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Standardising Fire Safety Compliance Data

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by

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1. database
2. communication
3. fire safety compliance

Abstract

The Capital Management Branch of the Department of Human Services in Victoria, Australia sponsors this project. The purpose is to propose improvements to the current methods of handling fire safety compliance data in the Fire Risk Management Strategy. More specifically, this involves developing and proposing a data plan for a database and establishing a way to create a master list of all facilities occupied by the Department of Human Services requiring fire safety compliance. If successful, this proposal will be used to further the fire prevention objectives of the Department of Human Services.

Executive Summary

The goal of this project is facilitate the communication and storage of data regarding fire safety compliance with the Capital Management Branch (CMB) of the Department of Human Services (DHS). The DHS of Victoria is divided into nine geographical regions, four metropolitan regions within the city and five rural regions. Each region employs a fire risk management coordinator who also has a level of responsibility for property management, varying by region.

This project was completed in three stages. The first stage involved background research into what is done to improve the communication and storage of data in large organisations, particularly in the area of databases. This involved writing and examining case studies for similar projects, including the National Fire Incident Reporting System (NFIRS) in the United States, as well as TRC Solutions, a company whose focus is to work with an organisation to restructure the data systems.

The second stage of the project was the initial information gathering. In order to address communication and storage issues, these issues needed to be identified in detail for analysis. Interviews with each Fire Risk Management Coordinator, as well as a few employees at the Capital Management Branch, were conducted. The information collected from these interviews identified three main issues, as well as many suggestions for improvements.

Main Issues

1. **Data storage and retrieval:** Data is stored inconsistently between regions, resulting in problems in redundancy, errors, and information access.
2. **Compliance certificate returns:** Regions have difficulty getting certificates back from agencies for a number of reasons. Agencies that are not compliant cannot sign the certificates. Agencies that are partially compliant attach exclusion lists to the

certificates. Some agencies do not fully understand the certificates and are not comfortable signing them.

3. **Capital Management Branch reporting:** The methods used in reporting might not accurately portray the risk in each region. Partially compliant buildings are reported as compliant by some, and noncompliant by others, resulting in inconsistently reported percentages.

The final stage of the project involves addressing the major issues identified and justifying the solutions selected. The interviews with each of the regional coordinators provided a number of useful suggestions that have been worked into the proposed solutions.

Proposed Solutions

1. **Enforce Compliance:** To address problems with certificate returns, a method of reporting non-compliant agencies to the executives of the department is proposed. This reporting is designed to motivate the agencies to achieve compliance.
2. **Encourage training for ALOs:** A number of the issues with certificate returns are also due to a lack of education on the FRM Strategy. This proposal includes seminars for all of the ALOs, as well as follow-up refresher courses, all with a standard curriculum.
3. **Implement a standard compliance register:** Another way to improve the agencies ability to maintain compliance in each building is to provide them with a simple and standard way to keep information. This proposal involves the implementation of a standard binder or folder with lists of required paperwork and instructions for how to obtain it and what should be done with it. This binder is designed to be kept at each building

4. **Improve certificates and reporting methods:** Buildings that are not able to achieve full fire safety compliance occur often and cannot be ignored. This proposal addresses the issue by allowing certificates to reflect differing levels of compliance, thereby improving the accuracy of the representation of the buildings.
5. **Create a centralised database:** The final proposal is the creation of a centralised database to store fire risk management information. This database will include such information as property listings, standards that each building must adhere to, which compliance certificates are required, and listings of documentation that has been received and stored on file. This database will reduce the excess communication between regions and make the information more accessible by other personnel.

These solutions were presented to the Fire Risk Management Coordinators at their monthly meeting and feedback was requested. The results of these feedback surveys were reviewed, and the changes were incorporated into the final proposed solutions. These proposals were formally submitted to the Capital Management Branch in a business case format. This report is included in Appendix M: Business Case.

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Index of Abbreviations

ACID – Atomicity, Consistency, Isolation, Durability
ALO – Department Agency Liaison Officer
AFS – Air Facility Subsystem
BCA – Building Code of Australia
CMB – Capital Management Branch
DA – Data Administration
DBA – Data Base Administration
DDBA – Data/Data Base Administration
DHS – Department of Human Services
EDI – Electronic Data Interchange
EPA - Environmental Protection Agency
E/S – Essential Services
FIS – Facility Information System
FISH – Forum on Information Standards in Heritage
FRM – Fire Risk Management
IFCI – International Fire Code Institute
ISIP – Information Systems for Integrated Processing
MSD – Monitoring Systems and Development Team
NCDB – National Compliance Database
NFDC – National Fire Data Center
NFIC – National Fire Information Counsel
NFIRS – National Fire Incident Reporting System
NFPA – National Fire Protection Association
NGO – Non-Government Organisation
OGWDW – Office of Ground Water and Drinking Water
OHSA – Occupational Health and Safety Act
OoH – Office of Housing
SAMS – Service Agreement Management System
SCC – Scholarly Communication Center
SDWIS – Safe Drinking Water Information System
SQL – Structured Query Language
USFA – United States Fire Administration

Glossary

Essential Services (E/S)

Each building's Occupancy Permit (Form 11) establishes the necessary services to be provided to the occupants for their safety. The building owner must provide these services, which are determined by the building surveyor in the development of the Occupancy Permit. The Essential Services may include such items as sprinkler systems, smoke detectors, fire hose reels, and exit lighting. The list of services depends on the type of building and occupant, and is specified on the occupancy permit (BCC, 1996).

Operational Readiness

Maintaining Operational Readiness is having the proper emergency management and evacuation procedures in place, the proper documentation, a staff capable of carrying out these procedures, and any additional procedures required by the fire safety engineer (Appendix C: Certificate Number 4 of Fire Safety Compliance).

Maintenance

As related to the fire safety compliance certificates, Maintenance is adequately maintaining all fire safety equipment, measures, exits and paths of travel to exits (Appendix C: Certificate Number 4 of Fire Safety Compliance).

Service Agreement (SA)

A Service Agreement is a contract agreed upon by the Department and the agency regarding the service the agency provides and the responsibilities of that agency. This Service Agreement has a section containing the responsibilities of the agency to ensure that their buildings are compliant with particular fire safety standards (Joppich, 2003).

Bed-Based

"A service that provides overnight accommodation for clients" (DHS, SA Kit, 2003).

Facility

"An administrative unit located at a single site, operating from one or more buildings" (Sinclair, 2003)

Agency

The provider of a service funded by the DHS

Lead-Tenant

"A service which provides semi-independent accommodation in a household for people who are in transition to independent living using a live-in volunteer to facilitate a supportive environment" (DHS, SA Kit, 2003).

1 Introduction

Centrally located in Melbourne, the Department of Human Services (DHS) is an organisation focused on improving the quality of living for citizens of Victoria, Australia. The department's mission is "To enhance and protect the health and well-being of all Victorians, emphasising vulnerable groups and those most in need" (DHS, About, sec. 2). For years the DHS has worked with organisations such as hospitals, community service organisations, aged care services and ambulance services in Victoria. The DHS seeks to ensure that the services provided by these agencies are available to all citizens of Victoria. The DHS employs over 11,000 people directly, and in their attempts to improve services they have established a set of values to which the organisation aspires: "client focus, professional integrity, quality, collaborative relationships and responsibility" (DHS, About, sec. 3). These values are applied to the department's objective of improving its current services by making them more efficient, strong and accessible.

1.1 Structure

The DHS's responsibilities are distributed over nine regions in the state of Victoria. There are four metropolitan regions (Northern, Southern, Eastern, and Western) covering Melbourne and five rural regions: Barwon, Gippsland, Grampians, Hume, and Loddon Mallee. Each region is directed by a regional office that manages all issues and services within the region. The DHS is separated into eight different divisions: Community Care, Disability Services, Financial and Corporate Services, Metro Health and Aged Care, Office of Housing, Operations, Policy and Strategic Projects, and Regional and Rural Health and Aged Care Services. Under the Financial and Corporate Services Division, the Capital Management Branch (CMB) is responsible for managing the DHS's projects involving capital investment. At the portfolio level, the Capital Management Branch:

- Manages the planning cycle for the DHS asset investment program, including preparation of asset investment bids as part of the annual government budget processes.
- Develops, maintains and monitors standards for departmental capital planning and asset management.
- Provides expert advice concerning benchmarks for capital facilities.
- Monitors and reports on the Department's capital budget, including required reporting to government and central agencies.
- Maintains core information regarding assets owned or managed by the Department to support strategic planning and reporting on assets in accordance with statutory and other reporting requirements.
- Develops strategies for the implementation of government policies effecting assets.
- Manages acquisition and disposal of property, crown land disposals and property and crown land leasing requirements.

At the individual project level, CMB works with DHS program areas to:

- Plan and procure capital projects to meet defined service needs.
- Provide expert advice concerning design and planning standards and benchmarks for capital facilities.
- Provide technical advice on infrastructure issues presenting risks to business continuity. (Hemsworth, J., February, 2003)

The CMB essentially deals with the selecting, planning and building of facilities and projects to improve DHS service delivery.

1.2 Fire Risk Management Strategy Brief

The Fire Risk Management Strategy (FRM Strategy) was initiated by the DHS in 1997, following the deaths of nine men in a fire in a residential facility for people with intellectual disability. The strategy is intended to ensure that facilities for which DHS is legally responsible attain an acceptable level of safety from the risk of fire for its clients, staff and visitors. It includes the conduct of fire safety audits and fire risk assessments, and associated upgrade works to address identified risks. From 1997/98 to 2002/2003, $138.5M has been allocated to the FRMS. This has allowed 100% of the upgrade works identified as necessary to premises providing Disability Services and to Department owned facilities providing Youth

& Family Services to be completed and required works on Metropolitan and Non-Metropolitan Health Services (including rural)—acute care, aged care and mental health services premises to be approximately 80% completed. (Judith Hemsworth)

1.3 Issues

In order to increase the effectiveness of the FRM Strategy, the Department identified three components of the FRM Strategy that require improvement: identification of affected regions, FRM Coordinators' data management and Capital Management Branch reporting.

1.3.1 Identification of Affected Agencies

Currently, the Capital Management Branch does not have a master list of all agencies and sites that are affected by the FRM Strategy compliance requirements. The FRM Coordinators each have a listing of agencies within their own regions, but the Department wishes to consolidate these partial lists in order to facilitate record keeping a the Capital Management Branch.

1.3.2 FRM Coordinators' Data Management

The FRM Coordinators have each developed their own processes for recording compliance information on the agencies and sites for which they have fire risk management compliance responsibility. The Department would like to implement a single, standardised database where the FRM Coordinators may feed in compliance data for their properties.

1.3.3 CMB Reporting

Rather than identifying individual agencies, the CMB only reports numeric data on complying or non-complying agencies to the DHS Executive. Also, there are no standard protocols for alerting the responsible area within DHS for responding to these issues.

1.4 Project Objectives

The goal of the project is to develop a framework for a standardised system for agencies to record and report on compliance data to the Regional FRM Coordinators, as well as a framework for a standardised system for Regional FRM Coordinators to report compliance by agencies to the CMB. To achieve this, the current methods of recording and reporting, the systems of data storage used and the types of data recorded by each region were reviewed. This information aided in developing a proposal for the structure of a database to maintain the necessary data for the FRM Strategy and to feed a central database within the DHS head office. This proposal also includes a description of other management systems, such as asset management, which can be linked to this database, and, finally, a way to create a master list of all DHS occupied facilities requiring fire safety compliance. If successful, this proposal will be used to further the objectives of the FRM Strategy in the DHS.

2 Background and Literature Review

In order to have the appropriate information to make recommendations to the DHS regarding data organisation changes, a background and literature review must be performed. The object of this review is to define what must be considered to effectively manage data. It is also important to collect information on fire safety compliance, including the data and processes currently used by the DHS and other institutions.

2.1 Data Management

When determining the best methods for managing data, one must examine the different types of data and how they are collected, stored, retrieved and communicated.

2.1.1 Types of Data

The key to understanding the manner in which an organisation deals with its data is to understand the data itself. The term "data" is defined as "factual information (as measurements or statistics) used as a basis for reasoning, discussion, or calculation" (Webster, 2003). Every piece of information is a datum, from the name of an individual to the location where he works, to the amount of money that he is paid.

> "Providing data requires its collection, maintenance, and structuring so that all who need it and are authorized to have it can get it when they need it. This requires a well-planned, well managed, and integrated data processing environment" (Turk, 12).

When dealing with a project that involves the implementation of a new data structure, the types of data that will be encountered are important to consider. Knowing these data types will help the project-planning phase immensely.

A field is a way of labelling a particular piece of data. Any single number, designator or text area is defined as a field in the context of a data structure. Fields are generally referred to

by the name given to the data contained within them; for example, the "name" field of a particular database could contain a person's name.

A record is a collection of related fields. This metaphor is used in reference to a doctor's patient record. A patient record contains multiple fields of information about a patient, as well as reference to other sources of information. In this manner, a data structure is made up of many records, each of which is made up of multiple fields.

In fire safety compliance data, a record could be a collection of related information about a particular region, building, or section of a building (floor, room, or other division). Within each record is a collection of fields. These fields could contain information about the location of particular buildings, names of people to contact, dates of recorded safety tests and drills and current status of compliance.

2.1.2 Organisation and Planning

Data planning is a process used to create systems that meet the users' needs, lower development costs, and reduce duplication of data. This data planning process should result in the discovery of an inventory of all data the organisation uses, a model for how this data is to be organised, the sources for the information, and any dependencies between the data (Turk, 5).

Turk defines data planning as a six-step process:

1. Determine the business functions and the business model which identifies manual and mechanized systems which support the functions
2. Identify the data items required by each business function and develop the business function's normalized data model
3. Determine the dependencies that exist among the normalized entities and chart the dependency flow required for creating and updating entities
4. Determine the logical data structures
5. Identify basic volume information for the normalized data
6. Determine the business function that is the source for each normalized entity and which system should be the source system (Turk, 4).

The six-step process focuses on planning the data and its related structures to meet the requirements of the business model. A similar process is used in any design project. The first

step to any project of this type is to gather the requirements. For the data structure project, the requirements are the data to be stored, and how they are to be accessed. As design is an iterative process, the models should be checked and re-checked to ensure that the requirements are met.

In order to create an effective and accurate data plan, certain procedures should be followed to insure that data is not lost or unintentionally modified. Professor Li Chen of WPI suggests that there is a three-step process to move from inception to the final stage of a data structure design:

1. **Cleanse the Data:** In this step, the data is checked for errors and made to be in a consistent format. This all happens before it is entered into the database
2. **Use a *Wrapper*:** In a computerised database system, different databases must interact with each other, regardless of their differences. A wrapper is an abstract that allows databases to interact on a common ground, taking care of translating commands to the underlying database.
3. **Data Integration:** This is the step in which data is integrated into a single source. This can happen in one of two ways, either by the use of a data warehouse, or through mediation. With a data warehouse, all of the data is merged into a single central database. With mediation, the central database does not store the data, but instead mediates calls out to the satellite databases when information is needed, creating the appearance of an integrated database.

2.1.3 Data Models

To organise data into structures that can be used to design the physical database, different levels of models are used. The normalised data model identifies the ideal case, where all relationships between items are possible. The usage data model takes into account how the

data will be accessed and entered. The structural data model takes into account limitations in the existing database systems.

2.1.3.1 Normalised Data Model

The normalised data model organises data into entities based on relationships between data elements (Turk, 5). The purpose of normalising data is to create small and simple tables and other structures out of the larger, more complex data views. The process of normalisation involves four steps, when defined by Turk:

1. Identifying primary keys
2. Identifying repeating data items
3. Identifying data items in an entity which are not functionally dependant on all data items composing its primary key
4. Identifying data items uniquely identified by the entity's primary key which are actually dependant on another data item in the entity (transitive dependency) (Turk, 5-6)

Primary Keys are data items that are unique to a set and serve as the index to the set. An example of a primary key is a person's name, when the database is designed to contain only people who do not share the same name. As more than one person may share the same name, often a unique identifying number is used as the primary key of a data set.

Repeating data items are important to consider, since they are likely to be retrieved from the same source. For example, a person's age may appear in many different views of a dataset, however when his birthday passes, all views should reflect the change.

The linkage diagram is a graphical representation of the entities and their interdependence relationships. It is commonly used to review the structure with the user while developing the model (Turk, 6).

Normalising the data in this manner helps to remove any confusion with regards to the particulars of the data. Often a diagram is used to represent data and the related links between data items to further remove the model from the actual structure.

2.1.3.2 Usage Data Model

The usage data model centres its organisation on how the data are accessed. This model ensures that the design of the system meets the user's requirements, rather than just being organised for the data. (Turk, 6)

The usage data model is important, because it reminds the designer that there will need to be an interface to the data structures. How information will need to be accessed and in what frequency and quantity are important items of consideration.

2.1.3.3 Structural Data Model

The structural data model arranges data into a form that can be used to design a database system. The process of moving from a normalised data model to a structural data model involves taking into consideration limitations of existing data systems. In a non-relational database system, fields must be static, and cannot rely on the contents of other fields, thus relations between data items must be modified. In a relational database system, these relations can exist, but must be resolved so that each relation is well defined.

2.1.4 Databases

A database is a large amount of data, organised for fast searching and retrieving. (Webster, 2003). The word "database" is normally used to refer to the computer software that carries out those tasks; however any system that meets those criteria can be called a database.

The physical design of a database must meet certain criteria to protect the data it stores from loss or corruption. Professor Li Chen of WPI suggests that every database should be checked for four specific criteria, identified by the acronym A.C.I.D:

Atomicity: The database system must operate at the atomic level. This means that the reading and writing of actual data must be done in a very small window of time, to prevent other read or write requests from corrupting the data.

Consistency: The data stored in the database must be consistent, so that it is usable in any setting. Any field, especially a field that repeats, such as date, should be stored in the same format throughout the database.

Isolation: The database and its data should be isolated from any other systems in the organisation, computer or otherwise. This is done to insure that no outside elements will affect the integrity of the data.

Durability: The purpose of computerised data storage is to allow for data to be accessed quickly, protected, and used for a long period of time. The data must be durable, in the sense that it should not degrade over time, and the format of the data should not quickly become obsolete.

Centralisation of an organisation's data is the function of the Data / Database Administration (DDBA). This function can be further broken down into two distinct functions working together: the Data Administration and the Data Base Administration (Turk, 8).

"Data Administration (DA) is responsible for identifying and defining the company's inventory of data, establishing the company's data plan, and developing and documenting the company's and system's normalised, usage, and structural data models" (Turk, 8). This function does not include the physical database planning, design, or administration, only the data itself.

The physical database design and implementation is handled as a part of the Data Base Administration (DBA) (Turk, 12). "The data base administration responsibilities [...] are both managerial and technical" (Cohen, 46). Turk defines the responsibilities of the DBA as follows:

1. Design of the [Data Base Management System] logical and physical data base structures
2. Establishing data base access methods and strategies
3. Monitoring and optimizing data base performance
4. Establishing data base access authorization and security procedures
5. Documenting technical data base design information in the data dictionary

6. Technical DBMS support to end-user system development and maintenance personnel (Turk, 9)

Ideally, the Data Base Administration would handle these tasks from the creation of the database through its normal use. In most corporate situations, however, a much larger workforce is needed to implement the database than is required to maintain and operate it. In response to this difference, database projects are often outsourced to specialists in the field of database design, and it is part of their contract to train the existing Data Base Administration to operate and maintain the new system.

2.1.4.1 Database Application Packages

A computerised database can be implemented in one of two ways: by utilising a packaged application or a custom designed system. Each of these two systems has particular advantages and disadvantages that may depend on the purpose of the database.

A packaged application is a database that has been designed by an outside company for a particular purpose. The vendor of this application selects an industry, and develops a database that will work across the entire industry in general (Cohen, 53). The advantages of selecting a packaged application include having a standardised user-friendly application interface, as well as simple organisation and technical support. The disadvantages of using a packaged application are the lack of specialisation and expandability.

A custom database is a database designed and implemented in-house from a general database server application. The advantages of designing and implementing a custom database include infinite specialisation and expandability, as the nature of the system allows it to be customised and extended. The disadvantage of having this type of system is that it can be risky, as poor organisation, design, or implementation can result in a loss of data. "All the choices that a designer makes for a data base architecture come from one of two places – his

imagination or an end user requirement statement. The former we can dismiss, since we know it to have a dismal track record in implementing effective systems" (Cohen, 55).

Another disadvantage of utilising a custom-built database over a packaged application is the problems involved with the learning curve of the new application. Training must be done to teach the new system to every person who will use it, including those who will be maintaining and repairing it.

2.1.5 Communication of Data

The purpose of this section is to emphasise and explain the need for excellent data communication between parties in an organisation. Every organisation or business utilises its own data communication methods and procedures. These processes, when optimised, help to facilitate the analysis of this information by employees or the public.

2.1.5.1 Importance

Organisations choose different communication methods to fit their particular needs. However, Eric Lease Morgan explains that creators of each data communication scheme within an organisation must remember the underlying goal of such implementations:

> Communication is the key to our success. Its (sic) the ability to listen to patrons and clients. Its (sic) the ability to internalize what was heard and echo it back. Its (sic) the ability take what was heard and use the profession's skills to foster the communication of knowledge, not simply information. The key to our success is not the technology. We sometime become too enamored (sic) with computers and do not see the bigger picture. (Morgan, Sec. 4)

The benefits of crisp data communication between parties extend beyond the facilitation of data evaluation. Swift and orderly communication between parties helps to ensure that the public receives important information or help when needed.

Morgan likens data communication to the ascension of a ladder, where the initial collected data goes through changes before it becomes useful information:

> The late Paul Evan Peters provided me with my framework for understanding. He compared this framework to a ladder, a Ladder of Understanding. The first rung on the ladder represents data and facts. As the data and facts are collected and organized they become information, the second rung on the ladder. The third rung is knowledge where knowledge is information internalized, put to use, and given value. The last rung is wisdom, knowledge of a timeless nature. (Morgan, Sec. 2)

Data itself is not useful until it is organised and interpreted. Only then can data be used to draw conclusions or make decisions. Initial data matures dramatically and climbs up Peters' ladder with the communication between members of a data management team.

2.1.5.2 Concerns

When deciding on a method to effectively transmit data between parties in an organisation, security and standardisation are important factors to consider.

The standardisation of data helps to facilitate data communication by eradicating manual processes of interpreting data. If a common data communication scheme is implemented, technology may be used to interpret and transmit information. This idea is seen in the implementation of Electronic Data Interchange (EDI), a standard for the exchange of business data across the world:

> Standardized EDI messages allow computers to perform functions traditionally carried out by humans by specifying the order of the data items and their characteristics transmitted in a business transaction. Adopting EDI can eliminate the mailing of paper documentation and the manual processing of quotations, purchase orders, invoices, shipping documents, customs documents, and other business transactions. Because the

data is processed and stored automatically, tasks such as re-keying data and printing purchase orders and invoices are eliminated (IFLAnet, Paragraph 2).

The preceding excerpt shows that the standardisation of information helps to eliminate several tasks that require additional manpower and delay data transmission between different parties. The World Congress of Computers in Agriculture and Natural Resources also emphasises the need for standardisation as it relates to data entry. "Due to a lack of standardisation in protocols for data exchange and a lack of software for integration and analysis, commercial greenhouse operators have to integrate and analyse these data manually." (Jewett, Paragraph 1). Again, manual data analysis and manual transport requires extra time and money, two limited resources in the business world.

The Forum on Information Standards in Heritage (FISH) also believes that standardisation facilitates the retrieval of information. FISH utilises a standard set of keywords to organise a large number of records. It explains that the "use of an agreed set of words to index these records will assist in providing access to this knowledge store, and also assist communication of data between these different inventories" (FISH, Sec. 2).

2.1.5.3 Security Threats

When data is transmitted between parties, organisations may be opening the door to competitors or hackers, who wish to break into a company database or intercept the data for their own benefits. Careless protection of data also breaks the data communication links within an organisation. Philip Q. Maier discusses two types of threats: data theft/destruction and data integrity.

Maier feels that firms who wish to steal innovative ideas may attempt to "use intelligence-gathering techniques to gain an edge over their rivals" (Maier, Sec. 2).

To mitigate the effects of theft or destruction, an organisation can employ several protective measures. A firewall, which is a group of programs used to ensure only authorised people are transmitting data, may be used to prevent theft. Quan Mong Mo, a technology website in Japan, explains the use of a firewall: "The firewall screens and filters all traffic to and from any public network before allowing it to pass. To eliminate the possibility of data theft or damage, unauthorised attempts to communicate with the internal network are logged and blocked" (Quan Mong Mo, Sec. 42). In the event of unauthorised access, the data administrator knows the source of unauthorised access by looking at the users' network alias or Internet Protocol (IP) address.

Encryption is also used to protect data during transmission. Encryption is simply "the conversion of data into a form that cannot be easily understood by unauthorised people" (Whatis.com, 2002). Digital Intellect, a Russian-based organisation, uses encryption to "solve the following tasks: ensuring security and confidentiality of transferred information to prevent their illegal usage (and) ensuring integrity of data to prevent their change in the process of transmission" (Mikhailov, Paragraph 3)

2.1.5.4 Data Integrity

Maier also explains that while an organisation's data may not be stolen, it may still be vulnerable to many forms of manipulations, namely viruses:

> Data integrity…can be affected by direct or indirect threats, such as virus attacks. Direct attacks can occur from an unauthorized user changing data while outside the main facility on a portable user's system or disk…. Any security-conscious organization should already have some form of virus control for on-site computing; however, less control is usually exercised on user-owned computers and laptops (Maier, Sec. 3)

Anti-virus programs protect an organisation's computer systems against such virus attacks. A backup of all vital data also will mitigate the effects of a virus attack or any other forms of data destruction.

2.1.5.5 Transmission Methods

Today's organisations all use some form of technology to transmit data between parties. The creation of a corporate intranet has helped to reduce data delay and required manpower dramatically. Organisations have the choice of a wireless or wired network and these designs present their own advantages and disadvantages

2.1.5.5.1 Intranet/Internet

An intranet is simply a network contained within a single organisation. All members or employees have the ability to share the same files, as the network uses a central area for information storage. Since all data is stored electronically on computers, this communication scheme eliminates the need for written reports and storage cabinets. As Morgan explains, "...think of the intranet as a new way to make the job better for the staff, and for the company to operate smarter... Their purpose, like the Internet's, is to facilitate the storage and communication of data, information, knowledge, wisdom, and ideas throughout an organization" (Morgan, Paragraph 3). Employees now do not need to waste time searching through thousands of paper documents for particular pieces of information.

Seng-jaw Soong, director of the Biostatistics Shared Facility in Birmingham Alabama attests to the benefits of such a network:

> The Biostatistics Shared Facility local area network is linked to the Internet to facilitate electronic communication of data files, documents, and messages on campus as well as worldwide. This configuration of the computer hardware and software provides a

very powerful and flexible computing system for database management and quality control, statistical analysis and report generation (Soong, Sec. 4)

Though an intranet makes life easier for an organisation, users must prepare for the usual problems associated with computer systems. System crashes, virus/hacker attacks and software incompatibilities are a few common problems associated with an intranet.

2.1.5.5.2 Wireless Communication

Networks within an organisation may also be implemented without wires. Though wireless networks generally seem simpler to implement, they have several drawbacks. Ray Woodard, a telecommunications expert for the state of Texas, explains:

> Designing and implementing a successful wireless data network requires significantly more planning, organization, and expertise than the equivalent wired network. Potential difficulties can arise from many unforeseen sources. The wide availability of wireless equipment and devices may seem to indicate that wireless networks are no more complicated than ordinary Ethernet wired networks. Radio transceivers, however, introduce a new set of issues that are best addressed by personnel with specific training and understanding of the technology (Woodard, Sec. 1)

An organisation's IT staff alone may not have enough knowledge to implement such a network. Also, wireless networks are still subject to the same problems and issues seen with wired networks.

2.1.5.6 Summary

Common sense says that managers and administrators want to manage their organisations the best way possible. Both employees and the public should benefit from swift data

communication schemes. The Department of Human Services has already stated that it wants to implement a database to store all fire safety compliance data. Looking at the facts presented in the preceding studies, the DHS can certainly benefit from using its existing intranet to store the proposed centralised database. In this scheme, FRM Coordinators from all nine regions may enter in data and share information. The database is always available to the DHS whenever the facilities need to be checked for compliance.

2.2 DHS Information

This section continues, in more detail, with the description of the Department's Fire Risk Management Strategy and also describes the documents used to assess agencies' compliance to fire safety and building maintenance guidelines.

2.2.1 Fire Risk Management Strategy

The Department is obligated by the Occupational Health and Safety Act (OHSA) of 1985 to provide a safe work environment for all of its employees. The DHS addressed this requirement in the Building Regulations (Amendment) in 1997 that introduced the FRM Strategy. This strategy nominates the 1996 Building Code of Australia (BCA) as the benchmark of fire safety in Victoria (DHS, CDG 7.1, 11). The FRM Strategy entails the development of specific standards for DHS occupied buildings, auditing of buildings to identify works required to bring them to an acceptable standard in relation to fire safety, implementation of required works, regular ongoing auditing of buildings and preparation of annual fire safety compliance reports for every facility. Each regional office has a Regional Fire Risk Manager Coordinator who is responsible for conducting all of these operations for the buildings within its region (DHS, CDG 7.2, 1-4). The FRM Strategy has developed a framework that "sets standards to be reached, rather than instructions on how to reach them" (DHS, Fire & Emerg, 5). Currently, the Department defines this strategy in the 2001 Capital

Development Guidelines that outline Fire Risk Management as it applies to DHS's specific types of facilities. These facility types include Secure Facilities, Supported Community-Based Housing, Congregate Care Facilities, Hospitals, Community-Based Housing, Single Dwellings, Multi-Storey Houses and Boarding Houses. The regional offices are responsible for developing procedures best suited for each of the facilities within their region.

This framework suggests responsibilities of both the facility and the regional office. At the facility level, members of the staff are required to be aware of the building's fire procedures, managers are responsible for informing the entire staff and/or tenants of these procedures, and each facility is to have a Nominated Fire Risk Management Officer who will ensure repeated compliance, enforce important practices, and report on fire risk management activities to the regional office. The regional office should collect records of each building's compliance in addition to any other fire incident reports deemed necessary. These incident reports are "an important tool to measure the effectiveness of the fire risk management policy" (DHS, CDG 7.1, 21). These records can be compiled into annual reports including compliance data and valuable recommendations based on the incident data gathered. These reports will be forwarded to the Divisional Director and the senior staff member responsible for risk management. The senior staff member will then send a strategic report to the Departmental Executive or Director of Housing including an analysis of incidents and any recommendations that follow (DHS, CDG 7.1, 19-25).

2.2.2 Service Agreements

A Service Agreement is a contract agreed upon by the Department and the agency regarding the service the agency provides and the agency's responsibilities. This Service Agreement has a section containing the responsibilities of the agency to ensure that their buildings are compliant with particular fire safety standards (Joppich, Ray, 2003). The booklet contains fire safety compliance certificates to be signed by the CEO of the agency (DHS, SA

Info. Kit, 2002). An Agency Liaison Officer (ALO) negotiates the terms of the agreement and acts as a mediator between the agency and the Department. The ALO collects the certificates from the agencies at the end of February every year and presents them to the region's FRM Coordinator. The FRM coordinators verify and record the certificates upon receiving them.

2.2.3 Compliance Certificates

Agencies that have Service Agreement contracts with the Department of Human Services are responsible for meeting particular fire safety standards, depending on the type of building and service they provide. Agencies are required to submit a signed certificate to the regional Fire Risk Management Coordinator yearly. There are five different types of certificates that may be required for the different establishment types (DHS, SA Info. Kit, sec 4.1).

Certificate 3 relates to the Relevant Authorities Fire Safety Standard. This standard applies to services that are not run out of a home, are bed based, and either do not offer 24 hour care or are not owned by the DHS and do not accommodate statutory clients (DHS, SA Info. Kit, 44). This certificate is the least stringent of the five that the DHS require. For an agency to sign this certificate, the building in question must comply with the Building Act of 1993 and Building Regulations of 1994. It must also have procedures to insure continuing compliance. In addition, a plan for operational readiness must be in place, and all staff must be trained and drilled in related procedures. Finally, a maintenance contract and procedures must be in place to ensure continuing compliance (DHS, SA Info. Kit, 50).

Certificate 4 relates to the DHS Fire Risk Management Standard. This standard applies to DHS owned facilities that are bed based and provide 24-hour support or supervision (DHS, SA Info. Kit, 44). This certificate requires that any non-compliance with Capital Development Guidelines Fire Risk Management standards be reported to the building owner. Procedures to ensure continuing compliance must also be in place. The building must additionally meet Australian Standards AS4083 and AS3745. The staff must be trained in procedures relating to

fire risk, and this training must continue for the duration of the one year service agreement contract. Finally, a maintenance contract must exist to continuously check for compliance issues for the duration of the service agreement (DHS, SA Info. Kit, 51).

Certificate 5 relates to the Non Government Organisation (NGO) Premises Fire Safety Standard. This certificate is required for all premises that house statutory clients and provide a bed-based service and 24-hour support or supervision (DHS, SA Info. Kit, 44). This certificate has the same requirements as certificate 4, but gives responsibility for ensuring compliance and maintenance to the agency (DHS, SA Info. Kit, 52).

Certificate 6 relates specifically to standards imposed on all public hospitals. This standard requires that the premises comply with the Capital Development Guidelines Fire Risk Management Standards. Additionally, the agency is required to have a plan and timeframe, agreed on by the DHS, for completion of any work that needs to be done to meet compliance specifications. The agency will need to have an emergency response procedure in place that meets the Australian Standards AS4083 and AS3745. Finally, all equipment and other related essential services must be maintained throughout the duration of the Service Agreement.

Certificate 7.1 of Fire Safety Compliance of the Capital Development Guidelines is the most stringent of the certificates that the DHS requires. This certificate is required to be completed by the Department when an agency is required to sign a certificate 4, 5, or 6. This encompasses all bed-based 24-hour facilities that are government owned, are hospitals, or that house statutory clients. This certificate requires that the building meet specifications as listed in the Capital Development Guidelines series 7. In addition, the building must meet standards imposed by the Building Act of 1993, the Building Regulations of 1994, the Occupational Health and Safety Act of 1985, the Dangerous Goods act of 1985, Relevant Minister's Guidelines and Practice Notes, and the Ministry of Finance Guidelines.

2.2.4 Compliance Requirements

From the Series 7 Fire Risk Management Guidelines, a set of standards and certificate requirements can be determined for each facility type that must meet series 7 guidelines. We developed a matrix relating the type of service provided to the required standards and certificates to better understand these guidelines. This matrix may be referenced in Appendix A: Fire Safety Compliance Requirements. In the matrix, the table on the left represents particular characteristics that a facility might have, such as 24-hour support, or statutory client housing. A check in a box in this section means the facility row has that characteristic. An X in the box means the facility does not have that characteristic. A blank box means the facility can either have or not have that characteristic, and still have the same requirements. Once the facility has been identified in the first table, the row that defines it can be followed across to the right into the requirements and certificates tables. The requirements table will have a check in each column that represents a particular standard that the facility must adhere to. An X in the box means the standard is not specifically mentioned in the requirements. In the certificates table, the same idea applies, where the checks refer to required certificates and the Xs refer to certificates that are not required. Using this matrix, the requirements for different types of facilities can be compared more easily than with the Service Agreement Information Kit flowchart.

2.3 Case Studies

In order to successfully undergo a data organisation change such as the one involved in this project, it is important to look at others who have undergone the same process. We have located several similar cases of implementing a method of data organisation in the form of a computerised database, and have included reference here.

2.3.1 Fire Safety in the United States

To gain a better understanding of fire safety data modelling, one may look to readily available resources in the United States. Several national organisations are devoted to collecting and analysing fire related data. These organisations focus on data from accidents caused by fires more than records such as the fire safety compliance of public facilities. This is because there are not national compliance records in the United States as there are not fire standards enforced on public facilities or agencies at the National level. Although the DHS's current objectives primarily focus on compliance data, current systems in the United States managing other fire data will provide useful models.

2.3.1.1 National Structure

There are more than 30,000 registered fire departments in the United States. Each department may have any number of fire stations functioning under its management, where a single department normally protects a specified territory such as a county, city or town. Each department is managed independently, but within a department all procedures for responding to, acting on and reporting incidents are the same. All fire departments in a state operate under a State Fire Marshall who controls the state specific procedures in addition to enforcing some national standards. It is this office that determines the state fire code and regulations for both the public and the fire prevention personnel. In this respect, each state has a unique system for fighting fires and managing fire risks, allowing it to focus on issues that may not be a problem in other states. Although each state is not required by certain national organisations to enforce a set code, there exists a correspondence between the state level and the national level. In the DHS, the same relationship exists between the Regions and the CMB. In the United States, national organisations such as the National Fire Protection Association (NFPA) and National Data Fire Center (NFDC) within the United States Fire Administration (USFA) collect and

analyse data to publish reports, recommendations and standards for fire prevention (USFA, NFIRS, p.1-3).

In addition to these two organisations, the International Fire Code Institute (IFCI) utilises existing fire safety data to develop regulations which they feel could be implemented worldwide. The National Fire Information Council (NFIC) works with the USFA to collect fire incident reports from many fire stations across the nation. Among others, these organisations all work to reduce the fire problem in the United States through standards, codes and regulations, which are based on the analysis of fire incident data and other sources of data.

2.3.1.2 Standards

The overall purpose of these national organisations is to reduce the number and severity of fire incidents by developing standards for better fire prevention. These organisations produce the standards in the hopes that most state offices will consider them when updating their own policies. These standards are also particularly vital to smaller countries who cannot afford to fund research or committees to develop their own regulations. These documents contain information regarding dangers related to fire, electricity or hazardous materials. The content of these standards is relevant to more than just fire protection personnel. The codes cover material ranging from regulations on building and vehicle design to all types of fire prevention methods and devices (NFPA, sec. 1).

2.3.1.3 Records

Any time fire personnel must respond to a fire incident that results in injury or property loss, the fire fighters must record essential information about the situation. Example fields of information might include descriptions of the nature of the incident, the action taken, the response time and the result of the event. Each fire department determines the information

that its personnel must record, but national organisations suggest a core of information to assist the fire data analysis (USFA, NFIRS, p. 11-15). Maintaining accurate records of each event is essential as the records are "a legal requirement for documenting incidents. Victims, insurance companies, lawyers and many others want copies of reports" (McEwen, p.6). Clearly, records of the proceedings at the scene of an accident involving injury or significant property damage could be a powerful tool for either side in a lawsuit.

2.3.1.4 National Fire Incident Reporting System (NFIRS)

In the late 1970's the NFDC began a system to record many of the fire incidents that occurred within the country. These records were to provide useful data to help produce conclusions that would assist fire prevention. Originally only five states participated in this effort, but as of 2002 there were 42 states contributing their resources to this system (USFA, Uses of NFIRS, p. 1-3). Currently, the NFIC and USFA jointly manage the system and more than 14,000 fire departments in the nation submit their information. This data compiles about 44 percent of all fire incidents that occur nationally each year. This immense amount of data provides a nearly complete perspective on the nation's fire problems (USFA, NFIRS, p. 3-5).

2.3.1.4.1 Reporting

To effectively utilise such data, it must be compiled into an organised resource that maintains large amounts of data in an ordered manner. The data that the USFA and NFIC receive from participating states are compiled into the National Fire Database (USFA, NFIRS, p. 3-5). To collect all the data, once an incident occurs the appropriate fire personnel generate a report. The report may be in hardcopy or electronic form and it is then submitted to the State Fire Marshall where it is converted to electronic format if necessary. There, the record is either entered into the state's fire incident database if it exists or filed appropriately before it is sent electronically to the national database. All of these transactions can be carried out

electronically by the software application available to all fire services personnel called NFIRS Version 5.0. This software application allows fire fighters to enter all of the relevant data into fields of this computer program. The program is designed to include a set of core fields that must be completed by the user for the record to be useful to the USFA. Beyond this core, each state is free to add any extra data fields that might be useful to the particular state office (USFA, NFIRS, p.11-16).

2.3.1.4.2 Analysis

With the fire incident data in place at the National Fire Database, the USFA and NFIC volunteer analysts can turn it into useful reports. Data regarding fire incidents have many applications. McEwen of the USFA claims there are three main reasons to look more closely at fire data: "(1) to gain insights into fire problems, (2) to improve resource allocation for combating fires, and (3) to identify training needs" (McEwen, p.2). He further explains that as an example, resource allocation can be improved by studying statistics on the usage of Emergency Medical Services units, because purchasing more units could help response time. Additionally, identifying frequent incident types that are specific to a department's location will help it to focus training on more important issues (McEwen, p.2). NFDC claims "NFIRS data are used for setting budgets for fire service agencies, allocating priorities among fire protection issues, and evaluating the effectiveness of programs and initiatives" (USFA, Uses of NFIRS, p.20). Thus fire incident information is also useful for management of funds. Moreover, the NFDC describes its importance on every level. "Perhaps the most fundamental use of NFIRS is in understanding the nature of the fire problem, whether conceived at the national, state or local level" (USFA, Uses of NFIRS, p.3). Clearly, fire incident data can be a strong tool in fire protection strategy.

2.3.1.5 Summary

While the NFIRS is based on the collection of fire incident data for the purposes of data analysis, it may provide a useful model for a similar compliance system. The NFIRS data flows smoothly from the department to the state and then to the national database. This structure is similar to that of Victoria: from the facility to the Region and then to the CMB. NFIRS is a modifiable application that allows each department to configure different modules in addition to the required minimum. Similarly, the FRM Strategy allows each Region to develop its own set of standards based on the recommendations of the CMB. Clearly, the NFIRS could have a significant application to a compliance reporting system for the DHS.

2.3.2 Rutgers University Libraries – Scholarly Communication Center

Public reference libraries are one of the best examples of data organisation and access. Libraries are designed with the storage and retrieval of information in mind, planned for speed of access and preservation of information. The Rutgers University Library's Scholarly Communication Center (SCC) underwent a restructuring upon realising that "[...] reference librarians are an endangered species [...]" and that "[we] must change reference services in order to be viable in a technological age." (Still, 7).

In order to transform a library of printed resources into a library of electronic resources, major changes must be implemented. The SCC began their task by defining goals. These goals were to provide electronic access to resources, provide training on these electronic resources, deliver and publish new resources, and house new projects of interest. The SCC set about meeting these goals with their concept of "reuse". Reuse, according to the SCC, defines a system that can be used for many different tasks, both in the present and future. This is an important concept for any data organisation initiative.

Obtaining specific requirements for the project was the next task at hand. The new electronic database system must allow for the creation and modification of bibliographical

references, searching and browsing the catalogue, performing complex searches, and obtaining electronic documents from different sources.

The initial data-planning phase of the project was conducted by first looking at federal standards, including the Federal Geographic Data Committee standard and the Dublin Core elements. Utilising existing standards for recording bibliographical information is vital to having a successful data plan.

When implementing this electronic database system, the SCC had some concerns. The first concern related to how well the data will be preserved. This is important because an electronic library such as this is designed to eventually replace the physical libraries, and preserving the data in its original form is vital to its success. The second concern is related to how long the data will be stored. Ideally, information would be available forever after the day it is published; however this is not a plausible solution. The third concern the SCC had to address was the format that the data were to be stored in. Related to this concern is the impending obsolescence of the systems. The SCC had to plan to put its data in formats that would not likely become obsolete, and on systems which would likewise not fall out of use. The final concern the SCC had to consider was the long-term cost of implementing this system.

The design and concerns of this digital library project can easily be applied to any large-scale database implementation project, independent of the type of data used. The tradeoffs of cost versus utility were decided while considering concerns and benefits.

2.3.3 TRC Solutions

TRC Solutions originally started as the Travellers Research Company, a division of Travellers Insurance. About 25 years ago, TRC split off from Travellers insurance to form its own company. The Information Management Group division of TRC Solutions focuses mainly on developing information technology solutions for corporations. TRC Solutions is a

consulting firm that is contracted by a company to restructure its data management methods and systems. TRC handles every step of the process, including determining the initial requirements from the host company, developing the new data plan, implementing and testing the new database system, and training employees with the new system. TRC is committed to providing permanent support for the system implemented, as TRC not only designs, but also hosts the database systems. (Wallwork, Hurley, 2003)

The process that TRC uses to determine user requirements is very thorough. Brad Hurley, a manager of TRC's Information Management Group, emphasises that a thorough interview plan early on in the project is the best way to develop the initial requirements. In the projects that TRC has managed, the process of determining the user requirements is a continuous one. In each stage of the project, the current data model is checked against the user requirements to determine if the requirements are being met. Initial interviews are conducted with any and all employees who access the data and any managers of the organisation. Additionally, there should be an ongoing dialog with the project sponsors to "keep a pulse" (Hurley, 2003). To insure that the data plan matches the user requirements at the end of the design, the new system is used to produce reports of the required types. The users of the database review these reports for accuracy.

In order to determine that the data in the new database matches the data in the old database, quality assurance checks must be completed. TRC Solutions utilises statistical samples of the data to check for any obvious errors in the data. The data selected in these samples will need to be manually checked for errors.

TRC Solutions generally chooses to use vendor solutions for database systems, but with the addition of customisations that match the project requirements. TRC uses SQL Server 2000 with a web-based interface for the majority of new database systems.

Through interviews with the management at TRC Solutions, we have been able to collect information about how an established organisation plans a database implementation project such as the project we are planning with the Department of Human Services. (Wallwork, 2003; Hurley, 2003)

2.3.4 Fast Food Restaurant

In 1993, Chick-Fil-A, a popular fast food chain, needed to develop a data communication scheme to facilitate the transfer of information between company headquarters and all 650 restaurants. Up until that point, the restaurants' profit-and-loss reports arrived in large stacks of paper and all data were processed manually. The company needed to hire extra data entry clerks just to keep up with the incoming reports. Mike Erbick, manager of information systems at Chick-Fil-A, did not like this current communication method: "If we didn't begin to automate, we'd have to add (more) people to support the manual processes...We didn't want to add people for that" (Chick, 2002).

In response to this growing need for improved data processing and communication, Chick-Fil-A implemented a corporate intranet to "streamline communications and data processing" (XcelleNet, 2002). The company instantly reaped the rewards of this new design:

> Instead of printing and shipping reams of paper to corporate for manual data entry each month, now an operator hits a button, and all the data flows from the restaurant to the RemoteWare server at corporate, Erbrick says. From there, direct database access via SQL*Net automatically loads the data into Oracle Financials, where the numbers can be viewed on a restaurant-by-restaurant or corporate summary basis (XcelleNet, 2002).

With this new scheme, data is analysed more efficiently and decisions to help better the company are made faster. The server software also protects this vital data from corruption and theft 24 hours a day. Chick-Fil-A also reports a reduction in manpower required for the management of the data:

> The company supports 650 restaurant systems with just two people, one full-time and one backup, to step in and handle excess calls as necessary.... Improved corporate access to restaurant data, while at the same time decreasing the number of people handling that data, thereby reducing cost and the opportunity for human error (XcelleNet, 2002).

This new scheme not only transmits data faster, it saves the company money. Chick-Fil-A now has the opportunity to allot this extra money and manpower to other endeavours, if desired. The Department of Human Services desires a scheme with reliable, simple data transmission and that requires minimum maintenance. A scheme similar to this would certainly fill those two needs.

2.4 Summary

In this literature review, a few major topics are researched which will assist in the project. The first research topic that will assist us is the type of data to expect. By researching similar organisations, we were able to determine what type of information will need to be organised in the DHS systems. The second research topic is on the communication of data. By researching what defines good communication, we are able to apply that knowledge to our final proposal of a data communication plan for the DHS. The third important topic of research is on fire safety. Having started this project without a formal background in fire safety, this research was very helpful in understanding the project and what it will entail. The final and most important section of research is in case studies. To effectively determine the best methods for data organisation and planning, the methods other organisations have used in the past must be used as a template for future plans. In this literature review, we have collected the information necessary to give us a background in our project topic.

3 Methodologies

In order to address the issues outlined in the problem statement, a methodology must be developed for gathering and analysing data. This methodology is broken into four distinct sections. First, we will discuss the type of information needed for the project, namely the DHS requirements for fire safety compliance data, the current procedures, and information on issues with the current procedures. Next, we will discuss how we will determine the types of information through a content analysis, interviews and a review committee with a feedback survey. Upon gathering the information on the types of data, an analysis must be performed to come to conclusions about what suggestions should be made to the DHS. Finally, we present these suggestions to the DHS in the form of a data structure consistent with the requirements as outlined.

3.1 Data

The first piece of information that we determined is the types of data the DHS needs to gather with regards to fire safety compliance. This includes the information currently being recorded as well as information that the DHS hopes to record in the future. This information includes such items as fire safety compliance certificates and maintenance records and serves as a basis for our recommendations on a data communication plan. The types of data needed were determined through the use of interviews and a review committee as defined on page 34, sections 3.2.2 and 3.2.3.

Another important piece of information that is vital to our project is the methods the DHS uses to gather, record, and store its data. The procedures each individual region used were compared to those used by the other regions. The results were used to create a single procedure for the DHS and all of its regions. To obtain information about current procedures, interviews and a review committee were utilised, per sections 3.2.2 and 3.2.3 on page 34.

Other important pieces of collected information were the details on the issues with the system. In order to address the issues, we needed to obtain a good understanding of where the problems lie and what options exist for solving them. The majority of issue discovery occurred as a result of interviews, conducted per section 3.2.2 on page 34.

The Australian requirements for fire safety compliance data also needed to be taken into consideration when creating a final data plan. These requirements included particular permits and certificates required, as well as essential services requirements. Information regarding the Australian requirements was collected through the use of a content analysis of fire safety compliance documentation, per section 3.2.1.

The final piece of information that was researched before we were able to create a data management plan was the set of requirements for data analysis. The type of analyses that the DHS plans to perform creates requirements for how the data must be organised and recorded. These requirements were obtained both by arrangements made with our liaison and through the interviews and the review committee outlined in sections 3.2.2 and 3.2.3 on page 34.

3.2 Data Collection

In order to make the best recommendation for data organisation, we gathered relevant information from all possible sources. Interviews, a content analysis, and a review committee provided us with sufficient information to aid the Department of Human Services' data communication restructuring.

3.2.1 Content Analysis

Before any recommendations were made, all documentation relating to data organisation and fire safety compliance policies was reviewed. These reviews allowed us to make recommendations without significantly altering the Department of Human Services' current

methods. Australian fire safety compliance requirements were also determined using this method.

3.2.2 Interviews

In order to obtain the information necessary for our project, we interviewed the Fire Risk Management Coordinators in each of the nine regions managed by the Department of Human Services. They were able to provide valuable insight into the most important types of data required to judge the compliance of certain buildings. Our goal was to determine the current methods used to gather, record, and organise fire safety compliance data in the DHS.

By interviewing each of the FRM coordinators individually, we were able to obtain an unbiased opinion on the current protocols and procedures used to transmit data. We also learned what data each coordinator feels are required for a complete collection of fire safety compliance data. Additionally, these interviews exposed us to the systems currently used by each of the regions.

3.2.3 Review Committee

Once the individual interviews were conducted and data assembled, a review committee was created with the participants of the monthly FRM Coordinators meeting. In this review committee meeting, we presented our proposed solutions. In order to collect feedback from each of the Coordinators, we distributed a survey on our proposals, to which we asked for replies via email, fax or inter-office mail. A copy of this survey may be referenced as Appendix L: FRM Coordinator Survey.

3.3 Data Analysis

After we gathered sufficient data and obtained views from those affected by this data communication restructuring, we analysed the new information and began to make recommendations for the design of the data structure.

Our main task was to discover any similarities between the data the FRM Coordinators need and the data that the Capital Management Branch needs. This set of common data is referred to as the "core" set of data for fire safety compliance.

Once common data were determined, a communication plan was devised. This plan includes suggestions to facilitate the transmission of data between the regions and to the Department.

Since the Fire Risk Management Coordinators are more qualified to make decisions regarding fire risk management, we feel it is appropriate to use this feedback as much as possible to include their expertise in our data plan.

3.4 Deliverables

At the conclusion of this project, we have developed a proposal outlining a more standard and robust procedure for recording and transmitting fire safety compliance data. We have proposed additional solutions to address issues that have come up with the methods of data collection and reporting. We examined the practicality of a computerized data system that allows effective fire data storage and retrieval. We have also identified other existing databases and asset management systems within the DHS that could be linked with such a system. This data plan demonstrates a new procedure for recording fire data that will be consistent between the regions. We also describe how a master list of DHS agencies from all regions could be compiled. The final proposal will be presented to the Director of the CMB.

4 Current Processes

Through the use of a content analysis, interviews and surveys regarding some preliminary proposals, we were able to obtain a large quantity of information. Initially, we interviewed employees at the CMB to obtain more information on the FRM Strategy, Residential and Aged Care Services and the Facility Information System. Additionally, we were provided several documents that also presented useful information regarding fire safety compliance. We interviewed and later surveyed the FRM Coordinators to obtain enough information to fully understand the current methods used at each level as well as the types of data that they collect and record. The page of questions outlining these coordinator interviews may be referenced in Appendix F: Questions for FRM Coordinators.

4.1 Roles and Responsibilities

At each level, the data-handling individuals have different roles and responsibilities. The following sections explain the ways in which Agencies, ALOs, FRM Coordinators and the CMB would ideally relate to the FRM Strategy. These sections also account for the information each person should handle. In many cases, this ideal situation does portray the current practice, however, this is not always true and the exceptions will be discussed in section 4.2. A broad view of these relationships and the ideal information flow is illustrated in a flowchart in Appendix H: Current State of Information Flow.

4.1.1 Agencies

When an agency representative signs the Service Agreement for a new facility, he and the ALO determine the building's fire safety compliance requirements. They compare the service to be provided with the compliance certificate flowchart in the Service Agreement Information Kit. From this they decide which certificate if any shall be required of the building. The agency is then accountable for the terms identified in the certificate, which

include responsibilities of Building Requirements, Operational Readiness, and possibly Maintenance. When triennial fire safety audits occur, the auditor will identify any non-compliant elements in the Building Requirements. The agency must then schedule the appropriate upgrades and await their completion before the Building Requirements section of the compliance certificate can be legitimately considered compliant. These requirements also mandate that the agency keep documents such as the Building Permit, Occupancy Permit, and Form 15 on the premises. Operational Readiness mandates that agencies equip their buildings with evacuation plans, properly train any staff on hand to evacuate the building and do other similar tasks. Maintenance must be performed at specified time intervals on fire safety equipment such as fire extinguishers, fire sprinklers, etc. These maintenance activities must also be properly documented by the agencies to prove compliance (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

Each year the agencies are to determine whether or not each of their buildings is fire safety compliant and to submit the appropriate compliance certificates to their ALO if they are compliant. In the case of non-compliance, the causes must be handled immediately and brought to the attention of the FRM Coordinator if necessary (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

4.1.2 Agency Liaison Officers

The ALO acts as the middleman between the DHS and the agency. The ALO is responsible for assisting the agency in all FRM Strategy related issues. When a Service Agreement is signed by an agency, the ALO must help the agency determine the building's appropriate compliance requirements and give these requirements to the FRM Coordinator. When the agency signs an annual compliance certificate and gives it to the ALO, he is to enter it into the Service Agreement Management System (SAMS) and then forward the certificate to the FRM Coordinator. The SAMS is a system that maintains all information about Service

Agreements in all regions. The ALO must also be prepared to follow up with the agency representative if the compliance certificates have not been returned and the coordinator is requesting them. Any further communication between the FRM Coordinators and the agencies should also go through the ALO (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

4.1.3 Project Control Group

A few regions have implemented Project Control Groups to assist the FRM Coordinators in communicating with the agencies and in collecting certificates. In many ways, these groups act as Departmental ALOs, because they perform many of the same tasks when ALOs are absent (Grant) (Hinkley).

4.1.4 Regional FRM Coordinators

When the FRM Coordinators receive compliance requirements for a new building, they record this information in their own data management system. They will also use this system to manage the fire safety audit schedules and the compliance certificate returns, in addition to any other property details they might maintain. They are to communicate closely with the ALO to ensure each of the agency's continued compliance (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

They must also send annual compliance reports to the CMB compiling statistics of the number and percentage of buildings in their geographical region that are fire safety compliant. These numbers should be determined from the number of buildings requiring compliance certificates and the number of completed certificates that are actually returned to the FRM Coordinator by the deadline for the report. The FRM Coordinators are sometimes asked to manage buildings that are located in a different geographical region from their own. This may be because one of the agencies they manage in their own region creates a new facility in another region. Rather than having the agency and ALO communicate with two FRM

Coordinators, they are assigned to the original FRM Coordinator. However, the FRM Coordinators are still required to report compliance statistics to CMB for all buildings located in their geographical region. This means that the FRM Coordinators must communicate amongst each other to share compliance information with the necessary persons. In this respect, effective organisation of information and communication between FRM Coordinators is very important (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

4.1.5 Capital Management Branch

Each year, the CMB receives compliance reports from each of the FRM Coordinators. These reports offer statistics to quantise the level of fire risk that exists in each region. CMB uses the reports to generate an all-encompassing FRM Strategy report that is given to the Departmental Executives and shows the progress of each of the regions and of the Strategy's overall progress (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

4.2 Issues with Current Processes

This ideal process is generally not followed in any of the regions, largely because of factors outside of the FRM Coordinators' control. This divergence from the standard procedure causes issues because of not only the uncontrollable factors, but also the diversity of processes in use by the coordinators. The difference in methods used by the coordinators and the issues they each identified with their own methods are included in the following sections.

4.2.1 General Differences between Regions

From the interviews with each FRM Coordinator, varying information was obtained. These findings are organized by region in the three tables below. The section for "How are

compliance requirements determined" refers to how the requirements for a particular building are determined at the start of a Service Agreement. The section "Problems with certificates being returned" refers to whether the region has difficulty in getting certificates returned from the agencies, including certificates that are returned with exclusions. The section for "Certificates returned with exclusions considered compliant" refers to how the coordinator regards the certificates that have exclusions cited, not how the certificate is actually reported. "Exclusions recorded" refers to whether or not the region keeps record of specific exclusions in a location other than the physical certificate file. "Certificate storage" describes where the physical certificates are stored. The section for "Buildings being reported" describes which set of buildings the region reports to Capital Management Branch on. "Data software" refers to the software package used to store data in the region. The section "Building list status" describes the completeness of the regional building list and which types of buildings are included. "List sources" explains where the coordinator gets the information the regional database.

Table 1: Northern, Southern, and Western

	Northern Metro	Southern Metro	Western Metro
FRM Coordinator	Howard Hinkley	Rick Nelson	Charlie Micallef
How are compliance requirements determined?	Negotiation between ALO and Agency	Negotiation between ALO and Agency	Negotiation between ALO and Agency
Problems with certificates being returned	none	none	yes
Certificate with exclusions considered compliant	yes	yes	no
Exclusions recorded	yes	yes	no
Certificate storage	Copies in triplicate, one for agency file, one for FRM file, one to be sent to region that building is in	Kept in binder	Kept in file
Buildings being reported	buildings physically in the region	buildings physically in the region	buildings physically in the region
Data software	Excel	Access	Excel
Building list status	only Government-Owned	only Government-Owned	only Government Owned
List sources	Service Agreements, Agency	Service Agreements, Program Areas, OoH	Service Agreements, ALOs

Table 2: Gippsland, Eastern, and Barwon

	Gippsland	Eastern	Barwon
FRM Coordinator	Sharon Grant	Joanne Fulton	Terry Murrihy
How are compliance requirements determined?	Negotiation between ALO and Agency	Negotiation between ALO and Agency	Negotiation between ALO and Agency
Problems with certificates being returned	no	no	no
Certificate with exclusions considered compliant	no	no	no
Exclusions recorded	yes	yes	yes
Certificate storage	Kept in file	Kept in file by agency	Kept in property file
Buildings being reported	buildings physically in region	buildings physically in the region	Buildings physically in the region
Data software	Excel	Excel	Excel
Building list status	most buildings, complete information only on Government Owned	Complete list only for government owned or staffed	Every facility except public housing
List sources	Service Agreements, ALOs, Agencies	Steering Committee Meeting, ALOs, Agencies, Service Agreements	ALOs, Service Agreements

Table 3: Grampians, Loddon Mallee, and Hume

	Grampians	Loddon Mallee	Hume
FRM Coordinator	Vincent Duffy	Casey Binns	Jon Jones
How are compliance requirements determined?	Negotiation between ALO and Agency	Direct contact with the agency	Direct contact with the agency
Problems with certificates being returned	no	no	yes
Certificate with exclusions considered compliant	case-by-case	no	yes
Exclusions recorded	yes	no	yes
Certificate storage	Kept in file	kept in property file	Kept in fire risk management file
Buildings being reported	Buildings physically in the region	Buildings physically in the region	Buildings physically in the region
Data software	Web-based database	Excel	Excel & Access
Building list status	Government Owned	Nearly all facilities, including NGO	All facilities in region, except OoH, which are in ISIP
List sources	ALOs, Service Agreements	ALOs, Service Agreements, Project Control Group	Service Agreements, Agency Funding and Evaluation Unit, OoH

The inconsistency in procedures used by the FRM Coordinators stands out unmistakably. Every field in these tables lacks consistent material across the nine regions. A detailed analysis of the differences introduced in these tables is offered in section 5.2, Data Review.

4.2.2 Service Agreements

When a service is contracted from an agency and results in a new Service Agreement, the procedures the FRM Coordinators use to acquire the necessary information are quite similar. Several of the coordinators also act as property managers, and therefore maintain property information about all buildings requiring fire safety compliance certificates for which they are responsible. Although the ALOs are responsible for providing this information about a new building or service, they frequently do not. This may be because the agency does not alert the ALO of the need for a new Service Agreement or the ALO does not inform the FRM Coordinator. In such cases, the coordinators learn of such a new service either by word of mouth directly from the agency or from personnel within the Department such as in other

program areas, OoH, or possibly a program control group or a steering committee (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

Many agencies and ALOs do not read the entire Service Agreement form or do not completely understand it. Specifically, some do not correctly follow the flowchart to determine which standards they must comply with. As a result, the agencies may fill out the wrong certificate or sign certificates with exclusions noted. Upon receiving a certificate, the ALO is to enter it into the SAMS. However, this is not always done. As a result, the FRM coordinators receive an inaccurate count of facilities that are fire risk compliant. If an agency does not comply with the appropriate standards, the Department takes no action against them. Removing funding from an agency would discontinue support for its clients, forcing the DHS to find other methods of providing those services (Joppich) (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

The ALOs are responsible for explaining the fire safety requirements to the agency and showing them the proper certificates. However, some coordinators do not even communicate through ALOs. Instead they find it more effective to speak to the agency representatives directly, and in doing so, they take on many of the responsibilities of the ALOs. Some of the regions that do communicate through ALOs have provided educational forums for all ALOs in their region and additional training for their ALOs and agency representatives who have questions or issues related to the procedures. These regions' FRM Coordinators claim that such educational efforts have had a very positive effect on certificate returns and overall communication. Another method being used is to prepare a compliance register of all documentation necessary for a building to be fully compliant. This register would be maintained on site by the agency and would increase their understanding of the requirements (Binns) (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Jones).

4.2.3 Certificates

In actuality, the FRM Coordinators receive the certificates in several different ways. In some regions, the ALOs will obtain the certificates from the agencies, check them off in the SAMS database, and send them to the coordinator as should be done. In one of the regions, the ALOs did not have access to SAMS. The FRM Coordinator would collect the certificates from the ALOs and a staff member at the regional office would check the certificates off in SAMS. Other regions have the project control group collect certificates, enter them into SAMS, and provide them to the coordinator. In a few regions, the FRM Coordinators still receive the certificates directly from the agencies but plan to begin using ALOs to assist in collecting. When the certificates are returned, some regions discuss them with the ALOs to verify that the information is accurate and then discuss any further issues with the agency. All regions place the returned certificates in files after entering information about them into a database (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

The FRM Coordinators encounter many issues in the collection of certificates. Common issues include certificates not being returned at all, certificates being signed as compliant when the Coordinator knows the building is not compliant, the wrong certificates being returned, multiple certificates being returned for one building, and certificates being returned with exclusions attached. Each FRM Coordinator experiences at least a few of these issues (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

All regions have encountered issues with agencies not returning compliance certificates. Some FRM Coordinators attribute this to the agencies for not giving sufficient effort, and to ALOs for not being persistent enough in requesting the certificates from the agencies and not understanding the requirements completely. This issue has been minimized by both improving the ALOs' understandings of the agencies responsibilities and by repeatedly requesting the certificate from the agencies. This allows the ALO to explain the requirements more

understandably to the agency so they may be more capable of achieving compliance, and motivates the agency to end the persistent questioning from the FRM Coordinator. It is important to note that continuously requesting the certificates without providing adequate assistance to the agencies may result in agencies signing the certificate without verifying actual compliance (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

Since the DHS has a duty of care to provide a safe environment for the clients in these facilities, agencies signing the certificates when their buildings are clearly not compliant present an issue. The FRM Coordinators have found that educating the agencies and ALOs has a very positive impact on this issue. In many cases, the agency would put forth a greater effort if their responsibilities were more clearly presented than in the Service Agreement (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

In a few cases, agencies have misunderstood the Service Agreement to the extent of filling out certificates 3, 4 and 5 for the same building instead of the one proper certificate. In these instances it is clear to the FRM coordinators that further explanatory meetings are necessary with those agency representatives and ALOs (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

All regions currently receive signed certificates from some agencies with exclusions attached detailing the parts of the buildings that are not compliant. In some ways this is beneficial because it shows that the agencies are aware of the non-compliant parts, informs the coordinators of this information and makes the agencies more willing to sign the certificate. There are many cases where the cause of non-compliance is a very low-risk issue. To label a facility as non-compliant for such a low-risk problem would be unreasonable. For these reasons, many of the FRM Coordinators encourage the attaching of exclusions (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

4.2.4 Reporting to CMB

Exclusions have caused issues with the reporting process to CMB. Some FRM Coordinators report to CMB that a certificate with exclusions is still compliant, some report that such a certificate is not compliant, and some make a case-by-case decision whether the exclusions are small enough to report the certificate as compliant. Depending on the method used in a region, the percentages of compliance may either be very high or very low. Since regions report this differently, the statistics CMB compile from the coordinators are inconsistent. Therefore, some FRM Coordinators believe that attaching exclusions should not be allowed, but rather the certificates should be modified to allow partial certificate signoffs. Clearly, the issue of exclusions is a source of much discrepancy (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

4.2.5 Data Storage

All FRM Coordinators have some sort of database in place to record some property information and compliance information. These systems are either MS Excel sheets, MS Access databases, or in one region, a web-based database. The web-based system is designed such that all nine regions could use it as their primary compliance database, but no other regions currently use it (Duffy). The table in Appendix G: Database Fields Matrix displays all data fields that are collected by each coordinator. It also includes information that some Coordinators have suggested but do not currently collect. The table is useful in illustrating the more common types of data and in giving us a large-scale view of all possible fields. It is organised into sections for clarity. Although some regions are currently developing new databases to better suit their needs, all coordinators have expressed an interest in a centralised system (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

4.2.6 Additional Issues and Suggestions

The FRM Coordinators identified several additional issues and some provided their own insight into possible solutions. The Series 7 Guidelines including Certificate 7.1 are too difficult to comply with. There are seven different regulations and standards that a building must comply with under this requirement and it makes complete compliance nearly impossible in some cases. Some buildings have lost documents such as occupancy permits or building permits, which makes this 7.1 compliance impossible until a building surveyor re-audits the building and develops new forms. However, spending such a large amount of money just to recover documentation does not make sense. Because of this and other related issues, the coordinators feel that the Certificate 7.1 needs revisions (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

Several regions have made suggestions to improve the reporting to the CMB. Some Coordinators have suggested revisions to the certificates 3, 4, 5 and 6 and the Service Agreement Kit to improve this reporting. First, a certificate could be divided into separate sections so that partial compliance could be categorized into Building Requirements, Operational Readiness, and Maintenance (Nelson) (Grant). Second, certificates could list the documentation that should be maintained by each facility to confirm the facility's compliance (Grant) (Binns). Thirdly, all Essential Services requirements should be grouped together with the FRM Strategy. The fire safety compliance requirements are closely tied to the additional requirements for other Essential Services such as electrical safety. It would be more effective to cover all Essential Services in one certificate (Binns) (Duffy). Lastly, the Service Agreement Kit should be revised to more thoroughly cover the service types. Currently, some buildings provide services that are not explained in the SA Kit and therefore the buildings have no official set of requirements (Nelson) (Hinkley) (Micallef) (Grant) (Duffy) (Murrihy) (Fulton) (Binns) (Jones).

Some Coordinators felt that agencies did not adequately prove their compliance to the appropriate guidelines. To address this and other issues, one region gave its facilities the compliance register previously mentioned in section 4.2.2 to keep all permits, records of upgrades and inspections and other audits in one location. This makes all relevant information easy to find when the agency contact must sign the certificate (Binns).

4.3 Related Initiatives and Interdependencies

Several projects have been conducted or are currently under development that relate to the FRM Strategy. The results of the completed projects provide valuable insight into our own efforts. The projects associated with data management may allow for later combination of assets management systems.

4.3.1 Residential and Aged Care Facilities

John Bentivoglio, Project Manager for the CMB, discussed a process used to score the compliance of the Aged Care facilities across the state of Victoria. The Commonwealth Certification of Nursing Homes (CCoNH) rates the facilities compliance with various building and fire safety standards. Time and resources must be allocated to the improvement of the buildings that fail this audit. The Department must fund these improvements, but the prior implementation of the FRM Strategy had brought many of the facilities to exceed the required specifications, thereby reducing the amount of funds required for the failing agencies.

The most interesting aspect of this certification process was that the Department spent time preparing the agencies for this assessment. John, with the help of a consulting firm, developed the "Aged Care Facility Certification Kit" to help the agencies achieve high scores. This kit provides the agencies with checklists of what the assessors will be looking for and information on how to obtain the documents and records sought by the assessors. A

partitioned folder for the safekeeping and organisation of these required documents is also included. This kit not only ensures that the information will be readily available at assessment time, it helps to pinpoint why an agency is not receiving an acceptable score. This allows the appropriate personnel to quickly act on the problem (Bentivoglio, 13/03/03).

4.3.2 Facility Information System

The Facility Information System (FIS) is a database that was customized by consultants for the DHS. The FIS is geographically based, so that it provides maps of many of the Department's facilities, including their locations, sizes and many other features such as floor plans for the facilities in a Computer Aided Design (CAD) format. The database design allows other fields to be added to include more specific information about each facility. The basic system is currently operating with some of the facilities, and work is in place to increase the number of facilities, as well as the functions of the system (Edgar, 17/03/03).

4.3.2.1 Definitions and Structure

A "Site" is a logical unit of land containing one or more adjacent "Land Parcels". A land parcel is a unit of land comprising of any number of facilities. A facility is "an administrative unit located at a single site, operating from one or more buildings" (Sinclair, 2003). A "Party" identifies a person or group of people associated with a responsibility, such as a contact party or owner party.

At the highest level of the system, there exist sites. Below the site level, the system is divided into two main subsystems: land parcels and facilities. This division demonstrates several important relationships, which are explained below and can be seen in Figure 1, a data model derived from the FIS specifications. First, the relationships between sites, facilities and capital improvements: capital improvements that are related to infrastructure (roads, gas, electricity, water, and sewer services) correlate to sites, and capital improvements related to

buildings correlate to facilities. Therefore, facilities are easily linked to building improvements, while sites are linked to site improvements. Second, land parcels, sites and facilities are all related a little differently to the different party roles involved. Each land parcel has an owner, so land parcels are linked to ownership parties. Sites do not have owners, but rather a joint ownership among the encompassed land parcel owners. Therefore, sites are not linked to an ownership party, but instead a contact party. Facilities only have an operator role, so in the system, facilities are linked to an operator party. (Sinclair, 2003)

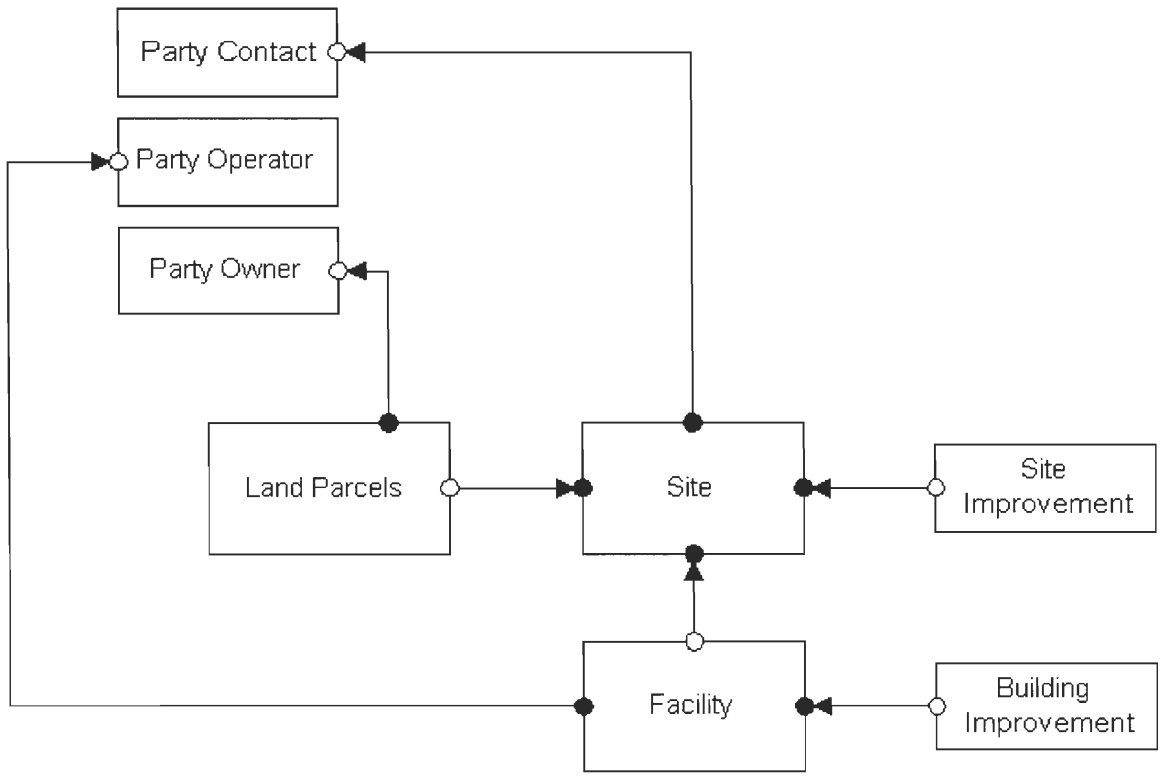

Figure 1: Data Model of Facility Information System (Sinclair, 2003)

4.3.3 Grampians Compliance Database

Vincent Duffy of the Grampians region currently uses a web-based database to handle fire risk compliance data. The database is actually stored on a server in Melbourne and accessed remotely via the corporate intranet. This database contains a large amount of information on property management, fire risk safety compliance, and essential services maintenance. It also has the ability to generate forms and reports on request. This database can easily be extended with minimal development time to include the other eight regions.

4.3.4 Business System Replacement Project

Duncan Davies of the CMB provided information on an initiative in place to restructure data systems in the Department. This project involves process mapping each of the Department's areas that require data storage and communication to determine what the user requirements are. It then entails creating a single system that meets all of the requirements of the business. This project would be to create a simple system that meets the needs of the Department but does not include expensive excess features. The proposal for a database structure can basically be translated to a process map for the fire risk management process, and thus would act as one phase of the Business System Replacement Project.

5 Analysis

After interviewing all of the Regional FRM Coordinators, a basic analysis of the information obtained was performed. The first step of the analysis involved the reorganisation of the data into matrices for comparison. The second step of this analysis was to review the data to find common procedures and data between the regions. The third step of our analysis involves identifying issues with the current system. These issues were discovered through interviews and the content analysis. The final step of the analysis was to identify possible solutions to the issues discovered.

5.1 Data Reorganisation

In order to obtain a better view of the data collected in the interviews, certain topics that were discussed have been developed into a matrix form. This matrix compares the nine regions in their responses to the questions and allows for the comparisons to be simply made. We developed two matrices to represent the information collected. The first matrix shows general interview data, and can be referenced as Table 1, Table 2, and Table 3 starting on page 41. The second matrix contains specific database fields used by each region, and can be referenced as Appendix G: page 89.

5.2 Data Review

After the data has been organized into charts, the analysis of the data becomes a simple task. With general interview information, the common procedures are those that are similar across the majority of the regions. With the database fields, common data are those fields that are utilised by the majority of the regions. In both matrices, judgement was used to determine if the procedure or data field is common enough to be considered, even if it is not the majority case.

5.2.1 Compliance Requirement Determination

The first procedure analysed is the method the FRM Coordinators use to determine compliance requirements for a particular building. In seven of the nine regions, the compliance requirements are determined at the start of the service agreement through negotiation between the agency representative and the ALO. Requirements are then passed from the ALO to the FRM Coordinator for recording purposes. The other two regional coordinators get compliance requirements directly from the agency, as they are also acting as property managers for the region.

5.2.2 Certificate Returns

One of the questions addressed in the interview process is the issue of certificate returns. Of the nine regions, seven do not believe that they have a large problem with getting the actual certificates returned, not taking into account problems with exclusions on the certificates. The majority of the regions follow up with the agencies or ALOs for missing certificates, which is their way of reducing the problem with returns.

5.2.3 Compliance Exclusions

Each of the regions has some agencies that return certificates with exclusions marked. The method of dealing with one of these certificates is the decision of the region. Three of the nine regions consider the certificates to be compliant, five consider them to be non-compliant, and one handles them on a case-by-case basis. The guidelines for reporting certificates with exclusions differ by region as well. Since there is a large variance between the decisions of the regions, there is no single option for handling these certificates that will work for all of the regions.

5.2.4 Exclusion Recording

Each FRM Coordinator mentioned having received certificates with exclusions cited, however only seven of the nine record these specific exclusions apart from the physical file.

As the majority of the regions see that recording the exclusions is important, this is considered to be an important piece of information.

5.2.5 Certificate Storage

All nine of the regions keep fire risk compliance certificates on file at the regional office. Each of the coordinators that receive a certificate for a building located in another geographical region sends a copy of the certificate to that regional coordinator. One of the coordinators also sends a copy to the agency for their files. All coordinators keep a hard copy of the certificates at the regional office.

5.2.6 Compliance Reporting

Each of the nine FRM Coordinators submits a report to the CMB on compliance statistics for their region. The report contains information on all of the buildings physically located in the region, even if the building is negotiated by another region. This procedure is common among all the regions.

5.2.7 Data Storage Software

Seven of the nine coordinators use Microsoft Excel as a data storage software package. Two of the coordinators use a database they built in Microsoft Access, where one of them also uses Excel for supplementary information. Grampians region currently uses a web-based database system. The different methods of storing data do not show a common procedure used among the regions, however some of those using Excel stated they did not want to put effort into developing a database when there was already effort in developing a state-wide system.

5.2.8 Building List

Each coordinator maintains a property list including fire risk management requirements for the properties in their region. All nine coordinators state that their data is complete for all buildings that are government owned. Four of the regions have information on other

buildings, but believe that it may not be complete, as they do not have the resources to maintain information on buildings that do not require FRM Strategy certificates.

The coordinators update their own databases from information that they receive from various sources. All of the nine regions receive some of their information from the initial Service Agreements. Two of the coordinators mentioned that they receive some of their property information from the Office of Housing database, ISIP (Information Systems for Integrated Processing). One region uses a steering committee that regularly meets to discuss property changes. Another region has a project control group whose responsibility is to handle changes. Each coordinator has different channels from which they receive information, and there is no common procedure.

5.3 Common Issues

In order to successfully improve the methods used in data communication, the current issues with the system must first be determined. Some issues were known at the beginning of the project and were the basis for the project goals, whereas others are determined from the interviews. The first issue is with data storage and retrieval. The second issue is with compliance certificate returns. The third issue is with reporting to the CMB. To clarify all of the communication issues, a flowchart describing the current system is included as Appendix H: Current State of Information Flow on page 95. This flowchart explains the responsibilities at each level: the agency, the ALO, the FRM Coordinator, the CMB, and the executives. It also shows all data being stored and transferred, both within a region and between regions.

5.3.1 Data Storage and Retrieval Issues

Through contact with our project liaison, Judith Hemsworth, we were informed of the basic issues with how data is stored between the regions. Additionally, each of the interviews with Regional FRM Coordinators provided further insight into the issues.

The first issue with data storage is that there is no central system. Each of the nine coordinators is responsible for collecting and recording their own information. This results in inconsistencies with the type of data collected, as well as different incompatible database software packages.

The lack of centralisation also prevents the data from being easily accessed, as each FRM Coordinator is the only person who has access to the information. If a coordinator requires information about a building outside his region, he will have to request it from that region's coordinator.

Having multiple databases that include the same information poses a problem when the same record is listed in more than one system. If a building is listed in more than one database, it is very likely that when information about it is updated, it will only be updated in one of the systems. When the information is later accessed, it becomes difficult to discern between the most recent version of the information and the record that has not been updated.

Finally, having the information spread out in different systems makes it difficult to find information centrally. A list of all buildings in the state does not exist, and buildings cannot be located unless their geographical region is first known.

5.3.2 Certificate Return Issues

One of the issues determined from the interviews is regarding compliance certificate returns. At the start of a Service Agreement, an agency is given the responsibility to complete and sign a fire safety compliance certificate for each building each year. Many different situations arise that prevent this certificate from being returned.

The first common reason why certificates are not returned is a lack of information on the part of the agency. Often, a certificate is not returned simply because the agency did not remember to return it on time. As there is no way for the Department to enforce the certificate returns, a FRM Coordinator's only means of motivating the agencies is to repeatedly request

the certificate until they have received it. Additionally, the certificates and service agreements are technically focused, and the agencies are not always comfortable enough with the certificates to sign them.

The second reason why a certificate may not be returned is that the building might not be compliant. If a building is missing any part of the required items for compliance, the agency cannot sign the certificate in full. Often what will happen is the agency will either not sign the certificate, or will sign the certificate and attach a list of items which are excluded from the agreement, thereby modifying the document that they sign. This issue poses problems for the regional coordinators, as they are then required to make judgment on the compliance of the buildings with partial certificates.

5.3.3 Issues with Capital Management Branch Reporting

In the current system, regions are required to submit yearly compliance reports to the CMB. Each region reports on the total number of certificates required and received for each service type in their geographical region. The result of this report is a compliance percentage for each of the nine regions, which may be given to the Departmental Executives. Due to the issues with certificate returns and the varying reporting methods, the reports are not entirely accurate portrayals of the fire risk between regions or within a single region.

Since the reporting to the CMB can only refer to a particular building as fully compliant or non-compliant, partial certificates become a problem. The compliance of this grey area is interpreted by the coordinator rather than by the CMB. As some regions consider partial certificates compliant and some do not, two different regions could have exhibit the same fire risk, but report entirely different percentages to CMB. This discrepancy in the data reporting makes it difficult to justify the use of the data in reports of any kind.

Another issue associated with the reporting is which buildings are being reported on. Each region collects information, including compliance certificates, from all the buildings that they

are the lead-region for. This can include buildings that are geographically located in other regions. In reporting, however, each region includes only the buildings within their geographical region. This forces the coordinators to communicate the compliance certificates to one another before reporting. Some of the coordinators are concerned that poor certificate returns to an agency negotiated by another region will make the fire risk compliance in their geographical region look bad, and that the executives receiving the report may not know of the counterintuitive difference in responsibility.

5.4 Identification of Possible Solutions

After these main issues were identified, we devised several proposals that would allow for more effective data communication between the nine regions and the Department. A standardised database would provide the FRM Coordinators with a single location for the storage of property and compliance information. This database would reduce data duplication and the waiting time for those who depend on the "lead" regions for information on properties within their own region. Other personnel could also access the database when desired, instead of always going through the FRM Coordinator for property information. ALO education would strengthen their knowledge of Service Agreements and the FRM Strategy guidelines. They could better explain the various guidelines to agencies and help reduce any confusion about signing the certificates. Adding considerations for partial compliance to the certificates would provide more realistic goals for the agencies to meet. Also, improved clarity in the Service Agreements and the certificates would give the agencies a better understanding of what guidelines they must follow. Enforcing certificate completion would give the agencies added motivation to return the certificates promptly and increase their awareness about the documents' importance. A standard compliance register would better prepare facilities for signing certificates by keeping all of the necessary documentation in one location.

6 Recommendations

After analysing the data obtained in the interviews, a detailed list of issues with the current system was created. To address the issues in this list, a set of proposed solutions was created, each addressing one or more issues in a different way. The deliverable of this project is a recommendation for the Department on how to improve the communication of fire safety data. The recommendation is comprised of the individual solutions and an overall communication strategy.

6.1 Proposed Solutions

In order to address the issues identified, solutions were developed both from the suggestions taken from interviews and new ideas. These proposed solutions were presented to the Regional FRM Coordinators in a monthly meeting for feedback. Five major solutions were developed, including the enforcement of compliance, training for ALOs and Agencies, implementation of a standard compliance register, improving certificates and reporting methods, and the creation of a centralised database.

6.1.1 Enforce Compliance

Enforcement of certificate returns is highly suggested because some agencies do not understand the certificates' importance and simply refuse to submit them. They know the Department will not penalise them if they do not sign off. Enforcement options are limited due to the Department's responsibility to the community and the nature of services provided. However, non-compliant agencies can be handled internally. The FRM Coordinators can make a list of all non-compliant agencies and provide them to the DHS executives in the annual compliance report. Since some agencies have valid reasons for non-compliance, the reports should distinguish between these agencies and those that are not cooperative. The agency representatives or CEOs should be informed of this proposal before its potential

implementation to allow them sufficient time to resolve their non-compliances before they are reported.

6.1.2 Encourage Training for ALOs

The ALOs are responsible for explaining the FRM Strategy guidelines and Service Agreements. These standards outlined by those documents are so technically focused that the ALOs themselves have difficulty clarifying some details for the agencies. The Department can provide the ALOs with education on such topics as Service Agreements, certificates, FRM Strategy guidelines and other issues as needed. Attendance would not be mandatory, but it should be highly encouraged. Since the FRM Coordinators are very familiar with the topics listed above and are frequently in contact with the ALOs, they should be considered the prime candidates for teaching these seminars. This also would allow each coordinator to modify the curriculum to meet his needs given the specific interactions with the ALOs in his region.

The instruction should take the form of an initial seminar in each region, followed by regular meetings between the FRM Coordinator and the ALOs. There should be a standard curriculum for the seminars that would include, for example, the Service Agreement Information Kit, the certificates and another set of instructions that they are expected to teach to the agency representatives. The follow up meetings should be scheduled annually or biennially, and would ensure the continued practice of correct procedures.

6.1.3 Implement a Standard Compliance Register

Some agencies have difficulties keeping track of all permits and documentation associated with building compliance. This proof is required to correctly sign the compliance certificates. A register should be provided to every building to store all of the appropriate documents. This register would be custom-made to the building's particular requirements. An index should be provided on the cover, listing all of the documents enclosed in the folder. All documents, including occupancy permits, proof of upgrades, fire-safety certificates, Form 15, and any

other fire safety or Essential Services required documents would be placed in this register. Forms should be developed and included to assist persons responsible in carrying out scheduled maintenance activities, keeping contact lists and conducting other activities required of the building personnel. The register should be maintained in a secure location where clients cannot have access to it, such as a staff member's office.

This concept has been proven successful in the Loddon Mallee region and in the Aged Care facilities. Casey Binns, the FRM Coordinator of Loddon Mallee, implemented such a register in his region and anticipates complete compliance from many buildings as a result. The Aged Care Kit for the Commonwealth Certification of Nursing Homes helped most Aged Care facilities meet or exceed their appropriate compliance objectives; this is discussed in Section 4.3.1.

6.1.4 Improve Certificates and Reporting Methods

The current layout of the fire-safety compliance certificates does not provide adequate risk assessments to the Department. Agencies only sign the certificate if they are compliant, otherwise they are considered non-compliant. As a result, the compliance reports only show how many certificates are required in the region and how many have actually been returned, as displayed below in Table 4.

Region	Certificates Required	Certificates Received	%
Region A	34	33	97
Region B	34	20	59

Table 4: Current Reporting Format

The statistics vary greatly between the example regions, but the causes for this are not clear with this reporting scheme. The difference in the third column is due to Region A considering a partially completed certificate as received, while Region B considers it not received. Even though both regions effectively have the same level of compliance, they both report different percentages.

The following design alternatives better explain how compliant facilities are and also recognize a facility's efforts in achieving their compliance objectives.

6.1.4.1 Record all Exclusions

At times, the compliance reports vary drastically between regions since some regions consider partial certificates as fully compliant while others do not. A simple solution would be to have all regions record how many certificates were returned with exclusions. Table 5 below shows an example layout.

Region	Certificates Required	Returned Compliant	Returned with Exclusions	Total Percentage	
				Fully Compliant	Partially Compliant
Region A	34	20	13	59	97
Region B	34	20	13	59	97

Table 5: Recording Exclusions in Compliance Report

This new format shows how many agencies returned fully compliant and partially compliant certificates. The statistics for both regions are identical in this case, since partially compliant certificates are reported separately. As a result, the Department can achieve a better

understanding of how many facilities are fully and only partially compliant. Additionally, this method prevents the regional FRM Coordinator from having to determine if the building is compliant for reporting purposes. This alternative, however, does not explain the reasons for partial compliance.

6.1.4.2 Tiered Certificates

A signature on a compliance certificate means that the agency complies with every guideline that is listed. Usually, agencies are only able to comply with most of the standards, but they technically cannot sign off because they do not comply with all of them. To solve this issue, Sharon Grant, the FRM Coordinator of the Gippsland Region, suggested a tiered certificate in which the standards were separated into three separate compliance categories: operational readiness, building maintenance, and Series 7 compliance. Each section can then describe in more detail what guidelines the agency must follow. Also, instead of having one signoff for the certificate, the agency representatives can signoff on each section as they meet the specific requirements. This would at least allow the agencies to show a level of compliance and help narrow down where issues still exist. To prove compliance, all supporting documentation should be provided to the ALOs. The FRM Coordinators may now report a percentage of how many agencies comply with each of the three sections. An average of these percentages could represent the compliance level for the region. An example of this reporting format is shown in Table 6 below.

Region	**Certificates Required**	**Building Compliance**		**Operational Readiness**		**Building Maintenance**		**Total %**
		Number	**%**	**Number**	**%**	**Number**	**%**	
Region A	34	33	97	20	59	22	65	74
Region B	34	32	94	20	59	33	97	83

Table 6: Tiered Certificate Reporting

In this example, the same two regions are used to model the reporting method. In both Region A and Region B, thirteen certificates are returned that are only partially compliant. The certificates for Region B are more complete than Region A, and thus shows a higher compliance percentage overall.

Though this format better illustrates the areas in which the facilities meet the specified standards, it still does not differentiate between high-risk and low-risk facilities. The Department would not know if the non-compliant sections are being attended to.

6.1.4.3 Rating System

The third option would be to include a rating system on the tiered compliance certificates. The agency representative would measure the agency's compliance to the three sections of the certificate and what efforts are being made to address issues of non-compliance. This will be done using a different scale for each of the three sections. Again, the ALOs should check for documentation that supports these assessments. The FRM Coordinator would report both the agencies' average score on each of the three sections and either an average of these scores or a sum, as displayed in Table 4. An example scale for measuring Series 7 compliance is also included in the table.

Example: Series 7 Compliance Scale

5 = Fully Compliant
4 = Any upgrades are completed, but paperwork not yet complete
3 = Upgrades currently underway
2 = Upgrades identified and scheduled to take place
1 = Upgrades identified, but not yet scheduled
0 = Non-compliant

Region	Building Compliance	Operational Readiness	Maintenance	Average
Region A	3.3	3.9	3.1	3.43
Region B	4.4	4.2	2.8	3.80

Table 4: Tiered Certificate and Rating System Reporting

In this example, Region B scored higher overall in both building compliance and operational readiness, however Region A scored marginally higher in the maintenance section. The overall results of compliance can be reported as either an average of the three sections or as a weighted average, where one of the sections will be scored with a higher value than another.

An FRM Coordinator could use an agency's average score to gauge its risk level. The number range defined in the sections' rating system could be divided into low, medium and high-risk levels and if this high level is reached, the FRM Coordinator should take corrective measures against the low-scoring agency. The same scale can be used by the Department to measure the region's average risk level.

6.1.5 Create a Centralised Database

In order to address the issues with data storage, a centralised database needs to be created. This database will include property and fire risk management data as determined by the interviews with the fire risk management coordinators in each of the regions.

The database software chosen must allow the system to be remotely accessed by all of the regions, either by a client-server software package or through a web interface. This single centralised access solves the problem with the duplication of data, as it would allow information on a particular building to reside in only a single location.

The data structure for this database includes all of the fields to be included as well as a layout for how they are linked. How this database will change the communication of data is described in a flow chart included as Appendix I: page 96. The structure for the database and the fields to be included appear in the following sections.

6.1.5.1 Data Structure

The database is designed so that it may be easily extended to a larger system. Each table operates independently and is linked to prevent data duplication within the database.

At the building level, each building is associated with a **Building Address** table and a **Building Details** table. Additionally, each building is associated with a list of **Facilities** operating within it, or that it is contained within, a list of **Essential Services**, **Contacts,** and **Documents.**

At the facility level, each facility is associated with a list of **Buildings** and **Contacts**. It is also associated with a facility name, in the event that the facility name is different than the building name. Provisions to allow facilities that contain a single building to be automatically named for that building may be optionally included. Additionally, a **Program** and **Agency** is associated with the facility for further information.

At the agency level, each agency is associated with an **Agency Name** and a **Lead Region** association. Additionally, each agency has a list of **Contacts** and **Facilities** associated.

At the program level, each program is given a **Program Name** and **Sub-Program Name** for identification purposes. The **Service Type** that the particular program provides is also included. Finally, a list of **Contacts** and **Facilities** is also included.

A structure for the database is included in Appendix J: page 97, outlining the links between tables and the fields associated with each table.

6.1.5.2 Building Address

As each of the fire risk management coordinators act as a property manager for their region, particular fields relating to individual building information must be included. The Building Address table contains multiple fields that describe the location of the building.

Address: The address of the building, including the street name and number, city or town name, suburb, if applicable, and post code. A state field may also be included, which will default to Victoria, but remain included for future use.

Building Name: An identifying name for the building, often named by the service provided in it.

DHS Region: The geographical region that the building is located in, as defined by the DHS.

6.1.5.3 Building Details

Information about the building itself that is moderately static and does not qualify as address information is included in the building details table.

BCA Class: The building class as defined by the Building Code of Australia

Building Type: A DHS-specific code that represents the type of service provided in the building.

OoH PIN: The identification number for the Office of Housing's database, Information Systems for Integrated Processing, if it applies.

Storeys: The number of storeys in the building.

Number of Beds / Number of Client Beds: The number of beds in the building and the number of beds intended for use by a client.

Year Built: The year the building was built.

Status: The status of the building, which could include occupied, vacant, sold, demolished, or others.

File Number: The file number where information about the building is physically stored at the region. This may be a number for multiple files.

Number of Rooms: The number of rooms in the building.

Land Ownership: The organisation that owns the land, which could be DHS, Agency, or Crown.

FRMS Guidelines: The DHS Fire Risk Management Guidelines that the building falls under. This also determines which Fire Safety Compliance Certificate must be used.

Lease Details: Information about the lease of a building, if applicable.

Building Fabric: Additional comments relating to the fabric of the building.

Comments: Additional information on the property.

6.1.5.4 Contacts

Each contact will contain fields with information about the person and their title. Lists of contacts are linked from various sections, including essential services, documentation, building details, and agency. Examples of contact types include Maintenance Contractors, Agency Liaison Officers, and Agency Representatives.

Salutation, First Name, Last Name: The name of the contact and how they should be addressed.

Office/Home/Mobile/Fax Number: A telephone number at which they can be reached

Street Number/Street Name/City/Town/Suburb: The address of the contact person.

Email Address: An electronic mail address for the contact.

Contact Type: A designator referring to the type of contact the person is and for what reasons they would be contacted.

6.1.5.5 Essential Services

A record in the essential services table contains information about one service for one building. A collection of these tables is associated with each facility.

Service Type: The name of the service type, such as sprinkler system, smoke detection, or others.

Installed: This field is a logical yes/no that defines whether or not the service is installed and operational. When information about a service that is required or scheduled to be installed is obtained, the essential services record is created, but not set as installed.

Equipment Type: The brand and model of the equipment installed.

Last Maintained Date: This field contains the last date that the equipment was maintained. This field may be further developed into a maintenance database containing all relevant information.

Training Date: The date that training for the service was last held at the building.

Contacts: Each essential service for a building has the option to have contacts associated with it, which could be the maintenance contractor, auditor, or otherwise.

Comment: Comments on the service, such as a status and any information that did not fit into another field.

6.1.5.6 Documents

A record in the documents table contains information about a single document on a single building. Each building will reference a list of records in the documents table corresponding to the documents recorded.

Document Name: The name of the document, picked from a static list of available documents or added in manually. This can contain documents such as certificates, permits, and floor plans.

Required: This field is used to define a document as required, such as in the case of a certificate or permit.

Date Received / Date Due: This is the date that the document was received. Since the documents are in a list, annual certificates and other repeating documents are continuously added, and older documents will not show up in the list by default, but will remain on file.

Notes: Includes any notes about a particular document. In the case of a compliance certificate, this field could include any exclusions that are noted on the certificate.

6.1.5.7 Agency

A record in the agency table includes particular fields about that agency. In the list of contacts associated with the agency are generally an ALO, an Agency representative and the Lead Negotiator.

Agency Name: The name of the agency.

Lead Region: The DHS Region that is responsible for negotiations with the agency.

6.1.5.8 Program

Each building has a particular program operating within it, so a table of programs exists to prevent duplication of data. This table contains information about the program.

Program Name: The name of the program

Sub-Program: A subdivision of the program, if applicable.

Service Type: The type of service provided by the program.

6.1.5.9 Document List

In the documents table, the field for document name can be selected from a list of available document types. The initial list of documents required for fire risk management is included below:

Fire Safety Compliance Certificate 3
Fire Safety Compliance Certificate 4
Fire Safety Compliance Certificate 5
Fire Safety Compliance Certificate 6
Fire Safety Compliance Certificate 7.1
Building Permit
Occupancy Permit
Certificate of Final Inspection
Plumbing Industry Board Certificate of Compliance
Electrical Safety Certificate
Fire Safety Audit
Form 15
Sprinkler Permit
Essential Services Determination
Essential Services Declaration
Weekly Checklists
Fire drill reports
OH&S Inspection Checklists
Fire Safety Exemptions
Fire Incident Reports
False Alarm Reports
Property Handover Document
Fire Safety Plan
Copy of Title

Figure 2: List of Document Names

6.1.5.10 Essential Services List

In the essential services table, the service type field can be selected from a list of known service types. The initial list of service types used for fire risk management and maintenance of essential services is included as Table 13: List of Essential Services.

Air conditioning systems	Fire protective coverings
Emergency lifts	Fire rated access panels
Emergency lighting	Fire rated control joints
Emergency power supply	Fire rated materials applied to building elements
Emergency warning and intercommunication systems	Fire resisting shafts
Exit doors	Fire rated materials applied to building elements
Exit signs	Fire resisting shafts
Fire brigade connections	Fire resisting structures
Fire control centres	Fire shutters
Fire control panels	Fire windows
Fire curtains	Lightweight construction
Fire dampers	Mechanical ventilation systems
Fire detectors and alarm systems	Paths of travel to exits
Fire doors (including signs)	Penetration in fire-rated structures
Fire extinguishers (portable)	Smoke alarms
Fire hose reels	Smoke control measures
Fire hydrants	Smoke doors
Fire indices for materials	Smoke vents
Fire isolated lift shafts	Sprinkler systems
Fire isolated passageways	Stairwell pressurisation systems
Fire isolated ramps	Static water storage
Fire isolated stairs	Vehicular access for large isolated buildings
Fire mains	Warning systems associated with lifts (including signs)

Figure 3: List of Essential Service Types

6.2 Communication Strategy

In implementing any or all of the five proposed solutions, changes must be made to the overall communication plan within the department. These changes represent a reduction in excess communication, and an increase in the efficiency of communication as well as the accessibility of information. This proposed change in the communication strategy is identified in each of the levels, and an overview can be referenced as a flowchart in Appendix I: Proposed Changes to Information Flow. The current system flowchart can be referenced for comparison as Appendix H: Current State of Information Flow.

6.2.1 Agencies

In the current system, agencies are responsible for following the guidelines set for them in the Service Agreement, and it is their responsibility for determining what they are and what must be done to meet them. In the proposed system, additional training is done to further their understanding of the process, as identified in section 6.1.2. The compliance register proposal of section 6.1.3 gives the agencies an easy way to keep all of the information in one place. This allows the agency to be more organised with their building information, including fire safety compliance. At a pre-determined interval of time, this compliance register would be audited by the ALO for the agency, on behalf of the FRM Coordinator of the region. In accordance with the partial compliance proposal of section 6.1.4, whichever items are missing from the register are noted, and the compliance certificate for fire safety is signed off in part or as a whole and returned to the ALO.

6.2.2 Agency Liaison Officers

In the current system, ALOs are responsible for any and all communication between the Department and the Agency representatives. This includes the negotiation of the Service Agreement and the collection of any documentation that is required, which includes fire safety compliance information. In this proposed system, the ALOs will be encouraged to attend training sessions in accordance with section 6.1.2. These sessions will give the ALOs the information needed to assist the agency in understanding their responsibilities, including the responsibilities for attaining fire safety compliance. The ALO will additionally be responsible for auditing the standard compliance registers as described in section 6.1.3. These registers will be kept with the building and maintained by the agency, but will be checked by the ALO at a regular interval for compliance. Any missing documentation is noted and reported to the regional Fire Risk Management Coordinator as described in the partial compliance solution of section 6.1.4.

6.2.3 Fire Risk Management Coordinators

The current system relies on the FRM Coordinator for all property management within the region, and often requires the coordinator to contact agencies directly both to collect information and documentation from the property as well as to answer any questions or address issues about fire safety compliance requirements. In the proposed system, the FRM Coordinator receives information from the ALOs, rather than directly from the agency. The FRM Coordinator is thus responsible for insuring that the ALOs are receiving the proper training identified in section 6.1.2. Copies of the documentation from the standard compliance registers, defined in section 6.1.3 are submitted to the FRM Coordinator on a regular basis. Additionally, the detailed information about compliance provided by the partial certificates proposed in section 6.1.4 are also submitted to the FRM Coordinator. The FRM Coordinator is responsible for recording this information into a central database whenever it is received, as defined in section 6.1.5. The FRM Coordinator also has the option of retrieving information from the same database when it is required. The FRM Coordinator does no additional reporting, as all of the information is recorded in a database.

6.2.4 Capital Management Branch

The Capital Management Branch currently requests reports from each of the regions about the percentage of compliant buildings. These reports are submitted annually, and a compiled report is submitted to the Departmental Executives. In the proposed system, reports will be generated directly from the data in the database, as defined in section 6.1.5. More detailed information about the compliance status of each building is available as a result of the improvement of certificates to allow for partial compliance in section 6.1.4. In addition to the reporting on compliance percentages, another report including a list of non-compliant agencies is also submitted to the Departmental Executives, as a way of enforcing compliance, per section 6.1.1.

6.2.5 Departmental Executives

The role of the departmental executive does not change drastically as a result of the proposed recommendations. The only changes are in the type of information provided by the Capital Management Branch. The compliance reporting will now contain more exhaustive details on compliance, in order to provide more accurate percentages, as defined by the partial compliance solution, section 6.1.4. An additional report is also received from the CMB including a list of all noncompliant agencies. This list of agencies is used to help enforce compliance, as described in section 6.1.4, as the Departmental Executives can do whatever is necessary with the list of agencies to ensure that compliance is obtained.

7 Conclusions

To address the issues previously discussed, many options were considered and only the most feasible solutions were recommended. Internal reporting of high-risk agencies is the only real option for enforcing compliance since funding to facilities cannot be cut off, nor may their poor status made public due to ethical considerations.

Some of the ALOs are not fully prepared to explain the Service Agreements to the agencies and further training should improve their overall effectiveness and also help the certificate return rate.

These agencies have many documents to keep track of in order to prove compliance to their specific guidelines. A compliance register will facilitate the management of these documents and better prepare the agency CEOs for certificate signoffs.

The majority of FRM Coordinators believe that the compliance certificates and service agreements are too demanding and this adversely affects the return rate in their respective regions. The certificate and Service Agreement restructuring would clarify the FRM Strategy guidelines for both the coordinators and the ALOs without actually changing any of the guidelines. The allowing of partial compliance also sets realistic goals for the agencies and should help improve certificate return and overall compliance statistics in each of the regions.

The Department has expressed a need for a standardised collection of data and a single location for this data. A database such as the one proposed in this document would meet these two requirements and also facilitate statistics reporting to Departmental executives.

The FRM Coordinator survey provided many different opinions on our proposals. They agreed with the enforcement of certificate returns, although it was suggested that enforcement of the Service Agreements themselves would make more sense since the agencies must sign these in order to receive funding. The whole group also welcomed the idea of ALO training, though it was pointed out that compliance was too complex to be solved by education alone.

The coordinators certainly liked the concept of the compliance register; some believed it should be part of the DHS policy. Surprisingly, others have made similar suggestions in the past, but the Department turned down their request. The group was a little more sceptical about improving certificates. Some liked the idea of dividing the certificates into three sections and allowing for partial compliance, but did not think that the rating system was feasible. They believed that the agencies would interpret the scores very differently and very specific definitions would have to be provided. Furthermore, they believed the rating system would confuse the line between compliance and non-compliance. Most understood that the certificates were flawed, but felt that changes would never take place. One even believed that the certificates were sufficient and that the other underlying problems with ALO training should be handled first.

As expected, all of the coordinators embraced the idea of a central database despite the magnitude of such a project. The Department must now consider the appropriate computer system, software, structure and location for this database. The Department's FIS system certainly holds a great deal of potential and the feasibility of a linkage to such system is contingent upon how inclusive this system is of the properties involved in the FRM Strategy. If the central database could be included in the Business System Replacement Project, that would provide a valuable link between the FRM Strategy information and other asset management systems. The Department must also determine how the other proposed solutions are to be implemented, if at all. It is our hope that the Department will benefit greatly from the results of this project.

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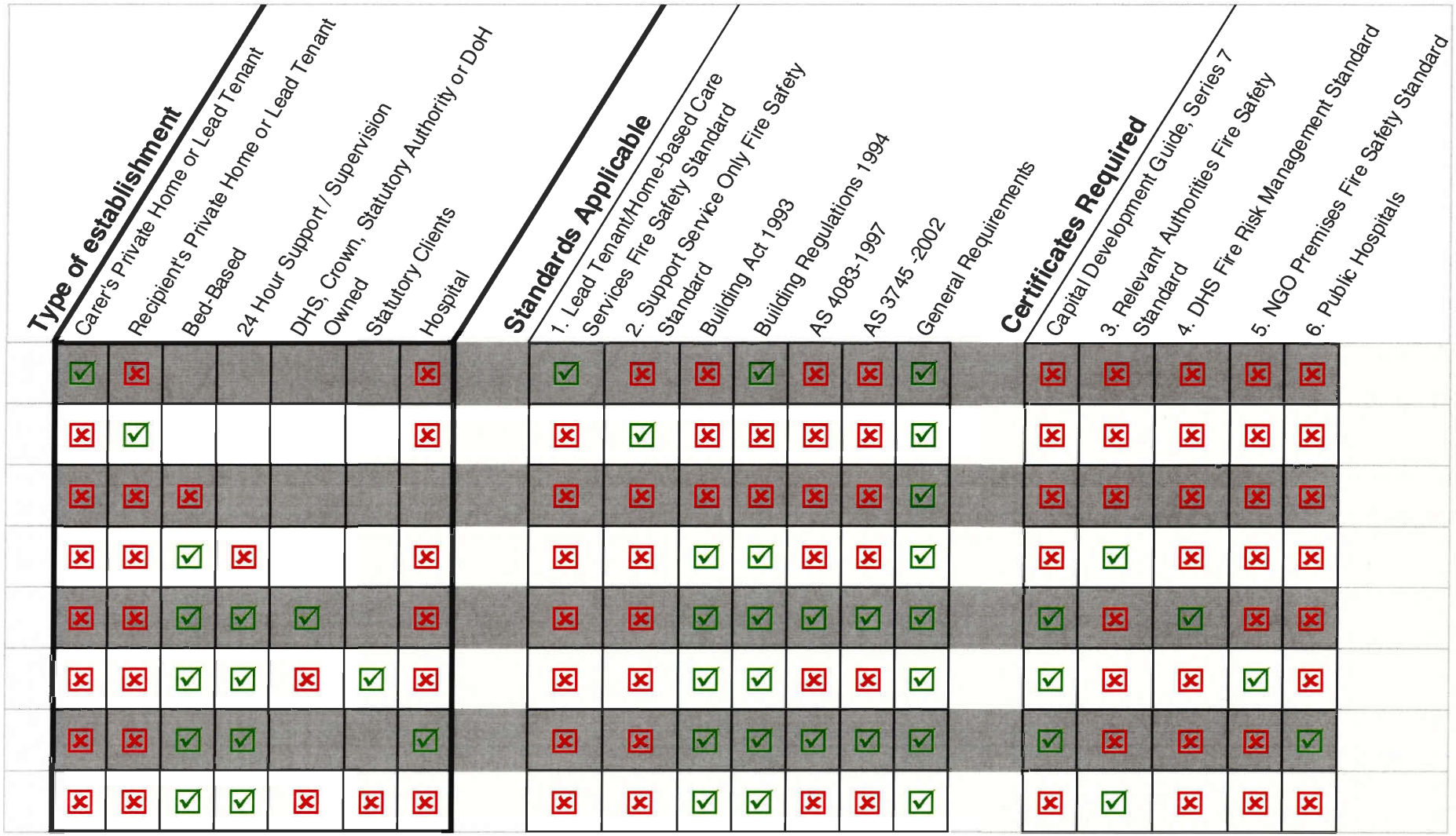
Appendix A: Fire Safety Compliance Requirements



Appendix B: Certificate Number 3 of Fire Safety Compliance

Victoria Department of Human Services

Certificate No. 3 of Fire Safety Compliance for 200_–200_
Relevant Authorities Fire Safety Standard

Name of Agency: ..... ("The Agency")

This certificate is to be issued by the CEO (or equivalent) acting for and on behalf of the Agency to confirm that premises coming within the Agency's control comply with fire provisions as required by relevant legislation. The completed certificate covering a specific financial year must be submitted to the Department's ALO by the end of June in that financial year.

From the information I have obtained, I am satisfied that for each of the premises on the attached list*:

Compliance with the requirements of the Building Act 1993 and the Building Regulations 1994 (or as updated)

(a) The premises comply with:
- the requirements of the *Building Act 1993* and the *Building Regulations 1994* in force at the time of construction or renovation of the premises; and
- retrospective requirements of the Building Act 1993 and the Building Regulations 1994 where applicable.

(b) Procedures are in place to ensure continuing compliance with (a) for the next 12 months.

Operational Readiness

(c) All fire safety equipment, fire safety fittings, fire safety measures, exits, paths of travel to exits and "essential services" (as defined in and required by the Building Regulations 1994) are being adequately maintained; and staff training and fire drills have been carried out in accordance with procedures which have been documented by the Agency.

(d) A maintenance contract, Policy and Procedures and Training are in place to ensure continuing compliance with (c) for the next 12 months.

Signed for and on behalf of the Agency

Signature: ..... Date: ...../.../...

Name (block letters): ..... Title: .....

Address: .....

* Attach list of premises

Appendix C: Certificate Number 4 of Fire Safety Compliance

Certificate No. 4 of Fire Safety Compliance for 200_-200_

-

Department Fire Risk Management Standard

Name of Agency: .....("The Agency")

This certificate is signed by the CEO (or equivalent) acting for and on behalf of the Agency to confirm that premises coming within the Agency's control comply with the Department's Capital Development Guidelines - Fire Risk Management. The completed certificate covering a specific financial year should be submitted to the Department's ALO by the end of June in that financial year.

From the information I have obtained, I am satisfied that for each of the premises on the attached list*:

Compliance with Series 7 Capital Development Guidelines - Fire Risk Management

(a) Any non compliances with the Capital Development Guidelines, Series 7, Fire Risk Management which have come to the attention of the Agency have been reported to the building owner.

(b) Procedures are in place to ensure continuing compliance with (a) for the next 12 months.

Emergency Response Policy and Procedures Are In Place ad Exercised

(c) The following are in place and updated as required:

- documented emergency management and evacuation procedures which meet Australian Standards AS4083 and AS3745 or the Department's Fire and Emergency Response Procedures and Training Framework, as appropriate; and
- appropriate documentation to demonstrate that these procedures have been tested through fire drills and can be effectively implemented in the event of fire;
- appropriate staff training arrangements to enable these procedures to be carried out; and
- any additional procedures required by the fire engineer as documented in the fire safety audit/risk assessment.

(d) Procedures are in place to ensure continuing compliance with (c) for the next 12 months.

Maintenance

(e) Any factors which may affect the performance of, or operation of fire safety equipment, fire safety fittings, fire safety measures, exits, paths of travel to exits and "essential services" (as defined in and required by the Building Regulations 1994) which have come to the attention of the Agency have been reported to the building owner.

(f) Procedures are in place to ensure compliance with (e) for the next 12 months.

Signed for and on behalf of the Agency

Signature: ..... Date: ...../...../.....

Name (block letters): ..... Title: .....

Address .....

* Attach list of premises with number of the certificate which applies

Appendix D: Certificate Number 5 of Fire Safety Compliance

Human Services

Certificate No. 5 of Fire Safety Compliance for 200_-200_
NGO Premises Fire Safety Standard

Name of Agency: ..... ("The Agency")

This certificate is signed by the CEO (or equivalent) acting for and on behalf of the Agency to confirm that premises coming within the Agency's control comply with the Department's Capital Development Guidelines - Fire Risk Management. The completed certificate covering a specific financial year should be submitted to the Department's ALO by the end of June in that financial year.

From the information I have obtained, I am satisfied that for each of the premises on the attached list*:

Compliance with Series 7 Capital Development Guidelines - Fire Risk Management

(a) I have viewed the fire safety audit and/or risk assessment report in accordance with the requirements of the Capital Development Guidelines, Series 7, Fire Risk Management, and I confirm that the Agency has rectified any non-compliances.

(b) Procedures are in place to rectify and ensure any non-compliance with (a) are addressed for the next 12 months.

Emergency Response Policy and Procedures Are In Place and Exercised

(c) The following are in place and updated as required:

- documented emergency management and evacuation procedures which meet Australian Standards AS4083 and AS3745 or the Department's Fire and Emergency Response Procedures and Training Framework, as appropriate; and
- appropriate documentation to demonstrate that these procedures have been tested through fire drills and can be effectively implemented in the event of fire;
- appropriate staff training arrangements to enable these procedures to be carried out; and
- any additional procedures required by the fire engineer as documented in the fire safety audit/risk assessment.

(d) Procedures are in place to ensure continuing compliance with (c) for the next 12 months.

Maintenance

(e) All fire safety equipment, fire safety fittings, fire safety measures, exits, paths of travel to exits or "essential services" (as defined in and required by the Building Regulations 1994) are being adequately maintained as at the date of signature.

(f) A maintenance contract and procedures are in place to ensure compliance with (e) for the next 12 months.

Signed for and on behalf of the Agency

Signature: ..... Date: ...../...../.....

Name (block letters): ..... Title: .....

Address .....

* Attach list of premises with number of the certificate which applies

Appendix E: Certificate Number 6 of Fire Safety Compliance

Certificate No. 6 of Fire Safety Compliance for 2001/2002

forPublic Hospitals

Name of Agency: ..... ("the Agency")

This certificate is signed by the CEO (or equivalent) acting for and on behalf of the Agency to confirm that premises coming within the Agency's control comply with the Department of Human Services Capital Development Guidelines - Fire Risk Management (FRM) completed certificate should be submitted to the Department as part of the Health Service Agreement for 2001/2002.

From the information I have obtained, I am satisfied that for each of the premises on the attached list*:

Compliance with Series 7 Capital Development Guidelines - Fire Risk Management

(a) I have viewed the fire safety audit and/or risk assessment report carried out in accordance with the requirements of the Capital Development Guidelines, Series 7, Fire Risk Management, and I confirm that the Agency has developed a plan and timeframe, agreed with DHS, for the completion of rectification works.

Emergency Response

(c) The following are in place as are procedures to ensure continuing compliance:

- documented emergency management and evacuation procedures which meet Australian Standards AS4083 and AS3745 as appropriate;
- appropriate documentation to demonstrate that these procedures have been tested through fire drills and can be effectively implemented in the event of fire;
- appropriate staff training arrangements to enable these procedures to be carried out; and
- any additional procedures required by the fire engineer as documented in the fire safety audit/risk assessment.

Maintenance

(e) All fire safety equipment, fire safety fittings, fire safety measures, exits, paths of travel to exits or "essential services" (as defined in and required by the Building Regulations 1994) are being adequately maintained as at the date of signature.

Signed for and on behalf of the Agency

Signature: ..... Date: ...../...../.....

Name (block letters): ..... Title:
.....

Address
.....

* attach list of premises together with number of the applicable FRM Guideline.

Appendix F: Questions for FRM Coordinators

For new Service Agreements

How are compliance requirements determined at the start of a new Service Agreement?
How are the certificates obtained / how is compliance determined?
For DHS / Non-DHS owned buildings?
For different building types?
For different service types?
Other groupings, if applicable?
What are some of the reasons why a certificate might not be obtained?
What is done in this case?
What is done with these certificates?
For buildings / agencies that do not require certificates, what information is recorded?
Where is information recorded?

For existing Service Agreements

How are changes in compliance requirements determined?
How are the yearly certificates collected?
For DHS-owned?
For non-DHS-owned?
What is done when a certificate is not renewed?
For agencies / buildings that do not require certificates, is there any regular check for compliance?

Data

What information is currently being sent to the CMB?
What information is being stored at the region?
How is this information being stored?
Is there a list of all the agencies and buildings in the region?
How was this list put together?
How is it updated?

General / Suggestions

Are there any issues with the current methods of collecting certificates or other compliance information?
Are there any issues with the recording or communication of this information?
Is there any other information you think should be collected or recorded?
Do you have any suggestions for improvement on the methods of data collection, communication, or recording?
What information is required to manage fire risk compliance?
What information would be nice to have, but is not required?
Is there anyone in the regional office or from any of the service providing agencies that you would recommend we speak to?

Appendix G: Database Fields Matrix

Fields		Northern Metro	Southern Metro	Western Metro	Eastern Metro	Gippsland	Barwon	Grampians	Loddon Mallee	Hume
Property Information	Ownership	Crown or NGO	Property Owner	Govt or NGO Sec Asset Category DHS or Non-DHS	Owner Manager	Ownership Managed by	Facility Owner Operator			Land Status Property Type Program Responsible
	Program	NMR Program NMR Sub-Program Sub-Program/Agency Service Title	Program Name Organisation Name Facility Description Facility Name	Sub Program Agency Services Title Property Name	Service Type		Agency Building/Facility Name Accommodation Type		Agency	Facility Name
	Address	Street Number Street Name Suburb Post Code	Address Suburb Post Code	Street Number Street Name Suburb Post Code	Property Address Suburb	Street Number Street Name Town	Street Number Street Address Suburb Post Code		Street Number Address 1 Town Post Code Melways Map Reference	Street Number Street Name Town / City Pcode
	Building	property/equity deeds specific regulations area OoH PIN	Government Equity Building Class Storeys	OoH PIN Building Code Building Class Storeys Property Name			DHS Equity Building Classification Single / Double Storey	Building Class	OoH PIN Building Class	% Equity OoH PIN Number of Storeys

		number of rooms	Number of Beds Post 1994 built Asbestos Report	Number of Beds		Property Type Status	Year Built Number of client bedrooms Number of staff bedrooms Occupied Number of Clients House Plans Construction Material Roof Tile / Tin / Slate Roof Gabled / Flat			Number of Beds Age of Property Number of Bedrooms Occupied Number of Clients
	Block	Area Dimensions								
	Fabric Condition	Audit Prepared Date Assessment							Listed for Fabric Audit Door Furniture Amount to Rectify	Building Fabric
	Building & Land	Valuations Date Due Date Received								
	Crown Land Information								Property Report Crown Land LIMS Crown Land Reserve # Crown Land Section Crown Land Allotment Volume Folio Title Location	

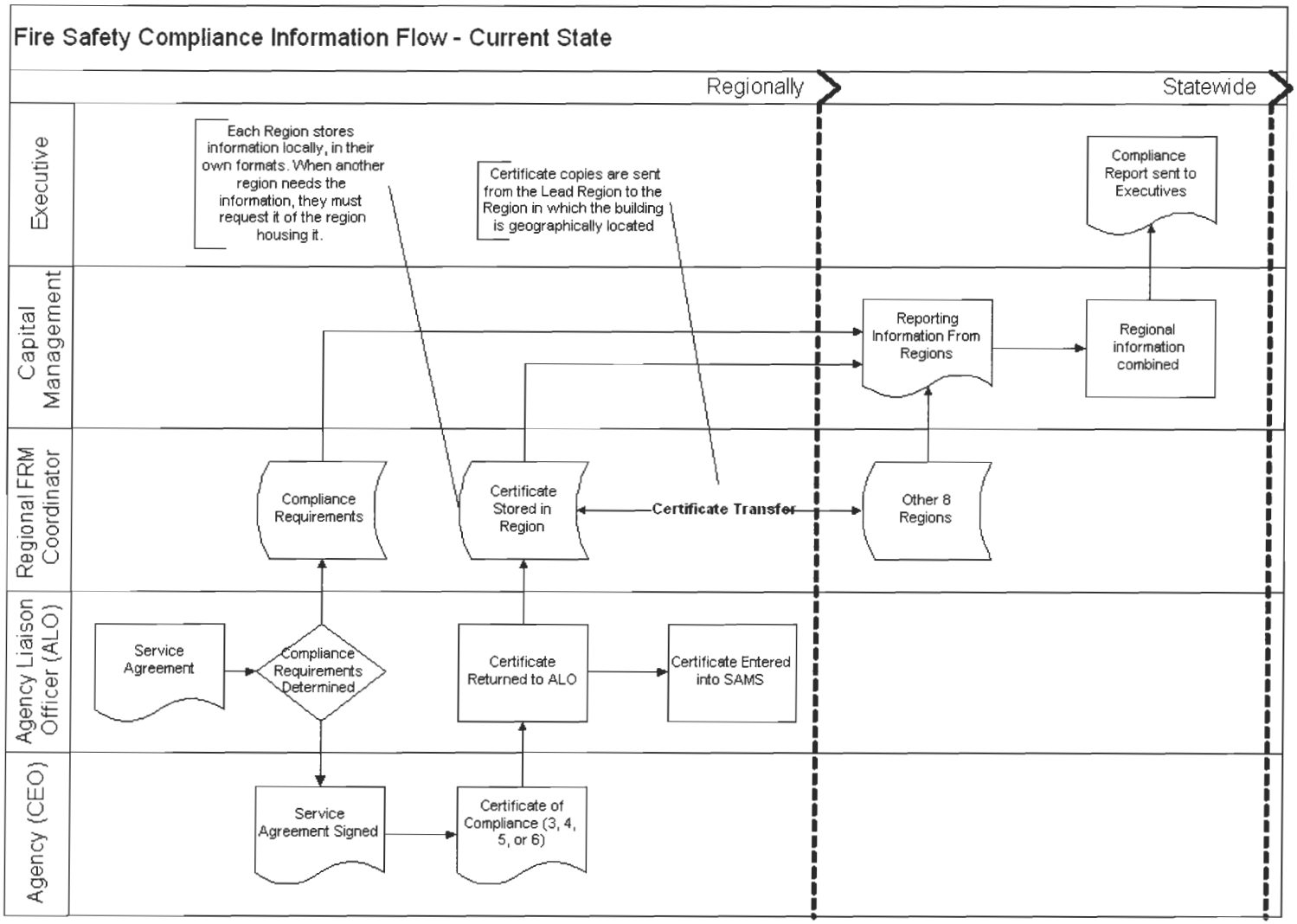
									Crown Tenure Comments	
Fire Safety	Fire Safety	Works Completed Evacuation Plans (Date) Evacuation Packs Issued (Date) Fire Panel Sprinkler Control Valve HWS Central Strike Release Mechanisms Disabled Access Wet Areas Passageways		Fire Panel Type Fire Panel Training (Date) Sprinklers Door Strikes Smoke Detectors Smoke Detector Type		Audited & Upgraded to CDG	Evacuation Packs Type of Fire Panel Sprinkler System Sprinkler System in roof cavity Electric Door Strikes Smoke detectors in roof cavity Key Safes Installed Key Safe Code Strobe Light		Alarm Panel Panel Monitored Sprinkler Protection Break Glass Alarms Fire Extinguisher/blanket Hose Reel Emergency Lighting Emergency Exit Light Gas Check Valve	
	Certificates	Certificate Number Required Certificate Received [y/n]	Certificate Number Required [3,4,5, 7.1] Certificate Received [y/n] Certificate Received Date	Certificate Required [3,4,5,7.1] Certificate Received [y/n] Certificate Received Date	Guideline Compliance Certification Received	Agency Certificate Applicable	Relevant Guideline Certificate Required [3,4,5,6,7.1] Certificate Received Certificate Received Date	Guideline Certificate Number Certificate Received Date Received	FRM Guide Cert No. Compliance Cert Date	FRMS / Category FRMS Comp Cert Received Date (yearly)

		Building Permit		Building Permit		Building Permit		Date Valid Until			
		Occupancy Certificate	Occupancy Permit	Occupancy Certificate Number	Occupancy Permit Number	Occupancy Permit		Compliance Date			
				Occupancy Certificate received date	Occupancy Permit Date			Building Permit	Building Permit	Building Permit	Building Permit Received Date
		Certificate of Final Inspection	Certificate of Final Inspection	Certificate of Final Inspection (Number)				Occupancy Permit Number	Certificate of Occupancy		
				Certificate of Final Inspection received date				Occupancy Permit Date			Occ Permit Received Date
									Certificate of Final Inspection		
						Certificate of Final Inspection			Cert Final Inspection Date		Certificate of Final Inspection
		Plumbing Ind. Board Compliance Certificate		Plumbing Ind. Board Compliance Certificate							
				Plumbing Ind. received date		Plumbing Certificate of Compliance					
		Electrical Inspections		Electrical Safety Certificate							
				Electrical Safety received date		Certificate of Electrical Safety					
				Fire Audit Report Number							
				Fire Audit Upgrades Completed							
		Fire Audit received date	Audit Completion Date	Fire Audit Issue date	Audit/Reaudit	Reaudit Reports 2002			FRMS Audit Date		
						Reaudit works cost					
			Audit Status								
		Fire Audit due date				Audit Report Returned			On Re-Audit List		
		Form 15 commencement date	Form 15 Completed	Form 15 on file		Form 15 Required					
				Form 15 expiration date							
		Form 15 due date				Form 15 Received					Form 15 Received
					Determination						Essential Services Listed
			Sprinkler Permit								
			Sprinkler Compliance								
					COMAC/OOH Declaration						
				Essential Services Declaration date	Essential Services Maintained						
						Declaration					Maintenance Declaration
						Certificate of Practical Completion					
						Checklist 2.7					
						Evacuation Time					

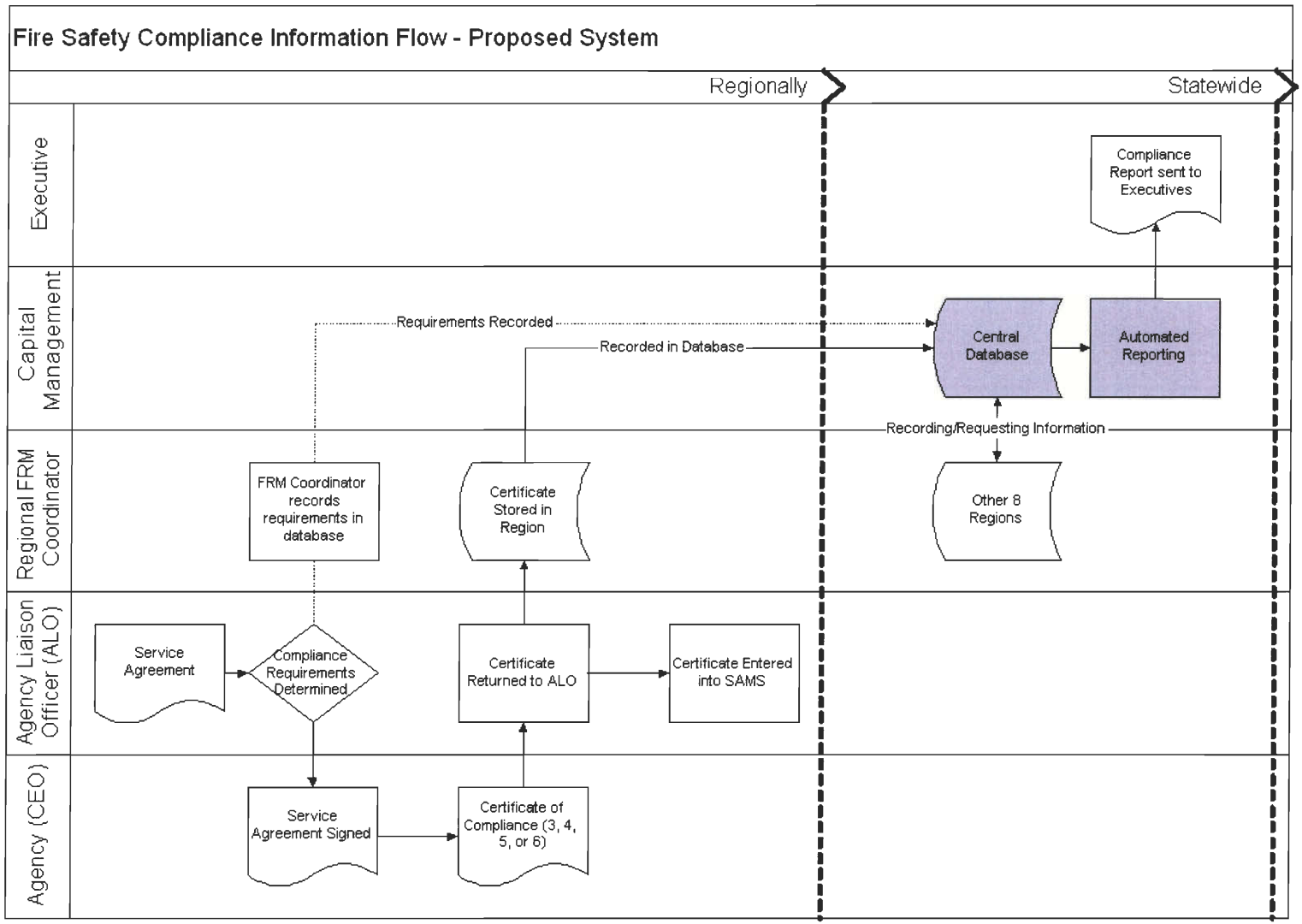
							Section 2 Completed Date Entered into SAMS Date copy to property file Operating and Maintenance Manual		Regional Compliance Report Latest AS3000 Audit	
Other	**Contacts**		Lead Negotiator Organisation Contact Lessee	House Contact Lead Negotiator DHS Contact Agency Contact ESM Contact		E/S Maintenance Contractor E/S Contract Managed by Responsible for signing Form 15	Facility Contact Person DHS Contact BACM Contact After hours contact	Lead Negotiator	Contact Person DHS - Region Contact E/S Responsibility Building Surveyor Service Contractor Maintenance Contractor OoH Contact	Site Contact Person Contact Person Maintenance Responsibility Smoke Detector Maint. Contact Sprinkler Maint. Contact Fire Equip. Maint. Contact
	Essential Services							Service Type Description of Work Contractor Contractor Address		
	Other	Lead Region	Lead Region Issues	Lead Region Notes / Comments Municipality Assessment Number	Comments		Lead Region			

				Land Rates Exemption received date Hand over date Disposal date			File Number		Regional Location photos Listed for OoH Maintenance	Lease Lease Type Lease Expiry Date Value	

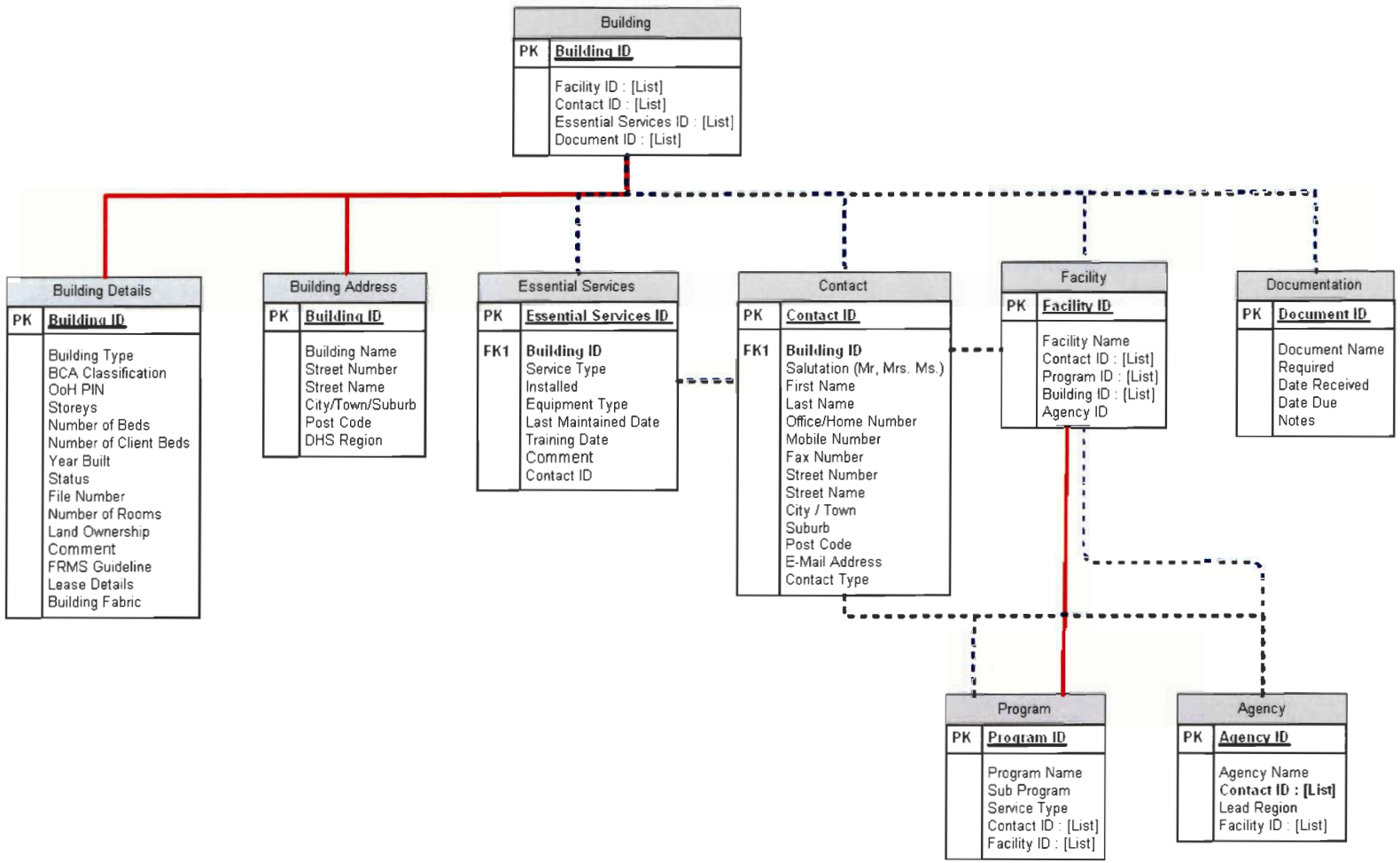
Appendix H: Current State of Information Flow



Appendix I: Proposed Changes to Information Flow



Appendix J: Structure of Database



Appendix K: FRM Coordinator Interviews

I. Rick Nelson – Southern Metropolitan Region

Rick explained that he acts as property manager of all the buildings in his region, but he focuses mainly on buildings' fire safety compliance requirements. He is informed of a new NGO owned property indirectly by eventually hearing it from an ALO or a program. The ALO gives the requirements to the new property, and are usually educated on fire safety compliance issues. As for government-owned buildings, they are built with the Series 7 guidelines in mind. The ALO must sit with the new agencies and go through the Service Agreement Information Kits, making sure the agency understands the policies. If there is a change in the service provided by a building or if the building itself is modified, the ALO must inform the agency as to what the new set of compliance requirements may be. Usually, agencies must return certificates by the end of February every year. The ALOs are responsible for collecting certificates and Rick interacts mostly with just the ALOs. The success rate of this collection process is dependent on how persistent the ALOs are with the agencies. In his region certificates are almost always returned. When an agency turns in a certificate that is not signed, the ALO must find out why a building is not compliant and negotiate a plan with them to fix the problem. If the problem lies in the lack of funding, the agency must request additional funds from the Department.

Many other issues exist with the signing of certificates. Rick explained that particular cases cause contradictions between the safe provision of services and fire safety certification. For example, the guidelines require a fire extinguisher in the kitchen of a juvenile justice centre. However, the delinquents who live at the centre may tamper with it, so persons in charge cannot place one there. In that case, Rick would still consider the building compliant, but with exclusions. Certificates from many buildings have such exclusions because issues such as this frequently arise. The FRM Coordinators must have confidence in the agencies

and trust that they have gone through the requirements and signed off properly. Rick makes a note of exclusions on paper, but does not enter them into his database. In this database he only records general information about the building and agency, and he records the date on which they signed the certificate. He gets this information from each program area in the region. Other property information is obtained from the Office of Housing, which began supplying him this information six months ago.

Government-owned facilities usually have staff in charge of building and fire safety maintenance. However, NGO owned facilities have their fire safety requirements checked only as a part of their health and safety assessments. The quality of these types of evaluations may differ.

Regarding the current data communication practices between his region and the Department: he only sends fire incident reports, compliance statistics and if necessary, property details. The data sent only includes numerical data because the CMB never requests anything more. Although not reported to CMB, reasons for non-compliance are discussed at the FRM Coordinators' monthly meetings.

Rick suggested that a new database design should have information on any buildings that are DHS-funded, including those not requiring fire safety compliance certificates. People frequently call him asking for information about different properties, so it would be easier to have this information in a centralised database accessible by everyone. He feels that 90% of the regions are collecting the same data, so a standardised feed into a such a database would reduce the duplication of data. He emphasized the use of Microsoft Access for the construction of this new database system due to its flexibility and its powerful query capabilities. He only took one class on this software package and was able to create his own personal database.

Rick also admitted that the FRM strategy was never tested. This may be a reason why some of the facilities have trouble signing their certificates. For example, he believes that the Series 7 guidelines are too intricate and are unrealistic for agencies to follow. To alleviate the trouble with the judging of partially compliant agencies, Rick suggests a scoring system be used to weight the facilities' compliance in regard to certain sections of the certificates.

II. Howard Hinkley – Northern Region

Howard manages not only the buildings located in his region, but also some located in other regions. He explained that only two types of services are provided by his region. Residential services with full staff are funded by the region itself and must comply with the Series 7 fire safety compliance guidelines. Day services and offices must only comply with building regulations. These compliance requirements are determined by negotiations between the ALOs and the agencies. Unlike the previous region where Service Agreements are handled by the ALO or the FRM Coordinator, this region has a group specializing in Service Agreements. The Monitoring Systems and Development (MSD) team handles all certification processes, including generating letters and returning them to the FRM Coordinator. The MSD team provides information on certificates 3, 4, 5 and 6 to the SAMS database. This aids Howard in generating Series 7 compliance statistics for the CMB. Though access to SAMS is restricted, the MSD team can override the constraints to edit any part of the Service Agreements. They would then provide Howard copies so he may generate statistics for the CMB.

All agencies in this region return certificates promptly and are stored in an agency file at the regional office. The only buildings requiring certificates in this region are those for residential services. Agency files that are held in the regional office have information on the types of facilities not requiring certificates. However, according to Howard the ALOs should

also have this information. Few of the certificates are returned with exclusions; almost all are said to be fully compliant by the agencies. Howard acknowledged that some agencies do not have their facilities correctly examined, but sign the certificates anyway. This is a significant problem since the DHS has "duty of care" to ensure full compliance. In Howard's opinion, compliance with exclusions still qualifies as compliance because the programs are in place to add sprinklers or whatever it may be. When exclusions are attached to a certificate he records them.

Buildings are re-audited when changes occur in the building or in the type of service provided. Agencies cannot determine how their safety responsibilities change, so they rely on the ALOs to review the Service Agreements and certificates. This means they must notify the ALO promptly. However, sometimes these changes go unnoticed for a considerable amount of time.

Howard currently uses a small database with data on building titles, block sizes, evaluations, property deeds, and models of hot water service or air conditioners among other things. The regional office is currently developing a MS Access database to contain three main sections of data: capital profiles, fire-risk compliance information and building condition evaluations. Despite this work in progress at his region, Howard thinks we should have a departmental database for capital and fire risk management. Even though some aspects may vary between regions, everyone reports on the same certificates, so a centralized database is appropriate. This region may want information about equities and block sizes where the houses are located. He further suggested that data such as certificates, condition records, fabric surveys, building permits for upgrades and occupancy permits for newly acquired properties should be included in a centralized database. There are sensitivities regarding addresses and such data, but centralized data with restricted access would be acceptable. Grampians is currently developing a database that he thinks will eventually be used by all

regions. That project is around 18 months old and he has been waiting for it to complete, which is why he has not put much effort into his own system recently.

III. Charles Micaleff – Western Region

Charles gave very straightforward explanations on various procedures in the Western Metropolitan Region. In a new building, once building specifications are drawn up and the facility's clients are determined, the regulations the building must follow are determined. The occupancy type of the building may then be established. The architect understands the guidelines that are required and designs the building to those specifications. Charles does not play a big part in the actual design work in new building projects, since he is not an engineer. He does, however, have a say in what fire safety guidelines are required: where smoke detectors or fire exits must be located, etc. This is the only way he will know that a building will definitely comply with these guidelines. NGO owned buildings do not have to be in direct contact with the regional office, but they still have the FRM Strategy guidelines available and must follow certain building regulations. New NGO owned buildings must at least provide copies of the occupancy permit, sprinkler certification and AS3000 electric safety compliance certificate to Charles so he knows that the new facility is compliant to those standards.

The builder provides different types of certifications and permits to Charles and he stores them in the property file and in his database. The agencies have trouble returning the fire safety compliance certificates to him. He attributes the lack of returns to laziness on the part of the agency and ineffectiveness of the ALOs. Since there is no enforcement of the prompt return of the certificates, agencies do not take them seriously and do not return them on time, if at all. In 2001-2002, when he was in charge of receiving certificates from the agencies, he attained a 98% return rate. This year, when ALOs took over the responsibility, the return rate

fell to 50%. He explained that though the ALOs were educated enough on Service Agreements and the different guidelines, they lacked persistence and that led to a sharp fall in the number of reporting agencies. New agencies usually turn in the required certificates on time because they think any tardiness would result an immediate stoppage of government funding. When they realize that this is not the case, they become very careless with the signing of certificates.

The reporting method does not vary much from the previous two regions. The ALOs check off the received certificates in SAMS, they are forwarded to Charles, and he records them in his database. Since this region is the lead region for agencies outside of his region, he provides copies of the certificates to the appropriate regions. Charles only reports agencies within his own region to CMB, but thought that it would be easier to report based on lead region responsibility, rather than on geography.

Charles uses MS Excel for his two spreadsheets of compliance certificates and building information. On the certificate sheet he records the type of agency, its region, the certificates required and when they were received. The building information sheet is more extensive and contains the address of every facility, audit reports, building permits required, number of beds present, and fire-safety specifics (i.e. number of smoke detectors required) among other things. He expressed a desire to keep ongoing records of every permit returned to him, instead of writing over the "date received" field every time a new permit is returned.

Overall, Charles is happy with the communication of data between regions and to the CMB. He does believe that if all regions used standardised method of recording data, the reporting of data would become that much easier.

IV. Sharon Grant – Gippsland Region

Sharon provided a very detailed description of how the agencies communicate compliance information to the regional office. She also explained the measures she was taking to help streamline this communication and increase the effectiveness of the ALOs. Communication between the program and the FRM coordinators can be difficult. Sharon sends out a list of properties and information to the programs, asking if they are still accurate. She used to meet with them monthly, but now they often come to her with the updates.

Sharon attends the ALO Partnership meetings and gives presentations covering the different requirements for each certificate. These presentations prepare the ALOs for potential questions that agencies may ask. She has not yet tried a new method of planning, since it is her first year going through the entire process. ALOs are responsible for educating the agencies on the service agreements and obtaining certificates from the agencies.

A new agency will only sign certificates starting at the date they began providing the service. New buildings in an existing agency follow the same procedures. Sharon writes a letter to the agency, attaching the appropriate certificates for each of the buildings and gives it to the ALO. The ALO then sends the letter to the agency. Once the letters have been sent, she follows up with the agency and learns why they are not signing, if necessary. This "coddling" is very labour intensive, but since Gippsland does not have a large number of agencies, it is an easier task to undertake. When a problem is anticipated with an agency, she provides extra help so that they may better understand the Service Agreements or certificates. Sharon asks to have the agency sign some statement, even if they refuse to sign the certificate. Usually, she can get them to sign at least part of a certificate when she goes through it with them. The problems are usually associated with operational readiness, since that is the area where agencies are least likely to be compliant. Sharon explains certain responsibilities to the agency, and the problems usually decrease over time. At some point in the year, she stops

following up on the delinquent agencies and begins to plan the next year. If such an agency signs the following year, she considers that sufficient. Sharon does not fervently pursue certificates from previous years, but if possible she will get them signed.

A certificate that is marked with exclusions is considered non-compliant. She discourages exclusions, but will accept the certificate if the agency will not sign otherwise. The agency signs the certificate and attaches a letter noting the exclusions. Starting this year, Sharon will be recording the reasons for exclusions in her records.

Sharon suggested a three-tier system of compliance. The first tier includes building compliance, which is the easiest information to obtain and is the most likely to be fully compliant. The second tier, building maintenance, covers the measures taken to keep the building in acceptable condition. The third tier is operational readiness, including training of the staff. Different levels of compliance can be recorded to determine who is responsible for completing the remainder of the compliance problems. This would involve changing the certificates to allow for multiple tick boxes or multiple signing sections. This will reflect an actual compliance level, instead of a vague "is or is not" compliance measurement. The region could pinpoint reasons of non-compliance and focus resources on the problems, if needed.

Sharon created a two-page spreadsheet that lists all properties and the name of all programs in the region. Sharon maintains all of the previous FRM Coordinators' work in the database, but it lacks clarity. Most of the information was kept off the sheet, though, so the information was not effective. Currently, the database stores the status of the building, whether it has been audited and upgraded to a guideline, whether it provides 24 hour care or houses statutory clients and whether certificate 7.1 is required. Each service type has its own sheet, but they all have similar headings. She is currently migrating the Excel worksheet to an Access database.

Every property has a file folder, including a coversheet. The coversheet is a list of documents with tick boxes. When a document is obtained, it is added to the folder, and the date and other information is recorded on the coversheet. The file number is recorded on the database, as well as what documents are stored within. Disability Services developed the coversheet. Sharon records information on all buildings that she has information on, including NGO facilities. She does not have a complete listing of the buildings, however. She attributed this to having a hard time categorizing facilities with the flowchart. Sharon cannot edit the flowchart herself, so she would like to see more examples added to it.

Sharon met with Ray Joppich to find out what the actual requirements are for fire safety compliance and she compiled a list of the mandatory documentation and what exclusions on the certificates are permissible. Ideally, she would like to see one standard held throughout the DHS. The "strict" regions report low and the "less strict" regions report high, and thus the stricter regions, in Sharon's words, "get in trouble because they got low compliance, whereas really they are probably doing their job better because they are trying to record *real* compliance." When the regions reported compliance information initially, the numbers were submitted without any explanation, purely percentages of compliant regions. After much debate, the next report included a few pages of notes and explanations as to what the numbers mean and where they come from. The regions use these notes to justify low compliance scores.

One of the other major problems is that it does not matter how much information one records, it will still need to be trimmed down into compliance percentages for the CMB that do not really reflect the true compliance information. A better system needs to be determined which allows for more flexibility, but still allows the reporting to be done numerically. This would involve a list of compliant, non-compliant, and partially compliant buildings. It could also involve setting up different levels of compliance. She would have rather reported lower,

since she believed that stricter compliance requirements should be utilized. If she had only reported fully compliant regions, Gippsland would have reported zero percent.

Sharon also believes that the certificates and the reporting process need to be re-assessed and fixed to allow for multiple levels of compliance in a building. She was very receptive of the idea for a centralised system, but wanted to make sure that each region had the ability to "customise" the fields for their region. A region may want additional information that the other regions do not need. The core set of data, however, would remain the same for all regions. Sharon suggested adding an item onto each certificate that includes the clause "Is there documentation supporting this?" This would allow distinction between buildings that have been proven compliant and the buildings that are assumed to be compliant and are just ticked off. A specific list of supporting documentation would need to be included and it would effectively be a list of both mandatory and non-mandatory documentation.

V. Terry Murrihy – Barwon Region

Terry follows the same channels as most of the others to obtain certificates. He receives certificates from the ALOs, and rarely contacts the agencies themselves. Agencies only approach Terry, who is also a property manager, if they are a few weeks away from opening and they need building maintenance completed. Terry uses either email or letters to request certificates. If he knows that the OoH already has documentation showing the compliance of the facility's fire safety system, he will let the agency know, so they will not have to look for the same information. The certificates are recorded in his database and kept in a property file, along with other types of certificates and permits received from the agencies. He has files on every facility except public housing. The OoH has this information. Annual re-certification of the facilities does not change every year, unless their services change. Terry constantly reviews the status of the facilities for any changes.

Terry currently reports his region's compliance statistics to the CMB, along with fire and false alarm reports. He only reports on facilities in his region. Other regions are the lead on some of the facilities in the Barwon region, so they provide the certificates to Terry and he reports on them. In his database, he records property information and what certificates and permits are required for each region. He said his database his rather large and he should trim it down. Terry also records the exclusions noted on returned certificates. He said that partially signed certificates are only partially compliant. Even when the certificates are fully signed an engineer may have never conducted the proper assessments. When Terry reports to the CMB, he makes notes of all exclusions. Terry makes note of extenuating circumstances when he judges compliance. One hospital would not sign a certificate because the Department was supposed to provide funding for upgrades. At the time, the Department did not have the money, so the upgrades could not be carried out. Even though technically they were not compliant, Terry considered them compliant because they had a plan in place for the upgrades.

Terry had several issues to discuss. He explained that many specifications for buildings in his region are outlined by the central office in Melbourne. However, they are not the same specifications issued by the regional office. For example, fire hydrants in the region only have connectors to city fire brigade trucks and they do not fit local trucks. Terry wants standardised requirements so this does not happen anymore. There are also many design issues when new facilities are built. Sprinkler system control boxes are sometimes installed in a backyard, where it is inaccessible. Fire hydrants are placed too far away for firefighters to use them. Terry suggests that fire safety engineers should be involved in these installations instead of unqualified people.

The Department does not provide adequate information on what is data required from the facilities. Some of the facilities do not fit into the flowchart, so the proper certificate cannot

be assigned. Terry would also like to see centralised directions coming out to the regions. If the Department responds to an issue brought up by a single region, they should provide the solution to all other regions, so everyone is on the same page.

VI. Vincent Duffy – Grampians Region

At the start of a Service Agreement or when a change occurs in an agency, Vincent relies on the ALOs to give him the proper information. To increase the effectiveness of ALOs, the Grampians Region held a training day to train all the ALOs on fire risk compliance and their responsibilities. Now, Vincent will give the ALOs reminders on the procedures when necessary. He communicates directly to the agency at times such as when a new property is purchased, where the CEO of the agency will often call Vincent to figure out the fire safety requirements. The ALO still obtains the certificates from the agencies, enters them into SAMS, and sends them to Vincent. The certificates are also recorded in the region's Document Registry. Properties that do not require certificates are still recorded by the regional office, if they are departmentally owned or operated. However, no records are kept on the buildings that are NGO owned. Vincent receives copies of certificates from other FRM Coordinators who are the lead region for properties in his region. He reports to CMB on buildings in his geographical region.

When an agency has some kind of dispute as to whether or not they are compliant, they might not sign the certificate or they might sign it with exclusions attached. Vincent considers a certificate with exclusions to be compliant if the exclusions are somewhat insignificant, but determines this on a case-by-case basis. If a certificate is returned with exclusions, Vincent records them separate from any database. When an agency does not return a certificate, nothing is done apart from continuously following up to request it from them. After the first

year an agency signs a certificate, they gain a greater understanding of what is required of them, making the process easier each successive year.

According to Vincent, a very important issue is to enhance the ALOs' and the agencies' understanding of fire safety compliance. Their awareness improves the return of their certificates. Another issue is finding out who has the authority to sign a certificate. Often, those who have the knowledge of the systems do not have the authority to sign-off on the certificate, and those who do have the authority to sign do not have the knowledge of the system or the ability to delegate the signing. Furthermore, instead of having a certificate for just fire compliance, he believes that we should include the essential services as well. With regards to reporting to CMB, the regions need a standard definition of what makes a building compliant as far as whether or not exceptions are permitted. He also believes that we need to have a core of information for the regions, but says that there may need to be different ways of viewing or editing information based on the user's preferences. The rest of the issues are included in Sharon Grant's matrix of fire risk management issues and Vincent suggested that we refer to that.

The Grampians Region had a web-based fire risk database developed to store the necessary fire safety compliance data and to store property information and generate reports. Their database is on the Melbourne server and was designed such that any other regions can use it for the same purposes. Specifically, the fire risk database has sections for fire safety compliance, essential services, lease agreements, and operational readiness. The Grampians Region has other databases for maintenance, which is linked to this fire risk system, and for fire incident reports. Vincent said it would be useful to have the information all in the same database. The fire risk system generates reports for status, equity, compliance, properties, valuations, and agreements. Currently, the database is used for all programs, but most programs with the exception of disability services have missing information. The database has

different levels of access, where a user has read-only privileges and an administrator can edit information. The database allows agencies to fill out the weekly Checklist 2.7. Vince noted that evacuation plans could be included in the database and could merge well with the FIS at CMB.

VII. Joanne Fulton – Eastern Metropolitan Region

Joanne explained that she meets with a steering committee, consisting of managers and ALOs, every two months. This is successful because Joanne works directly with the programs instead of being a level up from them. She works in housing primary complex care as opposed to corporate services like the other FRM Coordinators. These meetings update her on any changes in existing or proposed properties. If an agency requires change or possesses new properties, Joanne and her manager will sit down with the ALO and go through all affected properties to make appropriate changes to the Service Agreement.

Unlike most regions, Joanne actually collects the certificates from either the agency itself or the ALO. When she obtains the certificate, she discusses it with the ALO to make sure all information is accurate. If she has any issues with documents, she normally speaks with the agency directly. Certificates and all other information are filed by agency name in her office.

One of the main problems with reporting is that agencies are constantly filling out the wrong certificate. Agencies may not even turn in a certificate at all because they know that the Department will not penalise them. Several agencies have started sending them in with exclusions, but Joanne does not consider this compliant. However, she reports to the Department that these agencies are in fact compliant. Joanne's database only includes agencies where certificates are required. Exclusions are only noted as A, B or C (operational readiness, building maintenance or building compliance) on the actual external certificates 3,

4, 5 and 6. Re-audits are to be conducted every three years, but some of her buildings have passed the deadline by up to 2 years.

Joanne reports to the Department on the buildings that are geographically in her region, but feels there is much confusion with this "counting rule", where some regions report on facilities that are not located in their actual region but are still considered responsible for them.

Other issues discussed included the listing of exclusions for works in progress or have the new buildings supply certificates as upgrades are performed. Joanne also dislikes that buildings do not sufficiently comply with the "operational readiness" aspects of the certificates (i.e. escape plans), but indicate that they are compliant. She also explained that the current flowchart does not account for certain anomalies when judging the appropriate certificate requirements for the facilities. For example, a certain guideline requires that doors must not have locks on them to ensure escape in the event of a fire. However, the facility houses clients that may abscond at any time. Without locks, these clients could then escape and possibly become injured. It is unclear how to determine what guidelines are appropriate for each individual facility.

The annual Form 15 depends in part on an occupancy permit, and if the permit cannot be found, the Form 15 cannot be completed. If the Form 15 cannot be completed, the compliance certificate indicates that the building is considered non-compliant. To hire an auditor and generate another permit, the facility must pay approximately $1500. Instead of paying for an expensive replacement, Joanne uses Sharon Grant's proxy form for Form 15. This form helps the agency record some compliance information on the facility. Although the document itself does not legally replace Form 15, it does provide information that proves compliance in some aspects of the real form. This is certainly better than providing no information at all.

Joanne wanted to know who would be able to provide information in the proposed centralised database. Specifically, she wants information on how much money each agency has been allotted in order to decide if upgrades are worth the expense. She also wants the percentage of ownership the Department has of each facility.

VIII. Casey Binns – Loddon Mallee Region

For the most part, Casey handles Disability and Placement/Support facilities and he usually hears about new Service Agreements by accident. There is no protocol currently in place to notify the regional office of a new facility. However, there are times when the Project Control Group, which is responsible for developing new properties, may contact Casey about new developments. The certificate collection in this region differs from the others in that Casey has been collecting certificates himself, rather than depending on the ALOs. In the future, ALOs will begin collecting certificates and returning them to Casey.

Unsigned certificates are due to the agency contacts' lack of understanding of the Service Agreements or inability to conduct the proper upgrades. Casey feels that some agencies are not funded enough, the certificates are inflexible and the requirements are too burdensome. For example, it may not be logical for an old building to demonstrate compliance to the electric safety standard AS3000. The building is still considered safe and it may be expensive to upgrade it. He considers partial compliance to be non-compliant, but since certificates are returned as either fully compliant or not compliant, he is not sure whether partial compliance would be reported to the Department. Casey believes that the agencies care enough about its clients and they will eventually return a certificate. To help improve the certificate return rate, Casey and the ALOs will set earlier due dates than the real dates specified on the actual document.

Essential Services and fire-safety compliance are closely related and Casey believes that getting the agencies to understand their responsibilities for Essential Services is essential. He would like to have a conference with the agencies, outlining the relationship between these two areas of compliance. According to the Capital Development Guidelines, an agency cannot be fire-safety compliant if they do not meet specific requirements for Essential Services.

Casey felt that agencies did not adequately prove their compliance to the appropriate guidelines. To address this issue, he provides a "compliance register" to the facilities so they may keep all permits, records of upgrades and inspections and other audits in one location. This makes all relevant information easy to find when the agency contact must sign the certificate.

IX. Jon Jones – Hume Region

To Jon's knowledge, very few "new" arrangements are made with previously non-registered funded agencies. The guidelines specified in the Service Agreements apply to different building and service types. Jon formally requests information and updates from all regional programs and funded agencies that have property management responsibilities to determine compliance requirements. He requests and sends all relevant information and paperwork available to facilitate signoff. Communication is provided through the Regional Fire Safety Steering Committee and applicable ALO.

Certificates may not be returned to a number of reasons. The fire safety equipment may not be installed at a facility. Sometimes the triennial audits are not undertaken and the facility does not receive the correct permits. If the audits are conducted, the facility may refuse to complete the recommended rectification works. Jon explained that many agencies have difficulties meeting operational readiness standards or lack the correct documentation for

signoff. Some agencies do sign off with exclusions and these are recorded in both his database and SAMS. Jon must continuously follow up with agencies that do not renew their certificate.

Jon currently reports the quarterly compliance certificate returns with exclusions, incident reports, false alarm reports and other property data to the Department. Using MS Excel and MS Access databases, he stores all FRM Strategy and property related information. He also maintains a list of all agencies and buildings in the region with the information provided by the Agency Funding & Evaluation Unit, SAMS and Service Agreements.

Jon believes that the requirements set forth by the FRM Strategy guidelines are too stringent and may be too tough for some facilities to comply to. He also explained that the agencies do not have a good understanding of the Service Agreements and the certificates. Jon liked the idea of tiered certificates and a rating system to improve the clarity of certificates and to better allow for partial compliance.

Appendix L: FRM Coordinator Survey

Standardising Fire Safety Compliance Data Presentation
April 2003

About the Students

We are three engineering students from Worcester Polytechnic Institute (WPI), located in Worcester, MA, USA. The project we have undertaken is part of a global program offered by our university. As part of the graduation requirements, students are required to complete an Interactive Qualifying Project (IQP) that challenges students to identify, investigate, and report on a topic examining how science or technology interacts with societal structures and values.

Request for Feedback

We have made several preliminary proposals to handle the issues raised by the FRM Coordinators and the DHS. We now would like to hear your thoughts on these ideas, so we can get an idea of the feasibility of the proposed system. The next page contains open-ended questions about each proposal, followed by an assessment of the proposed database structure. Please take the time to fill out each section completely, since our final proposal will be shaped around your feedback.

Contact Information

Our project is to be completed by 29 April. Until then, we are available for any further questions or concerns. Below are our email addresses (located in the DHS directory) and our phone numbers. We may also be reached by fax to Judith Hemsworth at the number listed below.

Jeff Simpson
Jeff.simpson@dhs.vic.gov.au

Mitch Lauer
Mitch.lauer@dhs.vic.gov.au

Daniel DeBiasio
Daniel.debiasio@dhs.vic.gov.au

We can be reached Monday through Friday at DHS headquarters:

Phone: 03 9616 2098
Fax: 03 9616 2066

Thank you for completing this review. We look forward to your comments and suggestions.

For each proposal, consider the following questions: Do you think this idea is feasible? What do you like about this idea? Dislike? If applicable, what aspects could be improved? Please add any other comments as necessary.

Proposal 1 – Enforce compliance

Proposal 2 – Encourage ALO and Agency Training

Proposal 3 – Create a Standard Compliance Register

Proposal 4 – Improve Certificates

Proposal 5 – Create a Central Database

In addition to the general comments on the use of a central database, we would also like to ask about what information will need to be included in the database. Listed below in several sections is the information we have initially included in the database design. Please take the time to go through each of these sections and mark down in the Yes or No columns whether or not the field should be included. Please do not tick the no box simply because you are not currently using the field. For any field which you feel should not be included, please let us know why, as well as let us know about any fields that should be added to each section.

Database Fields

Building Address	**Y**	**N**
Building Name		
Street Number		
Street Name		
City/Town		
Suburb		
Post Code		
DHS Region: The geographical region that the building is located in		
Comments:		

Building Details	**Y**	**N**
Building Class		
Building Code		
OoH PIN: The ISIP PIN for the Office of Housing database		
Storeys		
Number of Beds		
Year Built		
Status: Includes status such as Occupied, Vacant, Sold, Demolished		
File Number: File number for property information stored at the region		
Number of Rooms		
Land Ownership: DHS Owned, Agency Owned, or Crown		
Comment: Property comment field, for further information		
Comments:		

Contacts	Y	N
First Name		
Last Name		
Telephone Number		
Fax Number		
Street Number		
Street Name		
City / Town		
Suburb		
Post Code		
Contact Type: *This identifies the relationship or title of the contact (example: CEO of Agency, Maintainer of building, Lead Negotiator)*		
Comments		

Essential Services.	Y	N
Service Type: The type of service installed. A list is shown in another section		
Installed: This is a logical true or false to identify if the system is in place		
Equipment Type: This field contains a description of the equipment installed		
Last Maintained Date: The date this service was last maintained		
Training Date: If applicable, the training date for the staff on the equipment		
Comment: A comment on the essential service, which may include a status of works in progress		
Comments:		

Documents *Note: Documents are listed in such a way as to allow for additional document types to be included without major changes*	Y	N
Document Name: This field contains the name of the document recorded. A list of the documents is shown in a separate section.		
Required: In the case of compliance certificates, this field is used to identify a required document		
Date Received: This field contains the date that the certificate was received.		
Notes: Any comments on the document, which may include exclusions, in the case of compliance certificates		
Comments:		

Agency	Y	N
Agency Name		
Contact List (ID): A list of contact information for individuals relating to the agency (i.e., Agency Liaison Officer, CEO of Agency, etc)		
Facility List (ID): A list of facilities associated with the agency (may be only one)		
Lead Region: The region responsible for negotiations with the agency		
Comments:		

Program	Y	N
Program Name		
Sub Program		
Service Type: The type of service that the program provides		
Contact List (ID): A list of contact information for individuals relating to the program		
Facility List (ID): A list of facilities associated with the program		
Comments:		

Service Types	Y	N
Air conditioning systems		
Emergency lifts		
Emergency lighting		
Emergency power supply		
Emergency warning and intercommunication systems		
Exit doors		
Exit signs		
Fire brigade connections		
Fire control centres		
Fire control panels		
Fire curtains		
Fire dampers		
Fire detectors and alarm systems		
Fire doors (including signs)		
Fire extinguishers (portable)		
Fire hose reels		
Fire hydrants		
Fire indices for materials		
Fire isolated lift shafts		
Fire isolated passageways		
Fire isolated ramps		
Fire isolated stairs		
Fire mains		
Fire protective coverings		
Fire rated access panels		
Fire rated control joints		
Fire rated materials applied to building elements		
Fire resisting shafts		
Fire resisting structures		
Fire shutters		
Fire windows		
Lightweight construction		
Mechanical ventilation systems		
Paths of travel to exits		
Penetration in fire-rated structures		
Smoke alarms		
Smoke control measures		
Smoke doors		
Smoke vents		
Sprinkler systems		
Stairwell pressurisation systems		
Static water storage		
Vehicular access for large isolated buildings		
Warning systems associated with lifts (including signs)		
Comments:		

Comments (cont.):

Document Names	Y	N
Fire Safety Compliance Certificate 3		
Fire Safety Compliance Certificate 4		
Fire Safety Compliance Certificate 5		
Fire Safety Compliance Certificate 6		
Fire Safety Compliance Certificate 7.1		
Building Permit		
Occupancy Permit		
Certificate of Final Inspection		
Plumbing Industry Board Certificate of Compliance		
Electrical Safety Certificate		
Fire Safety Audit		
Form 15		
Sprinkler Permit		
Essential Services Determination		
Essential Services Declaration		
Comments:		

Facility	Y	N
Facility Name		
Agency: The agency which owns and/or operates the facility		
Contact List (ID): A list of contact information for individuals relating to the facility		
Building List (ID): A list of buildings associated with the facility (may be only one)		
Program (ID): The program that the facility operates under		
Comments:		

Appendix M: Business Case

Fire Safety Compliance Data

Business Case

This Business Case Proposal was prepared by Dan DeBiasio, Mitch Lauer, and Jeff Simpson as part of an Interactive Qualifying Project with Worcester Polytechnic Institute. The underlying research behind this proposal is on file at the Capital Management Branch of the Department of Human Services (TRIM Record ADF/02/11112).

Authorised by the State Government of Victoria, 589 Collins, Melbourne.

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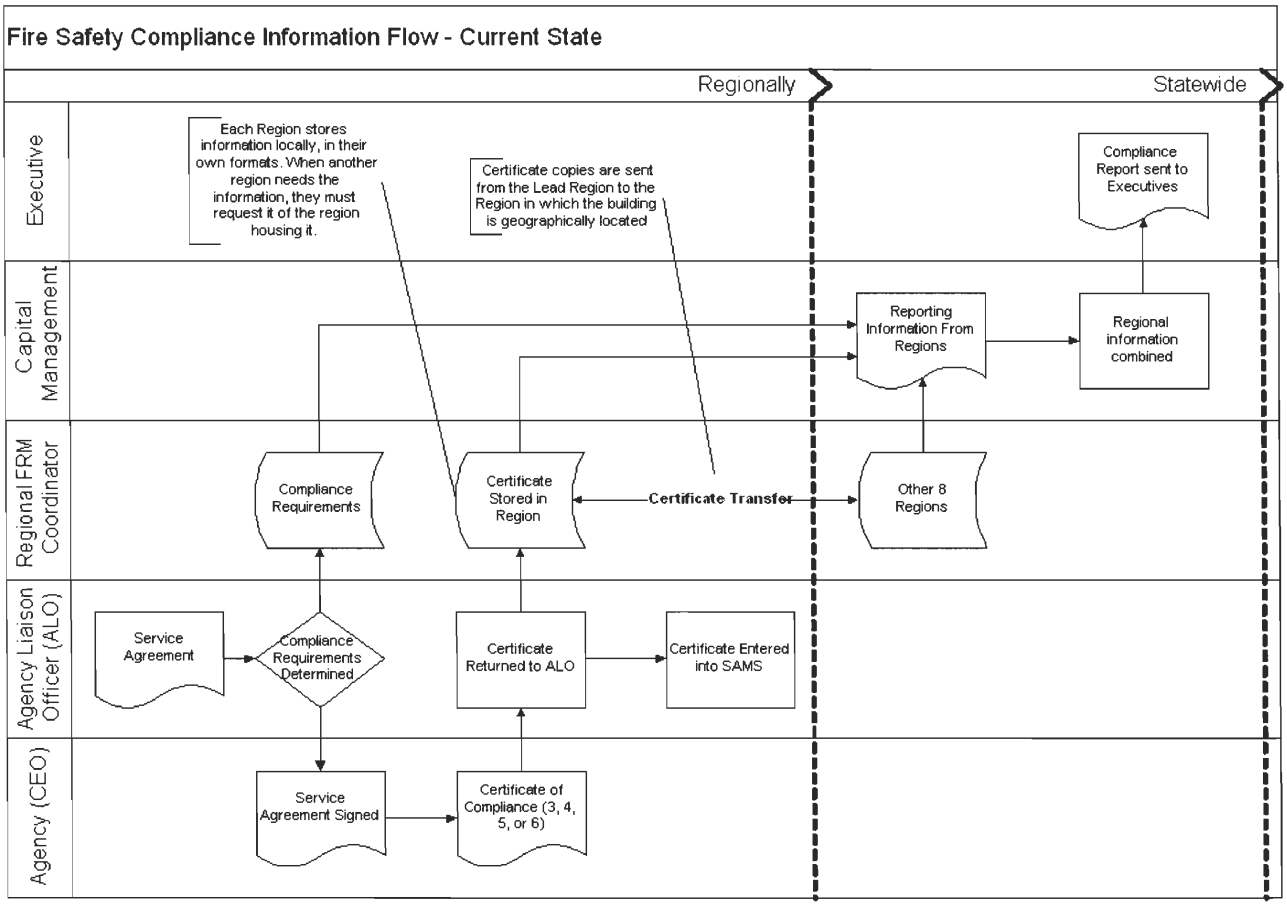
Project Name

Standardising Fire Safety Compliance Data

Background

This project was developed to address issues with fire safety compliance data communication. Background research has been done into other organisations that have undertaken a similar data restructuring, as well as into companies whose job it is to perform these reorganisations. Interviews were conducted with the nine regional Fire Risk Management Coordinators to determine what the regional issues were, as well as to determine what processes and data were being used. The process used for the communication of data can easily be seen in the flowchart of the current state below:

Figure 4: Current State



The following issues were determined as a result of these interviews:

Data storage and retrieval: Data is stored inconsistently between regions, resulting in problems with redundancy, errors and information access. The current communication flow is illustrated with a flowchart in the next section.

Compliance certificate returns: Regions have difficulty getting certificates back from agencies for a number of reasons. Agencies that are not compliant cannot sign the certificates. Agencies that are partially compliant attach exclusion lists to the certificates. Some agencies do not fully understand

the certificates and are not comfortable signing them.

Capital Management Branch reporting: The methods used in reporting may not accurately portray the risk in each region. Partially compliant buildings are reported compliant by some and non-compliant by others, resulting in inconsistently reported percentages.

Option Identification

After analysing the data obtained in the interviews, a detailed list of issues with the current system was created. To address these issues, a set of proposed solutions was created, each addressing one or more issues in a different way. The deliverable of this project is a recommendation for the Department on how to improve the communication of fire safety data. The recommendation is comprised of the individual solutions and an overall communication strategy.

Enforce Compliance

Enforcement of certificate returns is highly suggested because some agencies do not understand the certificates' importance and simply refuse to submit them. They know the Department will not penalise them if they do not sign and return certificates. Enforcement options are limited due to the Department's responsibility to the community and the nature of services provided. However, non-compliant agencies can be handled internally. The FRM Coordinators can make a list of all non-compliant agencies and provide them to the DHS executives in the annual compliance report. Since some agencies have valid reasons for non-compliance, the reports should distinguish between these agencies and those that are not cooperative. The agency representatives or CEOs should be informed of this proposal before its potential implementation to allow them sufficient time to resolve their non-compliances before they are reported.

Encourage Training for ALOs and Agencies

The ALOs are responsible for explaining the FRM Strategy guidelines and Service Agreements. These standards outlined by those documents are so technically focused that the ALOs themselves have difficulty clarifying some details for the agencies. The Department can provide the ALOs with education on such topics as Service Agreements, certificates, FRM Strategy guidelines and other issues as needed. Attendance would not be mandatory, but it should be highly encouraged. Since the FRM Coordinators are very familiar with the topics listed above and are frequently in contact with the ALOs, they should be considered the prime candidates for teaching these seminars. This also would allow each coordinator to modify the curriculum to meet his needs given the specific interactions with the ALOs in his region.

The instruction should take the form of an initial seminar in each region, followed by regular meetings between the FRM Coordinator and the ALOs. There should be a standard curriculum for the seminars that would include, for example, the Service Agreement Information Kit, the certificates and another set of instructions that they are expected to teach to the agency representatives. The follow up meetings should be scheduled annually or biennially, and would ensure the continued practice of correct procedures.

Implement a Standard Compliance Register

Some agencies have difficulties keeping track of all permits and documentation associated with building compliance. This proof is required to correctly sign the compliance certificates. A register should be provided to every building to store all of the appropriate documents. This register would be custom-made to the building's particular requirements. An index should be provided on the cover, listing all of the documents enclosed in the folder. All documents, including occupancy permits, proof of upgrades, fire-safety certificates, Form 15, and any other fire safety or Essential Services required documents

would be placed in this register. Forms should be developed and included to assist persons responsible in carrying out scheduled maintenance activities, keeping contact lists and conducting other activities required of the building personnel. The register should be maintained in a secure location where clients cannot have access to it, such as a staff member's office.

This concept has been proven successful in the Loddon Mallee region and in the Aged Care facilities. Casey Binns, the FRM Coordinator of Loddon Mallee, implemented such a register in his region and anticipates complete compliance from many buildings as a result. The Aged Care Kit for the Commonwealth Certification of Nursing Homes helped most Aged Care facilities meet or exceed their appropriate compliance objectives; this is discussed in the Related Initiatives and Interdependencies section.

Improve Certificates and Reporting Methods

The current layout of the fire-safety compliance certificates does not provide adequate risk assessments to the Department. Agencies only sign the certificate if they are compliant, otherwise they are considered non-compliant. As a result, the compliance reports only show how many certificates are required in the region and how many have actually been returned, as displayed below in Table 1.

Table 7: Current Reporting Format

Region	Certificates Required	Certificates Received	%
Region A	34	33	97
Region B	34	20	59

The statistics vary greatly between the example regions, but the causes for this are not clear with this reporting scheme. The difference in the third column is due to Region A considering a partially completed certificate as received, while Region B considers it not received. Even though both regions effectively have the same level of compliance, they both report different percentages.

The following design alternatives better explain how compliant facilities are and also recognize a facility's efforts in achieving their compliance objectives.

Record All Exclusions

At times, the compliance reports vary drastically between regions since some regions consider partial certificates as fully compliant while others do not. A simple solution would be to have all regions record how many certificates were returned with exclusions. Table 8 below shows an example layout.

Table 8: Recording Exclusions in Compliance Report

Region	Certificates Required	Returned Compliant	Returned with Exclusions	Total Percentage Fully Compliant	Partially Compliant
Region A	34	33	13	59	97
Region B	34	20	13	59	97

This new format shows how many agencies returned fully compliant and partially compliant certificates. The statistics for both regions are identical in this case, since partially compliant certificates are reported separately. As a result, the Department can achieve a better understanding of how many facilities are fully and only partially compliant. Additionally, this method prevents the regional FRM Coordinator from having to determine if the building is compliant for reporting purposes. This alternative, however, does not explain the reasons for partial compliance.

Tiered Certificates

A signature on a compliance certificate means that the agency complies with every guideline that is listed. Usually, agencies are only able to comply with most of the standards, but they technically cannot sign off because they do not comply with all of them. To solve this issue, Sharon Grant, the FRM Coordinator of the Gippsland Region, suggested a tiered certificate in which the standards were separated into three separate compliance categories: operational readiness, building maintenance, and Series 7 compliance. Each section can then describe in more detail what guidelines the agency must follow. Also, instead of having one signoff for the certificate, the agency representatives can signoff on each section as they meet the specific requirements. This would at least allow the agencies to show a level of compliance and help narrow down where issues still exist. To prove compliance, all supporting documentation should be provided to the ALOs. The FRM Coordinators may now report a percentage of how many agencies comply with each of the three sections. An average of these percentages could represent the compliance level for the region. An example of this reporting format is shown in Table 9 below.

Table 9: Tiered Certificate Reporting

Region	Certificates Required	Building Compliance		Operational Readiness		Building Maintenance		Total %
		Number	%	Number	%	Number	%	
Region A	34	33	97	20	59	22	65	74
Region B	34	32	94	20	59	33	97	83

In this example, the same two regions are used to model the reporting method. In both Region A and Region B, thirteen certificates are returned that are only partially compliant. The certificates for Region B are more complete than Region A, and thus shows a higher compliance percentage overall.

Though this format better illustrates the areas in which the facilities meet the specified standards, it still does not differentiate between high-risk and low-risk facilities. The Department would not know if the non-compliant sections are being attended to.

Rating System

The third option would be to include a rating system on the tiered compliance certificates. The agency representative would measure the agency's compliance to the three sections of the certificate and what efforts are being made to address issues of non-compliance. This will be done using a different scale for each of the three sections. Again, the ALOs should check for documentation that supports these assessments. The FRM Coordinator would report both the agencies' average score on each of the three sections and either an average of these scores or a sum, as displayed in Table 10. An example scale for measuring Series 7 compliance is illustrated in Table 11.

Table 10: Tiered Certificate and Rating System Reporting

Region	Regional Average Building Compliance	Operational Readiness	Maintenance	Average	Total Percentage
Region A	3.3	3.9	3.1	3.43	69%
Region B	4.4	4.2	2.8	3.80	76%

Table 11: Example Scale

Example: Series 7 Compliance Scale
5 = Fully Compliant
4 = Any upgrades are completed, but paperwork not yet complete
3 = Upgrades currently underway
2 = Upgrades identified and scheduled to take place
1 = Upgrades identified, but not yet scheduled
0 = Non-compliant

In this example, Region B scored higher overall in both building compliance and operational readiness, however Region A scored marginally higher in the maintenance section. The overall results of compliance can be reported as either an average of the three sections or as a weighted average, where one of the sections will be scored with a higher value than another.

An FRM Coordinator could use an agency's average score to gauge its risk level. The number range defined in the sections' rating system could be divided into low, medium and high-risk levels and if this high level is reached, the FRM Coordinator should take corrective measures against the low-scoring agency. The same scale can be used by the Department to measure the region's average risk level.

Create a Centralised Database

In order to address the issues with data storage, a centralised database needs to be created. This database will include property and fire risk management data as determined by the interviews with the fire risk management coordinators in each of the regions.

The database software chosen must allow the system to be remotely accessed by all of the regions, either by a client-server software package or through a web interface. This single centralised access solves the problem with the duplication of data, as it would allow information on a particular building to reside in only a single location.

The data structure for this database includes all of the fields to be included as well as a layout for how they are linked. The structure for the database and the fields to be included appear in the following sections.

Data Structure

The database is designed so that it may be easily extended to a larger system. Each table operates independently and is linked to prevent data duplication within the database.

At the building level, each building is associated with a **Building Address** table and a **Building Details** table. Additionally, each building is associated with a list of **Facilities** operating within it, or that it is contained within, a list of **Essential Services**, **Contacts,** and **Documents.**

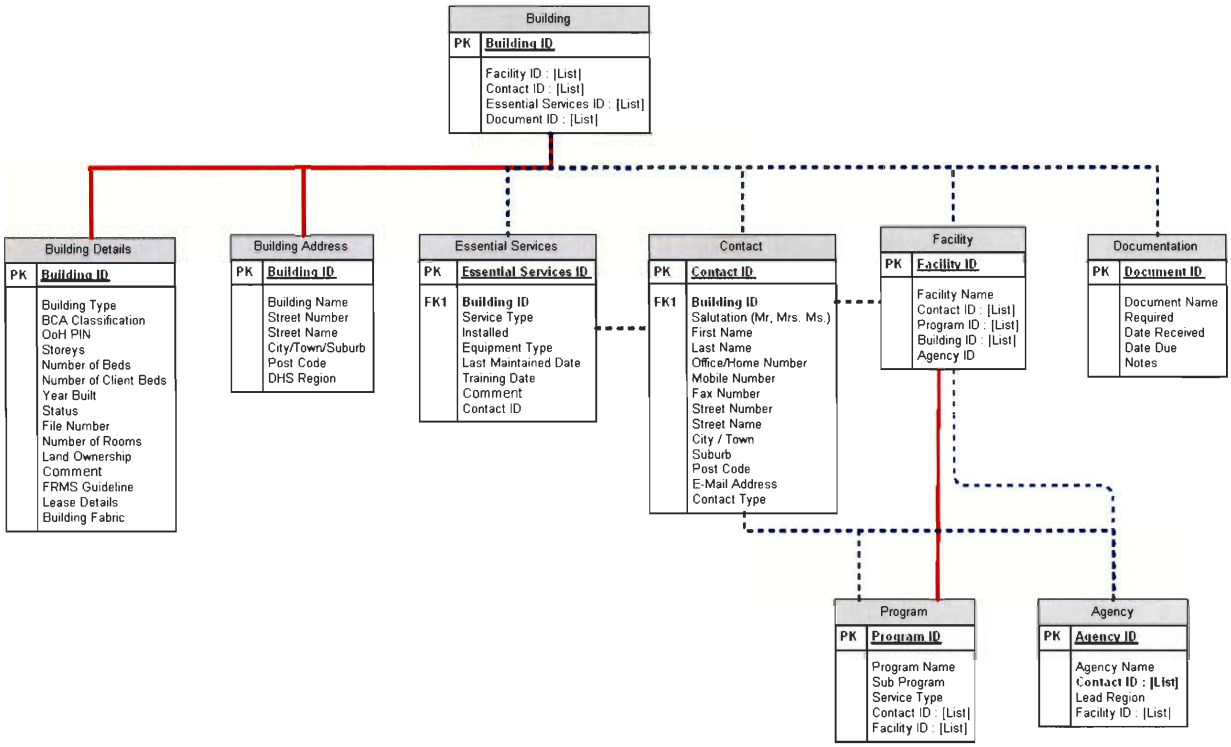
At the facility level, each facility is associated with a list of **Buildings** and **Contacts**. It is also associated with a facility name, in the event that the facility name is different than the building name. Provisions to allow facilities that contain a single building to be automatically named for that building may be optionally included. Additionally, a **Program** and **Agency** is associated with the facility for further information.

At the agency level, each agency is associated with an **Agency Name** and a **Lead Region** association. Additionally, each agency has a list of **Contacts** and **Facilities** associated.

At the program level, each program is given a **Program Name** and **Sub-Program Name** for identification purposes. The **Service Type** that the particular program provides is also included. Finally, a list of **Contacts** and **Facilities** is also included.

A structure for the database is included as Figure 5, outlining the links between tables and the fields associated with each table. The solid red lines represent one to one correspondence of data, while the blue dotted lines represent one to many or many to many relationship (lists of data).

Figure 5: Database Structure



Building Address

As each of the fire risk management coordinators act as a property manager for their region, particular fields relating to individual building information must be included. The Building Address table contains multiple fields which describe the location of the building.

Address: The address of the building, including the street name and number, city or town name, suburb, if applicable, and post code. A state field may also be included, which will default to Victoria, but remain included for future use.

Building Name: An identifying name for the building, often named by the service provided in it.

DHS Region: The geographical region that the building is located in, as defined by the DHS.

Building Details

Information about the building itself that is moderately static and does not qualify as address information is included in the building details table.

BCA Class: The building class as defined by the Building Code of Australia

Building Type: A DHS-specific code which represents the type of service provided in the building.

OoH PIN: The identification number for the Office of Housing's database, Information Systems for Integrated Processing, if it applies.

Storeys: The number of storeys in the building.

Number of Beds / Number of Client Beds: The number of beds in the building and the number of beds intended for use by a client.

Year Built: The year the building was built.

Status: The status of the building, which could include occupied, vacant, sold, demolished, or others.

File Number: The file number where information about the building is physically stored at the region. This may be a number for multiple files.

FRMS Guidelines: The DHS Fire Risk Management Guidelines that the building falls under. This also determines which Fire Safety Compliance Certificate must be used.

Lease Details: Information about the lease of a building, if applicable.

Building Fabric: Additional comments relating to the fabric of the building.

Number of Rooms: The number of rooms in the building.

Land Ownership: The organisation which owns the land, which could be DHS, Agency, or Crown.

Comments: Additional information on the property.

Contacts

Each contact will contain fields with information about the person and their title. Lists of contacts are linked from various sections, including essential services, documentation, building details, and agency. Examples of contact types include Maintenance Contractors, Agency Liaison Officers, and Agency Representatives.

Salutation, First Name, Last Name: The name of the contact and how they should be addressed.

Office/Home/Mobile/Fax Number: A telephone number at which they can be reached

Street Number/Street Name/City/Town/Suburb: The address of the contact person.

Email Address: An electronic mail address for the contact.

Contact Type: A designator referring to the type of contact the person is and for what reasons they would be contacted.

Essential Services

A record in the essential services table contains information about one service for one building. A collection of these tables is associated with each facility.

Service Type: The name of the service type, such as sprinkler system, smoke detection, or others.

Installed: This field is a logical yes/no which defines whether or not the service is installed and operational. When information about a service that is required or scheduled to be installed is obtained, the essential services record is created, but not set as installed.

Equipment Type: The brand and model of the equipment installed.

Last Maintained Date: This field contains the last date that the equipment was maintained. This field may be further developed into a maintenance database containing all relevant information.

Training Date: The date that training for the service was last held at the building.

Comment: Comments on the service, such as a status and any information which did not fit into another field.

Documents

A record in the documents table contains information about a single document on a single building. Each building will reference a list of records in the documents table corresponding to the documents recorded.

Document Name: The name of the document, picked from a static list of available documents or added in manually. This can contain documents such as certificates, permits, and floor plans.

Required: This field is used to define a document as required, such as in the case of a certificate or permit.

Date Received: This is the date that the document was received. Since the documents are in a list, annual certificates and other repeating documents are continuously added, and older documents will not show up in the list by default, but will remain on file.

Notes: Any notes about a particular document. In the case of a compliance certificate, this field could include any exclusions that are noted on the certificate.

Agency

A record in the agency table includes particular fields about that agency. In the list of contacts associated with the agency are generally an ALO, an Agency representative, and the Lead Negotiator.

Agency Name: The name of the agency.

Lead Region: The DHS Region that is responsible for negotiations with the agency.

Program

Each building has a particular program operating within it, so a table of programs exists to prevent duplication of data. This table contains information about the program.

Program Name: The name of the program

Sub-Program: A subdivision of the program, if applicable.

Service Type: The type of service provided by the program.

Document List

In the documents table, the field for document name can be selected from a list of available document types. The initial list of documents required for fire risk management is illustrated in Table 12: List of Document Names.

Table 12: List of Document Names

Document List
Fire Safety Compliance Certificate 3
Fire Safety Compliance Certificate 4
Fire Safety Compliance Certificate 5
Fire Safety Compliance Certificate 6
Fire Safety Compliance Certificate 7.1
Building Permit
Occupancy Permit
Certificate of Final Inspection
Plumbing Industry Board Certificate of Compliance
Electrical Safety Certificate
Fire Safety Audit
Form 15
Sprinkler Permit
Essential Services Determination
Essential Services Declaration
Weekly Checklists
Fire drill reports
OH&S Inspection Checklists
Fire Safety Exemptions
Fire Incident Reports
False Alarm Reports
Property Handover Document
Fire Safety Plan
Copy of Title

Essential Services List

In the essential services table, the service type field can be selected from a list of known service types. The initial list of service types used for fire risk management and maintenance of essential services is illustrated in Table 13: List of Essential Services.

Table 13: List of Essential Services

Essential Services List
Air conditioning systems
Emergency lifts
Emergency lighting
Emergency power supply
Emergency warning and intercommunication systems
Exit doors
Exit signs
Fire brigade connections
Fire control centres
Fire control panels
Fire curtains

Fire dampers
Fire detectors and alarm systems
Fire doors (including signs)
Fire extinguishers (portable)
Fire hose reels
Fire hydrants
Fire indices for materials
Fire isolated lift shafts
Fire isolated passageways
Fire isolated ramps
Fire isolated stairs
Fire mains
Fire protective coverings
Fire rated access panels
Fire rated control joints
Fire rated materials applied to building elements
Fire resisting shafts
Fire resisting structures
Fire shutters
Fire windows
Lightweight construction
Mechanical ventilation systems
Paths of travel to exits
Penetration in fire-rated structures
Smoke alarms
Smoke control measures
Smoke doors
Smoke vents
Sprinkler systems
Stairwell pressurisation systems
Static water storage
Vehicular access for large isolated buildings
Warning systems associated with lifts (including signs)

Communication Strategy

In implementing any or all of the five proposed solutions, changes must be made to the overall communication plan within the department. These changes represent a reduction in excess communication, and an increase in the efficiency of communication as well as the accessibility of information. This proposed change in the communication strategy is identified in each of the levels, and an overview can be referenced as a flowchart of the current system and proposed systems in Figure 6 and Figure 7.

Figure 6: Current System

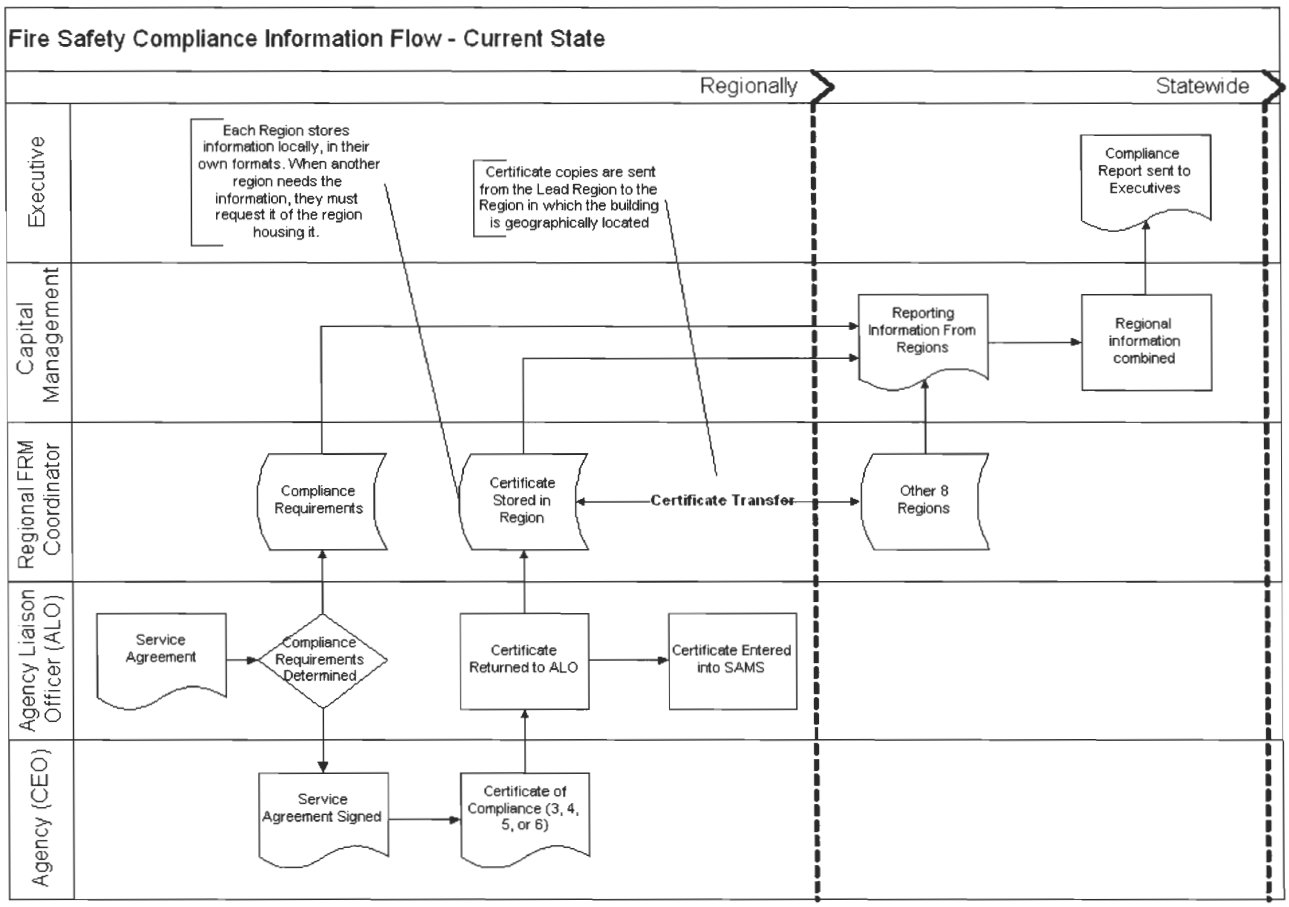
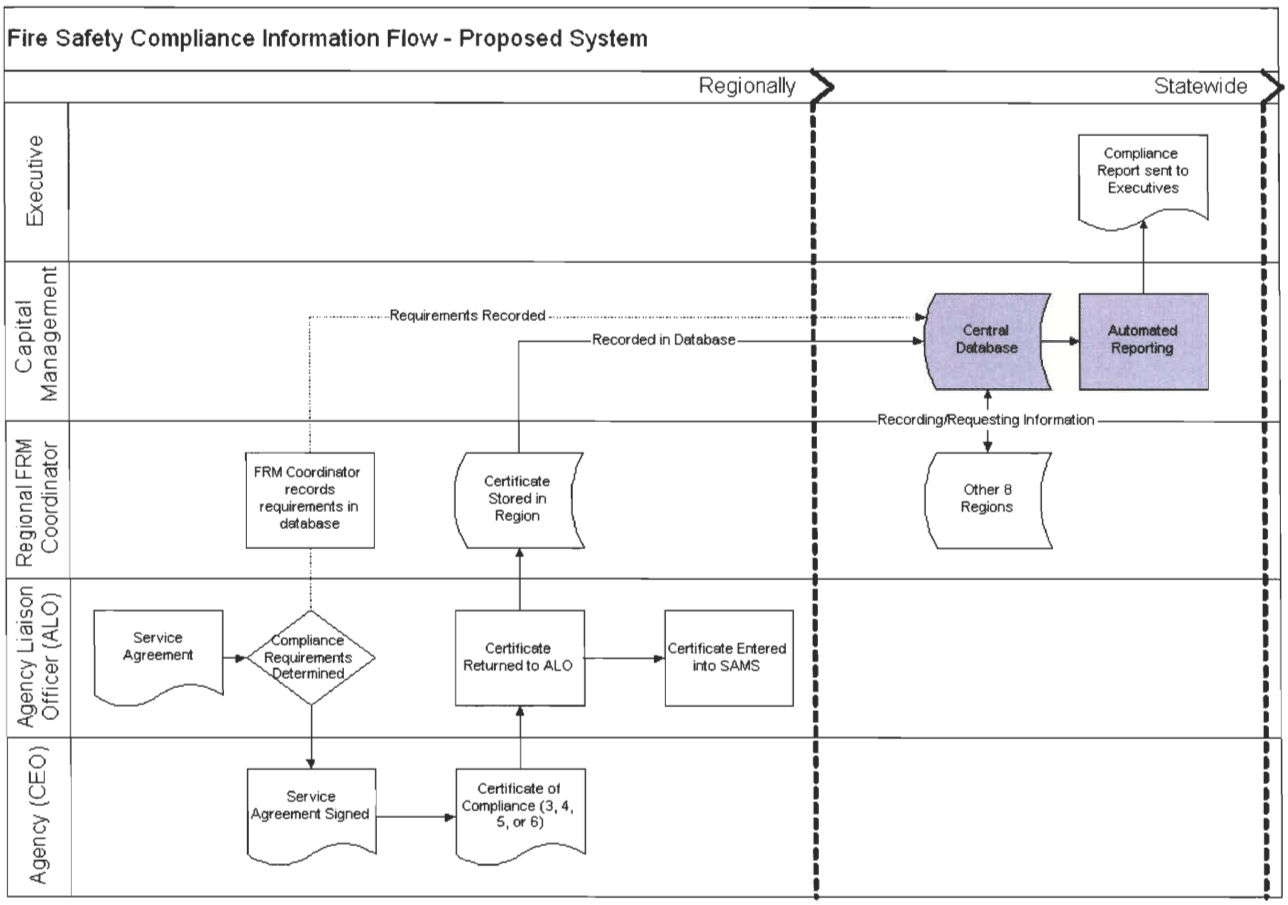


Figure 7: Proposed System



Agencies

In the current system, agencies are responsible for following the guidelines set for them in the Service Agreement, and it is their responsibility for determining what the guidelines are and what must be done to meet them. In the proposed system, additional training is done to further their understanding of the process. The compliance register proposal gives the agencies an easy way to keep all of the information in one place. This allows the agency to be more organised with their building information, including fire safety compliance. At a pre-determined date, this compliance register would be audited by the ALO for the agency, on behalf of the FRM Coordinator of the region. In accordance with the partial compliance proposal, whichever items are missing from the register are noted, and the compliance certificate for fire safety is signed off in part or as a whole and returned to the ALO.

Agency Liaison Officers

In the current system, ALOs are responsible for any and all communication between the Department and the Agency representatives. This includes the negotiation of the Service Agreement and the collection of any documentation that is required, which includes fire safety compliance information. In this proposed system, the ALOs will be encouraged to attend training sessions. These sessions will give the ALOs the information needed to assist the agency in understanding their responsibilities, including

the responsibilities for attaining fire safety compliance. The ALO will additionally be responsible for auditing the standard compliance registers. These registers will be kept with the building and maintained by the agency, but will be checked by the ALO at a regular interval for compliance. Any missing documentation is noted and reported to the regional Fire Risk Management Coordinator as described in the partial compliance solution.

Fire Risk Management Coordinators

The current system relies on the FRM Coordinator for all property management within the region, and often requires the coordinator to contact agencies directly to collect information and documentation from the property as well as to answer any questions or address issues about fire safety compliance requirements. In the proposed system, the FRM Coordinator receives information from the ALOs, rather than directly from the agency. The FRM Coordinator is thus responsible for ensuring that the ALOs are receiving the proper training. Copies of the documentation from the standard compliance registers are submitted to the FRM Coordinator on a regular basis. Additionally, the detailed information about compliance provided by the partial certificates is also submitted to the FRM Coordinator. The FRM Coordinator is responsible for recording this information into a central database whenever it is received. The FRM Coordinator also has the option of retrieving information from the same database when it is required. The FRM Coordinator does no additional reporting, as all of the information is recorded in a database.

Capital Management Branch

The Capital Management Branch currently requests reports from each of the regions about the percentage of compliant buildings. These reports are submitted annually and a compiled report is submitted to the Departmental Executives. In the proposed system, reports will be generated directly from the data in the database. More detailed information about the compliance status of each building is available as a result of the improvement of certificates to allow for partial compliance. In addition to the reporting on compliance percentages, another report including a list of non-compliant agencies is also submitted to the Departmental Executives, as a way of enforcing compliance.

Departmental Executives

The role of the departmental executive does not change drastically as a result of the proposed recommendations. The only changes are in the type of information provided by the Capital Management Branch. The compliance reporting will now contain more exhaustive details on compliance, in order to provide more accurate percentages, as defined by the partial compliance solution. An additional report is also received from the CMB including a list of all noncompliant agencies. This list of agencies is used to help enforce compliance, as the Departmental Executives can do whatever is necessary with the list of agencies to ensure that compliance is obtained.

Rationale for Chosen Approach

To address the issues previously discussed, many options were considered and only the most feasible solutions were suggested. Internal reporting of high-risk agencies is the only real option since funding to facilities cannot be cut off or their poor status made public due to ethical considerations. The Department has addressed a need for a standardised collection of data and a single location for this data. A database such as the one proposed in this document would meet these two requirements and also facilitate statistics reporting to Department executives.

The majority of FRM Coordinators believe that the compliance certificates and Service Agreements are too demanding and this adversely affects the return rate in their respective regions. The certificate and Service Agreement restructuring would clarify the FRMS guidelines for both the agencies and the ALOs without actually changing any of the guidelines. The allowing of partial compliance also sets realistic

goals for the agencies and should help improve certificate return and overall compliance statistics in each of the regions. Some of the ALOs across the state are not fully prepared to explain the Service Agreements to the agencies and further training should improve their overall effectiveness and also help the certificate return rate. These agencies have many documents to keep track of in order to prove compliance to their specific guidelines. A compliance register will facilitate the management of these documents and better prepare the agency CEOs for certificate signoff.

An in depth review of the rationale for the project approach can be referenced in the Interactive Qualifying Project report for WPI on file at the Department of Human Services (TRIM Record ADF/02/11112).

Initial Project Objectives

The initial project goal is to facilitate the communication and storage of fire safety compliance data. This entails the identification of any issues with the current system, areas for improvement, possible solutions and the selection of solutions based on feasibility and utility.

Stages of Project

The project that identified the stated solutions was completed in three stages. The first stage involved background research on what is done to improve the communication and storage of data in large organisations, particularly in the area of databases. This involved writing and examining case studies for similar projects.

The second stage of the project was the initial information gathering. In order to address communication and storage issues, these issues required identification for analysis. Interviews with each FRM Coordinator, as well as a few employees at the Capital Management Branch, were conducted. The information collected from these interviews identified three main issues, as well as many suggestions for improvements.

The final stage of the project involved addressing the major issues identified and justifying the solutions selected. The interviews with each of the FRM Coordinators provided a number of useful suggestions that have been worked into the proposed solutions.

The implementation of the solutions proposed in this business case will require multiple projects, each with its own timeframe and project plan. These are:

1. Enforce Compliance
2. Encourage Training for ALOs
3. Implement Standard Compliance Register
4. Improve Certificates and Reporting Methods
5. Create a Central Database

Enforce Compliance

The project that implements a method of enforcing compliance requires four stages. Ideally, the project could complete in a single year, but may require multiple year cycles to implement, due to the fact that agencies complete certificates on an annual basis.

The first stage of the process is to further develop the proposal. The deliverable of this proposal would be a specific report template that would be submitted to the executives of the department that includes either information on one agency, or a list of all agencies of a particular region or program. This report format would contain information on the compliance level of buildings that an agency is responsible for. Additionally, the process by which the reporting is done will need to be developed, along with the education plan for notifying involved parties of the change.

Once the proposal for this solution has been created, it will need to be verified and accepted by the appropriate personnel. The process by which new reports and procedures become accepted into use would need to be followed.

The final stage of the process is implementation. Implementation should occur on a small scale at first, with a few test agencies to see the results. Once modifications to the procedure have been made as needed, the final reporting procedures will be implemented across the state.

Encourage Training for ALOs

The project that proposes new training methods and curriculum for ALOs and Agencies will be completed in four stages.

The first stage of the project is further identification of the issues. Interviews will need to be conducted with FRM Coordinators and ALOs to find out where the lack of understanding lies. A list of topics that need to be covered should be developed, and any existing seminars that cover similar topics should be identified as a source for information.

The second stage of this project is to develop the curriculum and procedures for teaching. These should be developed with the Capital Management guidelines and opinions expressed in the interviews taken into account.

The third stage of this project is a review of the curriculum and training procedures. The proposed solutions should be presented back to the ALOs, FRM Coordinators, and representatives of the CMB. Feedback from this presentation should be collected and reviewed, and any changes made to the curriculum.

The final stage of this project is the implementation of the training procedures and curriculum. This implementation should be first tested on a small group of ALOs and Agencies, to see if the results are improved. Any additional changes should then be made before full-scale implementation is done.

Implement Standard Compliance Register

The project which creates a standard compliance register for each building can be completed in four stages. The timeframe for this project will be at least two years, but may require longer as compliance certification occurs annually.

The first stage of the project will be the initial information gathering. Interviews should be conducted with ALOs and agency representatives, as well as the regional FRM Coordinators to determine what information needs to be kept in the binder.

The second stage of the project involves the analysis of the information obtained in the interviews and the creation of a prototype compliance register. The register should also contain examples of any documentation that would be included.

The third stage of the project is to present the register to the ALOs, agency representatives, and FRM Coordinators. Feedback from this presentation should be used to make final changes to the prototype before testing it.

The fourth and final stage of the project is to implement the compliance register for each of the buildings. The compliance register should be tested on a representative group of agencies to gauge its worth before a full-scale implementation is completed.

Improved Certificates and Reporting Methods

The project dealing with improving certificates and reporting methods will be completed in four stages. The timeframe for this project will be a minimum of two years, due to certification only occurring once every year. Two to five years after that may be required to evaluate the effectiveness of the change.

The first stage of this project will involve information collection to help determine the best option for the proposed certificates. This will involve interviews and surveys of a representative number of ALOs, Agency representatives and FRM Coordinators.

Once the initial information gathering has been completed, the second stage of the project entails an analysis of the data and the creation of a prototype certificate and reporting method scheme. This plan will include the physical certificate re-writes as well as a data communication and reporting plan which takes the changes into account.

The third phase of the project is a review of the prototype certificate and data communication plan. This may require additional interviews and possibly a focus group, as the wording of the certificate may require subtle changes and an agreement among all of the involved parties.

The fourth and final stage of the project is the implementation of the new scheme. Ideally, it would be implemented with a small test group of agencies first, but in the case of fire safety compliance, this will result in inconsistent information for that year, so a single full-scale implementation may be required.

Creation of a Centralised Database

The project which involves the creation of a centralised database can be completed in several different ways, each requiring a different approach.

Standalone

The fire risk management database can be created to operate independent of all other systems. This method will allow the project to be completed in a shorter timeframe, since less information gathering would be required. This method will require four stages.

The first stage of development for a standalone database would be setting up the system. This will require a contract with an IT group to set up the server and the database, as well as designing the interface.

Once the database is in place, data migration would need to occur. Information that is currently stored at the region would need to be entered into the database.

The third stage is the training and testing phase. The regional coordinators would need to be instructed on how to use the system and would need to iron out any errors in the system before implementation.

The final stage of the standalone database project is the implementation. As the database is in place already, it would simply be switching to the new system.

Integration with FIS

The Facility Information System is a standalone database that contains geographical information about facilities in Victoria, as well as contextual information that is linked. This database is a candidate for having fire risk management data included within it. A project that undertakes these tasks can be completed in five stages.

The first stage of integration with the FIS involves updating and redesigning the FIS to allow for it to be remotely accessible via the corporate intranet, as well as to allow for different web-based views to

be used. This stage will be very time and fund consuming, as the database is very specialised and is not easily updated.

The second stage is to add the fields and interfaces needed for the fire risk management data to the FIS. This will involve a significant amount of design time, and will require changes to be checked by FRM coordinators.

The third stage of the FIS integration is data migration. In this stage, the existing data stored in the regions will need to be entered into the database. This process is a one-time expense, and will be time-consuming, as complete geographical information on all facilities will be needed for each building managed.

The fourth stage of the project is testing, where the FRM Coordinators use the database for some of their daily work to see if it meets their requirements.

Once the database has met the FRM Coordinators' specifications, it can be implemented state-wide.

Integration with Grampians Web-Based Database

Another option for the database implementation is to integrate it with the database already existing in the Grampians region. Currently, this database is being used for property and fire risk management and contains much of the same information as this proposed database. Integrating the database with Grampians can be completed in three steps.

The first stage of the project is to make minor changes to the Grampians system to allow for the entire state to use it. Changes would include adding in region identifiers to buildings, as well as adding in options for addresses.

The second stage of the project is the data migration stage. Information currently being stored at the region will need to be entered into the new system. This one-time process will be very time-consuming.

The third stage of the process is the testing phase, where the other regional Fire Risk Management Coordinators use the database to see if there are any problems that can be fixed.

The final stage is implementation, where the database will be put into use by all of the regions.

Benefits of Project

The benefits of the five proposals are justified by identifying the issues that each of them addresses. Additionally, each option for the creation of a centralised database provides its own benefits.

Enforcing Compliance

The proposal that allows for the enforcement of agency compliance by reporting to department executives addresses the major certificate return issue. The benefit of implementing this proposed solution is that there will be a higher level of fire risk compliance, as the awareness of the agencies will increase, as well as the seriousness that they address the requirements with.

Training for the ALOs and Agency Representatives

The proposal that provides for standardised training for the ALOs and agency representatives provides benefits in the area of certificate returns. A greater understanding of the responsibilities of the Agency and the ALO will provide more accurate compliance reporting, and allow the regional coordinators to accurately determine the compliance of the buildings. Additionally, these training seminars will take

some of the responsibility off the FRM Coordinators, allowing them to work more directly with building compliance.

Standardised Compliance Register

The proposal for a compliance register provides benefits in the area of certificate returns. The creation of a standard method for agencies to handle their property and fire safety compliance information will allow the agencies to be more confident in their buildings' compliance. Having all of the necessary documentation in the same place will also allow for a simple way for the FRM Coordinators to collect the information when it is needed. The register will also include information about how to obtain particular documentation and who to contact, which will allow the agency to collect information more easily.

Improved Certificates and Reporting

The proposal for improving certificates and reporting methods provides benefits to both the regions and Capital Management. Altering the certificates to allow for partial compliance recording allows the regions to keep better records of the buildings in their region, as well as allowing them to report a more accurate representation of their region to Capital Management. The CMB would benefit from these changes in that they would receive more accurate compliance statistics from the regions, as well as information about the specific causes of non-compliance.

Centralised Database

The proposal for the creation of a centralised database provides benefits to each of the regions, as well as to the CMB. The regions are provided with a standard method of recording fire safety compliance information. They are also provided with a method of obtaining information from the other regions, which prevents a lot of the extraneous communication between regions. Additionally, the database would prevent the need for reporting, since automated reports can be easily generated. The benefits seen by the CMB include improved reporting, easily accessible information and more consistent data.

Related Initiatives & Interdependencies

Some of the proposed solutions mentioned were developed from existing initiatives already in place. The solution dealing with improving the certificates and reporting methods was first suggested by Sharon Grant in the Gippsland region. The solution that describes a standardised compliance register can be seen in place in the Loddon Mallee region and a similar system was used in Residential and Aged Care Facilities. For the centralised database solution, three existing initiatives exist that can be considered in the project: The Facility Information System (FIS), The Grampians Fire Risk Management Database and the Business Systems Replacement Project.

Tiered Certificate Proposal

Sharon Grant of the Gippsland region first suggested the separation of certificates 4, 5 and 6 into three main sections. She suggested that the certificates naturally break into three sections in the way they are written, and that non-compliant agencies often are only missing one of the three sections.

Essential Services Compliance Register

Casey Binns of the Loddon Mallee region currently uses an Essential Services Compliance Register to help organise the agencies in his region. The register contains all of the forms needed and has a place for the agency to put all of the certificates and permits that are required for the building, as well as a place to keep track of the maintenance done on each essential service in the building. The binder has an

index that allows information to be easily accessed quickly. Casey collects information from the binders each year in his own compliance audit. This binder serves as a model for the proposed compliance register.

Residential and Aged Care Information Kit

In order to prepare for the Commonwealth Certification of Nursing Homes, an Information Kit was developed. It was comprised of an accordion file that listed all required information and documentation and described how to obtain it. This file served as preparation for the facilities so that they would be ready for the certification audits. The success of this Information Kit showed that having an easy to use source of training and documentation made compliance easier to achieve and maintain.

Facility Information System

The Facility Information System (FIS) is a database currently housed on a standalone desktop computer in the Capital Management Branch. This system is a custom database based on the Geographic Information System which links map information to contextual data and other layers. In its current state, the FIS contains a map of Victoria overlayed with the locations of some of the facilities. These facilities include financial information, land plot information, and even the ability for as much detail as floor plans in CAD, when they exist. This database has the potential to be the single database for all of the DHS. Some shortcomings with the system exist, however, which may prevent this.

The FIS system is slow by nature, as pages upon pages of geographic information must be loaded to locate a building. This may take several minutes when the information being sought may only be a block of text. Another shortcoming is that the system is not networked and is not web-accessible. This means that a large investment in development must be taken to convert this system to a networked database, and that either a usable client software application or a web interface must be developed for it. Finally, the information stored is very complicated, which makes finding simple information difficult. In order to be a user-friendly database system, different views of the data would need to be developed which mask out the unnecessary information.

Grampians Region Fire Risk Management Database

Vincent Duffy of the Grampians region currently uses a web-based database to handle fire risk compliance data. The database is actually stored on a server in Melbourne and accessed remotely via the corporate intranet. This database contains a large amount of information on property management, fire risk safety compliance and essential services maintenance. It also has the ability to generate forms and reports on request. This database can easily be extended with minimal development time to include the other eight regions.

Business Systems Replacement Project

Duncan Davies of the Capital Management Branch provided information on an initiative in place to restructure data systems in the Department. This project involves process mapping each of the areas that require data storage and communication to determine what the user requirements are and creating a single system that meets all of the requirements of the business. The design expenses for this project are contingent on the desired complexity of the system. The proposal for a database structure can basically be translated to a process map for the fire risk management process, and thus would act as one phase of the Business Systems Replacement Project.