Cannon Australia Pty Ltd
Software solutions modernisation
Requirements, scope and project approach

Date: 2 June 2017
Document Number: A02715

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REVISION INFORMATION

Author:	David Gardner
Revision No:	4
Document No:	A00872
Reviewed by:	
Approved by:	
Total Pages:	
Effective Date:	2 June 2017
Filename:	

REVISION HISTORY

Rev No.	Description	Author	Reviewed	Approved	Date
1	Document creation	DG	MO		16/05/2017
2	Service card section filled out after visit to the Kelmscott yard	DG	IB		30/05/2017
3	Few small changes after review by Ian Browse of the of the service card section	DG			1/6/2017
4	Few small amendments	DG	GR		2/6/2017

COPY INFORMATION

Copy No.	Copy Holder	Copy Status

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1 EXECUTIVE SUMMARY

Cannon has requested Nanosoft provide an upgrade path for their current software solution as well as provide full integration with the GPS solution and service card system. The body of work can be broken up into three distinct parts:

- Upgrade of current “fleet tracker system” from a legacy Access solution to an ASP.NET / SQL server solution.
- Modernisation of current file based service card solution. This will also include a mechanism for manually entering the old service card data into the web front end.
- Providing a mechanism for integration with the upcoming Cannon Capture solution.

The purpose of this document is to provide a high-level view of the current solution, the final end state and each migration step in-between. This is a working document and is expected to receive several amendments during the life-time of the project.

2 HIGH LEVEL BREAKDOWN

2.1 THE CURENT SYSTEM

Below is a top-down description of the current solution architecture. This has evolved over time as three separate and disparate systems. Other branches have different structures which have not been taken into consideration in this proposal.

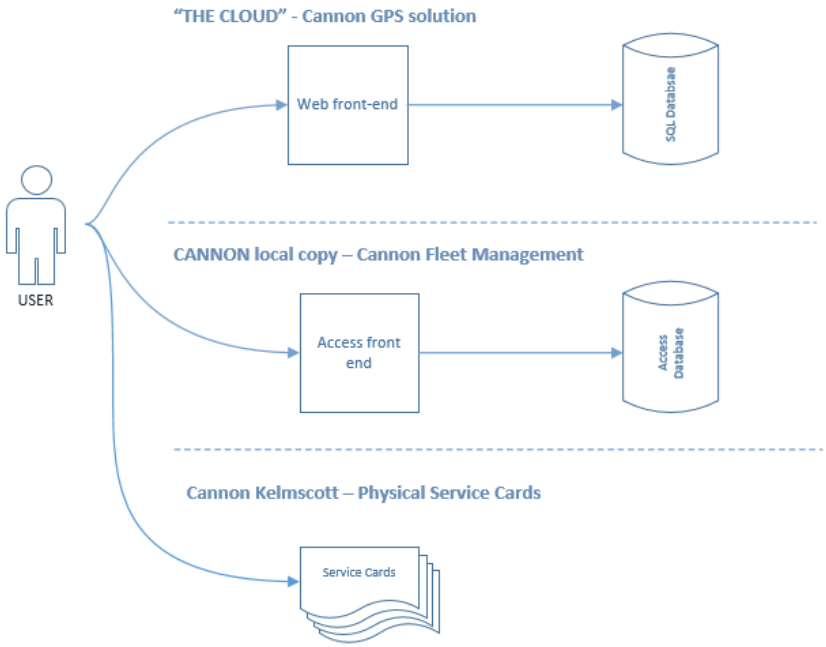


Figure 1 - Current Configuration

2.2 PROPOSED SOLUTION

The below diagram shows the proposed solution architecture.

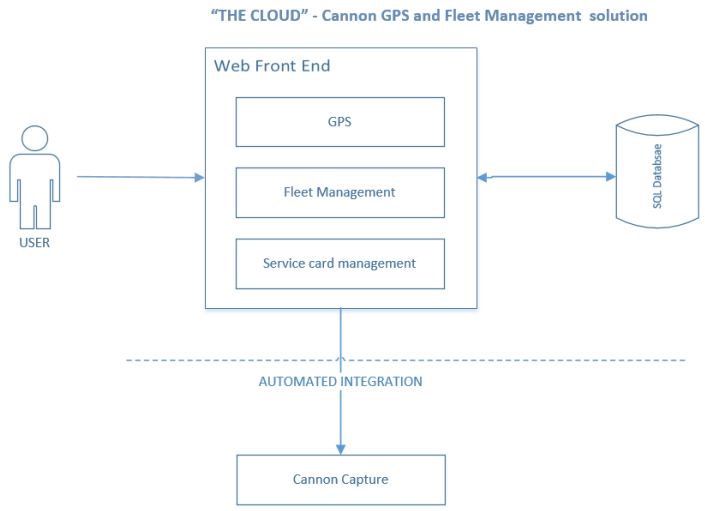


Figure 2 - Proposed Solution

To the user, it will appear as if they are using one system as they will all be closely integrated and use the same security model.

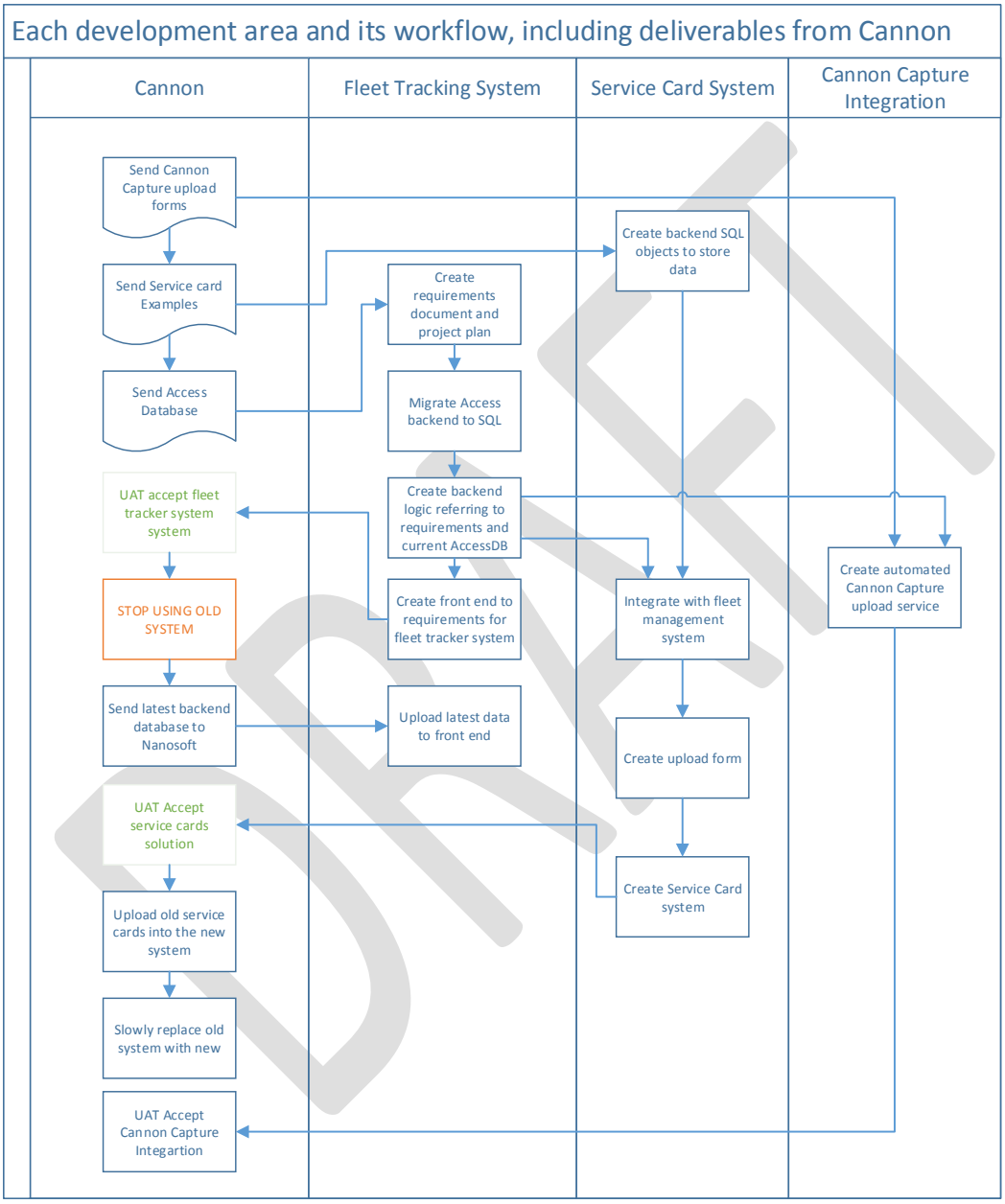
For the sake of reliability and ease of understanding, all the solutions will use the same technology. This will be a ASP.NET front end with Development Express controls along with a SQL Server 2016 backend. This will run on .NET 4.5.2 and hosted in IIS.

3 RESPONSIBILITIES, ACTIONS AND TIMELINES

A brief project timeline is provided to give a very rough indication of how long things will take to progress. Each line item does not represent effort, but more the time it will take to complete each task (for instance, the service card system will not take 4 weeks of effort to complete, however; it is safe to assume there will be time delays with testing etc).

ID	Task Name	Duration
1	Cannon provide source data to Nanosoft	4.8w
2	Requirements gathering and sign off	2.2w
3	Fleet Tracking System	12w
4	Service Card System	6w
5	Cannon Capture Integration	2w

The below is a diagram detailing each new area of the system and their development process. Also included is Cannons deliverables and workflow. It is recommended that whilst getting used to the new system, for a short period both old and new systems are used as a transition period.



4 SERVER SPECIFICATIONS AND SECURITY

The following is the server specification, if there is more CPU / memory required then an upgrade can be performed within 24 hours. It is not predicted that there should be an upgrade required within the first 5 years. As the extra features will be added to the current GPS solution, the hardware will be shared. The hosting will incur NO

COST to Cannon at all so long as they are using the GPS system as the hosting costs are already covered

Setting	Value
CPU	6 vCore
RAM	8000 MB
Storage	90GB super-fast SSD
Bandwidth	10,000GB p/m super-fast speed
IP Address	45.32.243.21

4.1.1 Software Specification

Setting	Value
Operating System	Windows Server 2012 R2
Website host	IIS 7
Backend	SQL Server
Front end software	.NET 4.2, ASP server pages with Development Express controls.

4.2 SECURITY CONSIDERATIONS

As Cannon are already using the GPS system and its advanced security, this security model will be leveraged. As part of the migration process, Nanosoft will create a user for each of the current users of the system and send them an automated email to inform them of the new system and their logon credentials.

5 REQUIREMENTS

Before starting work on the project, a rough estimate must be approved and a list of requirements agreed upon. During development, each of these requirements will follow a workflow in the software development monitoring solution (Jira). The project will be deemed complete when each requirement has passed the “UAT complete” milestone. From a requirement being moved from “done”, Cannon have two weeks to reject or approve the change or it will automatically be deemed as complete.

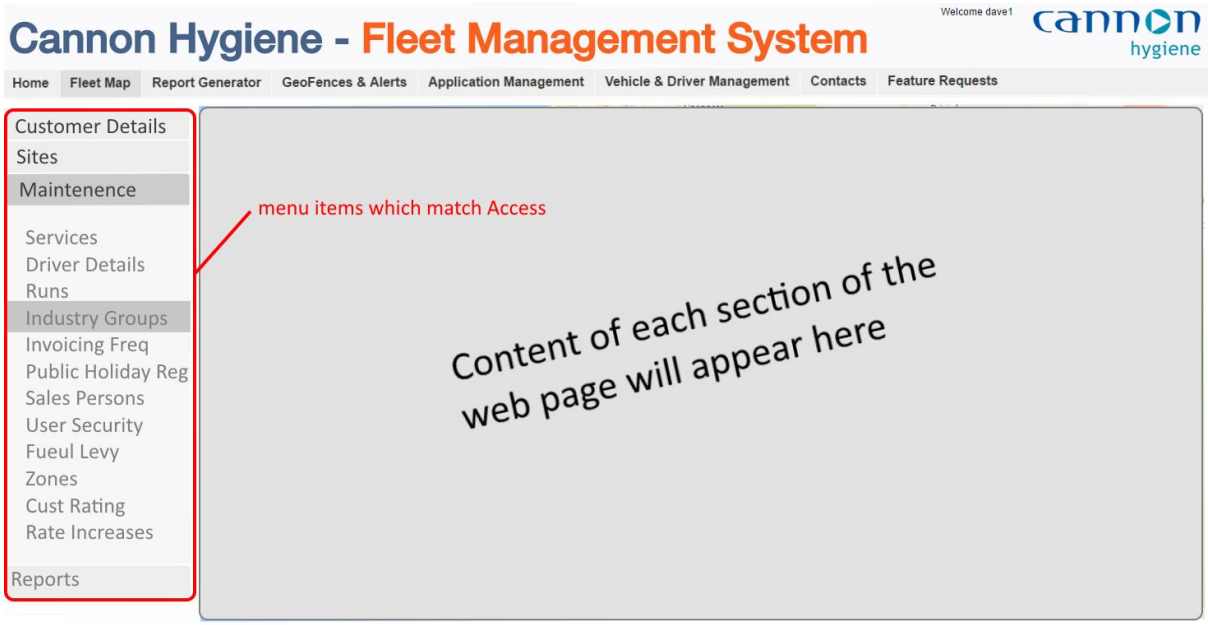
5.1 FLEET MANAGEMENT TOOL MIGRATION

The basic premise for the requirements of the “fleet management tool” is that the same system Cannon are currently using in Access will be available as a modernised version online. The database engine will also be upgraded and backed up daily.

5.1.1 General Requirements

To achieve full integration, a new menu item will be added to provide the functionality required:

The current options from the Access environment will be mimicked in the form of a collapsible menu list on the left hand side of the web application. The content of each page will be found in the centre.



5.1.2 In-Depth Requirements

As this section basically copies an existing system, the requirements have been divided up into each menu item from the Access database. Where something specific needs to be changes/notes there is a notes section.

Each of the requirements below will have its own Jira case which will have to be UAT accepted by Cannon before the project can be deemed completed.

Req#	Description	Notes
1	**Migration of Access data to a SQL backend**	
1.1	**Create mechanism to upload new data**	Must be able to take old Access DB and upload the new data into the SQL backend. Required for final migration procedure.
2	**Customer Details**	
3	**Sites**	menu item
3.1	Site Details	copy functionality fromAccess
3.2	Site Contact Address	copy functionality fromAccess

3.3	Site Invoicing Details	copy functionality fromAccess
3.4	Site Services	copy functionality fromAccess
3.5	CIR History	copy functionality fromAccess
3.6	Comments	copy functionality fromAccess
4	Maintenance	menu item
4.1	Services	copy functionality fromAccess
4.2	Contract Cease Reasons	copy functionality fromAccess
4.3	Driver Details	copy functionality fromAccess
4.4	Contract Previous Suppliers	copy functionality fromAccess
4.5	CIR Reasons	copy functionality fromAccess
4.6	Industry Groups	copy functionality fromAccess
4.7	Run F/N Cucles	copy functionality fromAccess
4.8	Invoicing Frequency	copy functionality fromAccess
4.9	Turn on/off auditing	copy functionality fromAccess
4.10	Public Holiday Register	copy functionality fromAccess
4.11	Customer Agents	copy functionality fromAccess
4.12	Sales Persons	copy functionality fromAccess
4.13	Service Frequency	copy functionality fromAccess
4.14	User Security	copy functionality fromAccess
4.15	Cust Rating	copy functionality fromAccess
4.16	Fuel Levy	copy functionality fromAccess
4.17	Rate Increases	copy functionality fromAccess
5	**Reports**	menu item
5.1	Contract Renewals	copy functionality fromAccess
5.2	Customer Contact Details	copy functionality fromAccess
5.3	Quick View by Suburb	copy functionality fromAccess
5.4	Audit Report & G & L	copy functionality fromAccess
5.5	Industry List	copy functionality fromAccess
5.6	Service List	copy functionality fromAccess
5.7	Revenue Report by Zone	copy functionality fromAccess
5.8	Run Listing	copy functionality fromAccess
5.9	Gains & Losses (Sales)	copy functionality fromAccess
5.10	Run Values	copy functionality fromAccess
5.11	Diver License Expiry	copy functionality fromAccess
5.12	Run Value Summary	copy functionality fromAccess
5.13	Per Anum Value	copy functionality fromAccess
5.14	Service Summary	copy functionality fromAccess
5.15	Invoicing	copy functionality fromAccess
5.16	Annual Analysis	copy functionality fromAccess
5.17	Sites with no contacts	copy functionality fromAccess
5.18	Length of Service	copy functionality fromAccess

5.19	Sites by Zone time	copy functionality fromAccess
5.20	Customers by zone time	copy functionality fromAccess
6	**Other Processes**	menu item
6.1	Generate Run Sheet	copy functionality fromAccess
6.2	Produce MYOB file	is this used as it may prove problematic to implement this from a website

5.2 SERVICE CARD INTEGRATION

The current service card system at the Kelmscott yard requires an upgrade to an electronic system. This will enable efficiencies to be found and changes (such as a driver being unavailable) will be easier to manage.

5.2.1 The Current system

To “digitise” the system, a full understanding of the current system must be documented. From this documentation, a full list of requirements can be derived. The digital system must ensure that it has ALL the same features as the current folder based system.

A set of photos showing the current manual system is provided in “Appendix A - Service card system photos”.

5.2.1.1 The “run board”

Below is the “run board”, which is used to visualise what driver is doing what run and when.

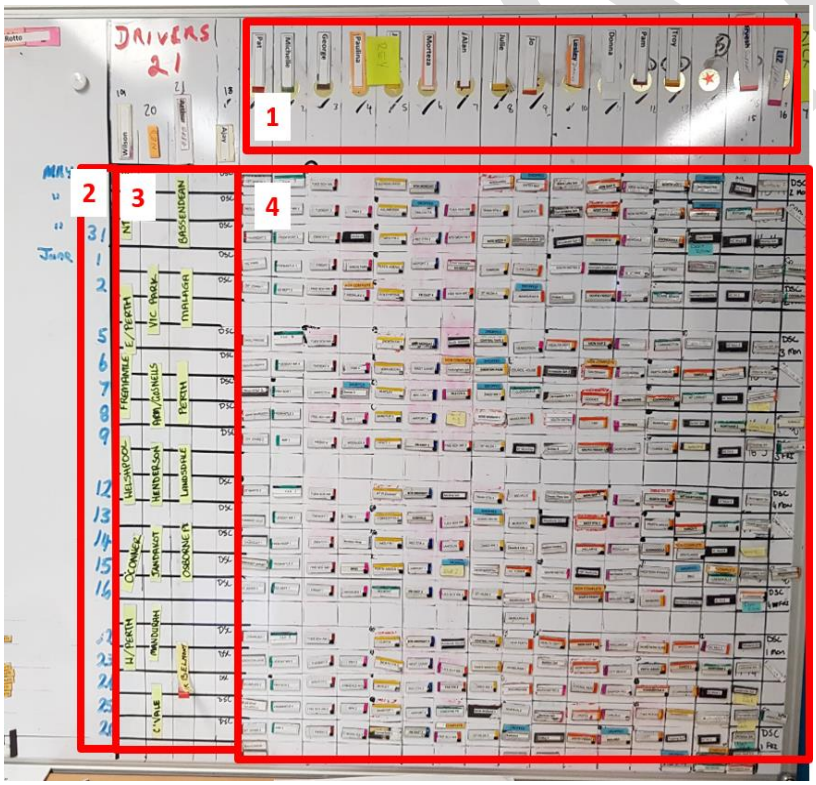


Figure 3 - Current Kelmscott run-board

Each section can be broken down as below:

Section	Function	Description
1	Driver List	This is a list of all the drivers (available or not).
2	Date	The month and day of month.
3	Technicians	Technicians do not just do deliveries but also perform services such as replace air fresheners, soaps urinal cakes etc. They have run sheets which work in the same manner as a usual delivery driver, but they last 1 week as opposed to one day.
4	Run allocation	This shows what run is assigned to what driver and for what day. Each magnet on the board represents a run folder and each run folder contains a “run”. Run folders are described in greater detail the next section.

5.2.1.2 Run Folders

A run folder contains enough work for one driver, for one day. They include the following:

For each client:

1. Address of client
2. Any “special instructions” such as maps, contact names etc
3. A log of when each service was provided, to be updated by the driver
4. Either the keys themselves OR a key number (some keys are kept in a safe)

Each client in the Access database contains the run folder number in the physical system. This is maintained manually and is so far the only link between the two systems.

A run folder for a technician (section 3 of the photo) is the same as a run folder for a normal run, except it contains enough work for one week.

5.2.2 Potential system improvements

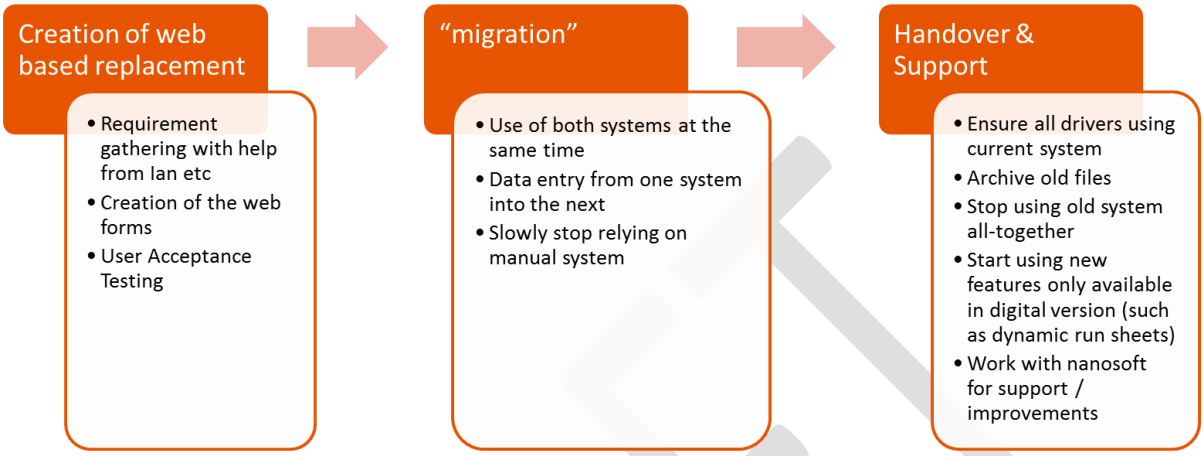
The current system works and has been working for many years. There are however inherent limitations with a file based system which has meant that certain inefficiencies were unavoidable. Some potential improvements with a digital system are as follows:

- Currently there are static “run sheets” which contain a list of customers. It would be possible to create run sheets on the fly for a specific day for a specific driver.
- There is no historic record detailing which driver was on what run. This feature can be easily added to an electronic system.
- A run sheet could be lost or parts of it lost/damaged. Digital copies could be available to be printed out.
- The data available to the yard is not currently easily accessible to head-office in Perth, digitising the system would mean seamless
- Currently, there is a lot of work involved reacting to unforeseen changes. A digital system would be able to easily accommodate:
  - Drivers not available for the day (sick etc)
  - A vehicle breaking down / being delayed
  - Runs not complete in a day
- If a customer changes its details, this information needs to be entered in the Access database AND the relevant run folder. This will now only need to be changed once.
- Automatic updating of system when a driver has done a delivery along with daily reporting showing when a run was complete, how long it took and how long the driver was in each area.
- Easier to do auditing of the system
- Easy to recover backup of whole system in case of accidental / malicious damage.
- Digital copies of each driver’s daily tasks can be generated by the system and made available electronically. This can be sent to the driver’s phone OR printed out if the driver does not have a PDA / phone.
- Some form of digitisation is mandatory for integration with Cannon Capture.

Adopting the new digital system would have to happen gradually with users running both systems simultaneously for a few months until they are comfortable only using the digital system.

5.2.3 System Rollout

There is a risk to the business in replacing such a business critical system. This risk can be mitigated through careful migration from one system to another. The below is Nanosoft's recommended workflow for managing the system change:



5.2.4 Suggested Digitization Strategy

5.2.4.1 Overall Approach

Full integration with the GPS and fleet management tool is to be achieved with the features of the service card system. They should all be available in the same web "front end".

The service card system will share the same SQL backend meaning that there will be no work required for user access / security to the system. This will ensure both cost effectiveness and seamless integration between the now disparate systems.

To achieve full integration, a new menu item will be added to provide the functionality required. The tab will be called "Service Runs".

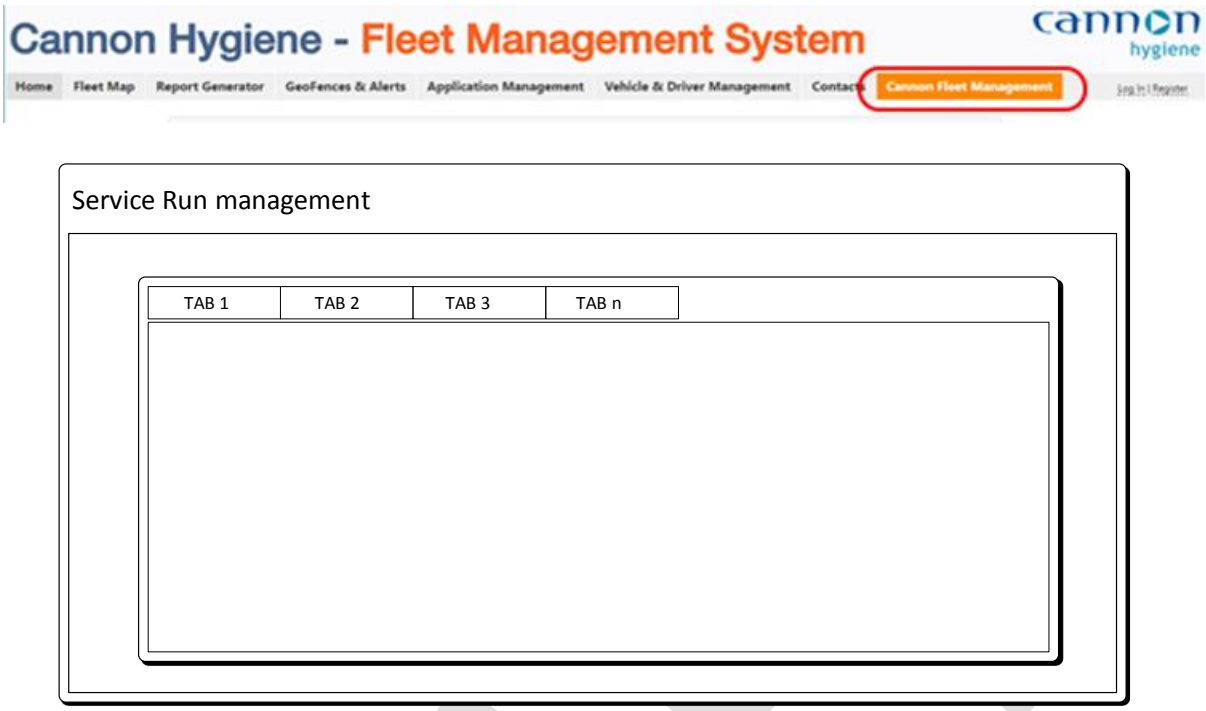


Figure 4 - Service Runs screen

The service runs screen will contain many tabs. Each of these tabs will contain different functions replacing the manual system. These are broken up below:

5.2.4.2 Tabs

Each tab in the service run management screen will have a set of its own requirements. This section of the document will give a brief overview of how each tab will “look and feel”.

5.2.4.2.1 Service run tab

The service run visualisation will mimic the current system as much as possible.

5.2.4.2.1.1 "Look and Feel"

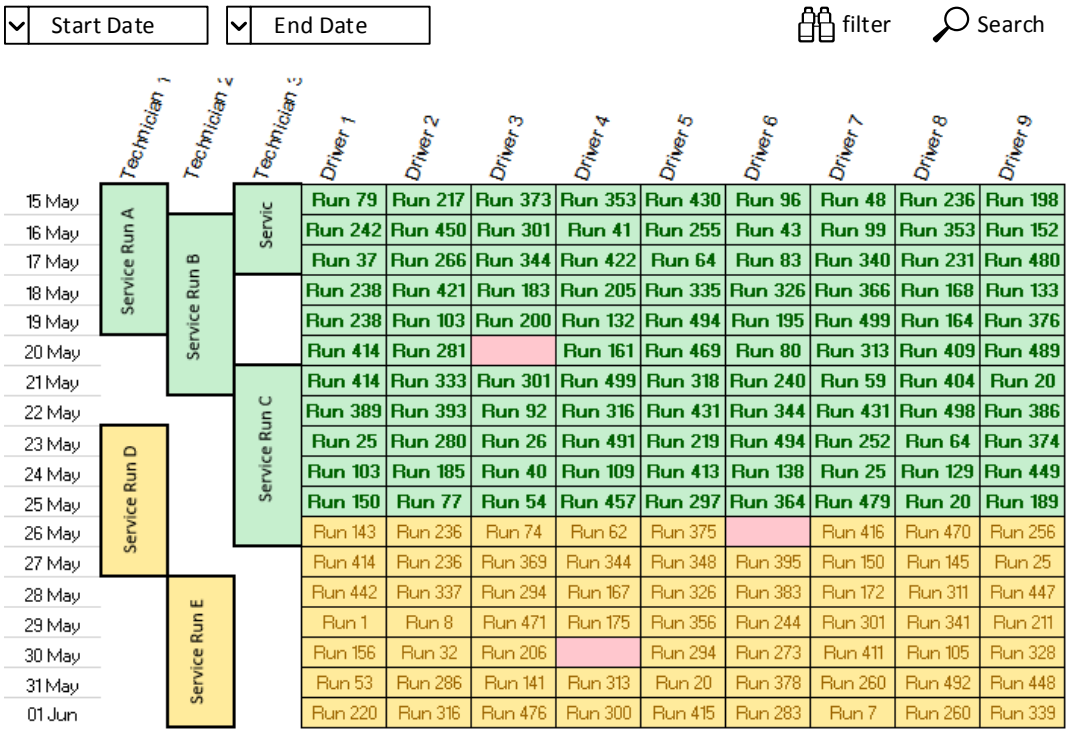


Figure 5 Service Run screen mimic

5.2.4.2.1.2 Detailed Requirements

Req#	Description	Notes
1	**Date Configurable**	The user must be able to select a start date and end date. Screen below must update to reflect the date range which was selected.
2	**Filter and Search**	There must be basic filtering and search facilities available in the page
3	**Basic screen layout**	There must be days down the left hand side of the grid and resources listed at the top of the grid. In the middle of the screen there must be the runs assigned for each day.
4	**Run layout**	Each cell in the grid must show which run is assigned to that day (set of days). Runs are configured in a different tab.
4.1	**Run cell behavior (left click)**	Clicking on a "run cell" will show a list of unassigned runs in that time period. The user can then select a run for that day.

4.2	**Run cell behavior (right click)**	Right clicking on a "run cell" will enable the user to enter one of the following: * The run was complete (and record the date and driver who did it) * The run was not complete (will set the cell red)

5.2.4.2.2 Run Definition Tab

*It is presumed here that the work on adding the Access database features to the website has been complete. Because of this, we will already have a list of customers including their address, special notes etc etc. This can be used in the run definition tab.

The tab will show an interactive grid with each run shown. The development express grid view will be utilised here to prove maximum versatility when grouping / filtering data.

Req#	Description	Notes
1	**Basic Grid Features**	User must be able to group by and field
1.1		User must be able to filter by any field
1.2		User must not be able to edit a run which has been used in the past, a copy can be made and a new rev number added (for auditing purposes)
1.3		A run must be able to have files attached to it (such as a scan of a map, other details etc)
1.4		There must be a "notes" column
1.5		A run must have a log of each time it was completed and by who

5.2.4.2.2.1 Data Relationship

**Please note this is more for the developers when starting work*

The below entity relationship diagram describes the relationship between each data object when dealing with runs, clients and drivers.

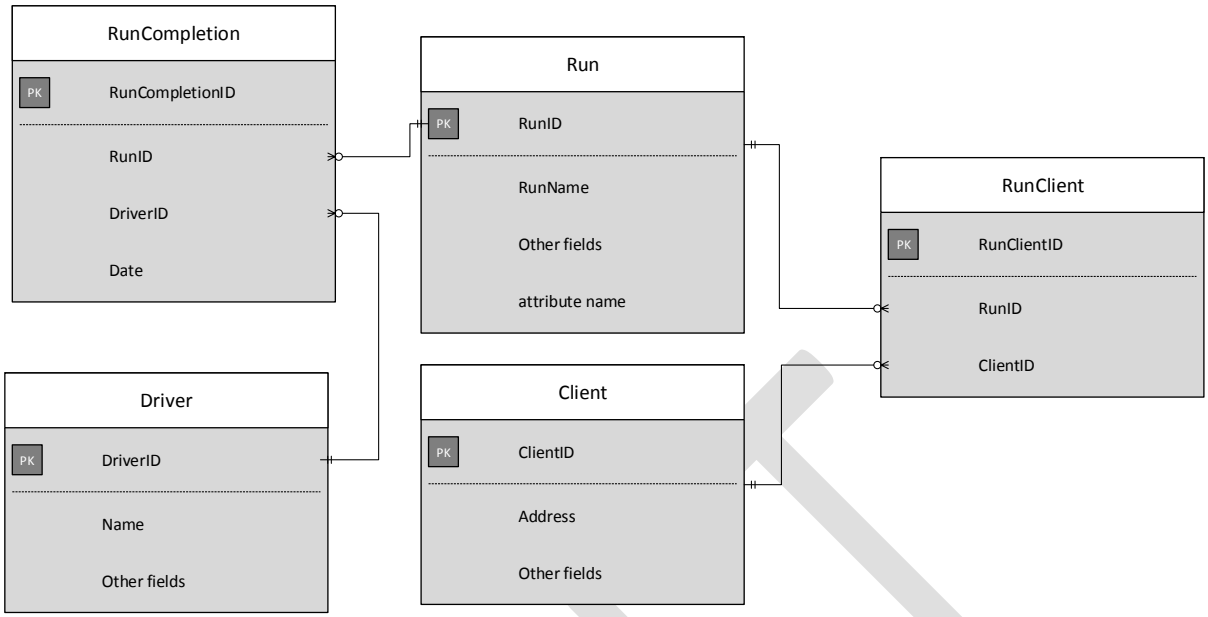


Figure 6 - Entity Relationship Diagram

5.2.4.2.3 Data Entry Tab

There will be a data entry tab specifically created for copying the data from the physical run sheets to the database. This tab must enable:

Req#	Description	Notes
1	**Data Entry Tag**	Create / Edit / Delete runs
1.1		Assign clients to a run
1.2		Assign scans of documents (maps etc) to runs
1.3		Assign scans of documents (maps etc) to clients
1.4		manually enter the service dates for each run
1.5		Add key numbers to a run

5.3 CANNON CAPTURE INTEGRATION

Currently waiting for the "Cannon Capture" upload form.

The functionality required for the cannon capture upload does not significantly impact the design and development phase of the service card or access DB upgrade. Work **can** start without having the upload sheets available.

6 APPENDIX A - SERVICE CARD SYSTEM PHOTOS

Figure 7 - Run folders

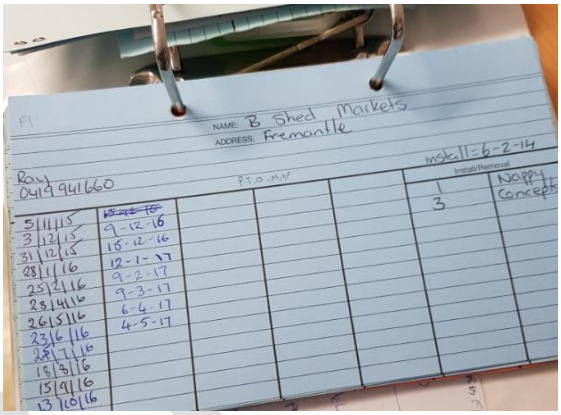


Figure 10 - Log of each run

Figure 8 Run folders 2

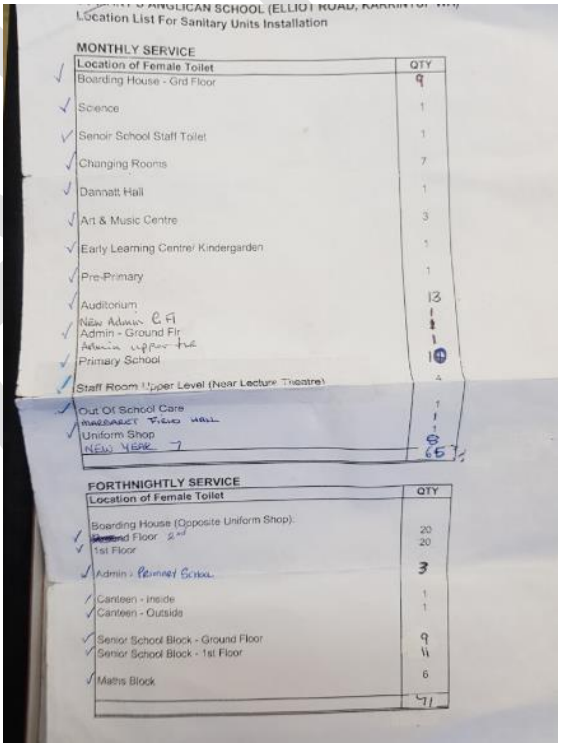


Figure 11 - Services provided list

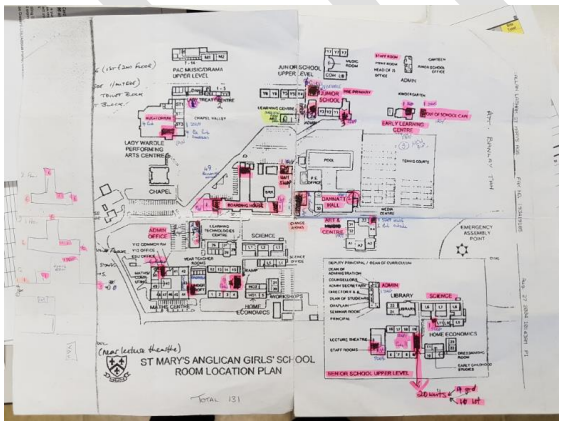


Figure 9 - Delivery instructions