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| **Philly CRM 311**  **Technical Design – CityWorks(Water) System Integration**  **1.2** |
|  |

**Revision History**

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| --- | --- | --- | --- |
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| Draft | 05/25/2014 | Created Draft | Prabhakar/Murugaboopathi |
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| 1.1 | 09/3/2014 | Reviewed and updated Architecture Diagram, Problem SID Mapping, Outbound Data flow section, Appendix | Sreelatha SK |
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# Introduction

|  |
| --- |
| 1.1 Document Purpose |

The purpose of this document is to provide technical design details needed to successfully implement CityWorks (Water) integration for Philly311 CRM.

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| 1.2 System Overview |

Philly 311 CRM provides 311 Agents, 311 Supervisors, 311 Managing Directors, Departmental SMEs, Department Leadership, and City Leadership to leverage Salesforce.com functionality to engage and provide new outreach opportunities with the Community Partners. Philly 311 CRM provides ability to look Customer info, Knowledge Base to help Agents, Maintain service requests, and generate analytical reporting to support decision making process, establish more channels (using Social Media) and collaborate using chatter.

# CityWorks (Water) System Integration

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| --- |
| 2.1 Overview |

The purpose of this document is to provide technical design details needed to successfully implement CityWorks (Water) Integration for Philly311 CRM. The solution provides seamless bi-directional integration to the City’s Water Department CityWorks instance and Salesforce.com.

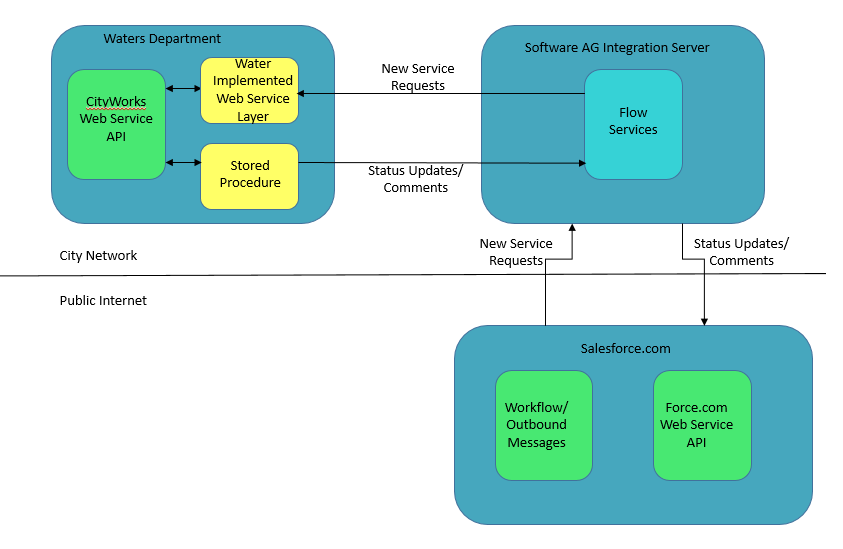


Diagram 1.1 – Architecture of CityWorks (Water) Integration

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| --- |
| 2.2 CONFIGURATION |

All communication between systems is done using standard HTTP/HTTPS based services – REST and SOAP.

All communication between the Integration Server and Water CityWorks systems will be done using REST interfaces. The Water Department will develop a Web Service interface which will communicate with their CityWorks server and implement functionality specific to their processes. Outbound REST interfaces are called using standard HTTP/HTTPS callouts (pub.client:http) and JSON parsing capabilities (jsonSupport.pub:documentToJSONString, jsonSupport.pub:jsonStringToDocument) in the Integration Server.

All communication between the Integration Server and Salesforce will be done using SOAP interfaces. Both Inbound and Outbound SOAP interfaces are a built in features of Integration Server.

The following sections provide a detailed description on the Inbound and Outbound data flows between the Water Department, the Integration Server and Salesforce.

### Inbound Data Flow

Inbound data elements from the Water Department will be:

* Status changes
* Request Type Changes
* Case Comments

These data elements will be transferred using a single web service implemented by the Water Department. Water Department changes will be picked up using a scheduled Integration Server Service which will call the Service Request Status service. This Integration Server service will run every x minutes (current is 15 minutes). Water comments are prefixed with the string ‘WATER DEPT:’ in Salesforce so that they can be distinguished from comments from other sources

#### Service Request Status

The following API calls will be used/implemented to fetch Service Request status and comments from the Water Department.

##### Service Request Status Stored Procedure

This flowservice Integrate\_CityWorksWaters\_SFDC Flow Service will fetch the status and latest comment from all open Service Requests from Waters Department (from Request and RequestComment tables) and will update SFDC with Status and Comments.

###### Implemented By

Water Department

###### Returns

The service does not return anything, but updates the SFDC with Status & Comments. Below table shows the fields that are retrieved from Waters and Mapped to SFDC.

| **Parameter** | **Data Type** | **Description** | **Map to** |
| --- | --- | --- | --- |
| caseId311 | String | Salesforce Case Id | Case.Id |
| requestID | String | Water request Id | Case.Water\_RequestID\_\_c |
| ticketNum311 | String |  | Case.CaseNumber |
| problemSID | String | Water problem ID, mapped to Problem Type | Case.Problem\_Type\_\_c |
| status311 | String |  | Case.Status |
| textFor311 | String | Latest comment from CityWorks | CaseComment.CommentBody |

###### Implementation Notes

Integration Server flow service Integrate\_CityWorksWaters\_SFDC will be scheduled to run every 15 minutes to retrieve the records from Waters Depart and Update SFDC with latest Comments and Status.

###### Authentication

Contained with the City’s network and does not require authentication.

###### Exceptions and Logging

Error occurring when making call to Water Department service will be recorded to the Integration Server error log and will cause system administrators to be notified by email. This service is designed to only insert new comments and can be restarted once all issues have been resolved.

###### Salesforce Web Service API

See <http://www.salesforce.com/us/developer/docs/api/index_Left.htm>

### Outbound Data Flow

Outbound data flow from Salesforce to Water Department will be Service Request submissions.

The Outbound flow will be triggered using the Salesforce Outbound Messaging feature. Salesforce Outbound Messaging allows us to specify that changes to fields within Salesforce can cause messages with field values to be sent to designated external servers via SOAP message. Integration Server web services will be developed to receive these messages and propagate those changes to integrated systems. Salesforce Outbound Messages are initiated by workflows within Salesforce. Workflows will be created to detect Case Status update and creation of new Case Comments. A description of the Outbound Messaging SOAP message structure can be found at <http://www.salesforce.com/us/developer/docs/api/Content/sforce_api_om_outboundmessaging.htm>

#### Service Request Submit

For Case submissions, Salesforce will call a Integration Server web services with Case field values needed to create a Water Department Service Request, which will then use Water Department Service Request submit API call to submit the Service Request.

##### Service Request Create Outbound Message

Standard Salesforce Outbound SOAP message. SOAP interface implemented by Integration Server.

###### Triggering Workflow

A workflow will be created that will trigger the outbound message when an open case is assigned to one of the Water Department related queues. The following queues will be monitored for cases to be submitted to the Water Department.

| **311 Queue** | **Water Dept Service Request type** | **Comments** |
| --- | --- | --- |
| Hydrant Knocked Down | Hydrant Knocked Down |  |
| Inlet Cleaning | Inlet Cleaning |  |

###### Fields Contained in message

From Case object:

| **Parameter** | **Data Type** | **Description** |
| --- | --- | --- |
| Id | String | Salesforce Id |
| CaseNumber | String |  |
| Case\_Record\_Type\_\_c | String | Record Type of the Case |
| Centerline\_2272X\_\_c | Decimal |  |
| Centerline\_2272Y\_\_c | Decimal |  |
| City\_\_c | String |  |
| ContactId | String |  |
| CreatedDate | Date/Time | Case Creation Time |
| Customer\_Request\_Id\_\_c | String | PublicStuff Id (If created from Public Stuff) |
| Department\_\_c | String | Department of the Case |
| Description | String |  |
| Details\_\_c | String | Salesforce Description + Fields value related to that SR. |
| hansenAddressKey\_\_c | String |  |
| HANSEN\_Problem\_Code\_\_c | String |  |
| Hansen\_Request\_ID\_\_c | String |  |
| Issue\_\_c | String |  |
| Origin\_\_c | String |  |
| ParentId | String | Salesforce Parent Case ID |
| Problem\_Type\_Highways\_\_c | String |  |
| Problem\_Type\_Sanitation\_\_c | String |  |
| Problem\_Type\_\_c | String |  |
| PublicStuff\_Custom\_Fields\_\_c | String |  |
| Redressed\_Case\_Number\_\_c | String | Case Number for which this is Redress |
| Redressed\_Street\_Request\_Id\_\_c | String | Water Request ID for which this is Redress |
| Resurfacing\_Defect\_\_c | String |  |
| Resurfacing\_Request\_\_c | String |  |
| SAG\_Contact\_City\_\_c | String | Contact’s City |
| SAG\_Contact\_Email\_\_c | Email | Contact’s Email |
| SAG\_Contact\_First\_Name\_c\_\_c | String | Contact’s First Name |
| SAG\_Contact\_Last\_Name\_\_c | String | Contact’s Last Name |
| SAG\_Contact\_Mobile\_Phone\_\_c | String | Contact’s Mobile Phone |
| SAG\_Contact\_Phone\_\_c | String | Contact’s Phone |
| SAG\_Contact\_State\_Code\_\_c | String |  |
| SAG\_Contact\_State\_\_c | String | Contact’s State |
| SAG\_Contact\_Street\_\_c | String | Contact’s Street |
| SAG\_Contact\_Type\_\_c | Picklist | Staff, Commissioner, Council Member , Mayor, Citizen |
| SAG\_Contact\_Zip\_\_c | Number | Contact’s Zip Code |
| SAG\_Parent\_Case\_Number\_\_c | String | Salesforce Parent Case Number |
| SAG\_Problem\_SID\_\_c | Number | Problem SID (See Appendix A) |
| Service\_Request\_Type\_\_c | String | Service Request Type |
| Source\_\_c | String |  |
| State\_\_c | String |  |
| Status | String |  |
| Street\_\_c | String |  |
| Zip\_Code\_\_c | String | Customer’s ZipCode |
| ZipCode\_\_c | String |  |
| Redress\_Case\_\_c | Checkbox | To identify Redress Case |

###### Implementation Notes

Integration Server web service will process messages by calling the Water Department Service Request Submit service (described below) according the logic described below:

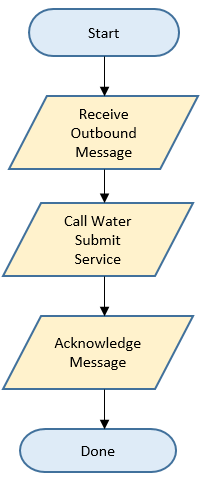


Diagram 2.2 – Water Submit Service Logic

##### Service Request Submit API

A REST service that will submit a Service Request to the Water Department. See CityWorks API documentation at:

http://pwdcwweb/CW2013SP3/Services/Help/Home/Index

###### Implemented By

Water Department

###### URL

POST /Services/AMS/ServiceRequest/Create

###### Parameters

Example:

|  |
| --- |
| /Services/AMS/ServiceRequest/Create?token=<<auth token>>&data=<<urlencoded json object with parameters as properties>> |

| **Parameter** | **Data Type** | **Description** | **Map to** | **Req’d** |
| --- | --- | --- | --- | --- |
| Address | String | Verified address of the Service Request Problem | Case.Street\_\_c | Y |
| CallerAdress | String |  | Case.SAG\_Contact\_Street\_\_c | N |
| CallerCallTime | String |  | Case.CreatedDate | Y |
| CallerCellPhone | String |  | Case.SAG\_Contact\_Mobile\_Phone\_\_c | N |
| CallerCity | String |  | Case.SAG\_Contact\_City\_\_c | N |
| CallerComments | String |  | 311ID:<Case.Id>  Previous SR:<Case.Redressed\_Street\_Request\_Id\_\_c> (Only for Redressed Case)  Caller Details:  Name: < Case.SAG\_Contact\_First\_Name\_c\_\_c> < Case.SAG\_Contact\_Last\_Name\_\_c>  Phone: <Case.Contact\_Mobile\_Phone\_\_c> | N |
| CallerEmail | String |  | Case.SAG\_Contact\_Email\_\_c | N |
| CallerFirstName | String |  | Case.SAG\_Contact\_First\_Name\_c\_\_c | N |
| CallerHomePhone | String |  | Case.Contact\_Phone\_\_c | N |
| CallerLastName | String |  | Case.SAG\_Contact\_Last\_Name\_\_c | N |
| CallerState | String |  | Case.Contact\_State\_\_c | N |
| CallerText1 | String | Salesforce Id | Case.Id | Y |
| CallerText2 | String | Salesforce Case Number | Case.CaseNumber | Y |
| CallerText3 |  |  | Case.ParentId / Case.Redressed\_Case\_Number\_\_c (Only for Redressed Case) | N |
| CallerType | String |  | Case.Contact\_Type\_\_c | N |
| CallerZip | String |  | Case.Contact\_Zip\_\_c | N |
| City | String |  | Case.City\_\_c | N |
| Comments | String |  | 311ID:<Case.Id>  Previous SR:< Case.Redressed\_Street\_Request\_Id\_\_c> (Only for Redressed Case)  Request from SalesForce/PublicStuff | N |
| Details | String | Only up to 500 characters. If more, then rest sent to Comments. | Case.Details\_\_c | N |
| InitiatedByApp | String | If case created from PublicStuff then Case.Source\_\_c otherwise “SalesForce” | Harcoded to SalesForce or Case.Source\_\_c | Y |
| Num1 | Number |  | Case.SAG\_Problem\_SID\_\_c | Y |
| OtherSystemId | String |  | Case.CaseNumber | Y |
| ProblemSid | Number |  | Case.SAG\_Problem\_SID\_\_c | Y |
| StreetName | String |  | Case.Street\_\_c | Y |
| SubmitTo | Number | Only for Redressed Case | Hardcoded to “8238” | N |
| Text1 | String | Depends on Service Request Type | IC – CLEAN INLET / H – KNOCKED OVER | Y |
| Text2 | String |  | Case.Id | Y |
| Text3 | String | Only for Redressed Case | Redressed | N |
| Text5 | String | Only for Redressed Case | Case.Redressed\_Street\_Request\_Id\_\_c | N |
| Text6 | String |  | Case.Contact\_Type\_\_c | N |
| Text7 | String | Same as InitiatedByApp field | Harcoded to SalesForce or Case.Source\_\_c | N |
| X | Decimal |  | Case.Centerline\_2272X\_\_c | Y |
| Y | Decimal |  | Case.Centerline\_2272Y\_\_c | Y |
| Zip | Number |  | Case.ZipCode\_\_c | N |

###### Returns

The service returns the following as a JSON string:

Example:

|  |
| --- |
| {  "Value": {  "Date1": "",  "Text1": "",  "Text3": "",  "Text4": "",  "Text6": "",  "RequestId": ,  "DomainId": ,  "ProjectSid": ,  "ProblemCode": "",  "Details": "",  "ReqCategory": "",  "Description": "",  "Priority": "",  "SRX": ,  "SRY": ,  "ProblemSid": ,  "ReqCustFieldCatId": ,  "ProbAddress": "",  "ProbCity": "",  "ProbZip": "",  "ProbAddType": "",  "InitiatedBy": "",  "DateTimeInit": "",  "SubmitToPager": "",  "SubmitToPhone": "",  "SubmitTo": "",  "SubmitToEmail": "",  "ClosedBy": "",  "DateTimeClosed": "",  "WorkOrderId": "",  "ProjectName": "",  "DateSubmitTo": "",  "SubmitToOpenBy": "",  "DateSubmitToOpen": "",  "DispatchTo": "",  "DateDispatchTo": "",  "DispatchOpenBy": "",  "DateDispatchOpen": "",  "MapPage": "",  "Shop": "",  "Status": "",  "Cancel": ,  "CancelledBy": "",  "DateCancelled": "",  "LaborCost": ,  "FieldInvtDone": ,  "DateInvtDone": "",  "WONeeded": ,  "Excursion": ,  "TileNo": "",  "PrjCompleteDate": "",  "Text2": "",  "Text5": "",  "Text7": "",  "Text8": "",  "Text9": "",  "Text10": "",  "Text11": "",  "Text12": "",  "Text13": "",  "Text14": "",  "Text15": "",  "Text16": "",  "Text17": "",  "Text18": "",  "Text19": "",  "Text20": "",  "OtherSystemId": "",  "OtherSystemStatus": "",  "OtherSystemCode": "",  "OtherSystemDesc": "",  "OtherSystemDesc2": "",  "ProbAptNum": "",  "ProbLandmark": "",  "ProbDistrict": "",  "ProbState": "",  "ProbLocation": "",  "CancelReason": "",  "Num1": ,  "Num2": ,  "Num3": ,  "Num4": ,  "Num5": ,  "Date2": "",  "Date3": "",  "Date4": "",  "Date5": "",  "InitiatedByApp": "",  "Resolution": "",  "IsClosed": ,  "StreetName": "",  "LockedByDesktopUser": ""  },  "Status": 0,  "Message": null  } |

| **Parameter** | **Data Type** | **Description** | **Map to** |
| --- | --- | --- | --- |
| requestID | String | Water request Id | Case.Water\_RequestID\_\_c |
| Status (request) | String | Water request status | Case. Status |
| Status (call) | String | Status of the API call | 0 - Ok  1 - Error  2 – Unauthorized |
| Message | String | Error messages if any |  |

###### Implementation Notes

This is a standard CityWorks web service.

###### Authentication

Contained with the City’s network and does not require authentication.

###### Exceptions and Logging

Errors processing this message will write to the Integration Server Error Log and will cause system administrators to be notified by email. Errors will cause the source message not to be acknowledged back to Salesforce and the message will remain in the Salesforce Outbound Message Queue where it can be resent once all issues have been resolved.

## Development

### Coding Standards

All services will be developed and deployed in a package named ‘Philly311’.

### Developers

Developers will work, via RDP, in city provided servers which will be loaded with the Software AG Integration Server and the Software AG Designer tool.

### Version Control

Integration server packages will be committed to the Unisys Team Foundation Server repository, ISDEV and ISTEST at development milestones and system releases.

# Appendix

## Appendix A – Problem Code Mapping

| **311 Problem Type** | **CityWorks Problem** | **Problem SID** |
| --- | --- | --- |
| Hydrant Knocked Down |  | 1011 |
| Inlet Cleaning |  | 375 |

## Appendix B – Streets Problem Codes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CityWorks Water** | |  | **SFDC** | |
| **Problem Code** | **Problem SID** |  | **Case Record Type** | **Service Request Type** |
| HYDRANT | 1011 |  | Hydrant Knocked Down (No Water) | Hydrant Knocked Down |
| INLET | 375 |  | Inlet Cleaning | Inlet Cleaning |

## Appendix C – Caller Type Mapping

|  |  |
| --- | --- |
| **SFDC** | **Water** |
| Staff | EMPLOYEE |
| Commissioner | CITY INSPECTOR |
| Council Member | CITY COUNCIL |
| Mayor | MAYORS OFFICE |
| Citizen | RESIDENT |

## Appendix D – Status Mapping

|  |  |
| --- | --- |
| **Water** | **SFDC** |
| New | Open |
| Open | In Progress |
| Closed, Cancel | Closed |

## Appendix E – Addition of Custom fields Value in Details field before submitting a case in CityWorks

A Custom Setting “Required Streets Field” has been created in Salesforce to store all the custom fields present for the Streets and Water Department. The fields present for “Required Streets Field” Custom Setting are:

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Data Type** | **Description** |
| API Name | Text (50) | Fields API Name in Salesforce |
| Case Record Type | Text (50) | Case Record Type in which field is present |
| Department | Text (30) | Department in which field is present |
| Label | Text (100) | Label |
| Required | Checkbox |  |

When a Case is created, the trigger in Salesforce concatenates the description field value with all the Custom fields value present for that record type and stores it in “Details” field.

Using the Custom Setting, trigger gets all the fields that belong to the particular record type. Then, it checks if the “Required” field value for that particular field is TRUE. Only if the above condition is satisfied, it adds that field’s value in Details field otherwise it does not.

Below are the list of the field which are following to Water in details field:

|  |  |  |
| --- | --- | --- |
| **Service Request Type** | **SFDC Fields Name** | **Required** |
| Hydrant Request | Intersection or Mid Block | True |
| Hydrant Request | Property Owner | True |
| Hydrant Request | Hydrant Location | True |
| Hydrant Request | Water Coming out of Hydrant | True |
| Inlet Cleaning | Intersection or Mid Block | True |
| Inlet Cleaning | Obstructing Traffic | True |
| Inlet Cleaning | Bad Odor | True |
| Inlet Cleaning | Flooding | True |
| Inlet Cleaning | Inlet Location | True |
| Inlet Cleaning | Rear of Property | True |
| Inlet Cleaning | Hazardous Waste | True |
| Inlet Cleaning | Heavy Rain | True |
| Inlet Cleaning | Cover is Missing or Broken | True |
| Inlet Cleaning | Water in Basement or Cellar | True |

## Appendix F - webMethods Service Details

|  |  |  |
| --- | --- | --- |
| **Folder** | **Services** | **Usage** |
| Cityworks/work | CreateServiceRequest  getRecordsFrom\_CW1 | To create a service Request for Water Department.  Retrieve the records from Water Department for which Status/RecordType/Comments to be updated. |
| Common | addressValidation  convertDateTimeFormat  detailsCW  getDepartmentMap  getProblemCodeMapping  getRecordTypeName  getServerConfig  getServiceRequestType  getStatusPS2SFDC  getStatusSFDC2PS  objectToBigDecimal  objectToStringFinishDate  parseDescription  statusFieldMap  stringToInteger  updateProblemType  updateSFDCDesc | These are all utility Services for the following purpose:   1. Status mapping from one application to another application   For ex: SFDC to PS   1. Address Validation 2. Date/Time conversion utilities |
| DBConnect | getRecordsFrom\_CW1\_customSQL  insertIntermediateTable\_1  updateCommentsOnly\_1  updateIntermediateTable\_1  TestSQLConnect | Services that interact with Database particularly updating intermediate table. |
| Philly311/ comment\_submit\_ob | \_post | Rest service for comment submission from salesforce |
| PublicStuff/ comment\_submit | \_post | Rest Service for comment submission from PS |
| PublicStuff/ request\_submit | \_post | Rest Service for Request Submission from PS |
| PublicStuff/ Work | caseCommentSubmit\_PS  caseStatusUpdate\_PS | Flow services for comment submission, status update to PS |
| Salesforce/ Work | getCaseIdFromRequestId\_SFDC  insertAndUpdateComment  insertCase  insertCaseComment  insertCaseCommentForProblemCodeChange  insertCaseCommentSFDC\_PS  insertContact  insertTempTableAndCaseComment  queryCase  queryContact  queryRecordType  updateCase\_SFDC\_CW  updateIntermediateTable  updateRecordeFrom\_CW\_SFDC  updateSFDC | Services that interact with Salesforce  For ex:  1) Insert a case  2) Update a case  3) insertCaseComments.  4) queryCase  5) update Records from Cityworks Streets to Salesforce. |
| Salesforce/ Outbound/ caseStatusUpdate\_PS\_/ services | Notifications | This service will be called when an outbound message is delivered from salesforce(for status update to PS) |
| Salesforce/Outbound/ createServiceRequest\_SFDC\_CW\_/ services | Notifications | This service will be called when an outbound message is delivered from salesforce(for creating a new Street Service request) |

## Appendix G – Change Orders

### ChangeOrder-1:

1. Philly 311 CRM update for azteca.PL\_PWD311Update table

Water has created

City has created new table Azteca.PL\_PWD311Update (to replace intermediate table “**tbl311SalesForceUpdates**”) and has the following fields to be mapped with Salesforce fields:

[StsWebNum]

[Status311]

[RequestID]

[ProblemSID]

[ProblemCode]

[TextFor311]

[DateTimeUpdated]

Status Mapping (As per Change Order)

|  |  |
| --- | --- |
| **Water** | **SFDC** |
| Completed, Closed, Cancel | Closed |
| New | Open |
| Open | In Progress |

Salesforce Mapping

|  |  |  |
| --- | --- | --- |
| **Azteca.PL\_PWD311Update** | **Description** | **Salesforce fields** |
| RequestId | PWD Request ID | Water Request ID |
| Status311 | 311 Status (Open, In Progress or Closed (cancel will also be Closed but with cancel: reason in TestFor311 field) | Status |
| TextFor311 | Current 311 Text | Case Comments |
| ProblemSID | PWD Problem SID | SAG\_ ProblemSID |
| ProblemCode | PWD Problem Code |  |
| STSWEBNUM | 311 Case# | Case ID |
| DateTimeUpdated | Date Time PWD updated the request | Finish Date |
| DateTimeClosed | Date Time PWD Satisfied the request | Need to decide?? |