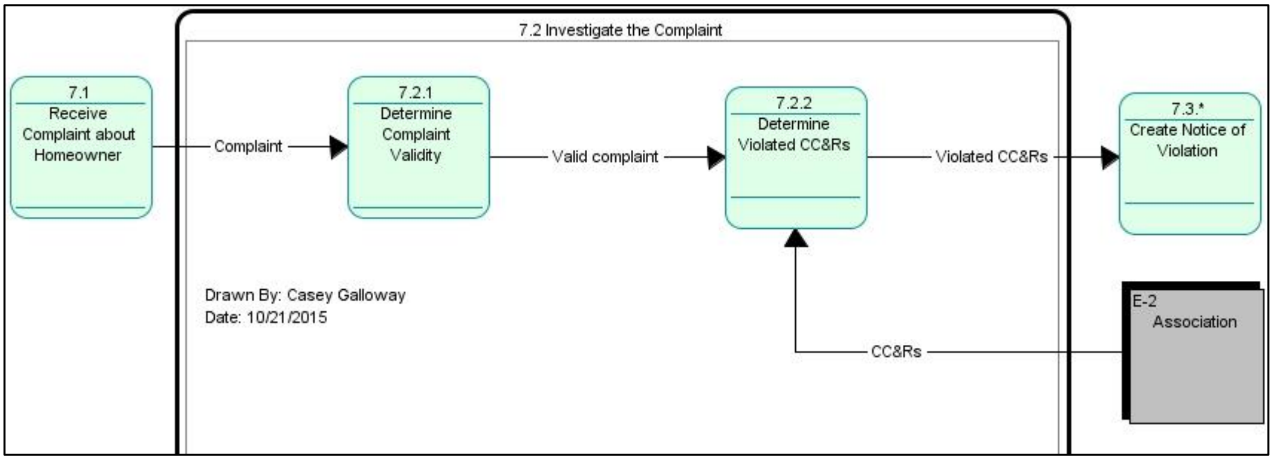


Figure 32: Send Notice of Violation Process 7.2 Level 2 Data Flow Diagram

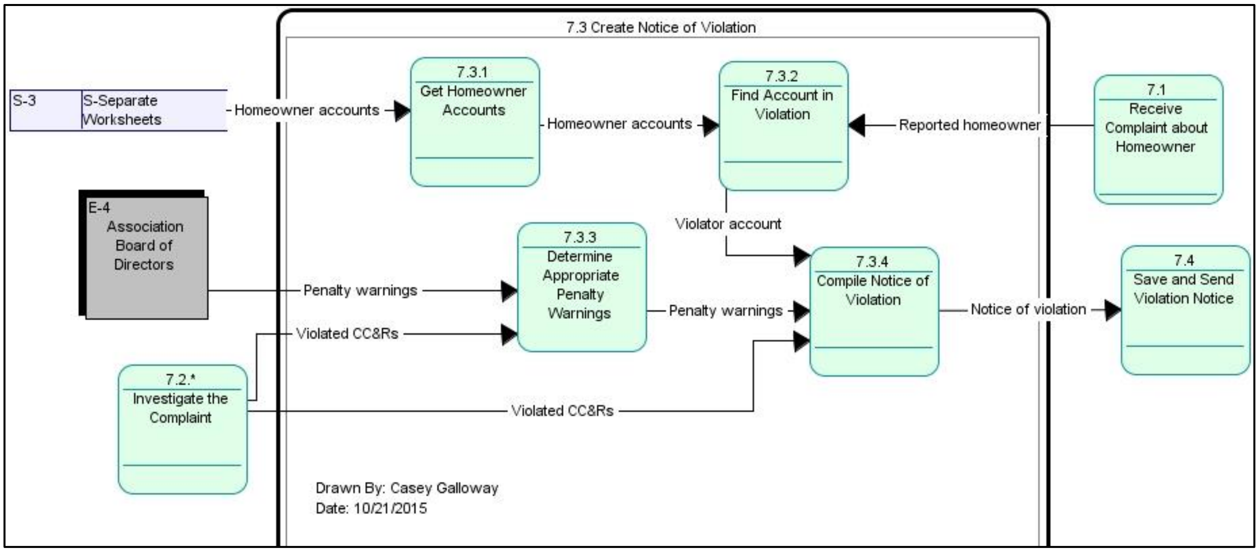


Figure 33: Send Notice of Violation Process 7.3 Level 2 Data Flow Diagram

Track ad Follow-up on Notices Data Flow Diagrams

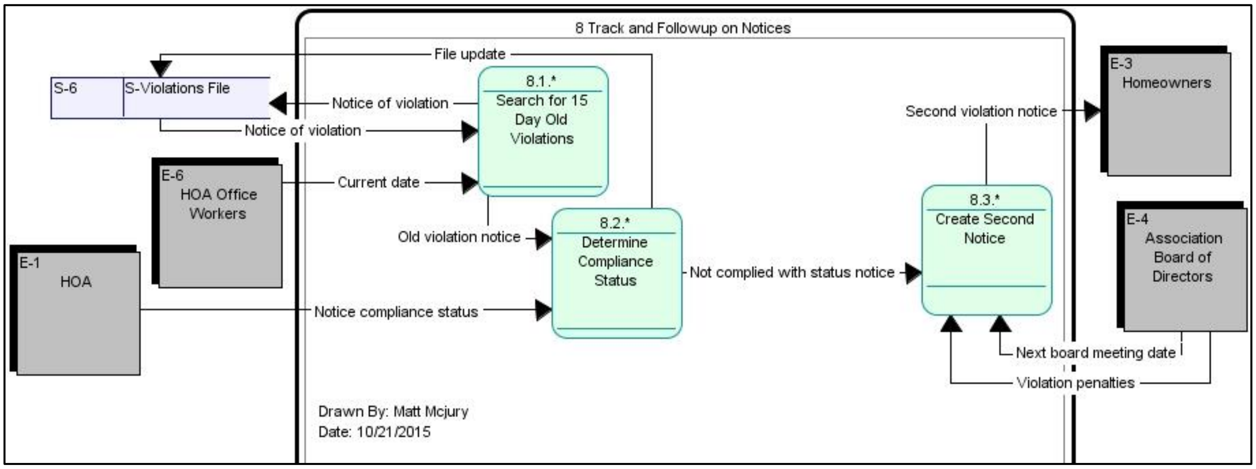


Figure 34: Track and Follow-up on Notices Level 1 Data Flow Diagram

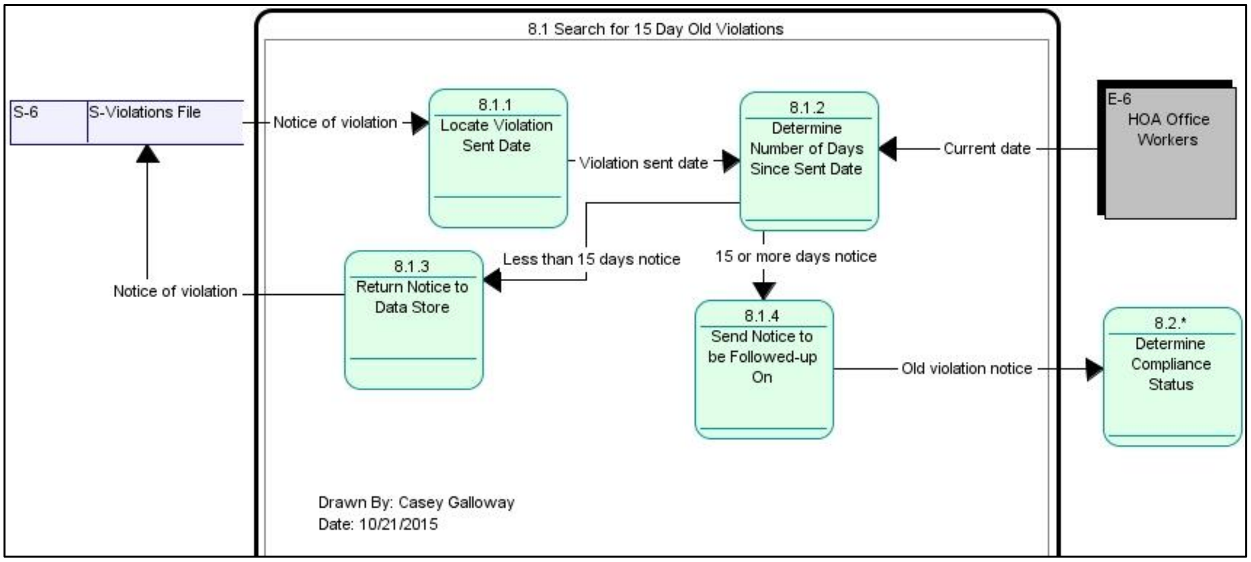


Figure 35: Track and Follow-up on Notices Process 8.1 Level 2 Data Flow Diagram

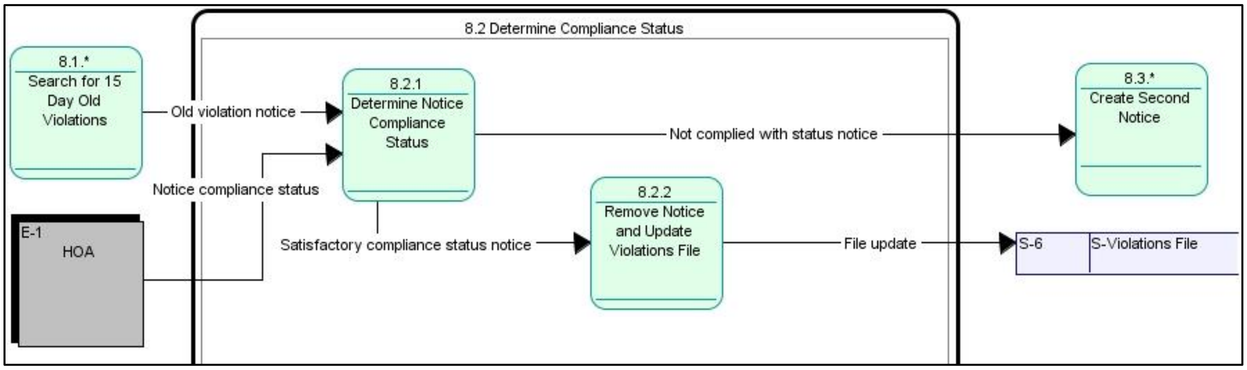

8.2 Determine Compliance Status
8.1.*
Search for 15 Day Old Violations
Old violation notice
8.2.1
Determine Notice Compliance Status
Not complied with status notice
8.3.*
Create Second Notice
Notice compliance status
E-1
HOA
Satisfactory compliance status notice
8.2.2
Remove Notice and Update Violations File
File update
S-6
S-Violations File

Figure 36: Track and Follow-up on Notices Process 8.2 Level 2 Data Flow Diagram

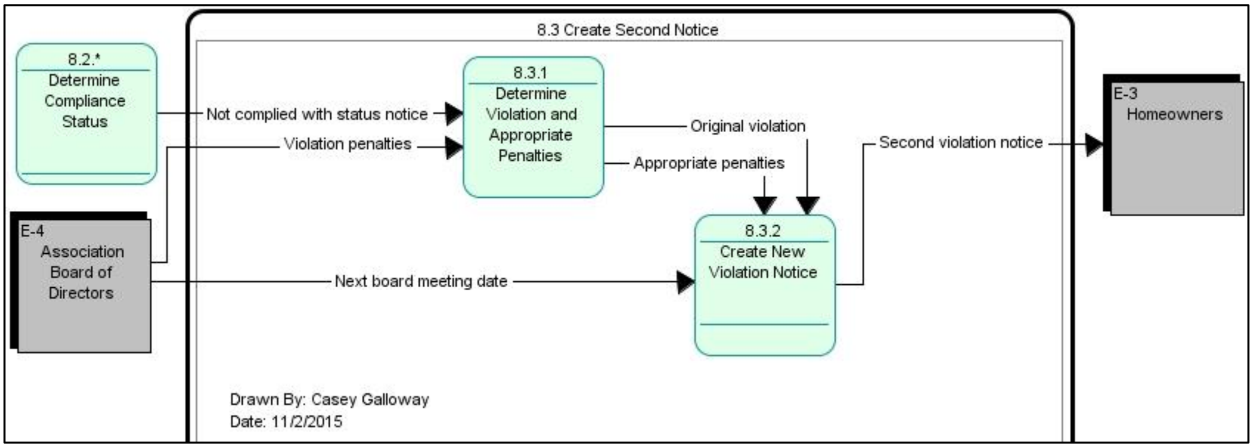


Figure 37: Track and Follow-up on Notices Process 8.3 Level 2 Data Flow Diagram

Process Special Assessment Data Flow Diagrams

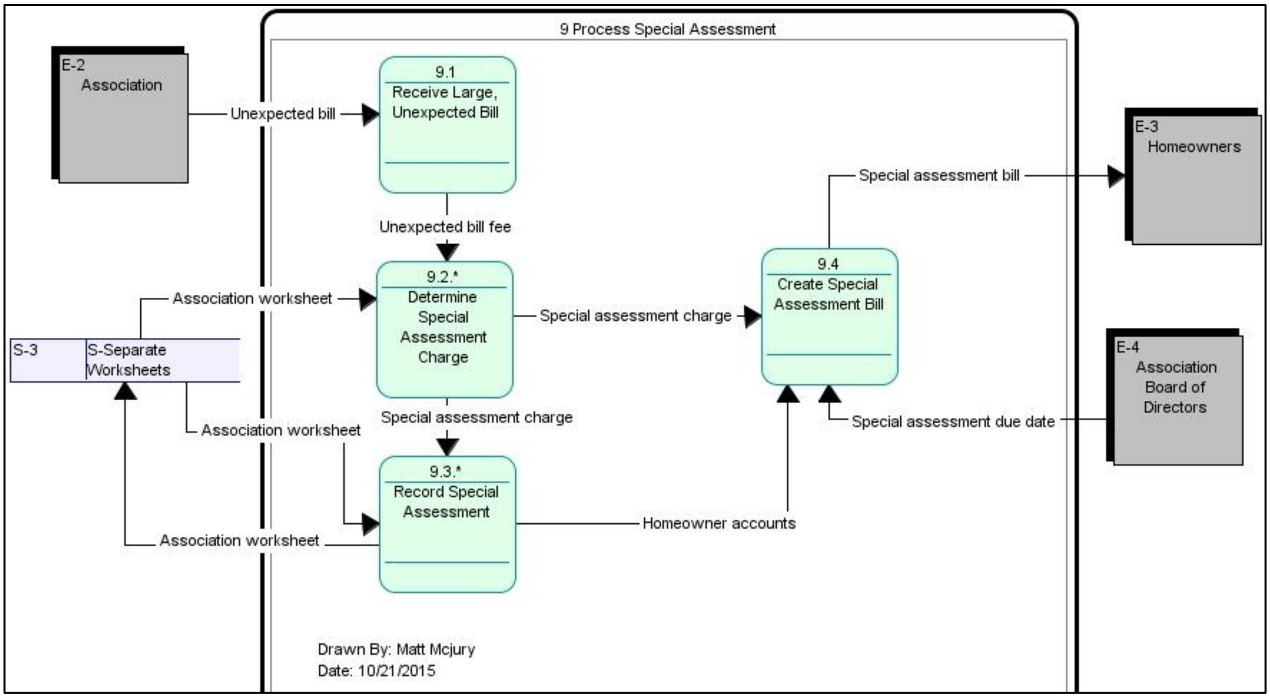

9 Process Special Assessment
E-2
Association
Unexpected bill
9.1
Receive Large, Unexpected Bill
Unexpected bill fee
9.2.*
Determine Special Assessment Charge
Association worksheet
S-3
S-Separate Worksheets
Association worksheet
Association worksheet
Special assessment charge
Special assessment charge
9.3.*
Record Special Assessment
Homeowner accounts
9.4
Create Special Assessment Bill
Special assessment bill
E-3
Homeowners
E-4
Association Board of Directors
Special assessment due date
Drawn By: Matt Mcjury
Date: 10/21/2015

Figure 38: Process Special Assessment Level 1 Data Flow Diagram

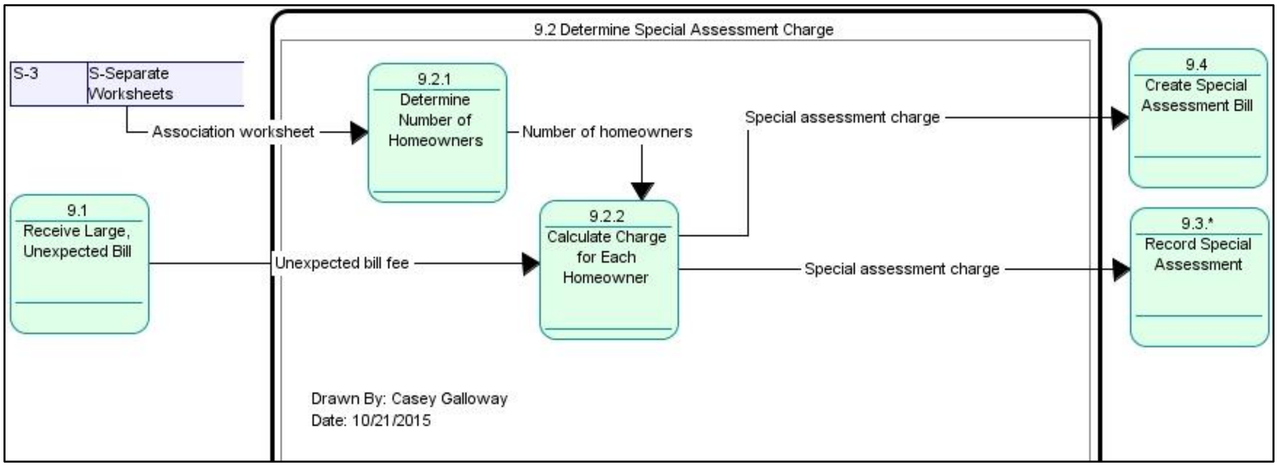

9.2 Determine Special Assessment Charge
S-3
S-Separate Worksheets
Association worksheet
9.2.1
Determine Number of Homeowners
Number of homeowners
9.1
Receive Large, Unexpected Bill
Unexpected bill fee
9.2.2
Calculate Charge for Each Homeowner
Special assessment charge
Special assessment charge
9.4
Create Special Assessment Bill
9.3.*
Record Special Assessment
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 39: Process Special Assessment Process 9.2 Level 2 Data Flow Diagram

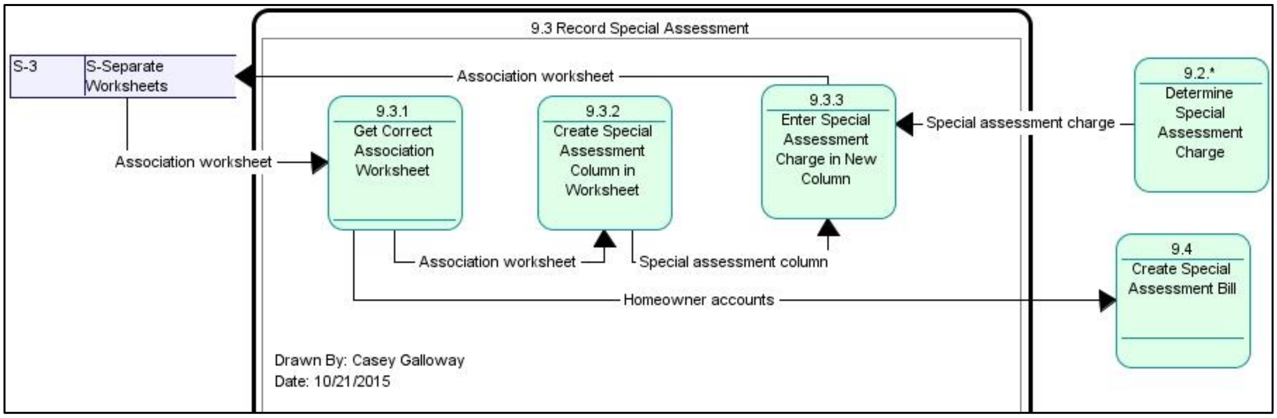

9.3 Record Special Assessment
S-3
S-Separate Worksheets
Association worksheet
Association worksheet
9.3.1
Get Correct Association Worksheet
9.3.2
Create Special Assessment Column in Worksheet
9.3.3
Enter Special Assessment Charge in New Column
Special assessment charge
9.2.*
Determine Special Assessment Charge
Association worksheet
Special assessment column
Homeowner accounts
9.4
Create Special Assessment Bill
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 40: Process Special Assessment Process 9.3 Level 2 Data Flow Diagram

Calculate Incurred Association Bill Data Flow Diagrams

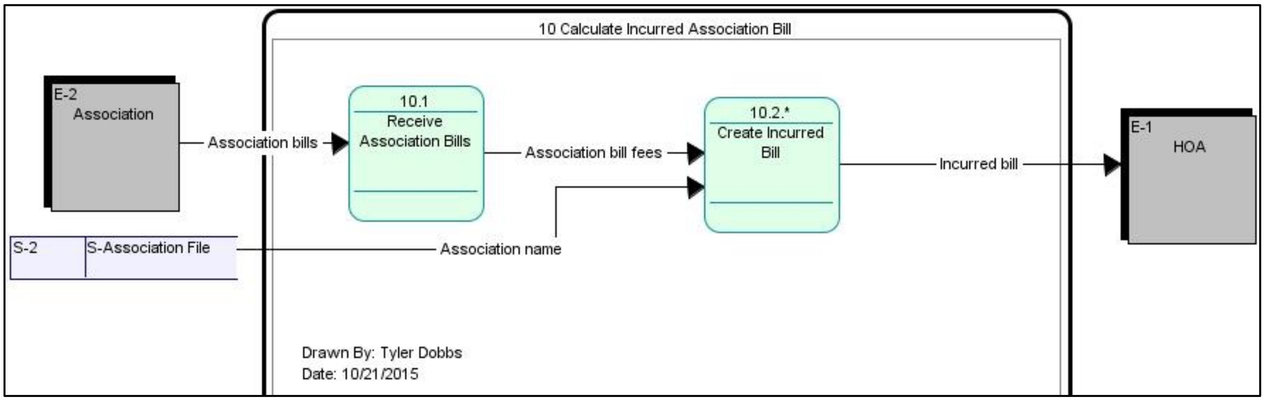


Figure 41: Calculate Incurred Association Bill Level 1 Data Flow Diagram

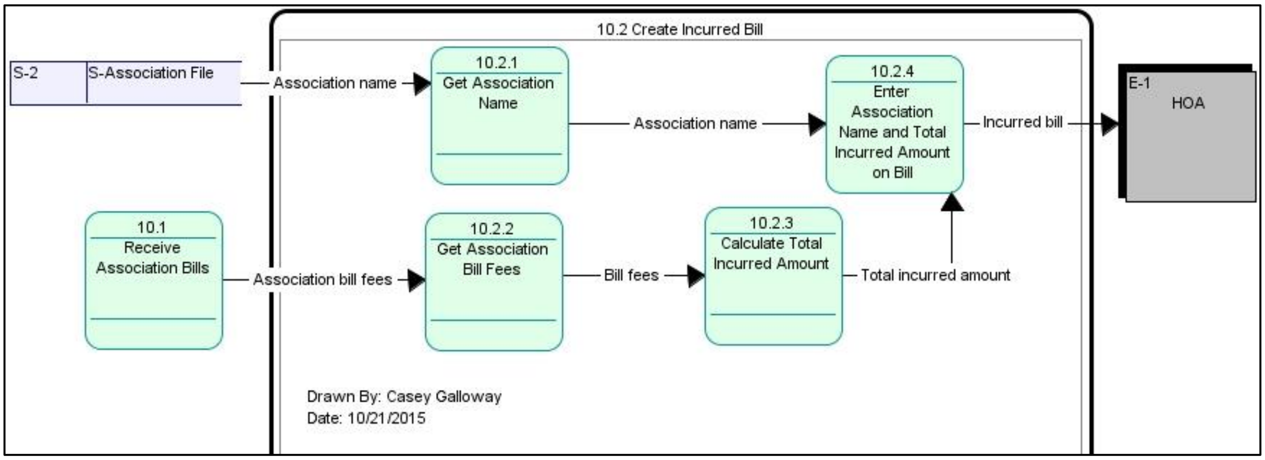


Figure 42: Calculate Incurred Association Bill Process 10.2 Level 2 Data Flow Diagram

Maintain Maintenance Calendar

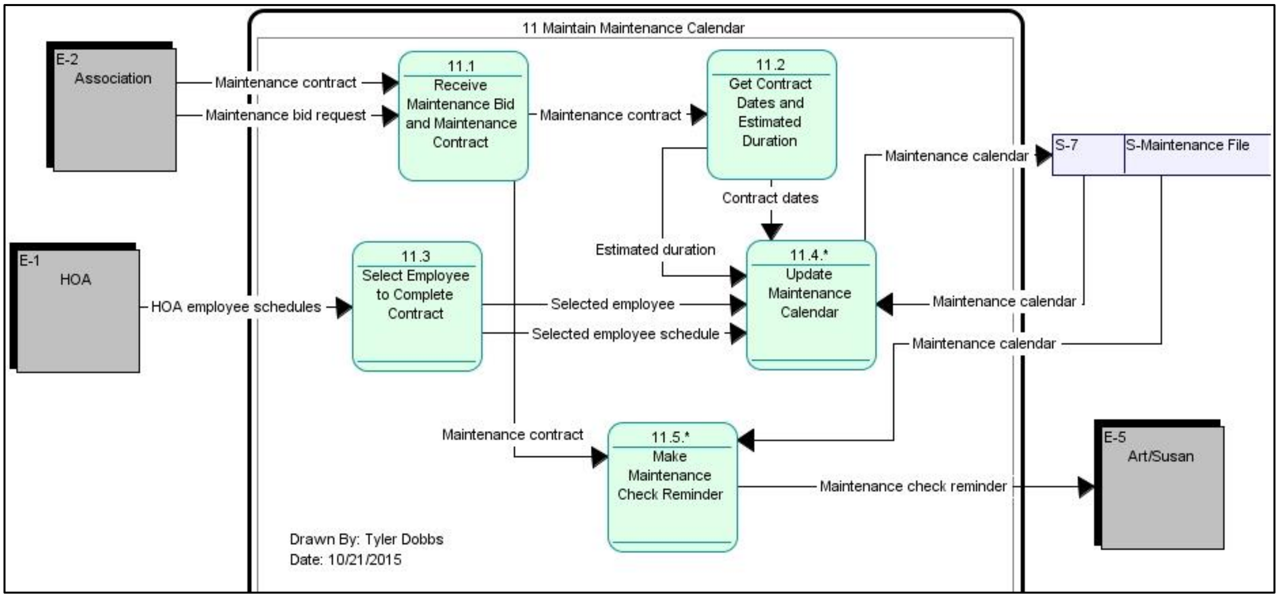


Figure 43: Maintain Maintenance Calendar Level 1 Data Flow Diagram

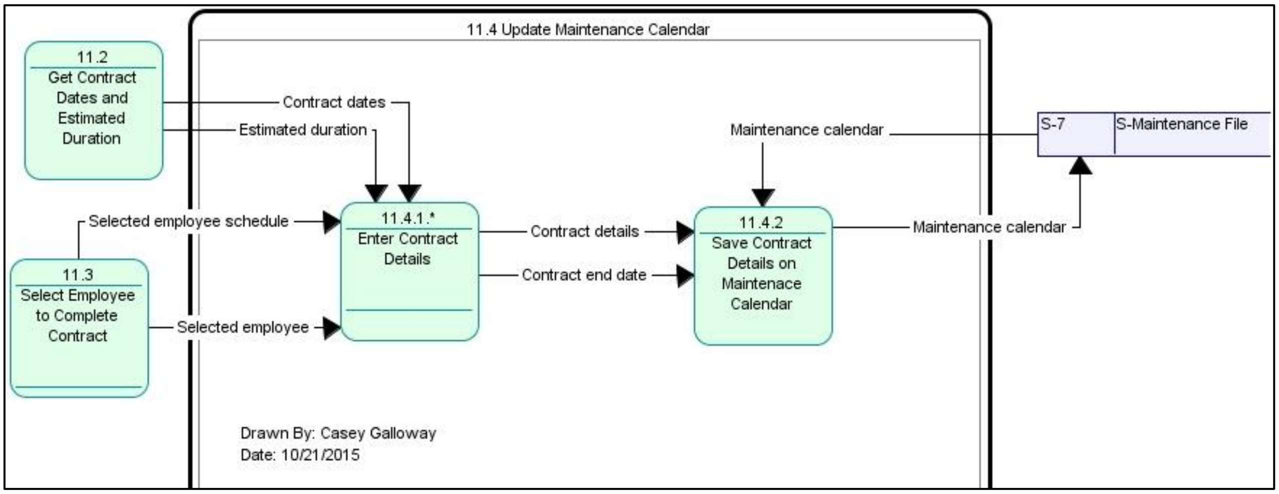


Figure 44: Maintain Maintenance Calendar Process 11.4 Level 2 Data Flow Diagram

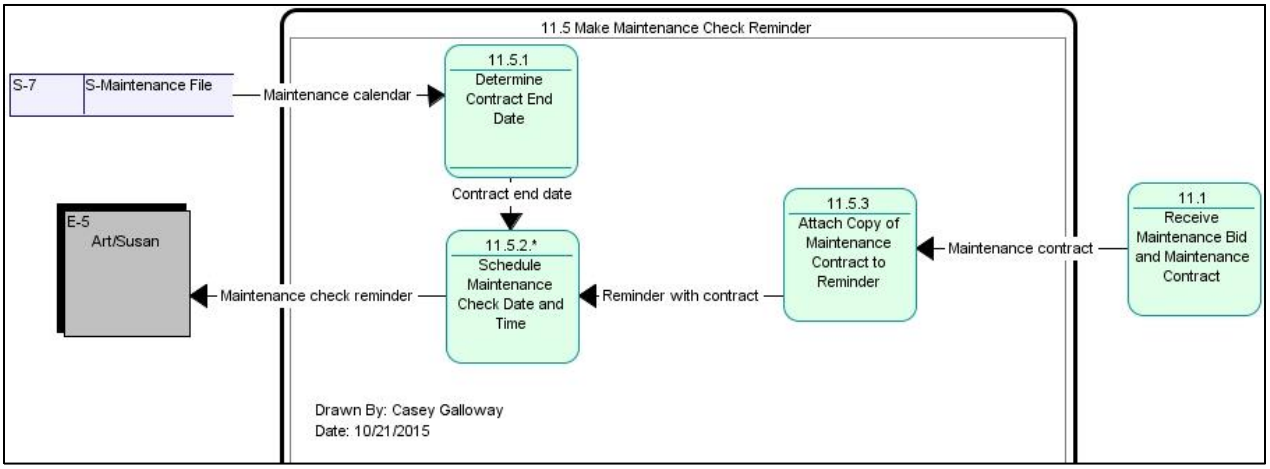

11.5 Make Maintenance Check Reminder
S-7
S-Maintenance File
Maintenance calendar
11.5.1
Determine Contract End Date
Contract end date
E-5
Art/Susan
Maintenance check reminder
11.5.2.*
Schedule Maintenance Check Date and Time
Reminder with contract
11.5.3
Attach Copy of Maintenance Contract to Reminder
Maintenance contract
11.1
Receive Maintenance Bid and Maintenance Contract
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 45: Maintain Maintenance Calendar Process 11.5 Level 2 Data Flow Diagram

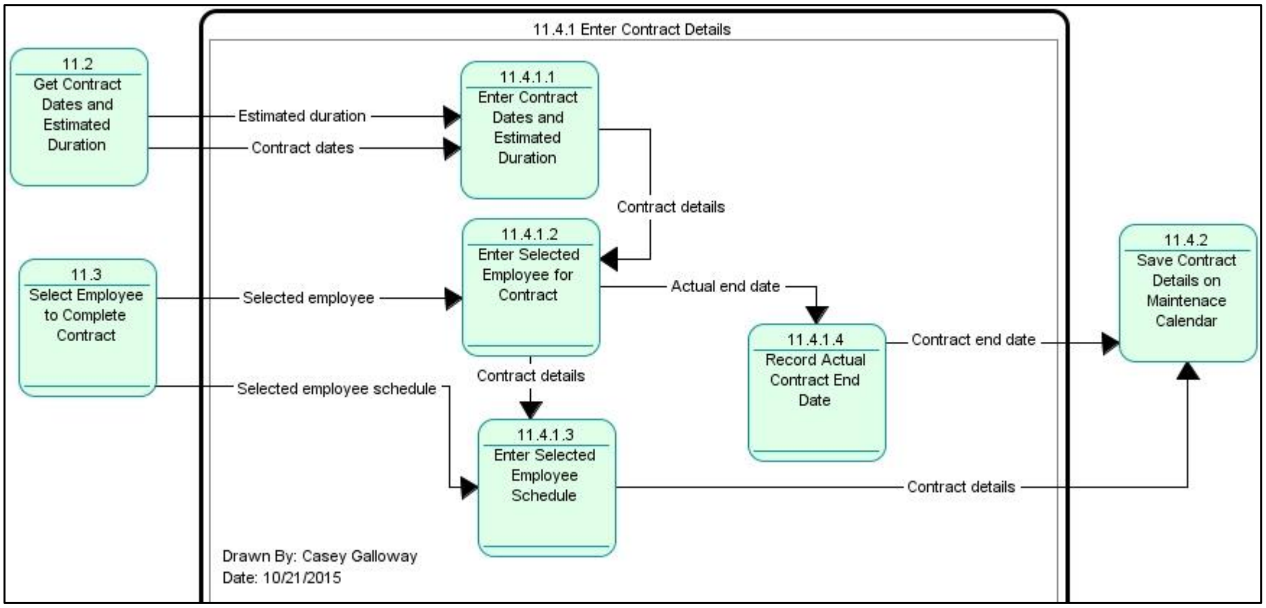

11.4.1 Enter Contract Details
11.2
Get Contract Dates and Estimated Duration
Estimated duration
Contract dates
11.4.1.1
Enter Contract Dates and Estimated Duration
Contract details
11.3
Select Employee to Complete Contract
Selected employee
11.4.1.2
Enter Selected Employee for Contract
Actual end date
11.4.2
Save Contract Details on Maintence Calendar
11.4.1.4
Record Actual Contract End Date
Contract end date
Selected employee schedule
Contract details
11.4.1.3
Enter Selected Employee Schedule
Contract details
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 46: Maintain Maintenance Calendar Process 11.4.1 Level 3 Data Flow Diagram

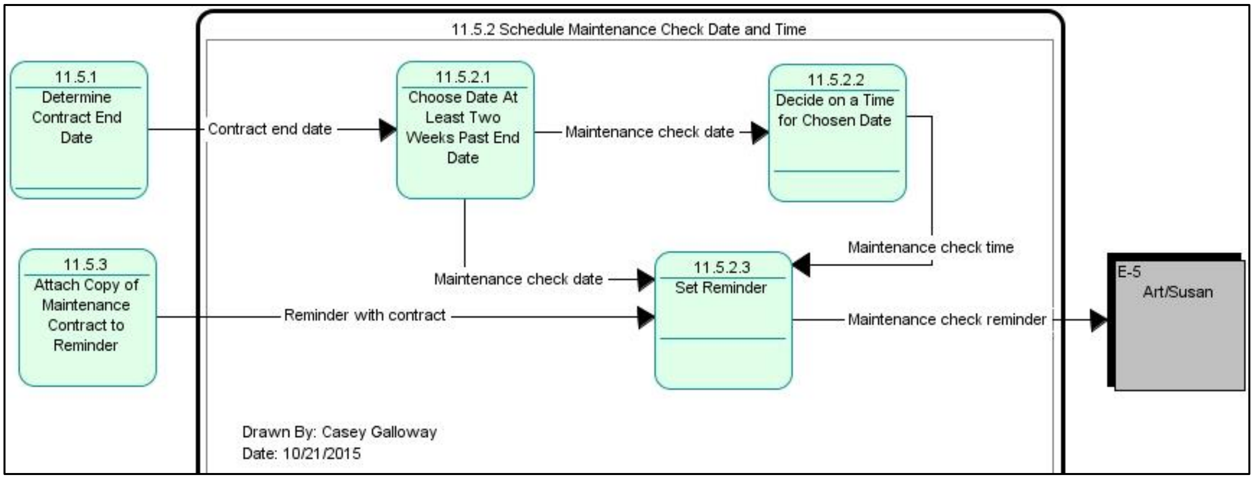

11.5.2 Schedule Maintenance Check Date and Time
11.5.1
Determine Contract End Date
Contract end date
11.5.2.1
Choose Date At Least Two Weeks Past End Date
Maintenance check date
11.5.2.2
Decide on a Time for Chosen Date
Maintenance check time
11.5.3
Attach Copy of Maintenance Contract to Reminder
Maintenance check date
Reminder with contract
11.5.2.3
Set Reminder
Maintenance check reminder
E-5
Art/Susan
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 47: Maintain Maintenance Calendar Process 11.5.2 Level 3 Data Flow Diagram

Maintain Association Committee List Data Flow Diagrams

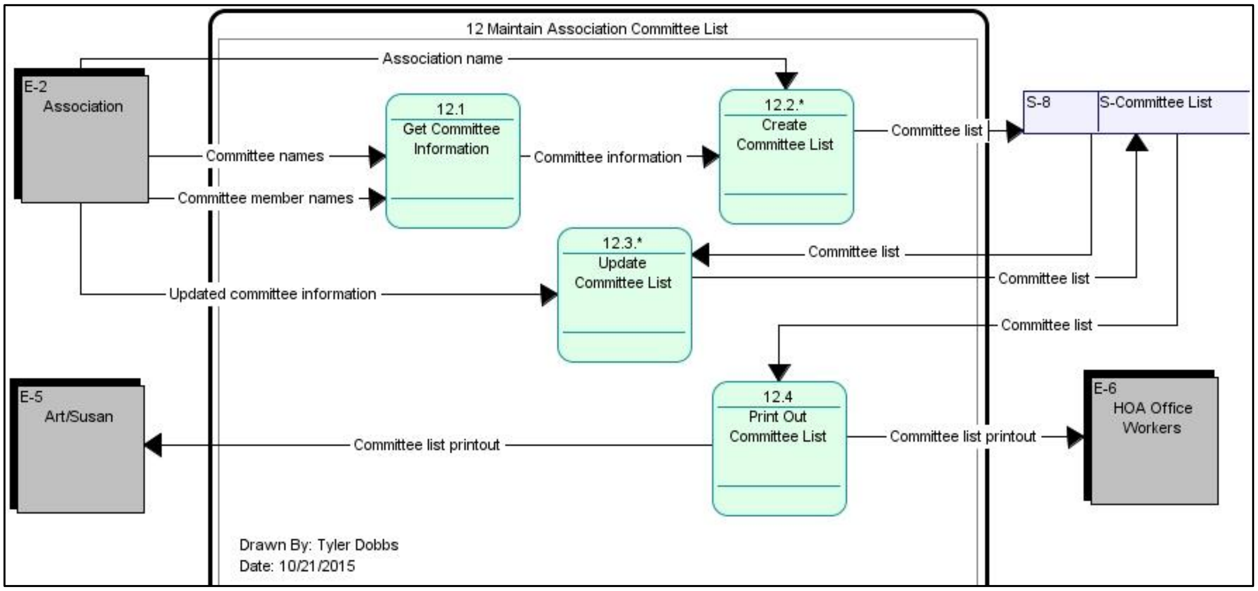


Figure 48: Maintain Association Committee List Level 1 Data Flow Diagram

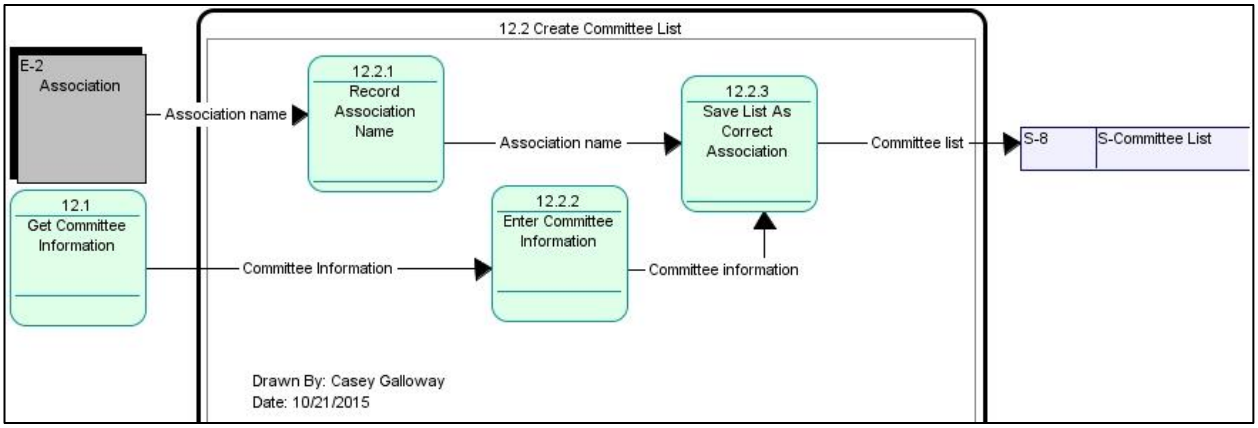


Figure 49: Maintain Association Committee List Process 12.2 Level 2 Data Flow Diagram

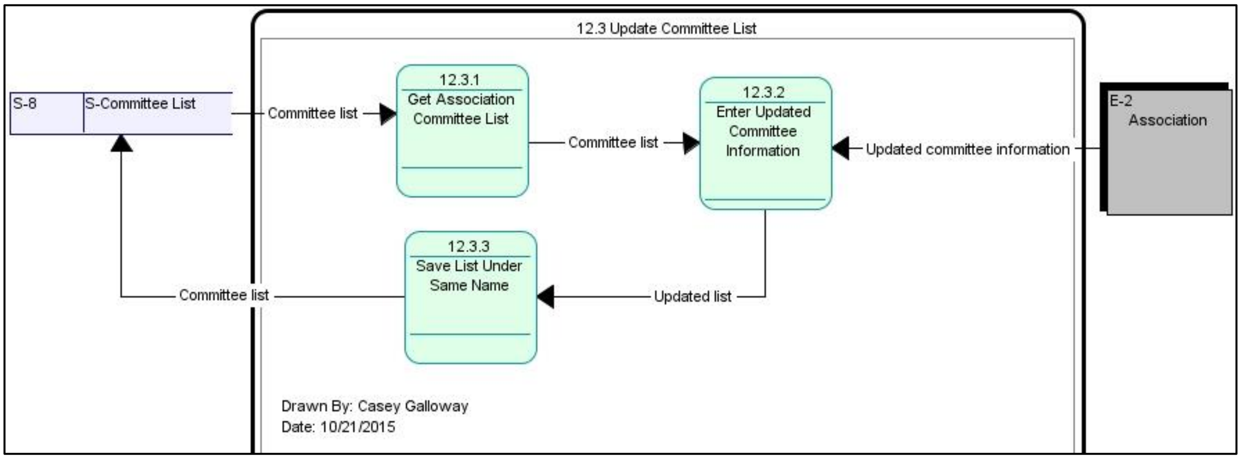

12.3 Update Committee List
S-8
S-Committee List
Committee list
12.3.1
Get Association Committee List
Committee list
12.3.2
Enter Updated Committee Information
Updated committee information
E-2
Association
12.3.3
Save List Under Same Name
Committee list
Updated list
Drawn By: Casey Galloway
Date: 10/21/2015

Figure 50: Maintain Association Committee List Process 12.3 Level 2 Data Flow Diagram

Create Community Newsletter

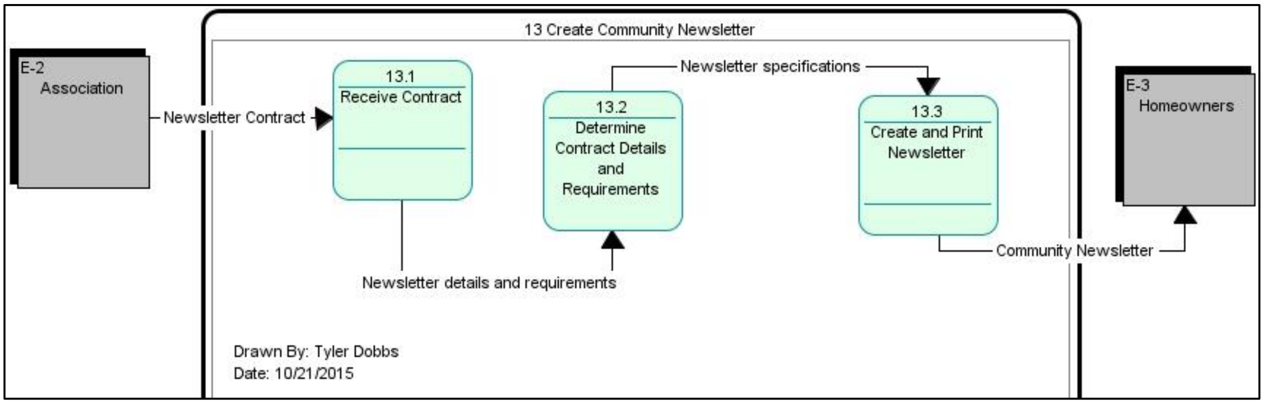

13 Create Community Newsletter
E-2
Association
Newsletter Contract
13.1
Receive Contract
13.2
Determine Contract Details and Requirements
Newsletter specifications
13.3
Create and Print Newsletter
E-3
Homeowners
Community Newsletter
Newsletter details and requirements
Drawn By: Tyler Dobbs
Date: 10/21/2015

Figure 51: Create Community Newsletter Level 1 Data Flow Diagram

Process Specifications

Process specifications show how the inputs and outputs specifically interact with each leaf/child process in the system.

Organize and Update Ordered Association List Process Specifications

Process 1.1.1

Select HOA Services

Inputs:

HOA services from HOA Services data store (S-9)

Required services from the Association

Outputs: Selected services to Calculate Monthly Fee (Process 1.1.2.1) and Compile File Information (Process 1.1.3)

Structured English:

1. Get HOA services that are offered
2. Get required services needed
3. Find corresponding offered HOA services to the required services needed
4. Select matching HOA services
5. Send selected services to Calculate Monthly Fee and Compile File Information

Process 1.1.2.1

Calculate Monthly Fee

Inputs:

Selected services from Select HOA Services (Process 1.1.1)

Service fees from HOA Services data store (S-9)

Discount rates from HOA Services data store (S-9)

Outputs: Monthly fee to Compile Bylaws (Process 1.1.2.4)

Structured English:

1. Receive selected services
2. Open HOA Services data store
3. Retrieve service fees
4. Retrieve discount rates
5. Close HOA Services data store
6. Find corresponding service fees to selected services
7. Add service fees of selected services
8. Count number of selected services
9. Determine corresponding discount rate for number of selected services
10. Calculate set monthly fee by multiplying added service fees by corresponding discount rate
11. Send monthly fee to Compile Bylaws

Process 1.1.2.2

Decide Payment Period

Inputs:

Association bylaws template from HOA

Creation date from HOA

Outputs: Payment period to Compile Bylaws (Process 1.1.2.4)

Structured English:

1. Get association bylaws template
2. Get creation date
3. Choose a payment period based on creation date
4. Send payment period to Compile Bylaws

Process 1.1.2.3

Decide Late Penalties

Inputs:

Association bylaws template from HOA

Late penalty options from HOA

Outputs: Late penalties to Compile Bylaws (Process 1.1.2.4)

Structured English:

1. Get association bylaws template
2. Get late penalty options
3. Determine late penalties for association
4. Send late penalties to Compile Bylaws

Process 1.1.2.4

Compile Bylaws

Inputs:

Monthly fee from Calculate Monthly Fee (Process 1.1.2.1)

Payment period from Decide Payment Period (Process 1.1.2.2)

Late penalties from Decide Late Penalties (Process 1.1.2.3)

Outputs: Association bylaws to Compile File Information (Process 1.1.3)

Structured English:

1. Receive monthly fee
2. Receive payment period
3. Receive late penalties
4. Create association bylaws
5. Send association bylaws to Compile File Information

Process 1.1.3

Compile File Information

Inputs:

Association information from the Association

Selected services from Select HOA Service (Process 1.1.1)

Association bylaws from Compile Bylaws (Process 1.1.2.4)

Outputs:

Association file to Update Ordered Association List (Process 1.2)

Association file to Association File data store (S-2)

Structured English:

1. Receive association information
2. Receive selected services
3. Receive association bylaws
4. Create association file
5. Send association file to Update Ordered Association List
6. Send association file to Association File data store

Process 1.2

Update Ordered Association List

Inputs:

Association file from Compile File Information (Process 1.1.4)

Ordered association list from Customer File data store (S-1)

Outputs:

Updated association list to Art/Susan

Updated association list to Customer File data store (S-1)

Structured English:

1. Receive association file
2. Open Customer File data store
3. Retrieve ordered association list
4. Close Customer File data store
5. Add association file to ordered association list
6. Reorganize ordered association list
7. Open Customer File data store
8. Send updated association list to Customer File data store
9. Close Customer File data store
10. Send updated association list to Art/Susan

Process 1.3.1

Get Needed Worksheet Information

Inputs:

Association name from Association File data store (S-2)

Homeowner accounts from the Association

Outputs: Worksheet information to Enter Worksheet Information (Process 1.3.2)

Structured English:

1. Open Association File data store
2. Retrieve association name
3. Close Association File data store

1. Get association's homeowner accounts

4. Send worksheet information to Enter Worksheet Information

Process 1.3.2

Enter Worksheet Information

Inputs: Worksheet information from Get Needed Worksheet Information (Process 1.3.1)

Outputs: Association worksheet from Separate Worksheets data store (S-3)

Structured English:

1. Receive worksheet
2. Create new association worksheet
3. Enter association name and homeowner accounts onto new worksheet
4. Open Separate Worksheets data store
5. Send association worksheet to Separate Worksheets data store
6. Close Separate Worksheets data store

Create Monthly Bill Process Specifications

Process 2.1

Retrieve Association Bylaws

Inputs: Association bylaws from Association File data store (S-2)

Outputs:

Monthly fee to Calculate Total Amount Due (Process 2.2.2)

Date due by to Determine Due Date of Bill (Process 2.3)

Late penalties to Compile Bill (Process 2.4.2)

Structured English:

1. Open Association File data store
2. Retrieve association bylaws
3. Close Association File data store
4. Determine date due by
5. Send date due by to Determine Due Date of Bill
6. Determine monthly fee
7. Send monthly fee to Calculate Total Amount Due
8. Determine late penalties
9. Send late penalties to Compile Bill

Process 2.2.1

Get Association Credit

Inputs: Association credit from Association File data store (S-2)

Outputs: Association credit to Calculate Total Amount Due (Process 2.2.2)

Structured English:

1. Open Association File data store
2. Retrieve association credit
3. Close Association File data store
4. Determine association credit amount
5. Send association credit to Calculate Total Amount Due

Process 2.2.2

Calculate Total Amount Due

Inputs:

Monthly fee from Retrieve Association Bylaws (Process 2.1)

Association credit from Get Association Credit (Process 2.2.1)

Outputs:

Total amount due to Association File data store (S-2)

Total amount due to Compile Bill (Process 2.4.2)

Structured English:

1. Receive monthly fee
2. Receive association credit
3. Determine total amount due by subtracting association credit from monthly fee
4. Send total amount due to Compile Bill
5. Open Association File data store
6. Send total amount due
7. Close Association File data store

Process 2.3

Determine Due Date of Bill

Inputs:

Date due by from Retrieve Association Bylaws (Process 2.1)

Current month from HOA Office Workers

Outputs:

Bill due date to Association File data store (S-2)

Bill due date to Compile Bill (Process 2.4.2)

Structured English:

1. Get current month
2. Receive date due by
3. Compile bill due date with the current month and the date due by
4. Send bill due date to Compile Bill
5. Open Association File date store
6. Send bill due date
7. Close Association File data store

Process 2.4.1

Get Homeowner Accounts

Inputs: Homeowner accounts from Separate Worksheets data store (S-3)

Outputs: Homeowner accounts to Compile Bill (Process 2.4.2)

Structured English:

1. Open Separate Worksheets data store
2. Retrieve homeowner accounts
3. Close Separate Worksheets data store
4. Send homeowner accounts to Compile Bill

Process 2.4.2

Compile Bill

Inputs:

Total amount due from Determine Due Date of Bill (Process 2.3)

Bill due date from Calculate Total Amount Due (Process 2.2.2)

Homeowner accounts from Get Homeowner Accounts (Process 2.4.1)

Late penalties from Retrieve Association Bylaws (Process 2.1)

Outputs: Printed bill to Homeowners

Structured English:

1. Receive total amount due
2. Receive bill due date
3. Receive homeowner accounts
4. Receive late penalties
5. Create bill
6. Compile received information
7. Print bill
8. Send printed bill to Homeowners

Process Monthly Due Payment Process Specifications

Process 3.1

Receive Due Payment and Payment Coupon

Inputs:

Due payment from Homeowners

Payment coupon from Homeowners

Outputs:

Payment check to Get Homeowner Name from Payment Check (Process 3.2.1.1.1.2)

Payment coupon to Get Account Information from Payment Coupon (Process 3.2.1.1.1.1)

Structured English:

1. Get due payment
2. Get payment coupon
3. Send payment coupon to Get Account Information from Payment Coupon
4. Send payment check to Get Homeowner Name from Payment Check

Process 3.2.1.1.1.1

Get Account Information from Payment Coupon

Inputs: Payment coupon from Receive Due Payment and Payment Coupon (Process 3.1)

Outputs: Association name to Make Note of Homeowner's Association (Process 3.2.1.1.2)

Structured English:

1. Receive payment coupon
2. Locate necessary account information
3. Find association name with necessary account information
4. Send association name to Make Note of Homeowner's Association

Process 3.2.1.1.1.2

Get Homeowner Name from Payment Check

Inputs: Payment check from Receive Due Payment and Payment Coupon (Process 3.1)

Outputs: Homeowner name to Find Homeowner Name (Process 3.2.1.1.1.3.2)

Structured English:

1. Receive payment check
2. Locate homeowner name on payment check
3. Send homeowner name to Find Homeowner Name

Process 3.2.1.1.1.3.1

Lookup Most Recent Worksheets

Inputs: Association worksheet from Separate Worksheets data store (S-3)

Outputs: Recent worksheets to Find Homeowner Name (Process 3.2.1.1.1.3.2)

Structured English:

1. Open Association File data store
2. Find most recent worksheets
3. Retrieve recent association worksheets
4. Close Association File data store
5. Send recent worksheets to Find Homeowner Name

Process 3.2.1.1.1.3.2

Find Homeowner Name

Inputs:

Homeowner name from Get Homeowner Name from Payment Check (Process 3.2.1.1.1.2)

Recent worksheets from Lookup Most Recent Worksheets (Process 3.2.1.1.1.3.1)

Outputs: Matching account to Determine Corresponding Association (Process 3.2.1.1.1.3.3)

Structured English:

1. Receive homeowner name
2. Receive recent worksheets

3. Search recent worksheets for homeowner name
4. Locate account that matches the homeowner name
5. Send matching account to Determine Corresponding Association

Process 3.2.1.1.1.3.3

Determine Corresponding Association

Inputs: Matching account from Find Homeowner Name (Process 3.2.1.1.1.3.2)

Outputs: Association name to Make Note of Homeowner's Association (Process 3.2.1.1.2)

Structured English:

1. Receive matching account
2. Locate matching account in its association worksheet
3. Locate association name on worksheet
4. Send association name to Make Note of Homeowner's Association

Process 3.2.1.1.2

Make Note of Homeowner’s Association

Inputs: Association name from Get Account Information from Payment Coupon (Process 3.2.1.1.1.1) or Association name from Determine Corresponding Association (Process 3.2.1.1.1.3.3)

Outputs: Correct association to Retrieve Association Worksheet (Process 3.2.1.2)

Structured English:

1. Receive association name
2. Determine association name is correct association
3. Send correct association to Retrieve Association Worksheet

Process 3.2.1.2

Retrieve Association Worksheet

Inputs: Association worksheet from Separate Worksheets data store (S-3)

Outputs: Correct worksheet to Locate Homeowner Account (Process 3.2.2.1)

Structured English:

1. Receive correct association
2. Open Separate Worksheets data store
3. Find association worksheet that matches correct association
4. Retrieve matching association worksheet
5. Close Separate Worksheets data store
6. Send correct worksheet to Locate Homeowner Account

Process 3.2.2.1

Locate Homeowner Account

Inputs: Correct worksheet from Retrieve Association Worksheet (Process 3.2.1.2)

Outputs: Account to Locate Payment Month Fields (Process 3.2.2.3.1)

Structured English:

1. Receive correct worksheet
2. Scan worksheet accounts
3. Find homeowner account
4. Send account to Locate Payment Month Fields

Process 3.2.2.2

Determine Payment Month

Inputs: Date received from HOA

Outputs: Payment month to Locate Payment Month Fields (Process 3.2.2.3.1)

Structured English:

1. Get date received
2. Determine month paid from date received
3. Send payment month to Locate Payment Month Fields

Process 3.2.2.3.1

Locate Payment Month Fields

Inputs:

Account from Locate Homeowner Account (Process 3.2.2.1)

Payment month from Determine Payment Month (Process 3.2.2.2)

Outputs:

Empty fields to Enter Payment Amount and Check Number (Process 3.2.2.3.2)

Empty fields to Enter Date Received (Process 3.2.2.3.3)

Structured English:

1. Receive account
2. Receive payment month
3. Find payment month on correct worksheet
4. Locate empty fields under payment month the correspond to account
5. Send empty fields to Enter Payment Amount and Check Number
6. Send empty fields to Enter Date Received

Process 3.2.2.3.2

Enter Payment Amount and Check Number

Inputs:

Empty fields from Locate Payment Month Fields (Process 3.2.2.3.1)

Payment coupon from Receive Due Payment and Payment Coupon (Process 3.1)

Outputs:

Entered payment amount to Save Payment Entry (Process 3.2.2.3.4)

Entered check number to Save Payment Entry (Process 3.2.2.3.4)

Structured English:

1. Received empty fields
2. Receive payment coupon
3. Locate payment amount and check number on payment coupon
4. Locate empty payment amount field
5. Enter payment amount
6. Locate empty check number field
7. Enter check number
8. Send entered payment amount and entered check number to Save Payment Entry

Process 3.2.2.3.3

Enter Date Received

Inputs: Empty fields from Locate Payment Month Fields (Process 3.2.2.3.1)

Outputs: Entered date received to Save Payment Entry (Process 3.2.2.3.4)

Structured English:

1. Receive empty fields
2. Locate data received field
3. Enter date received in field
4. Send entered date received to Save Payment Entry

Process 3.2.2.3.4

Save Payment Entry

Inputs:

Entered payment amount from Enter Payment Amount and Check Number (Process 3.2.2.3.2)

Entered check number from Enter Payment Amount and Check Number (Process 3.2.2.3.2)

Entered date received from Enter Date Received (Process 3.2.2.3.3)

Outputs:

Updated worksheet to Update Worksheet for 12 Months (Process 3.3.1)

Association worksheet to Separate Worksheets data store (S-3)

Structured English:

1. Receive entered date received
2. Receive entered payment amount
3. Receive entered check number
4. Update and save association worksheet with new payment entry
5. Send updated worksheet to Update Worksheet for 12 Months
6. Open Separate Worksheets data store
7. Send association worksheet
8. Close Separate Worksheets data store

Process 3.3.1

Update Worksheet for 12 Months

Inputs: Updated worksheet from Save Payment Entry (Process 3.2.2.3.4)

Outputs:

12month worksheet to Save Fiscal Year Worksheet Data (Process 3.3.2)

12month worksheet to Delete Association Worksheet Data (Process 3.3.3)

Structured English:

1. Receive updated worksheet
2. Create 12month worksheet from every updated worksheet received
3. After 12 months, send 12month worksheet to Save Fiscal Year Worksheet Data
4. After 12 months, send 12month worksheet to Delete Association Worksheet Data

Process 3.3.2

Save Fiscal Year Worksheet Data

Inputs: 12month worksheet from Update Worksheet for 12 Months (Process 3.3.1)

Outputs: Fiscal year worksheet to Archived Worksheets data store (S-4)

Structured English:

1. Receive 12month worksheet
2. Save 12month worksheet as fiscal year worksheet
3. Open Archived Worksheets data store
4. Send fiscal year worksheet
5. Close Archived Worksheets data store

Process 3.3.3

Delete Association Worksheet Data

Inputs: 12month worksheet from Update Worksheet for 12 Months (Process 3.3.1)

Outputs: Association worksheet to Separate Worksheets data store (S-3)

Structured English:

1. Receive 12month worksheet
2. Open Separate Worksheets data store
3. Find corresponding association worksheet to 12month worksheet
4. Delete all association worksheet data
5. Update association worksheet
6. Close Separate Worksheets data store

Create and File Monthly Delinquency Records Process Specifications

Process 4.1.1

Select Association and Month

Inputs: Association worksheet from Separate Worksheets data store (S-3)

Outputs:

Selected month to Filter Blank "Date Received" Field (Process 4.1.2)

Selected month to Determine Month Abbreviation (Process 4.4.2)

Association name to Determine Association Initials (Process 4.4.1)

Structured English:

1. Open Separate Worksheets data store
2. Choose an association
3. Retrieve association worksheet
4. Close Separate Worksheets data store
5. Select payment month on association worksheet
6. Send selected month to Filter Blank "Date Received" Field
7. Send selected month to Determine Month Abbreviation
8. Locate association name on worksheet
9. Send association name to Determine Association Initials

Process 4.1.2

Select Association and Month

Inputs: Selected month from Select Association and Month (Process 4.1.1)

Outputs: No date received accounts to Compare Number of Days Past and Allowed Late Period (Process 4.2.3.1)

Structured English:

1. Receive selected month
2. Locate date received field within selected month
3. Filter date received field column for blank fields
4. Remove non-empty date received fields
5. Locate corresponding accounts to blank fields
6. Send no date received accounts to Compare Number of Days Past and Allowed Late Period

Process 4.2.1

Get Bill Due Date and Current Date

Inputs:

Current date from HOA Office Workers

Bill due date from Association File data store (S-2)

Outputs:

Current date to Calculate Number of Days Since Due Date (Process 4.2.2)

Bill due date to Calculate Number of Days Since Due Date (Process 4.2.2)

Structured English:

1. Get current date
2. Open Association File data store
3. Retrieve bill due date of association
4. Close Association File data store
5. Send current date to Calculate Number of Days Since Due Date
6. Send bill due date to Calculate Number of Days Since Due Date

Process 4.2.2

Calculate Number of Days Since Due Date

Inputs:

Current date from Get Bill Due Date and Current Date (Process 4.2.1)

Bill due date from Get Bill Due Date and Current Date (Process 4.2.1)

Outputs: Number of days past to Compare Number of Days Past and Allowed Late Period (Process 4.2.3.1)

Structured English:

1. Receive current date
2. Receive bill due date
3. Count days between bill due date and current date
4. Determine number of days past
5. Send number of days past to Compare Number of Days Past and Allowed Late Period

Process 4.2.3.1

Compare Number of Days Past and Allowed Late Period

Inputs:

No date received accounts from Filter Blank "Date Received" Field (Process 4.1.2)

Number of days past from Calculate Number of Days Since Due Date (Process 4.2.2)

Allowed late period from Association File data store (S-2)

Outputs:

Over late period accounts to Mark Account as Delinquent (Process 4.2.3.2)

Not past yet accounts to Mark Account as Not Delinquent (Process 4.2.3.3)

Structured English:

```
1. Receive no date received accounts
2. Receive number of days past
3. Open Association File data store
4. Retrieve allowed late period for association
5. Close Association File data store
6. Compare allowed late period to the number of days that have already passed
7. IF number of days past is greater than allowed late period
       Send account with over late period accounts to Mark Account as Delinquent
   ELSE
       Send account with not past yet accounts to Mark Account as Not Delinquent
   ENDIF
```

Process 4.2.3.2

Mark Account as Delinquent

Inputs: Over late period accounts from Compare Number of Days Past and Allowed Late Period (Process 4.2.3.1)

Outputs: Delinquent status homeowners to Filter Delinquent Status Homeowners (Process 4.2.4)

Structured English:

1. Receive over late period accounts
2. Set delinquent status of accounts to delinquent
3. Send delinquent status homeowners to Filter Delinquent Status Homeowners

Process 4.2.3.3

Mark Account as Not Delinquent

Inputs: Not past yet accounts from Compare Number of Days Past and Allowed Late Period (Process 4.2.3.1)

Outputs: Not delinquent status homeowners to Filter Delinquent Status Homeowners (Process 4.2.4)

Structured English:

1. Receive not past yet accounts
2. Set delinquent status as not delinquent
3. Send not delinquent status homeowners to Filter Delinquent Status Homeowners

Process 4.2.4

Filter Delinquent Status Homeowners

Inputs:

Delinquent status homeowners from Mark Account as Delinquent (Process 4.2.3.2)

Not delinquent status homeowners from Mark Account as Not Delinquent (Process 4.2.3.3)

Outputs: Delinquent status homeowners to Copy Corresponding Homeowner Accounts (Process 4.3.1)

Structured English:

1. Receive delinquent status homeowners
2. Receive not delinquent status homeowners
3. Search received homeowners for delinquent status
4. Remove not delinquent status homeowners
5. Send delinquent status homeowners to Copy Corresponding Homeowner Accounts

Process 4.3.1

Copy Corresponding Homeowner Accounts

Inputs: Delinquent status homeowners from Filter Delinquent Status Homeowners (Process 4.2.4)

Outputs: Copied accounts to Create Separate File with Copied Accounts (Process 4.3.2)

Structured English:

1. Receive delinquent status homeowners
2. Locate delinquent homeowner accounts
3. Copy homeowner accounts
4. Send copied accounts to Create Separate File with Copied Accounts

Process 4.3.2

Create Separate File with Copied Accounts

Inputs: Copied accounts from Copy Corresponding Homeowner Accounts (Process 4.3.1)

Outputs: Delinquent records list file to Save File under New Name (Process 4.4.3)

Structured English:

1. Receive copied accounts
2. Create a delinquent records list file
3. Paste copied accounts into new file
4. Send delinquent records list file to Save File under New Name

Process 4.4.1

Determine Association Initials

Inputs:

Association name from Select Association and Month (Process 4.1.1)

Association initial reference from File-Naming References data store (S-10)

Outputs: Association initials to Save File under New Name (Process 4.4.3)

Structured English:

1. Receive association name
2. Open File-Naming References data store
3. Find association name in reference
4. Retrieve corresponding association initial reference
5. Close File-Naming References data store
6. Send association initials to Save File under New Name

Process 4.4.2

Determine Month Abbreviation

Inputs:

Selected month from Select Association and Month (Process 4.1.1)

Month abbreviation reference from File-Naming References data store (S-10)

Outputs: Month abbreviation to Save File under New Name (Process 4.4.3)

Structured English:

1. Receive selected month
2. Open File-Naming References data store
3. Find selected month in references
4. Retrieve month abbreviation reference
5. Close File-Naming References data store
6. Send month abbreviation to Save File under New Name

Process 4.4.3

Save File under New Name

Inputs:

Association initials from Determine Association Initials (Process 4.4.1)

Month abbreviation from Determine Month Abbreviation (Process 4.4.2)

Delinquent records list file from Create Separate File with Copied Accounts (Process 4.3.2)

Outputs: Delinquency records list to Delinquencies File data store (S-5)

Structured English:

1. Receive association initials
2. Receive month abbreviation
3. Receive delinquent records list file
4. Create file name with association initials and month abbreviation
5. Save delinquency records list under created file name
6. Open Delinquencies File data store
7. Send saved delinquency records list
8. Close Delinquencies File data store

Process 4.5

Make Delinquent List Reference Information File

Inputs:

Bill due date from Association File data store (S-2)

Allowed late period from Association File data store (S-2)

Current date from HOA Office Workers

Outputs: List reference information to Delinquencies File data store (S-5)

Structured English:

1. Receive current date
2. Open Association File data store
3. Retrieve bill due date
4. Retrieve allowed late period
5. Close Association File data store
6. Create delinquent list reference file
7. Enter all received information
8. Open Delinquencies File data store
9. Send list reference information
10. Close Delinquencies File data store

Create Delinquency Letters Process Specifications

Process 5.1

Get Delinquency Records List

Inputs: Delinquency records list from Delinquencies File data store (S-5)

Outputs: Delinquent records to Compile Delinquency Letters (Process 5.4)

Structured English:

1. Open Delinquencies File data store
2. Retrieve delinquency records list
3. Close Delinquencies File data store
4. Send delinquent records to Compile Delinquency Letters

Process 5.2.1

Get List Reference Information

Inputs: List reference information from Delinquencies File data store (S-5)

Outputs:

Bill due date to Calculate Last Day of Allowed Late Period (Process 5.2.2)

Allowed late period to Calculate Last Day of Allowed Late Period (Process 5.2.2)

Current date to Calculate Number of Delinquent Days (Process 5.2.3)

Structured English:

1. Open Delinquencies File data store
2. Retrieve list reference information
3. Close Delinquencies File data store
4. Locate bill due date in reference information
5. Send bill due date to Calculate Last Day of Allowed Late Period
6. Locate allowed late period in reference information
7. Send allowed late period to Calculate Last Day of Allowed Late Period
8. Locate current date in reference information
9. Send current date to Calculate Number of Delinquent Days

Process 5.2.2

Calculate Last Day of Allowed Late Period

Inputs:

Bill due date from Get List Reference Information (Process 5.2.1)

Allowed late period from Get List Reference Information (Process 5.2.1)

Outputs: Last day of late period to Calculate Number of Delinquent Days (Process 5.2.3)

Structured English:

1. Receive bill due date

2. Receive allowed late period
3. Add allowed late period to bill due date
4. Determine last day of allowed late period
5. Send last day of late period to Calculate Number of Delinquent Days

Process 5.2.3

Calculate Number of Delinquent Days

Inputs:

Current date from Get List Reference Information (Process 5.2.1)

Last day of late period from Calculate Last Day of Allowed Late Period (Process 5.2.2)

Outputs: Number of delinquent days to Compile Delinquency Letters (Process 5.4)

Structured English:

1. Receive current date
2. Receive last day of late period
3. Count days between last day of late period and the current date
4. Determine number of delinquent days
5. Send number of delinquent days to Compile Delinquency Letters

Process 5.3.1

Get Original Amount Due and Late Penalties

Inputs:

Late penalties from Association File data store (S-2)
Total amount due from Association File data store (S-2)

Outputs:

Late penalties to Calculate Late Fee (Process 5.3.2)
Total amount due to Calculate Late Fee (Process 5.3.2)

Total amount due to Calculate Delinquent Amount Due (Process 5.3.3)

Structured English:

1. Open Association File data store
2. Retrieve late penalties of association
3. Retrieve total amount due for association
4. Close Association File data store
5. Send late penalties to Calculate Late Fee
6. Send total amount due to Calculate Late Fee
7. Send total amount due to Calculate Delinquent Amount Due

Process 5.3.2

Calculate Late Fee

Inputs:

Late penalties from Get Original Amount Due and Late Penalties (Process 5.3.1)

Total amount due from Get Original Amount Due and Late Penalties (Process 5.3.1)

Outputs: Late fee to Calculate Delinquent Amount Due (Process 5.3.3)

Structured English:

1. Receive late penalties
2. Receive total amount due
3. Apply late penalties to total amount due
4. Determine late fee
5. Send late fee to Calculate Delinquent Amount Due

Process 5.3.3

Calculate Delinquent Amount Due

Inputs:

Late fee from Calculate Late Fee (Process 5.3.2)

Total amount due from Get Original Amount Due and Late Penalties (Process 5.3.1)

Outputs: Delinquent amount due to Compile Delinquency Letters (Process 5.4)

Structured English:

1. Receive late fee
2. Receive total amount due
3. Add late fee and total amount due
4. Determine delinquent amount due
5. Send delinquent amount due to Compile Delinquency Letters

Process 5.4

Compile Delinquency Letters

Inputs:

Delinquent records from Get Delinquency Records List (Process 5.1)

Number of delinquent days from Calculate Number of Delinquent Days (Process 5.2.3)

Delinquent amount due from Calculate Delinquent Amount Due (Process 5.3.3)

Outputs: Delinquency letters to Filter Nonduplicate Letters (Process 6.1.1) and Filter Duplicate Letters (Process 6.1.2)

Structured English:

1. Receive delinquent records
2. Receive number of delinquent days
3. Receive delinquent amount due
4. Create delinquency letter
5. Input received information into delinquency letter
6. Send delinquency letters to Filter Nonduplicate Letters
7. Send delinquency letters to Filter Duplicate Letters

Identify Duplicate Delinquency Letters Process Specifications

Process 6.1.1

Filter Nonduplicate Letters

Inputs: Delinquent letters from Compile Delinquency Letters (Process 5.4)

Outputs: Nonduplicate letters to Print Finalized Delinquency Letters (Process 6.3)

Structured English:

1. Receive delinquent letters
2. Search for letters with no duplicates
3. Remove duplicate letters
4. Send nonduplicate letters to Print Finalized Delinquency Letters

Process 6.1.2

Filter Duplicate Letters

Inputs: Delinquent letters from Compile Delinquency Letters (Process 5.4)

Outputs: Duplicate letters to Select Homeowner with Duplicate Letters (Process 6.2.1)

Structured English:

1. Receive delinquent letters
2. Search for letters with same recipient
3. Remove nonduplicate letters
4. Send duplicate letters to Select Homeowner with Duplicate Letters

Process 6.2.1

Select Homeowner with Duplicate Letters

Inputs: Duplicate letters from Filter Duplicate Letters (Process 6.1.2)

Outputs:

Selected delinquent record to Compile Consolidated Letter (Process 6.2.3)

Selected homeowner letters to Summarize Outstanding Late Payments (Process 6.2.2)

Structured English:

1. Receive duplicate letters
2. Choose a recipient with duplicate letters
3. Locate recipient's account information on the letters
4. Send selected delinquent record to Compile Consolidated Letter
5. Gather recipient's letters
6. Send selected homeowner letters to Summarize Outstanding Late Payments

Process 6.2.2

Summarize Outstanding Late Payments

Inputs: Selected homeowner letters from Select Homeowner with Duplicate Letters (Process 6.2.1)

Outputs: Late payment summary to Compile Consolidated Letter (Process 6.2.3)

Structured English:

1. Receive selected homeowner letters
2. Locate payment information on each letter
3. Summarize late payments from each letter
4. Send late payment summary to Compile Consolidated Letter

Process 6.2.3

Compile Consolidated Letter

Inputs:

Selected delinquent record from Select Homeowner with Duplicate Letters (Process 6.2.1)

Late payment summary from Summarize Outstanding Late Payments (Process 6.2.2)

Outputs: Consolidated letters to Print Finalized Delinquency Letters (Process 6.3)

Structured English:

1. Receive selected delinquent record
2. Receive late payment summary
3. Create new delinquent letter
4. Input consolidated information in new letter
5. Repeat above steps until all duplicate letters are consolidated
6. Send consolidated letters to Print Finalized Delinquency Letters

Process 6.3

Print Finalized Delinquency Letters

Inputs:

Consolidated letters from Compile Consolidated Letter (Process 6.2.3)

Nonduplicate letters from Filter Nonduplicate Letters (Process 6.1.1)

Outputs: Finalized delinquency letters to Homeowners

Structured English:

1. Receive consolidated letters
2. Receive nonduplicate letters
3. Print all letters
4. Send finalized delinquency letters to Homeowners

Send Notice of Violation Process Specifications

Process 7.1

Receive Complaint About Homeowner

Inputs: Complaint from the Association Board of Directors or the Homeowners

Outputs:

Complaint to Determine Complaint Validity (Process 7.2.1)

Reported homeowner to Find Account in Violation (Process 7.3.2)

Structured English:

1. Receive complaint
2. Send complaint to Determine Complaint Validity
3. Determine homeowner being complained about
4. Send reported homeowner to Find Account in Violation

Process 7.2.1

Determine Complaint Validity

Inputs: Complaint from Receive complaint about homeowner (Process 7.1)

Outputs: Valid complaint to Determine Violated CC&Rs (Process 7.2.2)

Structured English:

```
1. Receive complaint
2. Investigate complaint validity
3. Determine validity status
4. IF complaint is determined to be valid
        Send valid complaint to Determine Violated CC&Rs
   ELSE
        Ignore complaint
   ENDIF
```

Process 7.2.2

Determine Violated CC&Rs

Inputs:

Valid complaint from Determine Complaint Validity (Process 7.2.1)

CC&Rs from the Association

Outputs:

Violated CC&Rs to Compile Notice of Violation (Process 7.3.4)

Violated CC&Rs to Determine Appropriate Penalty Warnings (Process 7.3.3)

Structured English:

1. Receive valid complaint
2. Get CC&Rs
3. Compare complaint to CC&Rs
4. Determine CC&R in violation of
5. Send violated CC&Rs to Compile Notice of Violation
6. Send violated CC&Rs to Determine Appropriate Penalty Warnings

Process 7.3.1

Get Homeowner Accounts

Inputs: Homeowner accounts from Separate Worksheets data store (S-3)

Outputs: Homeowner accounts to Find Account in Violation (Process 7.3.2)

Structured English:

1. Open Separate Worksheets data store
2. Retrieve homeowner accounts
3. Close Separate Worksheets data store
4. Send homeowner accounts to Find Account in Violation

Process 7.3.2

Find Account in Violation

Inputs:

Homeowner accounts from Get Homeowner Accounts (Process 7.3.1)

Report homeowner from Receive Complaint about Homeowner (Process 7.1)

Outputs: Violator account to Compile Notice of Violation (Process 7.3.4)

Structured English:

1. Receive homeowner accounts
2. Receive reported homeowner
3. Search homeowner accounts for reported homeowner account
4. Select corresponding account
5. Send violator account to Compile Notice of Violation

Process 7.3.3

Determine Appropriate Penalty Warnings

Inputs:

Penalty warnings from Association Board of Directors

Violated CC&Rs from Determine Violated CC&Rs (Process 7.2.2)

Outputs: Penalty warnings to Compile Notice of Violation (Process 7.3.4)

Structured English:

1. Receive violated CC&Rs
2. Receive penalty warnings
3. Determine suitable penalty for CC&Rs violated
4. Send penalty warnings to Compile Notice of Violation

Process 7.3.4

Compile Notice of Violation

Inputs:

Penalty warnings from Determine Appropriate Penalty Warnings (Process 7.3.3)

Violator account from Find Account in Violation (Process 7.3.2)

Violated CC&Rs from Determine Violated CC&Rs (Process 7.2.2)

Outputs: Notice of violation to Save and Send Violation Notice (Process 7.4)

Structured English:

1. Receive violator account
2. Receive violated CC&Rs
3. Receive penalty warnings
4. Create notice of violation
5. Input received information into notice
6. Send notice of violation to Save and Send Violation Notice

Process 7.4

Save and Send Violation Notice

Inputs: Notice of violation from Compile Notice of Violation (Process 7.3.4)

Outputs:

Notice of violation to the Homeowners

Notice of violation to Violations File data store (S-6)

Structured English:

1. Receive notice of violation
2. Print notice of violation
3. Send notice of violation to Homeowners
4. Open Violations File data store
5. Send notice of violation
6. Save notice of violation
7. Close Violations File data store

Track and Follow-up on Notices Process Specifications

Process 8.1.1

Locate Violation Sent Date

Inputs: Notice of violation from Violations File data store (S-6)

Outputs: Violation sent date to Determine Number of Days Since Sent Date (Process 8.1.2)

Structured English:

1. Open Violations File data store
2. Retrieve notice of violation
3. Close Violations File data store
4. Locate sent date on notice
5. Send violation sent date to Determine Number of Days Since Sent Date

Process 8.1.2

Determine Number of Days Since Sent Date

Inputs:

Violation sent date from Locate Violation Sent Date (Process 8.1.1)

Current date from HOA Office Workers

Outputs:

Less than 15 days to Return Notice to Data Store (Process 8.1.3)

15 or more days to Send Notice to be Followed-up On (Process 8.1.4)

Structured English:

1. Receive violation sent date
2. Get current date
3. Count number of days between violation sent date and current date
4. IF result is less than 15 days

```
        Send less than 15 days notice to Return Notice to Data Store
    ELSE
        Send 15 or more days notice to Send Notice to be Follow-up On
    ENDIF
```

Process 8.1.3

Return Notice to Data Store

Inputs: Less than 15 days notice from Determine Number of Days Since Sent Date (Process 8.1.2)

Outputs: Notice of violation to Violations File data store (S-6)

Structured English:

1. Receive less than 15 days notice
2. Open Violations File data store
3. Send notice of violation
4. Close Violations File data store

Process 8.1.4

Send Notice to be Followed-up On

Inputs: 15 or more days notice from Determine Number of Days Since Sent Date (Process 8.1.2)

Outputs: Old violation notice to Determine Notice Compliance Status (Process 8.2.1)

Structured English:

1. Receive 15 or more days notice
2. Mark 15 or more days notice as old
3. Send old violation notice to Get Notice Compliance Status

Process 8.2.1

Determine Notice Compliance Status

Inputs:

Old violation notice from Send Notice to be Followed-up On (Process 8.1.4)

Notice compliance status from HOA

Outputs:

Not complied with status notice to Determine Violation and Appropriate Penalties (Process 8.3.1)

Satisfactory compliance status notice to Remove Notice and Update Violations File (Process 8.2.2)

Structured English:

```
1. Receive old violation notice
2. Get notice compliance status
3. IF notice has not complied with status
       Send not complied with status notice to Determine Violation and Appropriate Penalties
   ELSE
       Send satisfactory compliance status notice to Remove Notice and Update Violations File
   ENDIF
```

Process 8.2.2

Remove Notice and Update Violations File

Inputs: Satisfactory compliance status notice from Get Notice Compliance Status (Process 8.2.1)

Outputs: File update to Violations File data store (S-6)

Structured English:

```
1. Receive satisfactory compliance status notice
```

2. Delete notice
3. Open Violations File data store
4. Send file update
5. Update data store
6. Close Violations File data store

Process 8.3.1

Determine Violation and Appropriate Penalties

Inputs:

Violation penalties from Association Board of Directors

Not complied with status notice from Determine Notice Compliance Status (Process 8.2.1)

Outputs:

Original violation to Create New Violation Notice (Process 8.3.2)

Appropriate penalties to Create New Violation Notice (Process 8.3.2)

Structured English:

1. Receive not complied with status notice
2. Locate original violation on notice
3. Send original violation to Create New Violation Notice
4. Get violation penalties
5. Determine penalties to match original violation and not complied with status
6. Send appropriate penalties to Create New Violation Notice

Process 8.3.2

Create New Violation Notice

Inputs:

Next board meeting date from Association Board of Directors

Original violation from Determine Violation and Appropriate Penalties (Process 8.3.1)

Appropriate penalties from Determine Violation and Appropriate Penalties (Process 8.3.1)

Outputs: Second violation notice to Homeowners

Structured English:

1. Receive original violation
2. Receive appropriate penalties
3. Get next board meeting date
4. Create new violation notice
5. Input received information into new notice
6. Print second violation notice
7. Send second violation notice to Homeowners

Process Special Assessment Process Specifications

Process 9.1

Receive Large, Unexpected Bill

Inputs: Unexpected bill from the Association

Outputs: Unexpected bill fee to Calculate Charge for Each Homeowner (Process 9.2.2)

Structured English:

1. Get unexpected bill
2. Locate fee on bill
3. Determine unexpected bill fee
4. Send unexpected bill fee to Calculate Charge for Each Homeowner

Process 9.2.1

Determine Number of Homeowners

Inputs: Association worksheet from Separate Worksheets data store (S-3)

Outputs: Number of homeowners to Calculate Charge for Each Homeowner (Process 9.2.2)

Structured English:

1. Open Separate Worksheets data store
2. Retrieve association worksheet
3. Close Separate Worksheets data store
4. Count number of homeowner accounts on association worksheet
5. Determine number of homeowners whose value is equivalent to the number of homeowner accounts
6. Send number of homeowners to Calculate Charge for Each Homeowner

Process 9.2.2

Calculate Charge for Each Homeowner

Inputs:

Unexpected bill fee from Receive Large, Unexpected Bill (Process 9.1)

Number of Homeowners from Determine Number of Homeowners (Process 9.2.1)

Outputs:

Special assessment charge to Enter Special Assessment Charge in New Column (Process 9.3.3)

Special assessment charge to Create Special Assessment Bill (Process 9.4)

Structured English:

1. Receive unexpected bill fee
2. Receive number of homeowners
3. Divide unexpected bill fee by number of homeowners
4. Determine special assessment charge
5. Send special assessment charge to Enter Special Assessment Charge in New Column

6. Send special assessment charge to Create Special Assessment Bill

Process 9.3.1

Get Correct Association Worksheet

Inputs: Association worksheet from Separate Worksheets data store (S-3)

Outputs:

Association worksheet to Create Special Assessment Column in Worksheet (Process 9.3.2)

Homeowner accounts to Create Special Assessment Bill (Process 9.4)

Structured English:

1. Open Separate Worksheets data store
2. Retrieve association worksheet
3. Close Separate Worksheets data store
4. Send association worksheet to Create Special Assessment Column in Worksheet
5. Extract homeowner accounts from association worksheet
6. Send homeowner accounts to Create Special Assessment Bill

Process 9.3.2

Create Special Assessment Column in Worksheet

Inputs: Association worksheet from Get Correct Association Worksheet (Process 9.3.1)

Outputs: Special assessment column to Enter Special Assessment Charge in New Column (Process 9.3.3)

Structured English:

1. Receive association worksheet
2. Add special assessment column at end of worksheet
3. Send special assessment column to Enter Special Assessment Charge in New Column

Process 9.3.3

Enter Special Assessment Charge in New Column

Inputs:

Special assessment column from Create Special Assessment Column in Worksheet (Process 9.3.2)

Special assessment charge from Calculate Charge for Each Homeowner (Process 9.2.2)

Outputs: Association worksheet to Separate Worksheets data store (S-3)

Structured English:

1. Receive special assessment column
2. Receive special assessment charge
3. Input special assessment charge into special assessment column for each homeowner account
4. Update association worksheet
5. Open Separate Worksheets data store
6. Send association worksheet
7. Close Separate Worksheets data store

Process 9.4

Create Special Assessment Bill

Inputs:

Special assessment charge from Calculate Charge for Each Homeowner (Process 9.2.2)

Homeowner accounts from Get Correct Association Worksheet (Process 9.3.1)

Special assessment due date from Association Board of Directors

Outputs: Special assessment bill to Homeowners

Structured English:

1. Receive special assessment charge
2. Receive homeowner accounts
3. Receive special assessment due date
4. Create special assessment bill
5. Input received information onto bill
6. Print special assessment bill
7. Send special assessment bill to Homeowners

Calculate Incurred Association Bill Process Specifications

Process 10.1

Receive Association Bills

Inputs: Association bills from the Association

Outputs: Association bill fees to Get Association Bill Fees (Process 10.2.2)

Structured English:

1. Get association bills
2. Locate fees on association bills
3. Send association bill fees to Get Association Bill Fees

Process 10.2.1

Get Association Name

Inputs: Association name from Association File data store (S-2)

Outputs: Association name to Enter Association Name and Total Incurred Amount on Bill (Process 10.2.4)

Structured English:

1. Open Association File data store
2. Retrieve association name
3. Close Association File data store

4. Send association name to Enter Association Name and Total Incurred Amount on Bill

Process 10.2.2

Get Association Bill Fees

Inputs: Association bill fees from Receive Association Bills (Process 10.1)

Outputs: Bill fees to Calculate Total Incurred Amount (Process 10.2.3)

Structured English:

1. Receive association bill fees
2. Determine number value of association bill fees
3. Send bill fees to Calculate Total Incurred Amount

Process 10.2.3

Calculate Total Incurred Amount

Inputs: Bill fees from Get Association Bill Fees (Process 10.2.2)

Outputs: Total incurred amount to Enter Association Name and Total Incurred Amount on Bill (Process 10.2.4)

Structured English:

1. Receive bill fees
2. Determine sum of all bill fees
3. Send total incurred amount to Enter Association Name and Total Incurred Amount on Bill

Process 10.2.4

Enter Association Name and Total Incurred Amount on Bill

Inputs:

Association name from Get Association Name (Process 10.2.1)

Total incurred amount from Calculate Total Incurred Amount (Process 10.2.3)

Outputs: Incurred bill to HOA

Structured English:

1. Receive association name
2. Receive total incurred amount
3. Create bill
4. Input association name and total incurred amount
5. Send incurred bill to HOA

Maintain Maintenance Calendar Process Specifications

Process 11.1

Receive Maintenance Bid and Maintenance Contract

Inputs:

Maintenance contract from the Association

Maintenance bid request from the Association

Outputs:

Maintenance contract to Get Contract Dates and Estimated Duration (Process 11.2)

Maintenance contract to Attach Copy of Maintenance Contract to Reminder (Process 11.5.3)

Maintenance contract to Select Employee to Complete Contract (Process 11.3)

Structured English:

1. Get maintenance contract
2. Get maintenance bid request
3. Confirm maintenance contract
4. Send maintenance contract to Get Contract Dates and Estimated Duration
5. Send maintenance contract to Attach Copy of Maintenance Contract to Reminder

Process 11.2

Get Contract Dates and Estimated Duration

Inputs: Maintenance contract from Receive Maintenance Bid and Maintenance Contract (Process 11.1)

Outputs:

Contract dates to Enter Contract Dates and Estimated Duration (Process 11.4.1.1)

Estimated duration to Enter Contract Dates and Estimated Duration (Process 11.4.1.1)

Structured English:

1. Receive maintenance contract
2. Locate contracted start date and other specified dates
3. Determine estimated duration of contract based on the dates
4. Send contract dates to Enter Contract Dates and Estimated Duration
5. Send estimated duration to Enter Contract Dates and Estimated Duration

Process 11.3

Select Employee to Complete Contract

Inputs:

HOA employee schedules from HOA

Maintenance contract from Receive Maintenance Bid and Maintenance Contract (Process 11.1)

Outputs:

Selected employee to Enter Selected Employee for Contract (Process 11.4.1.2)

Selected employee schedule to Enter Selected Employee Schedule (Process 11.4.1.3)

Structured English:

1. Get HOA employee schedules
2. Receive maintenance contract
3. Compare HOA employee schedules to maintenance contract specifications
4. Choose an employee to conduct maintenance
5. Find schedule for selected employee
6. Send selected employee to Enter Selected Employee for Contract
7. Send selected employee schedule to Enter Selected Employee Schedule

Process 11.4.1.1

Enter Contract Dates and Estimated Duration

Inputs:

Estimated duration from Get Contract Dates and Estimated Duration (Process 11.2)

Contract dates from Get Contract Dates and Estimated Duration (Process 11.2)

Outputs: Contract details to Enter Selected Employee for Contract (Process 11.4.1.2)

Structured English:

1. Receive contract dates
2. Receive estimated duration
3. Create contract details
4. Input contract dates and estimated duration
5. Send contract details to Enter Selected Employee for Contract

Process 11.4.1.2

Enter Selected Employee for Contract

Inputs:

Contract details from Enter Contract Dates and Estimated Duration (Process 11.4.1.1)

Selected employee from Select Employee to Complete Contract (Process 11.3)

Outputs:

Contract details to Enter Selected Employee Schedule (Process 11.4.1.3)

Actual end date to Record Actual Contract End Date (Process 11.4.1.4)

Structured English:

1. Receive selected employee
2. Receive contract details
3. Add selected employee to contract details
4. Send contract details to Enter Selected Employee Schedule
5. When contract is done get the actual end date from the selected employee
6. Send actual end date to Record Actual Contract End Date

Process 11.4.1.3

Enter Selected Employee for Contract

Inputs:

Selected employee schedule from Process 11.3

Contract details from Enter Selected Employee for Contract (Process 11.4.1.1)

Outputs: Contract details to Save Contract Details on Maintenance Calendar (Process 11.4.2)

Structured English:

1. Receive selected employee schedule
2. Receive contract details
3. Add selected employee schedule to contract details
4. Send contract details to Save Contract Details on Maintenance Calendar

Process 11.4.1.4

Record Actual Contract End Date

Inputs: Actual end date from Enter Selected Employee for Contract (Process 11.4.1.2)

Outputs: Contract end date to Save Contract Details on Maintenance Calendar (Process 11.4.2)

Structured English:

1. Receive actual end date
2. Record actual end date as the contract's end date
3. Send contract end date to Save Contract Details on Maintenance Calendar

Process 11.4.2

Save Contract Details on Maintenance Calendar

Inputs:

Contract details from Enter Selected Employee Schedule (Process 11.4.1.3)

Contract end date from Record Actual Contract End Date (Process 11.4.1.2)

Maintenance calendar from Maintenance File data store (S-7)

Outputs: Maintenance calendar to Maintenance File data store (S-7)

Structured English:

1. Receive contract details
2. Receive contract end date
3. Open Maintenance File data store
4. Retrieve maintenance calendar
5. Close Maintenance File data store
6. Input contract details and contract end date onto maintenance calendar
7. Open Maintenance File data store
8. Send updated maintenance calendar
9. Close Maintenance File data store

Process 11.5.1

Determine Contract End Date

Inputs: Maintenance calendar from Maintenance File data store (S-7)

Outputs: Contract end date to Choose Date At Least Two Weeks Past End Date (Process 11.5.2.1)

Structured English:

1. Open Maintenance File data store
2. Retrieve maintenance calendar
3. Close Maintenance File data store
4. Find contract end date
5. Send contract end date to Choose Date At Least Two Weeks Past End Date

Process 11.5.2.1

Choose Date At Least Two Weeks Past End Date

Inputs: Contract end date from Determine Contract End Date (Process 11.5.1)

Outputs:

Maintenance check date to Decide on a Time for Chosen Date (Process 11.5.2.2)

Maintenance check date to Set Reminder (Process 11.5.2.3)

Structured English:

1. Receive contract end date
2. Determine date at minimum two weeks in the future
3. Send maintenance check date to Decide on a Time for Chosen Date
4. Send maintenance check date to Set Reminder

Process 11.5.2.2

Decide on a Time for Chosen Date

Inputs: Maintenance check date from Choose Date At Least Two Weeks Past End Date (Process 11.5.2.1)

Outputs: Maintenance check time to Set Reminder (Process 11.5.2.3)

Structured English:

1. Receive maintenance check date
2. Determine a suitable time on selected date
3. Send maintenance check time to Set Reminder

Process 11.5.2.3

Set Reminder

Inputs:

Maintenance check date from Choose Date At Least Two Weeks Past End Date (Process 11.5.2.1)

Maintenance check time from Decide on a Time for Chosen Date (Process 11.5.2.2)

Reminder with contract from Attach Copy of Maintenance Contract to Reminder (Process 11.5.3)

Outputs: Maintenance check reminder to Art/Susan

Structured English:

1. Receive maintenance check date
2. Receive maintenance check time
3. Receive reminder with contract
4. Add check date and check time to reminder
5. Send maintenance check reminder to Art/Susan

Process 11.5.3

Attach Copy of Maintenance Contract to Reminder

Inputs: Maintenance contract from Receive Maintenance Bid and Maintenance Contract (Process 11.1)

Outputs: Reminder with contract to Set Reminder (Process 11.5.2.3)

Structured English:

1. Receive maintenance contract
2. Copy maintenance contract
3. Create reminder
4. Attach copied maintenance contract to reminder
5. Send reminder with contract to Set Reminder

Maintain Association Committee List Process Specifications

Process 12.1

Get Committee Information

Inputs:

Committee names from the Association

Committee member names from the Association

Outputs: Committee information to Enter Committee Information (Process 12.2.2)

Structured English:

1. Get committee names
2. Get committee member names
3. Record committee names and committee member names as committee information
4. Send committee information to Enter Committee Information

Process 12.2.1

Record Association Name

Inputs: Association name from the Association

Outputs: Association name to Save List As Correct Association (Process 12.2.3)

Structured English:

1. Get association name
2. Record association name for committee information
3. Send association name to Save List As Correct Association

Process 12.2.2

Enter Committee Information

Inputs: Committee information from Get Committee Information (Process 12.1)

Outputs: Committee list to Save List As Correct Association (Process 12.2.3)

Structured English:

1. Receive committee information
2. Create committee list
3. Input committee information onto committee list
4. Send committee list to Save List As Correct Association

Process 12.2.3

Save List Under Corresponding Association

Inputs:

Committee list from Enter Committee Information (Process 12.2.2)

Association name from Record Association Name (Process 12.2.1)

Outputs: Committee list to Committee List data store (S-8)

Structured English:

1. Receive association name
2. Receive committee list
3. Open Committee List data store
4. Send committee list
5. Save committee list under association name
6. Close Committee List data store

Process 12.3.1

Get Association Committee List

Inputs: Committee list from Committee List data store (S-8)

Outputs: Committee list to Enter Updated Committee Information (Process 12.3.2)

Structured English:

1. Open Committee List data store
2. Retrieve committee list
3. Close Committee List data store
4. Send committee list to Enter Updated Committee Information

Process 12.3.2

Enter Updated Committee Information

Inputs:

Committee list from Get Association Committee List (Process 12.3.1)

Updated committee information from the Association

Outputs: Updated list to Save List Under Same Name (Process 12.3.3)

Structured English:

1. Receive committee list
2. Get updated committee information
3. Add updated committee information to committee list
4. Send updated list to Save List Under Same Name

Process 12.3.3

Save List Under Same Name

Inputs: Updated list from Enter Updated Committee Information (Process 12.3.2)

Outputs: Committee list to Committee List data store (S-8)

Structured English:

1. Receive updated list
2. Open Committee List data store
3. Send updated list
4. Save updated list as association name
5. Close Committee List data store

Process 12.4

Print Out Committee List

Inputs: Committee list from Committee List data store (S-8)

Outputs:

Committee list printout to HOA Office Workers

Committee list printout to Art/Susan

Structured English:

1. Open Committee List data store
2. Retrieve committee list
3. Close Committee List data store
4. Print committee list
5. Send committee list printout to Art/Susan
6. Send committee list printout to HOA Office Workers

Create Community Newsletter Process Specifications

Process 13.1

Receive Newsletter Contract

Inputs: Newsletter contract from the Association

Outputs: Newsletter details and requirements to Determine Newsletter Design and Required Content (Process 13.2)

Structured English:

1. Get newsletter contract
2. Locate stated details and requirements for the newsletter
3. Send newsletter details and requirements to Determine Newsletter Design and Required Content

Process 13.2

Determine Newsletter Design and Required Content

Inputs: Newsletter details and requirements from Receive Contract (Process 13.1)

Outputs: Newsletter specifications to Create and Print Newsletter (Process 13.3)

Structured English:

1. Receive newsletter details and requirements
2. Locate design related details
3. Locate required content requested
4. Send newsletter specifications to Create and Print Newsletter

Process 13.3

Create and Print Newsletter

Inputs: Newsletter specifications from Determine Newsletter Design and Required Content (Process 13.2)

Outputs: Community newsletter to Homeowners

Structured English:

1. Receive newsletter specifications
2. Create newsletter according to specifications

3. Print newsletter
4. Send community newsletter to Homeowners

Appendix A

Test Plans for Each Use Case

Test Plans for Each Use Case

The following test plans correspond to each of the use cases used earlier, respectively they follow the same order of the use cases. Each test plan consist of multiple test cases and are only partially completed due to not having run the actual tests yet. The test cases within each test plan consist of the general inputs of that particular use case and its main outputs along with some fake testing information. As mentioned before each test case still needs to be run and then the test plans can be completed.

Organize and Update Ordered Association List Test Plan

Test Plan

Page **1**

Program ID: Organize and Update Ordered Association List   Version Number: 1.0

Tester: Tyler Dobbs   Date Designed : 10/22/15   Date Conducted : 10/22/15

Results: □ **Passed**   □ **Open Items**

Test ID: 1   Requirement Addressed: Add/update New Associations
Objective: Properly add or update associations on the association list

Test Cases

	Interface ID	Data Field	Value Entered
1)	__1____	Association name, Association Size	**Example .Inc, 23**

Script

Enter the association information
Select the required HOA services
Determine the bylaws for association
Create association file
Update the association list
Create association worksheet

Expected Results/Notes

Expect a newly updated and ordered list of associations.

Actual Results/Notes

Create Monthly Bill Test Plan

Test Plan

Page **2**

Program ID: Create Monthly Bill Version Number: 1.0

Tester: Tyler Dobbs Date Designed : 11/2/15 Date Conducted : 11/3/15

Results: □ **Passed** □ **Open Items**

Test ID: 2 Requirement Addressed: Printed bill
Objective: Generate a monthly bill

Test Cases

Interface ID	Data Field	Value Entered
1) 1	Monthly Fees	**12000**
2) 2	Payment Period	**July 2015**
3) 3	Late Penalties	**0**
4) 4	Service(s)	**0**
5) 5	Late Payment Time Frame	**August 2015**

Script

Organize the newly printed mail to be shipped out to homeowner

Expected Results/Notes

Homeowners will receive accurate and relevant bills in the mail.

Actual Results/Notes

Process Monthly Due Payment Test Plan

Test Plan

Page **3**

Program ID: Process Monthly due payment   Version Number: 1.0

Tester: Tyler Dobbs   Date Designed : 11/2/15   Date Conducted : 11/3/15

Results: □ **Passed**   □ **Open Items**

Test ID: 3   Requirement Addressed: Association Worksheet
Objective: Update the monthly bill based on any payments made or discounts applied

Test Cases

Interface ID	Data Field	Value Entered
1) 1	Payment amount	**12000**
2) 2	Date	**June 2015**
3) 3	Check number	**5648-2245-213-5559876**
4) 4	Customer account number	**413**
5) 5	Client data-store	**N/A**
6) 6	Coupon	**N/A**

Script

Gather payment information from the customer/homeowner.
Input the payment information along with any coupon or discount information that applies.

Expected Results/Notes

The association worksheet has more accurate and updated information about the associations.

Actual Results/Notes

Create and File Monthly Delinquency List Test Plan

Test Plan

Page **4**

Program ID: Create and file monthly delinquency list **Version Number: 1.0**

Tester: Tyler Dobbs **Date Designed : 11/2/15** **Date Conducted : 11/3/15**

Results: □ **Passed** □ **Open Items**

Test ID: 4 **Requirement Addressed: Delinquent Homeowner list**
Objective: Create a delinquent homeowner list and save it to the system

Test Cases

Interface ID	Data Field	Value Entered
1) 1	Due date	**July 2015**
2) 2	Allowed late period	**August 2015**
3) 3	Association worksheet	**N/A**
4) 4	Account number	**413**
5) 5	Name	**Frank**
6) 6	Address of homeowner	**555 River Street, Buffalo, NY**
7) 7	Current month	**July 2015**
8) 8	Association name	**“Franks Red Houses”**

Script
N/A. The system handles this process

Expected Results/Notes
A saved list of delinquent homeowners

Actual Results/Notes

Create Delinquency Letters Test Plan

Test Plan

Page **5**

Program ID: Create delinquency letters **Version Number: 1.0**

Tester: Tyler Dobbs **Date Designed : 11/2/15** **Date Conducted : 11/3/15**

Results: □ **Passed** □ **Open Items**

Test ID: 5 **Requirement Addressed: Delinquency letter file**
Objective: Create delinquency letters and mail them to the homeowners

Test Cases

Interface ID	Data Field	Value Entered
1) 1	Delinquent Homeowner List	**N/A**
2) 2	Number of days late	**10**
3) 3	Late time period	**5 days**

Script
Receive printout of delinquency letter to prep for mailing.

Expected Results/Notes
Printed out letters of delinquent homeowners and an updated file with said list saved to the system.

Actual Results/Notes

Identify Duplicate Delinquency Letters Test Plan

Test Plan

Page **6**

Program ID: Identify Duplicate delinquency letters **Version Number: 1.0**

Tester: Tyler Dobbs **Date Designed : 11/2/15** **Date Conducted : 11/3/15**

Results: □ **Passed** □ **Open Items**

Test ID: 6 **Requirement Addressed: Consolidated delinquency letter**
Objective: To retrieve delinquents that are in the system more than once

Test Cases

Interface ID	Data Field	Value Entered
1) 1	Delinquency Letter Files	**N/A**
2) 2	Customer Name	**“Frank”**

Script
Double check that there are no duplicate delinquent entries.

Expected Results/Notes
A list of unique delinquent homeowners where there is no duplicate information.

Actual Results/Notes

Send Notice of Violation Test Plan

Test Plan

Page **7**

Program ID: Send Notice of Violation **Version Number: 1**

Tester: Tyler Dobbs **Date Designed : 10/22/15** **Date Conducted : 10/22/15**

Results: □ **Passed** □ **Open Items**

Test ID: 7 **Requirement Addressed: Notice of Violations**
Objective: To properly send a notice of a violation to a homeowner

Test Cases

Interface ID	Data Field	Value Entered
1) 1	**Complaint**	**"Too loud"**

Script
Receive and input complaint about homeowner
Check the complaint against the CC&R's

Expected Results/Notes
Printed notice to a homeowner with a copy in data store

Actual Results/Notes

Track and Follow-up on Notices Test Plan

Test Plan

Page 8

Program ID: Track and Follow-up on Notices**_** **Version Number: _1____**

Tester: Matthew McJury **Date Designed : 10/20/15** **Date Conducted : 10/29/15**

Results: □ **Passed** □ **Open Items**

Test ID: 8 **Requirement Addressed: Notice of Violation**
Objective: Make sure that all notices of rule violations are taken care of appropriately.

Test Cases

Interface ID Data Field Value Entered

1) ___1_____ ____Complaint________________________ ___Too Loud_______

Script
Check and see if entered complaint has been resolved. If so, discard the complaint. If not, send second notice of violation.

Expected Results/Notes

If the complaint has not been resolved, send the second notice.

Actual Results/Notes

Process Special Assessment Test Plan

Test Plan

Page 9

Program ID: Process Special Assessment   Version Number: 1

Tester: Matthew McJury   Date Designed : 10/20/15   Date Conducted : 10/29/15

Results: □ **Passed**   □ **Open Items**

Test ID: 9   Requirement Addressed: Special Assessment
Objective: Calculate the cost of a special assessment.

Test Cases

Interface ID	Data Field	Value Entered
1) ____1____	____Unexpected Bill___________________	_____$2700_________

Script

Enter the unexpected bill amount. Use the association bylaws to determine the split. Send a Bill to all homeowners

Expected Results/Notes

A bill with the correct split is sent to every homeowner.

Actual Results/Notes

Calculate Incurred Association Bill Test Plan

Test Plan Page 10

Program ID: Calculate Incurred Association Bill **Version Number: 1**

Tester: Matthew McJury **Date Designed : 10/20/15** **Date Conducted : 10/29/15**

Results: □ **Passed** □ **Open Items**

Test ID: 10 **Requirement Addressed: Calculate Association Bill**
Objective: Determine that the monthly association bill is calculated correctly.

Test Cases

Interface ID	Data Field	Value Entered
1) ____1_____	_________Total Association Bill_______	____$20000__________

Script:
Use the total association bill to calculate the association bill for each member.

Expected Results/Notes
Properly calculated association bill.

Actual Results/Notes

Maintain Maintenance Calendar Test Plan

Test Plan

Page 11

Program ID: Maintain Maintenance Calendar **Version Number: 1**

Tester: Matthew Mcjury Date Designed : 10/20/15 Date Conducted : 10/29/15

Results: □ **Passed** □ **Open Items**

Test ID: 11 Requirement Addressed: Maintain Maintenance Calendar
Objective: Keep the maintenance calendar up to date with the current appointments.

Test Cases

Interface ID Data Field Value Entered

1) ____1_____ _____Maintenance Bid________________ _____12/20/15_______

Script: Enter all information pertaining to the maintenance bid into the system. Keep the system updated. Send Art and Susan a list of all maintenance

Expected Results/Notes
Maintenance calendar gets updates and Susan and Art receive their lists.

Actual Results/Notes

Maintain Association Committee List Test Plan

Test Plan Page 12

Program ID: Maintain Association Committee List **Version Number: 1**

Tester: Matthew McJury **Date Designed : 10/20/15** **Date Conducted : 10/29/15**

Results: □ **Passed** □ **Open Items**

Test ID: __12_ **Requirement Addressed: Association Committee List**
Objective: Keep a list of all members of the various association committee lists.

Test Cases

	Interface ID	Data Field	Value Entered
1)	_____1____	___________Committee List___________	________Various____

Script
Enter the complete list of committee members into the database. Print out a sheet for all employees to view.

Expected Results/Notes
Printed Sheet of committee list.

Actual Results/Notes

Create Community Newsletter Test Plan

Test Plan

Page 13

Program ID: Create Community Newsletter **Version Number: __1__**

Tester: Matthew McJury Date Designed : 10/20/15 Date Conducted : 10/29/15

Results: □ **Passed** □ **Open Items**

Test ID: 13_ Requirement Addressed: Create Community Newsletter
Objective: Create and manage community Newsletters

Test Cases

Interface ID	Data Field	Value Entered
1) ____1_____	____Newsletter Contract______________	___Various_________

Script
Accept the newsletter contract, and create the newsletter for the organization that requested it.

Expected Results/Notes
Completed Newsletter.

Actual Results/Notes