

**Reflect With Insight for RAMS**

**Interface Design**

**October 2014**



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**Version Control**

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Version | Changed by | Notes |
| November 2014 | 0.1 | JMM | Initial Revision |
| November 2014 | 0.2 | JMM | Initial Revision |
| Nov 21, 2014 | 0.3 | JMM | Various Revisions after Discussions with RMS |
|  |  |  |  |

**Reference Documents**

|  |  |
| --- | --- |
| **Document** | **Source** |
| UC0001 Use CaseDatamodel.doc | RMS |
| UC0002\_Use DataUpload.doc | RMS |
| UC0003\_DataUpdate.doc | RMS |
| UC0004\_Reporting Requirements on the uploaded Data.doc | RMS |
| UC0005\_AssetInstalled.doc | RMS |
| UC0005a\_CreateNewAsset.doc | RMS |
| UC0005b\_ModifyExistingAsset.doc | RMS |
| UC0007\_DocumentsAttachedtoInspection.doc | RMS |
| Accomplishment.xls | RMS |
| Activity.xls | RMS |
| Defects.xls | RMS |
| Incident.xls | RMS |
| Inspection.xls | RMS |
| LandingAreaFieldtypes\_completeList.xls | RMS |
| Requests.xls | RMS |
| FD0005\_Main Create New Assets.pdf | RMS |
| FD0005a Create New Assets.pdf | RMS |
| FD0005b Update\_modify asset\_v2.pdf | RMS |
| FD0007 Attaching Documents with Inspection.pdf | RMS |
| RAMS Reflect with Insight16052014104251.pdf | Bentley |
| viewDocumentM3Specs.pdf | RMS |
| ERD\_RwI\_RAMS\_Int.pdf | RMS |
| Reflect With Insight for RAMS interface Scope and Requirements v 1.0.pdf | Bentley |

# Introduction

In September of 2014 Joseph Mendoza of Bentley Systems was given a set of documents that originated from RMS. These documents showed use cases, flow diagrams and Asset attributes that would be needed by RMS to support loading data from an outside source, in this case, Reflect With Insight (RWI). This should improve the quality of corridor information held by RMS and reduce the cost of duplicating data entry.

RMS and Bentley Systems have established a project to undertake the scope and requirements analysis for this project and then implement the requirements. The Scope and Requirements document is the result of that analysis and it will be used to ensure everyone has a common understanding of the scope and requirements of this project.

This report is being used as the basis of this functional specification and of an acceptance test plan to ensure all requirements are met by the software that is produced.

# High Level Requirements

During initial review of the provided documents and discussions from the requirements workshop it was determined that the main objectives of this project are:

* To add asset types or asset attributes as needed to accommodate the data being pushed into the RAMS system.
* To implement several CSV loaders to allow the creation and updates of various asset items
* To create several reporting objects on the data that has been imported or updated.

This objects are discussed in a higher level in the Scope and Requirements Document.

# Scope

RMS have determined that the following items are in scope for this project.

* Bentley should create any necessary assets to store the Routine Services data.
* Bentley will create a CSV loader to facilitate loading the Routine Services data into RAMS.
* Bentley will provide a CSV file format to RMS so that test data can be created for the Routine Services loader.
* Bentley will create the GIS themes for the Routine Services Data.
* Bentley will create the necessary queries to report on the Routine Services Data.

# Asset Meta-model Create / Update

## Assets needed to model the Routine Services Data

Bentley will create a set of new hierarchical assets to accommodate the Routine Services Data. This data includes information sections for: Accomplishments, defects, Incidents, Inspections and Requests. The data for these sections will be contained under a top level attribute containing the Vendor code and Reference ID, the initial date of creation and location if known.

It is assumed that the combination of Reference ID and one of any of the other IDs (Request ID, Accomplishment ID, Inspect ID, Incident ID or Defect ID) will make a unique listing for that category. It is also assumed that a Unique Reference ID will tie together several categories. For example Reference ID could tie together: a Request, an Incident, and several Accomplishments if needed to complete the item.

The newly created assets would resemble

|  |  |  |
| --- | --- | --- |
| **Parent Asset** | **Child Asset** | **Function** |
| RSD |  | Routine Services Data  Holds the Reference ID the creation date and location. |
|  | RSAM | Accomplishments |
|  | RSDE | Defects |
|  | RSIC | Incidents |
|  | RSIS | Inspections |
|  | RSRE | Requests |

This would allow the system to have more than one accomplishment or incident (any child asset in practice) linked to the same Vendor Code and reference ID if needed. It also allows for fields to be mandatory for just one child asset and allows the user (via CSV LOADER) to not have to fill out other asset items since they may not have occurred yet. The tables in this section in sections 4.1.1 – 4.1.6 refer to settings and configurations in RMS for creating the Routine Services Data Assets.

### Asset for the Top Level Routine Services Data

The top level Routine Services Data Attribute is used as the parent in a hierarchical asset set. This Level will hold things that are common to all the children and be associated with any location information for the Routine Services Data. While this asset will not link directly in Exor to the assets that it is referring to, the necessary field are available to be able to link to that data for reporting purposes.

The asset will have the following settings:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Type | RSD |  |
| Type Title | Routine Services Data |  |
| Type Location | Continuous | Needed over a point asset in case several miles are Inspected. If Necessary a 0.1 metre length can be used for point type items. |
| Elec Drain Carr | C |  |
| Category | I |  |
| Short Description | RSD |  |
| Start Date | 01JAN1901 |  |
| Replaceable | No |  |
| Multiple Allowed | No |  |
| Top in Hierarchy | Yes |  |

The Asset will have the following attributes:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sequence** | **Name** | **Screen Text** | **Length** | **Format** | **Domain** | **Case** | **View Attr**  **/**  **Column Name** | **Start Date** | **Mandatory** | **Displayed** | **Notes** |
| 1 | IIT\_CHR\_ATTRIB26 | Vendor Code | 4 | VARCHAR2 |  |  | Vendor\_Code |  | Y | Y | Unique identifier representing the Service Provider. |
| 2 | IIT\_NUM\_ATTRIB25 | Reference ID | 8 | NUMBER |  | U | reference\_id |  | Y | Y | Unique number sent by the service providers to identify an activity information. |
| 3 | IIT\_CHR\_ATTRIB56 | Road Number (Primary Location) | 125 | VARCHAR2 |  | U | Road\_number |  |  | Y | Gazetted Road number. This is a 8 digit number and covers all the Motorways, State Roads and regional roads |
| 4 | IIT\_CHR\_ATTRIB27 | Asset type code | 5 | VARCHAR2 |  | U | Asset\_type\_code |  |  | Y | This is a unique identifier in RAMS to identify an asset type |
| 5 | IIT\_NUM\_ATTRIB16 | Key-ID |  | NUMBER |  | U | Key\_ID |  |  | Y | Unique identifier in RAMS |
| 6 | IIT\_CHR\_ATTRIB57 | Linear Reference Number | 125 | VARCHAR2 |  | U | Linear\_Reference\_Number |  |  | Y | A number extracted from RAMS and provided to 3rd party service providers initially and periodically updated. |
| 7 | IIT\_CHR\_ATTRIB58 | Asset description | 125 | VARCHAR2 |  | U | Asset\_description |  |  | Y | This is the description of asset type in RAMS |
| 8 | IIT\_CHR\_ATTRIB28 | Road Maintenance Segment | 30 | VARCHAR2 |  | U | Road\_Maintenance\_Segment |  |  | Y | Each road that the RMS maintains (State roads) is divided up into manageable lengths. These manageable lengths are called road maintenance segments |
| 9 | IIT\_DATE\_ATTRIB86 | Date of creation | 11 | DATE |  | U | Date\_of\_creation |  |  | Y | Date the record is created initially  Format Mask: DD-MON-YYYY |
| 10 | IIT\_DATE\_ATTRIB87 | Time of creation | 5 | DATE |  | U | Time\_of\_creation |  |  | Y | Time the record is created initially  Format Mask: HH24:MI |
| 11 | IIT\_NUM\_ATTRIB17 | Longitude |  | NUMBER |  | U | Longitude |  |  | Y | Generated based on WGS84 datum and calculated to 5 decimal points |
| 12 | IIT\_NUM\_ATTRIB18 | Latitude |  | NUMBER |  | U | Latitude |  |  | Y | Generated based on WGS84 datum and calculated to 5 decimal points |
| 13 | IIT\_CHR\_ATTRIB29 | Local Gov Area | 50 | VARCHAR2 |  | U | LGA |  |  | Y | LGA where the incident has occurred. |

The asset will be assigned to the following networks:

* LCWY

The asset will have the following roles

|  |  |
| --- | --- |
| **Role** | **Mode** |
| HIG\_USER | NORMAL |

### Asset for the Routine Services Data – Accomplishments

This Child asset will hold the information for the accomplishments data.

The asset will have the following settings:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Type | RSAM |  |
| Type Title | RSD Accomplishments |  |
| Type Location | Point | Location Information is Stored on the RSD asset. |
| Elec Drain Carr | C |  |
| Category | I |  |
| Short Description | RSAM |  |
| Start Date | 01JAN1901 |  |
| Replaceable | No |  |
| Multiple Allowed | No |  |
| Top in Hierarchy | No |  |

The asset will have the following attributes:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sequence** | **Name** | **Screen Text** | **Length** | **Format** | **Domain** | **Case** | **View Attr**  **/**  **Column Name** | **Start Date** | **Mandatory** | **Displayed** | **Notes** |
| 1 | IIT\_CHR\_ATTRIB27 | Accomplishment Number | 30 | varchar2 |  | U | Accomplishment\_Number |  | Y | Y | This is the identifying number of the accomplishment visible to the user. |
| 2 | IIT\_NUM\_ATTRIB24 | Accomplishment ID |  | number |  | U | Accomplishment\_ID |  | Y | Y | Unique number for accomplishment. Each service provider will be allocated a series of 10 million number to be used as Accomplishment ID. |
| 3 | IIT\_DATE\_ATTRIB86 | Accomplishment Date |  | date |  | U | Accomplishment\_Date |  |  | Y | Date of completion of the task on a incident |
| 4 | IIT\_CHR\_ATTRIB26 | Vendor Code | 4 | VARCHAR2 |  |  | Vendor\_Code |  | Y | Y | Unique identifier representing the Service Provider. |
| 5 | IIT\_NUM\_ATTRIB25 | Reference ID | 8 | number |  | U | Reference\_ID |  | Y | Y | The maintenance activities comprising of routine or reactive services. The activities are allocated activity code. |
| 6 | IIT\_NUM\_ATTRIB16 | Activity | 4 | number |  | U | Activity |  |  | Y | Activity number as per M3 specification |
| 7 | IIT\_CHR\_ATTRIB56 | Activity Name | 255 | varchar2 |  | U | Activity\_Name |  |  | Y | A description of the activity. |
| 8 | IIT\_CHR\_ATTRIB28 | Activity Type | 30 | varchar2 |  | U | Activity\_Type |  |  | Y | Grouping of the related activities. For example Activity type 200 is Routine Pavement. It encompasses Pothole repair, Edge repair and similar activities. |
| 9 | IIT\_NUM\_ATTRIB17 | Quantity Accomplished |  | number |  | U | Quantity\_Accomplished |  |  | Y | Extent of work done to complete an activity. This is defined in terms of the unit of measurements defined for the activity in question. |
| 10 | IIT\_CHR\_ATTRIB29 | Unit Of Measure | 30 | varchar2 |  | U | Unit\_Of\_Measure |  |  | Y | Unit of measurement defined for an activity, for example, meters, square meter. |
| 11 | IIT\_NUM\_ATTRIB18 | Second Quantity |  | number |  | U | Second\_Quantity |  |  | Y | Different documents have defined the quantity in a different way. For example, the quantity could be in terms of length, area or volume. Second quantity is kept to accommodate the historical records. |
| 12 | IIT\_CHR\_ATTRIB30 | Second Unit of Measure | 30 | varchar2 |  | U | Second\_Unit\_of\_Measure |  |  | Y | Unit of measurement defined for an activity, for example, meters, square meter. This is separate from Unit of Measure to accommodate historical data. |
| 13 | IIT\_CHR\_ATTRIB57 | Accomplishment\_Comments | 255 | varchar2 |  | U | Accomplishment\_Comments |  |  | Y | Any additional information that is not covered in other fields |
| 14 | IIT\_NUM\_ATTRIB19 | Time Work |  | number |  | U | Time\_Work |  |  | Y | Vendor provided total person hours for each activity completed |
| 15 | IIT\_CHR\_ATTRIB31 | Completed (Yes/No) |  | varchar2 |  | U | Completed\_(Yes/No) |  | Y | Y | Status of an activity |

The asset will have the following roles

|  |  |
| --- | --- |
| **Role** | **Mode** |
| HIG\_USER | NORMAL |

The asset will have the following groupings:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parent** | **Mandatory** | **Relation** | **Start Date** | **End Date** |
| RSD | N | AT | Same as RSD |  |

### Asset for the Routine Services Data – Defects

This Child asset will hold the information for the defects data.

The asset will have the following settings:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Type | RSDE |  |
| Type Title | RSD Defects |  |
| Type Location | Point | Location Information is Stored on the RSD asset. |
| Elec Drain Carr | C |  |
| Category | I |  |
| Short Description | RSDE |  |
| Start Date | 01JAN1901 |  |
| Replaceable | No |  |
| Multiple Allowed | No |  |
| Top in Hierarchy | No |  |

The asset will have the following attributes:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sequence** | **Name** | **Screen Text** | **Length** | **Format** | **Domain** | **Case** | **View Attr**  **/**  **Column Name** | **Start Date** | **Mandatory** | **Displayed** | **Notes** |
| 1 | IIT\_CHR\_ATTRIB26 | Vendor Code | 4 | VARCHAR2 |  |  | Vendor\_Code |  | Y | Y | Unique identifier representing the Service Provider. |
| 2 | IIT\_NUM\_ATTRIB25 | Reference ID | 8 | number |  | U | Reference\_ID |  | Y | Y | The maintenance activities comprising of routine or reactive services. The activities are allocated activity code. |
| 3 | IIT\_CHR\_ATTRIB27 | Defect Number | 12 | varchar2 |  | U | Defect\_Number |  | Y | Y | This is the identifying number of the defect visible to the user. |
| 4 | IIT\_NUM\_ATTRIB24 | Defect ID |  | number |  | U | Defect\_ID |  | Y | Y | Unique number for all Service provider for recording the defects reported. |
| 5 | IIT\_DATE\_ATTRIB86 | Date Raised | 11 | date |  | U | Date\_Raised |  | Y | Y | Date a defect was raised. Date Format - **dd/mm/yyyy** |
| 6 | IIT\_DATE\_ATTRIB87 | Time Raised | 5 | date |  | U | Time\_Raised |  | Y | Y | Time a defect was raised. Time Format - **13:00 hrs** |
| 7 | IIT\_CHR\_ATTRIB28 | Cause Of Defect | 30 | varchar2 |  | U | Cause\_Of\_Defect |  | Y | Y | The reason for the damage. |
| 8 | IIT\_CHR\_ATTRIB29 | Reoccurring Defect (Yes/No) |  | varchar2 |  | U | Reoccurring\_Defect |  | Y | Y | This is to identify find out the root cause of the problem. |
| 9 | IIT\_CHR\_ATTRIB30 | Defect Type | 50 | varchar2 |  | U | Defect\_Type |  | Y | Y | Define categories of defects with allocated number to each defect type |
| 10 | IIT\_NUM\_ATTRIB16 | Position within Location |  | number |  | U | Position\_within\_Location |  |  | Y | Shows the lane affected by Incident, Defect or Accomplishment. |
| 11 | IIT\_DATE\_ATTRIB88 | Defect Completion Date | 11 | date |  | U | Defect\_Completion\_Date |  |  | Y | Date when a defect was fixed.  Format Mask: DD-MON-YYYY |
| 12 | IIT\_DATE\_ATTRIB89 | Defect Completion Time | 5 | date |  | U | Defect\_Completion\_Time |  |  | Y | Time when a defect was fixed.  Format Mask: HH24:MI |
| 13 | IIT\_NUM\_ATTRIB16 | Estimated Quantity for repair |  | number |  | U | Estimated\_Quantity\_for\_repair |  |  | Y | Estimated extent of work to be performed to complete the repair. This is defined in terms of the unit of measurements defined for the activity in question. |
| 14 | IIT\_CHR\_ATTRIB31 | Unit of Measure | 30 | varchar2 |  | U | Unit\_of\_Measure |  |  | Y | Unit of measurement defined for an activity, for example, meters, square meter. This will be populated for accomplishment and defects. |
| 15 | IIT\_NUM\_ATTRIB16 | Estimated Second Quantity |  | Number |  | U | Estimated\_Second\_Quantity |  |  | Y | Different documents have defined the quantity in a different way. For example, the quantity could be in terms of length, area or volume. Second quantity is kept to accommodate the different specifications. This field is to cater for historical data on estimation. |
| 16 | IIT\_CHR\_ATTRIB32 | Second Unit of Measure | 30 | varchar2 |  |  | Second\_Unit\_of\_Measure |  |  |  | Unit of measurement defined for an activity, for example, meters, square meter. This is separate from Unit of Measure to accommodate historical data. |
| 17 | IIT\_CHR\_ATTRIB56 | Defect\_Comments | 255 | varchar2 |  |  | Defect\_Comments |  |  |  | Additional information that is not covered in other fields. |

The asset will have the following roles

|  |  |
| --- | --- |
| **Role** | **Mode** |
| HIG\_USER | NORMAL |

The asset will have the following groupings:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parent** | **Mandatory** | **Relation** | **Start Date** | **End Date** |
| RSD | N | AT | Same as RSD |  |

### Asset for the Routine Services Data – Incidents

This Child asset will hold the information for the Incidents data.

The asset will have the following settings:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Type | RSIC |  |
| Type Title | RSD Incidents |  |
| Type Location | Point | Location Information is Stored on the RSD asset. |
| Elec Drain Carr | C |  |
| Category | I |  |
| Short Description | RSIC |  |
| Start Date | 01JAN1901 |  |
| Replaceable | No |  |
| Multiple Allowed | No |  |
| Top in Hierarchy | No |  |

The asset will have the following attributes:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sequence** | **Name** | **Screen Text** | **Length** | **Format** | **Domain** | **Case** | **View Attr**  **/**  **Column Name** | **Start Date** | **Mandatory** | **Displayed** | **Notes** |
| 1 | IIT\_CHR\_ATTRIB26 | Vendor Code | 4 | VARCHAR2 |  |  | Vendor\_Code |  | Y | Y | Unique identifier representing the Service Provider. |
| 2 | IIT\_NUM\_ATTRIB25 | Reference ID | 8 | number |  | U | Reference\_ID |  | Y | Y | The maintenance activities comprising of routine or reactive services. The activities are allocated activity code. |
| 3 | IIT\_NUM\_ATTRIB16 | Incident ID | 8 | number |  | U | Incident\_ID |  | Y | Y | Unique number for all Service provider for recording the incidents. |
| 4 | IIT\_CHR\_ATTRIB27 | Incident Type | 30 | varchar2 |  | U | Incident\_Type |  |  | Y | Define categories of incident with allocated number to each incident type |
| 5 | IIT\_DATE\_ATTRIB86 | Date Call Received | 11 | Date |  | U | Date\_Call\_Received |  | Y | Y | Record the date of call received for the incident.  Format Mask: DD-MON-YYYY |
| 6 | IIT\_DATE\_ATTRIB87 | Time Call Received | 5 | Date |  | U | Time\_Call\_Received |  | Y | Y | Record the time of call received for the incident.  Format Mask: HH24:MI |
| 7 | IIT\_CHR\_ATTRIB66 | Incident Description | 255 | varchar2 |  | U | Incident\_Description |  | Y | Y | Textual description of the incident |
| 8 | IIT\_CHR\_ATTRIB28 | Advice Received From | 50 | varchar2 |  | U | Advice\_Received\_From |  |  | Y | The person who reported the incident. |
| 9 | IIT\_CHR\_ATTRIB29 | Condition At Time Of Incident | 50 | varchar2 |  | U | Condition\_At\_Time\_Of\_Incident\_ |  |  | Y | A list of conditions to be established and supplied to the service providers for dropdown list. Please see the maintenance specifications. |
| 10 | IIT\_CHR\_ATTRIB30 | Action Required | 50 | varchar2 |  | U | Action\_Required |  |  | Y | What is the action required to handle the request. |
| 11 | IIT\_CHR\_ATTRIB31 | Damage To Property | 30 | varchar2 |  | U | Damage\_To\_Property |  | Y | Y | Nature and extent of damage to RMS assets |
| 12 | IIT\_DATE\_ATTRIB88 | Incident Completion Date | 11 | date |  | U | Incident\_Completion\_Date |  | Y | Y | The date of fixing the incident. Date  Format Mask: DD-MON-YYYY |
| 13 | IIT\_DATE\_ATTRIB89 | Incident Completion Time | 5 | date |  | U | Incident\_Completion\_Time |  | Y | Y | Time of fixing the incident.  Format Mask: HH24:MI |

The asset will have the following roles

|  |  |
| --- | --- |
| **Role** | **Mode** |
| HIG\_USER | NORMAL |

The asset will have the following groupings:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parent** | **Mandatory** | **Relation** | **Start Date** | **End Date** |
| RSD | N | AT | Same as RSD |  |

### Asset for the Routine Services Data – Inspections

This Child asset will hold the information for the Inspections data.

The asset will have the following settings:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Type | RSIS |  |
| Type Title | RSD Inspections |  |
| Type Location | point | Location Information is Stored on the RSD asset. |
| Elec Drain Carr | C |  |
| Category | I |  |
| Short Description | RSIS |  |
| Start Date | 01JAN1901 |  |
| Replaceable | No |  |
| Multiple Allowed | No |  |
| Top in Hierarchy | No |  |

The asset will have the following attributes:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sequence** | **Name** | **Screen Text** | **Length** | **Format** | **Domain** | **Case** | **View Attr**  **/**  **Column Name** | **Start Date** | **Mandatory** | **Displayed** | **Notes** |
| 1 | IIT\_CHR\_ATTRIB26 | Vendor Code | 4 | VARCHAR2 |  |  | Vendor\_Code |  | Y | Y | Unique identifier representing the Service Provider. |
| 2 | IIT\_NUM\_ATTRIB25 | Reference ID | 8 | number |  | U | Reference\_ID |  | Y | Y | The maintenance activities comprising of routine or reactive services. The activities are allocated activity code. |
| 3 | IIT\_CHR\_ATTRIB27 | Inspection Number | 30 | varchar2 |  | U | Inspection\_Number |  | Y | Y | This is the identifying number of the inspection visible to the user. |
| 4 | IIT\_NUM\_ATTRIB16 | Inspection ID | 8 | number |  | U | Inspection\_ID |  | Y | Y | Unique number for all Service provider for recording the inspections. |
| 5 | IIT\_CHR\_ATTRIB28 | Inspection Type | 30 | varchar2 |  | U | Inspection\_Type |  | Y | Y | Define categories of inspection with allocated number to each inspection type |
| 6 | IIT\_DATE\_ATTRIB86 | Target Date | 11 | Date |  | U | Target\_Date |  |  | Y | Planned date for completion. Date  Format Mask: DD-MON-YYYY |
| 7 | IIT\_DATE\_ATTRIB87 | Target Time | 5 | Date |  | U | Target\_Time |  |  | Y | Planned time for completion.  Format Mask: HH24:MI |
| 8 | IIT\_DATE\_ATTRIB88 | Inspection Completion Date | 11 | Date |  | U | Inspection\_Completion\_Date |  | Y | Y | Date of completion of the inspection.  Format Mask: DD-MON-YYYY |
| 9 | IIT\_DATE\_ATTRIB89 | Inspection Completion Time | 5 | Date |  | U | Inspection\_Completion\_Time |  | Y | Y | Time of completion of the inspection.  Format Mask: HH24:MI |
| 10 | IIT\_CHR\_ATTRIB66 | Inspection\_Comments | 255 | varchar2 |  | U | Inspection\_Comments |  |  | Y | Additional information that is not covered in other fields. |

The asset will have the following roles

|  |  |
| --- | --- |
| **Role** | **Mode** |
| HIG\_USER | NORMAL |

The asset will have the following groupings:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parent** | **Mandatory** | **Relation** | **Start Date** | **End Date** |
| RSD | N | AT | Same as RSD |  |

### Asset for the Routine Services Data – Requests

This Child asset will hold the information for the requests data.

The asset will have the following settings:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Type | RSRE |  |
| Type Title | RSD Requests |  |
| Type Location | Point | Location Information is Stored on the RSD asset. |
| Elec Drain Carr | C |  |
| Category | I |  |
| Short Description | RSRE |  |
| Start Date | 0JAN1901 |  |
| Replaceable | No |  |
| Multiple Allowed | No |  |
| Top in Hierarchy | No |  |

The asset will have the following attributes:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sequence** | **Name** | **Screen Text** | **Length** | **Format** | **Domain** | **Case** | **View Attr**  **/**  **Column Name** | **Start Date** | **Mandatory** | **Displayed** | **Notes** |
| 1 | IIT\_CHR\_ATTRIB26 | Vendor Code | 4 | VARCHAR2 |  |  | Vendor\_Code |  | Y | Y | Unique identifier representing the Service Provider. |
| 2 | IIT\_NUM\_ATTRIB25 | Reference ID | 8 | number |  | U | Reference\_ID |  | Y | Y | The maintenance activities comprising of routine or reactive services. The activities are allocated activity code. |
| 3 | IIT\_NUM\_ATTRIB16 | Request ID | 8 | number |  | U | Request\_ID |  | Y | Y | Unique number for all Service provider for recording the requests. |
| 4 | IIT\_CHR\_ATTRIB27 | Request Type | 30 | varchar2 |  | U | Request\_Type |  |  | Y | Define categories of request with allocated number to each request type |
| 5 | IIT\_DATE\_ATTRIB86 | Request Date Received | 11 | date |  | U | Request\_Date\_Received |  | Y | Y | Record the time of call received for the request.  Format Mask: DD-MON-YYYY |
| 6 | IIT\_DATE\_ATTRIB87 | Request Time Received | 5 | date |  | U | Request\_Time\_Received |  | Y | Y | Record the time of call received for the request.  Format Mask: HH24:MI |
| 7 | IIT\_CHR\_ATTRIB28 | Request Number | 30 | varchar2 |  | U | Request\_Number |  | Y | Y | This is the identifying number of the request visible to the user. |
| 8 | IIT\_DATE\_ATTRIB88 | Request Completion Date | 11 | date |  | U | Request\_Completion\_Date |  | Y | Y | Actual completion date of the request.  Format Mask: DD-MON-YYYY |
| 9 | IIT\_DATE\_ATTRIB89 | Request Completion Time | 5 | date |  | U | Request\_Completion\_Time |  | Y | Y | Actual completion time of the request.  Format Mask: HH24:MI |
| 10 | IIT\_CHR\_ATTRIB66 | Request\_Comments | 255 | varchar2 |  | U | Request\_Comments |  |  | Y | Additional information that is not covered in other fields for the request received. |

The asset will have the following roles

|  |  |
| --- | --- |
| **Role** | **Mode** |
| HIG\_USER | NORMAL |

The asset will have the following groupings:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parent** | **Mandatory** | **Relation** | **Start Date** | **End Date** |
| RSD | N | AT | Same as RSD |  |

## Routine Services Asset GIS Themes

GIS themes need to be created so that RMS can view the Routine Services Data in Bentley Exor Spatial Manager.

### Standard Theme

A standard Asset GIS layer will be created using the GIS Layer Tool in Exor for the RSD asset.

### Custom Themes

Custom Themes can be created and shown in Spatial Manager. Custom themes are added and then shown in the “Exor Themes” tree of the Exor Groups Tab in Spatial Manager.

GIS Themes will be created that allows the mapping in Spatial Manager for the following reports from the section labeled: Reporting on Routine Services Data

* Outstanding Defects
* Accomplishments during a Period
* Inspections during a Period
* Vendor Performance During A Selected Period

The filtering methods allowed by Spatial Manager would be used to filter the data.

These themes are Oracle Spatial Layers and can be viewed by other oracle spatial aware programs if necessary.

# Data Loader for Routine Service Data

RMS requires the ability to import 3rd party Routine Services Data into RAMS. This will be accomplished via a CSV loader through RAMS. The CSV Loader feature in RAMS will be created with a customized procedure to accommodate the need of loading this data. Details of the custom procedure are located in the section titled “Procedure.” The CSV loader feature in RAMS will show the user which records failed and have a failure message attached. Once the Load is successful into RAMSD then the CSV file is processed into RAMSP. The general data flow would be:

C:\Users\joe.mendoza\Documents\~customers\~Exor\RMS - RAMS\Reflect With Insight\docs\CSV_Data_Flow.emf

## CSV Loader for Routine Service Data

A CSV loader definition needs to be created in RAMS. This is done through the Destination Tables Form and the Files Destination Form. The settings for these forms and the format of the CSV file are described below.

### Input File

The CSV loader uses a text file to input data. This file will be bar/pipe separated “|” and outlined in Appendix A. The file will be used by the CSV loader, parsed into the Destination Table, and processed by the procedure.

.

### Destination Tables Form

In order to create a custom CSV Loader a new destination table needs to be created and the Destination Tables Form completed out. This form tells the CSV Loader which procedures to run when a destination table is selected in the file definition form.

The Destination table will mirror the CSV loading file as outlined in Appendix A. The following settings will be inputted into the form:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Table Name | X\_RMS\_RSD\_CSV\_HOLDING |  |
| Abbrev | XRDS |  |
| Insert Procedure | X\_RMS\_RSD\_CSV\_PACK.P\_INSERT |  |
| Validation Procedure | X\_RMS\_RSD\_CSV\_PACK.P\_VALIDATE |  |

### File Definition Tables Form

In order to create a custom CSV Loader the Files Destination Form needs to be completed. This form maps the CSV Input file to columns in one or more Destination tables. For the purposes of the Routine Services data only one Destination Table will be used. . The following settings will be inputted into the form:

|  |  |  |
| --- | --- | --- |
| **Setting** | **Value** | **Notes** |
| Unique Ref | RSDCSV |  |
| Description | Routine Services Data CSV Loader |  |
| Delimiter | Pipe/Bar | |  |
| Holding Table | Default |  |

#### File Columns Tab

The file column tab maps the CSV input file via sequence ID to a Column Name to be used as a reference later. This will mirror the CSV loading file as outlined in Appendix A. Only Items in Appendix A marked as required for all will have the Reqd checkmark checked in this form. Appendix A will be used to fill out the values to configure this part of the form.

#### File Destinations Tab

The File Destinations Tab maps the Column Names form the File Columns tab to columns in the Destination Table(s.) In this case there will be one Destination Table: X\_RMS\_RSD\_CSV\_HOLDING. The Seq, Destination Column, and Source Column will map the columns form the file columns tab to the destination table. The columns should all have the same name since this is a custom destination table. The Column names are dictated in Appendix A. Appendix A will be used to fill out the values to configure this part of the form.

### Procedure

Loading of the Routine Services Data is dictated though custom code that processes the data passed to it from the csv loader. This code needs to process the relevant data for the various RSD Assets and Create or Update entries for those assets as needed. It also needs to be able to reject a line of input if something is missing or incorrect. This package will be named: X\_RMS\_RSD\_CSV\_PACK.

The CSV Loader checks to make sure that all the fields checked as required are supplied, if not an error is produced. The errors produced by the CSV loader will be looked at by a RAMS administrator to determine if the error is a message that should be handled by a RAMS administrator or sent to the service provider.

The CSV Loader then passes a line from the holding table that was defined in the File Definitions Table Form to the Procedure. The procedure does the following:

* Takes the Vendor Code and Reference ID and determines if this is a new RSD asset or an existing one.
  + If New then Create the RSD Asset and fill in the suppled attributes.
    - If the provider did not include the Local Government Area, use the Latitude and longitude to determine it and fill it in.
    - Locate the RSD Asset in the same place as the asset described by: Asset type code, road number and the latitude and longitude. If the asset does not exist then produce an error to add the asset to RAMS.
  + If Existing then see if any Values in RSD have changed or have been added.
* If Accomplishment ID is supplied then process accomplishments
  + If it is a new Accomplishment ID then Create the RSAM asset as a Child of the RSD asset associated with the Vendor Code & Reference ID and fill in the suppled attributes.
    - Make sure that Items marked in mandatory column of Appendix A as: “If Recording an Accomplishment” are supplied, otherwise throw an exception.
  + If Existing then see if any Values in RSAM have changed or have been added.
* If Defect ID is supplied then process Defects
  + If it is a new Defect ID then Create the RSDE asset as a Child of the RSD asset associated with the Vendor Code & Reference ID and fill in the suppled attributes.
    - Make sure that Items marked in mandatory column of Appendix A as: “If Recording a Defect” are supplied, otherwise throw an exception.
  + If Existing then see if any Values in RSDE have changed or have been added.
* If Incident ID is supplied then process Incidents
  + If it is a new Incident ID then Create the RSIC asset as a Child of the RSD asset associated with the Vendor Code & Reference ID and fill in the suppled attributes.
    - Make sure that Items marked in mandatory column of Appendix A as: “If Recording an Incident” are supplied, otherwise throw an exception.
  + If Existing then see if any Values in RSIC have changed or have been added.
* If Inspection ID is supplied then process Inspections
  + If it is a new Inspection ID then Create the RSIS asset as a Child of the RSD asset associated with the Vendor Code & Reference ID and fill in the suppled attributes.
    - Make sure that Items marked in mandatory column of Appendix A as: “If Recording an Inspection” are supplied, otherwise throw an exception.
  + If Existing then see if any Values in RSIS have changed or have been added.
* If Request ID is supplied then process Requests
  + If it is a new Request ID then Create the RSRE asset as a Child of the RSD asset associated with the Vendor Code & Reference ID and fill in the suppled attributes.
    - Make sure that Items marked in mandatory column of Appendix A as: “If Recording a Request” are supplied, otherwise throw an exception.
  + If Existing then see if any Values in RSRE have changed or have been added.

The next page shows a simplified flow chart diagram on how the custom CSV Load procedure will process the input file. The diagram represents reading in one line of the data provided by the CSV input file. This is repeated until all the supplied data is processed.

C:\Users\joe.mendoza\Documents\~customers\~Exor\RMS - RAMS\Reflect With Insight\docs\Csv_process.emf

# Reporting on Routine Services Data

The RAMS system needs to have the data in place to be able to produce the following reporting objects. Bentley will create views that can then be added and used in Oracle Discoverer. Bentley will create the necessary workbooks and worksheets for Oracle Discoverer. The comments section of the report fields will list if the field should be exposed for filtering in Discoverer. By default it should return all the data.

The reports can be spilt into two categories: Management Reports and 3rd party service provider reports.

## Management Reports

The following management level reports have been defined as needed by RMS.

### Outstanding Defects

This report uses data from the Defect Asset to determine which defects have not been resolved. If the Defect\_Completetion\_Date is Null then the defect has not been resolved.

This report needs to link the RSDE asset back to RSD in nm\_inv\_items. This report will also need to join nm\_members and nm\_elements to retrieve relevant location information.

|  |  |  |
| --- | --- | --- |
| **Column Name** | **RAMS Internal Name** | **Comments** |
| Vendor\_Code | IIT\_CHR\_ATTRIB26 |  |
| Reference\_id | IIT\_NUM\_ATTRIB25 |  |
| Road\_Number | IIT\_CHR\_ATTRIB56 | Filter in Discoverer |
| Road\_Maintenance\_Segment | IIT\_CHR\_ATTRIB28 | Filter in Discoverer (between) |
| Date of creation | IIT\_DATE\_ATTRIB86 | Filter in Discoverer (between) |
| Longitude | IIT\_NUM\_ATTRIB17 |  |
| Latitude | IIT\_NUM\_ATTRIB18 |  |
| LGA | IIT\_CHR\_ATTRIB29 | Filter in Discoverer |
| Asset\_type\_code | IIT\_CHR\_ATTRIB27 | Filter in Discoverer |
| Key\_ID | IIT\_NUM\_ATTRIB16 | Filter in Discoverer |
| Asset\_description | IIT\_CHR\_ATTRIB58 |  |
| Defect\_Number | IIT\_CHR\_ATTRIB27 |  |
|  |  |  |
| Defect\_ID | IIT\_NUM\_ATTRIB24 |  |
| Date\_Raised | IIT\_DATE\_ATTRIB86 |  |
| Time\_Raised | IIT\_DATE\_ATTRIB87 |  |
| Cause\_Of\_Defect | IIT\_CHR\_ATTRIB28 |  |
| Reoccurring\_Defect\_(Yes/No) | IIT\_CHR\_ATTRIB29 |  |
| Defect\_Type | IIT\_CHR\_ATTRIB30 |  |
| Position\_within\_Location | IIT\_NUM\_ATTRIB16 |  |
| Defect\_Completion\_Date | IIT\_DATE\_ATTRIB88 |  |
| Defect\_Completion\_Time | IIT\_DATE\_ATTRIB89 |  |
| Estimated\_Quantity\_for\_repair | IIT\_NUM\_ATTRIB16 |  |
| Unit\_of\_Measure | IIT\_CHR\_ATTRIB31 |  |
| Estimated\_Second\_Quantity | IIT\_NUM\_ATTRIB16 |  |
| Second\_Unit\_of\_Measure | IIT\_CHR\_ATTRIB32 |  |
| Defect\_Comments | IIT\_CHR\_ATTRIB56 |  |
| NE\_Unique | NE\_Unique | Route |
| Ne\_Descr | Ne\_descr | Route |

### Inspections during a Period

This report uses data from the Inspections Asset to determine which defects have not been resolved.

This report needs to link the RSIS asset back to RSD in nm\_inv\_items. This report will also need to join nm\_members and nm\_elements to retrieve relevant location information.

|  |  |  |
| --- | --- | --- |
| **Column Name** | **RAMS Internal Name** | **Comments** |
| Vendor\_Code | IIT\_CHR\_ATTRIB26 |  |
| Reference\_id | IIT\_NUM\_ATTRIB25 |  |
| Road\_Number | IIT\_CHR\_ATTRIB56 | Filter in Discoverer |
| Road\_Maintenance\_Segment | IIT\_CHR\_ATTRIB28 | Filter in Discoverer (between) |
| Date of creation | IIT\_DATE\_ATTRIB86 | Filter in Discoverer (between) |
| Longitude | IIT\_NUM\_ATTRIB17 |  |
| Latitude | IIT\_NUM\_ATTRIB18 |  |
| LGA | IIT\_CHR\_ATTRIB29 | Filter in Discoverer |
| Asset\_type\_code | IIT\_CHR\_ATTRIB27 | Filter in Discoverer |
| Key\_ID | IIT\_NUM\_ATTRIB16 | Filter in Discoverer |
| Asset\_description | IIT\_CHR\_ATTRIB58 |  |
|  |  |  |
| Inspection\_ID | IIT\_NUM\_ATTRIB16 |  |
| Inspection\_Type | IIT\_CHR\_ATTRIB27 |  |
| Inspection\_Completion\_Date | IIT\_DATE\_ATTRIB88 |  |
| Inspection\_Completion\_Time | IIT\_DATE\_ATTRIB89 |  |
| Inspection Number | IIT\_CHR\_ATTRIB28 |  |
| Inspection\_Comments | IIT\_CHR\_ATTRIB66 |  |
| NE\_Unique | NE\_Unique | Route |
| Ne\_Descr | Ne\_descr | Route |

### Accomplishments during a period

This report uses data from the Routine Services Data Accomplishment section to determine which Accomplishments have been completed during a period. If the Accomplishment\_Date is Null then the Accomplishment has not been completed and it should not appear in his report.

This report needs to link the RSAM asset back to RSD in nm\_inv\_items. This report will also need to join nm\_members and nm\_elements to retrieve relevant location information.

|  |  |  |
| --- | --- | --- |
| **Column Name** | **RAMS Internal Name** | **Comments** |
| Vendor\_Code | IIT\_CHR\_ATTRIB26 |  |
| Reference\_id | IIT\_NUM\_ATTRIB25 |  |
| Road\_Number | IIT\_CHR\_ATTRIB56 | Filter in Discoverer |
| Road\_Maintenance\_Segment | IIT\_CHR\_ATTRIB28 | Filter in Discoverer (between) |
| Date of creation | IIT\_DATE\_ATTRIB86 | Filter in Discoverer (between) |
| Longitude | IIT\_NUM\_ATTRIB17 |  |
| Latitude | IIT\_NUM\_ATTRIB18 |  |
| LGA | IIT\_CHR\_ATTRIB29 | Filter in Discoverer |
| Asset\_type\_code | IIT\_CHR\_ATTRIB27 | Filter in Discoverer |
| Key\_ID | IIT\_NUM\_ATTRIB16 | Filter in Discoverer |
| Asset\_description | IIT\_CHR\_ATTRIB58 |  |
| Defect\_Number | IIT\_CHR\_ATTRIB27 |  |
|  |  |  |
| Accomplishment ID | IIT\_NUM\_ATTRIB24 |  |
| Accomplishment Date | IIT\_DATE\_ATTRIB86 |  |
| Activity | IIT\_NUM\_ATTRIB16 |  |
| Activity Name | IIT\_CHR\_ATTRIB56 |  |
| Activity Type | IIT\_CHR\_ATTRIB28 |  |
| Quantity Accomplished | IIT\_NUM\_ATTRIB17 |  |
| Unit Of Measure | IIT\_CHR\_ATTRIB29 |  |
| Second Quantity | IIT\_NUM\_ATTRIB18 |  |
| Second Unit of Measure | IIT\_CHR\_ATTRIB30 |  |
| Accomplishment\_Comments | IIT\_CHR\_ATTRIB57 |  |
| Time Work | IIT\_NUM\_ATTRIB19 |  |
| Completed (Yes/No) | IIT\_CHR\_ATTRIB31 |  |
| NE\_Unique | NE\_Unique | Route |
| Ne\_Descr | Ne\_descr | Route |

## 3rd Party Service Provider Reports

### Performance During A Selected Period.

This report uses data from the Routine Services Data Requests section to determine which Requests have been completed during a period. It should be grouped by provider and be able to be filtered by Request\_Date\_recieved for a period.

This report needs to link the RSAM asset back to RSD in nm\_inv\_items.

|  |  |  |
| --- | --- | --- |
| **Column Name** | **RAMS Internal Name** | **Comments** |
| Provider | IIT\_CHR\_ATTRIB26 | Vendor Code |
| Date\_range\_begins | Min(IIT\_DATE\_ATTRIB86) |  |
| Date\_range\_end | Max(IIT\_DATE\_ATTRIB86) |  |
| Average Days | Avg(Request Completion Date - Request Date Received). | Request Completion Date not null |
| Defects fixed | Sum(Request Completion Date) | Request Completion Date is not null |
| Defect Number |  |  |
| Accomplishment details |  |  |
| Vendor Code |  |  |
| Reference ID |  |  |
| Date of fix |  |  |
| Latitude |  |  |
| Longitude |  |  |
| LGA |  |  |
| Asset Type Code |  |  |
| Key\_id (Asset Description) |  |  |
| Defects Open | Sum(Request Completion Date) | Request Completion Date is null |
| Asset\_description |  |  |
| Defect\_Number |  |  |
|  |  |  |
| Defect\_ID |  |  |
| Date\_Raised |  |  |
| Time\_Raised |  |  |
| Cause\_Of\_Defect |  |  |
| Reoccurring\_Defect\_(Yes/No) |  |  |
| Defect\_Type |  |  |

# Documentation Requirements

Documentation is required to administer and run the interface. It needs to include detail on the Installation and use of the assets, the CSV Loader, the GIS themes and the reports that have been detailed in this document.

# Assumptions

* The technologies being used will be limited to Exor, Exor Spatial Manager
* IF reporting the preferred technology is Oracle Forms and Reports
* RMS will provide access to the technologies needed to implement this design.

# Conclusion

This document is the result of a series of conversations between Bentley Systems and RMS with the objective of creating means to import data, update data and report on data in the RAMS system.

During these discussions Bentley Systems and RMS has established the scope of this project and the requirements that will need to be met in order for the project to be successful.

Using the Functional Specification recorded above Bentley Systems will create a series of items to meet the requirements.

# Appendix A

Column Definition for the CSV Loader file. This F

The format for the Date fields are: DD/MM/YYYY

* + For example: 08/11/2013
* The time fields that immediately follow a Date field are identified as Varchar2 with a Size of 5. The expected format is: hh:mm
  + For example: 13:00

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Column ID** | **Name** | **Type** | **Size** | **Related RSD Asset** | **Mandatory** | **Comments** |
| 1 | Vendor Code | Varchar2 | 4 | RSD | Yes – For ALL |  |
| 2 | Reference\_id | Number | 8 | RSD | Yes – For ALL |  |
| 3 | Road\_Number | Varchar2 | 125 | RSD | Yes – For ALL |  |
| 3 | Asset\_type\_code | Varchar2 | 5 | RSD | Yes – For ALL |  |
| 4 | Key\_ID | Number |  | RSD |  | Retrieved from RAMS Using other data if not supplied |
| 5 | Asset\_description | Varchar2 | 125 | RSD |  | Retrieved from RAMS Using other data if not supplied |
| 6 | Road\_Maintenance\_Segment | Varchar2 | 30 | RSD | Yes - For All | Retrieved from RAMS Using other data if not supplied |
| 7 | Date of creation | Date |  | RSD | Yes - For All |  |
| 8 | Time of creation | Varchar2 | 5 | RSD |  | Omission will assume a default of 00:00h |
| 9 | Longitude | Number |  | RSD | Yes - For All |  |
| 10 | Latitude | Number |  | RSD | Yes - For All |  |
| 11 | LGA | Varchar2 | 50 | RSD |  | Retrieved from RAMS Using other data if not supplied |
| 12 | Accomplishment\_Number | Varchar2 | 30 | RSAM | If Recording an Accomplishment |  |
| 13 | Accomplishment\_ID | number | 8 | RSAM | If Recording an Accomplishment |  |
| 14 | Accomplishment\_Date | Date |  | RSAM | If Recording an Accomplishment |  |
| 15 | Activity | Number |  | RSAM | If Recording an Accomplishment |  |
| 16 | Activity\_Name | Varchar2 | 255 | RSAM | If Recording an Accomplishment |  |
| 17 | Activity\_Type | Varchar2 | 30 | RSAM | If Recording an Accomplishment |  |
| 18 | Quantity\_Accomplished | Number |  | RSAM | If Recording an Accomplishment |  |
| 19 | Unit\_Of\_Measure | Varchar2 | 30 | RSAM | If Recording an Accomplishment |  |
| 20 | Second\_Quantity | Number |  | RSAM |  |  |
| 21 | Second\_Unit\_of\_Measure | Varchar2 | 30 | RSAM |  |  |
| 22 | Accomplishment\_Comments | Varchar2 | 255 | RSAM | If Recording an Accomplishment |  |
| 23 | Time\_Work | Number |  | RSAM | If Recording an Accomplishment |  |
| 24 | Completed\_(Yes/No) | Varchar2 | 1 | RSAM | If Recording an Accomplishment | Y or N |
| 25 | Defect\_Number | Varchar2 | 12 | RSDE | If Recording a Defect |  |
| 26 | Defect\_ID | number | 8 | RSDE | If Recording a Defect | Number or Varchar2 |
| 27 | Date\_Raised | Date |  | RSDE | If Recording a Defect |  |
| 28 | Time\_Raised | Varchar2 | 5 | RSDE |  | Omission will assume a default of 00:00h |
| 29 | Cause\_Of\_Defect | Varchar2 | 30 | RSDE | If Recording a Defect |  |
| 30 | Reoccurring\_Defect\_(Yes/No) | Varchar2 | 1 | RSDE | If Recording a Defect | Y or N |
| 31 | Defect\_Type | Varchar2 | 50 | RSDE | If Recording a Defect |  |
| 32 | Position\_within\_Location | Number |  | RSDE | If Recording a Defect |  |
| 33 | Defect\_Completion\_Date | Date |  | RSDE | If Recording a Defect |  |
| 34 | Defect\_Completion\_Time | Varchar2 | 5 | RSDE |  | Omission will assume a default of 00:00h |
| 35 | Estimated\_Quantity\_for\_repair | Number |  | RSDE | If Recording a Defect |  |
| 36 | Unit\_of\_Measure | Varchar2 | 30 | RSDE | If Recording a Defect |  |
| 37 | Estimated\_Second\_Quantity | Number |  | RSDE | If Recording a Defect |  |
| 38 | Second\_Unit\_of\_Measure | Varchar2 | 30 | RSDE | If Recording a Defect |  |
| 39 | Defect\_Comments | Varchar2 | 255 | RSDE | If Recording a Defect |  |
| 40 | Incident\_ID | Number | 8 | RSIC | If Recording an Incident |  |
| 41 | Incident\_Type | Varchar2 | 30 | RSIC |  |  |
| 42 | Date\_Call\_Received | Date |  | RSIC | If Recording an Incident |  |
| 43 | Time\_Call\_Received | Varchar2 | 5 | RSIC |  | Omission will assume a default of 00:00h |
| 44 | Incident\_Description | Varchar2 | 255 | RSIC | If Recording an Incident |  |
| 45 | Advice\_Received\_From | Varchar2 | 50 | RSIC |  |  |
| 46 | Condition\_At\_Time\_Of\_Incident\_ | Varchar2 | 50 | RSIC |  |  |
| 47 | Action\_Required | Varchar2 | 50 | RSIC |  |  |
| 48 | Damage\_To\_Property | Varchar2 | 30 | RSIC | If Recording an Incident |  |
| 49 | Incident\_Completion\_Date | Date |  | RSIC | If Recording an Incident |  |
| 50 | Incident\_Completion\_Time | Varchar2 | 5 | RSIC | If Recording an Incident | Omission will assume a default of 00:00h |
| 51 | Inspection\_Number | Varchar2 | 30 | RSIS | If Recording an Inspection |  |
| 52 | Inspection\_ID | Number |  | RSIS | If Recording an Inspection |  |
| 53 | Inspection\_Type | Varchar2 | 30 | RSIS | If Recording an Inspection |  |
| 54 | Target\_Date | Date |  | RSIS | If Recording an Inspection |  |
| 55 | Target\_Time | Varchar2 | 5 | RSIS |  | Omission will assume a default of 00:00h |
| 56 | Inspection\_Completion\_Date | Date |  | RSIS | If Recording an Inspection |  |
| 57 | Inspection\_Completion\_Time | Varchar2 | 5 | RSIS |  | Omission will assume a default of 00:00h |
| 58 | Inspection\_Comments | Varchar2 | 255 | RSIS | If Recording an Inspection |  |
| 59 | Request\_ID | Number | 8 | RSRE | If Recording a Request |  |
| 60 | Request\_Type | Varchar2 | 30 | RSRE |  |  |
| 61 | Request\_Date\_Received | Date |  | RSRE | If Recording a Request |  |
| 62 | Request\_Time\_Received | Varchar2 | 5 | RSRE | If Recording a Request | Omission will assume a default of 00:00h |
| 63 | Request\_Number | Varchar2 | 30 | RSRE | If Recording a Request |  |
| 64 | Request\_Completion\_Date | Date |  | RSRE | If Recording a Request |  |
| 65 | Request\_Completion\_Time | Varchar2 | 5 | RSRE | If Recording a Request | Omission will assume a default of 00:00h |
| 66 | Request\_Comments | Varchar2 | 255 | RSRE | If Recording a Request |  |