Project ID: GFS-0810

Safety Regulations for Unregistrable Movable Dwellings in Caravan Parks

An Interactive Qualifying Project submitted to the faculty of Worcester Polytechnic Institute in partial fulfillment of the requirements for the Degree of Bachelor of Science

Submitted by:

Brian Almeida _____

Lindsey McKan _____

Andrew Peter _____

Submitted to:

Project Advisors:

Professor Guillermo Salazar _____

Professor Karen Lemone _____

Project Liaison:

Dennis Hogan, Building Commission
John Shaw, Building Commission

April 28th, 2008

Abstract

The study provides information on fire safety risks for Unregistrable Movable Dwellings (UMD), and is expected to assist the Building Commission of Victoria in their 2009 update of the Residential Tenancies Regulations. More specifically, the study identifies current fire safety risks related to fire fighter access, fire separation, and fire statistics. It also compares current regulations and guidelines associated with UMDs.

Executive Summary

With an expected increase in demand for affordable housing in Australia, the popularity of permanent residency caravan parks will continue to grow. Not only do these caravan parks provide an inexpensive housing choice for low-income and retiring people, but they also provide a strong community atmosphere. Aside from the traditional caravans, another prevalent type of dwelling found in caravan parks is an Unregistrable Movable Dwelling (UMD).

Despite many similarities with Class 1 dwellings, the Residential Tenancies Act (RTA) classifies UMDs as caravans, and thus exempts them from compliance with the Building Code of Australia (BCA). The RTA outlines their regulatory requirements in the Residential Tenancies Regulations (RTR). With these regulations sun setting in June 2009, the Building Commission and Department of Planning and Community Development (DPCD) want to better understand the implications of changing safety regulations

The goal of this project was to assess current UMD policy and to identify fire safety risks related to UMD structures in caravan parks. The goal was achieved by assessing the UMD classification, comparing regulations and guidelines, and investigating the approval process, as well as investigating fire fighter access, fire separation, and fire statistics in caravan parks. The primary method of collecting this information was through interviews with park developers, Country Fire Authority (CFA) agents, and town council officers. The team also visited three caravan parks and conducted a content analysis of the BCA, RTR, and CFA *Caravan Park Fire Safety Guideline*.

After conducting the research, the team assessed the possibility of reclassifying UMDs as Class 1 dwellings. However, interviews with developers and town officers revealed that eliminating UMD classification was not an option because it would negatively impact the need for affordable housing.

A content analysis of the RTR, CFA *Caravan Park Safety Guideline*, and the BCA yielded inconsistencies among them. The RTR discusses the need for sufficient space for fire fighter access, with no mention of fire separation, yet the BCA prescribes numerical distances for fire separation, but does not provide a rationale for it. The only document that addresses both fire separation and fire fighter access is the CFA *Caravan Park Fire Safety Guideline*; this document

contains Prescriptive Provisions and Performance Measures that give caravan park owners flexibility in meeting the fire safety requirements.

The team also investigated the permit approval process to determine how councils approve a caravan park's layout. Through discussions with Fire Safety Officers and council officers, it was discovered that the current process is vaguely defined and it lacks the ability to monitor construction of additions to UMDs. Although compliance in newer parks is less of an issue, this may be troublesome for some parks constructed before the CFA guidelines were created because it could be expensive.

The team looked for sources of information to find recorded fire incidents in UMDs, but there were none that the team could find. Despite the lack of data, the potential for danger is still present. CFA officers have expressed concern over the flammable materials used in the construction of these dwellings. Several interviewees also noted that low income residents of non-age qualified parks are more likely to engage in behaviors that are prone to increasing the risk of fire related accidents, such as drugs or alcohol.

The aforementioned research and conclusions have led to the following recommendations:

- **Reference the CFA Guidelines in the RTR-** the current legislation is vague and leads to problems when developing parks. Referencing the CFA guidelines in the RTR provides flexibility for both Prescriptive Provision and Performance Measures compliance.
- **Require the council to get approval from the relevant fire authority-** modify the approval process so that consultation with the CFA is required prior to granting a planning permit.
- **Require periodic park inspections-** periodic park inspection can help track incremental building and ensure continued compliance with regulations.
- **Require a more detailed permit renewal application-** a more comprehensive renewal application can provide councils with better statistical information about caravan parks.

Overall, the team addressed the issue of fire safety in the UMD industry. It is expected that by implementing the recommendations, relevant authorities can increase fire safety without drastically impacting affordability.

Authorship

Each group member contributed equally to the composition of this paper.

Acknowledgements

The team would like to thank the following people for their contributions to the project:

Holly Ault

Johanna Bidwell

Dennis Hogan

Scott Jiusto

Karen Lemone

Annie McIntyre

Guillermo Salazar

John Shaw

Glossary

Building Code of Australia (BCA) - document which contains regulatory standards for most dwellings and buildings

Building Commission - government organization in charge of overseeing building practices related to the Building Code of Australia within the state of Victoria

***Caravan Park Fire Safety Guidelines* -** referred to as the CFA recommendations, this document contains both Prescriptive Provisions and Performance Measures which a caravan park should adhere to in order to maintain an appropriate level of safety

Country Fire Authority (CFA) - the relevant fire authority for a majority of caravan parks in Victoria; released the *Caravan Park Safety Guidelines*

Department of Planning and Community Development (DPCD) - government organization in charge of revising the Residential Tenancies Regulations in 2009

Fire Access - unobstructed clearance between dwellings that allows fire fighters to maneuver freely

Fire Separation - total clearance between two buildings; does not take into account shrubbery or other physical objects

Performance Measures - a more generalized set of objectives, as opposed to Prescriptive Provisions, which gives caravan park owners more flexibility in their designs

Prescriptive Provisions - a set of defined numbers that need to be met in order to achieve compliance

Residential Tenancies Act (RTA) - legislation released in 1997 which exempted homes classified as caravans from the Building Code of Australia

Residential Tenancies Regulations (RTR) - released in 1999, this document outlined regulations for caravan parks

Unregistrable Movable Dwelling (UMD) - house built around a metal chassis which is technically movable, thus allowing for its classification as a caravan

Table of Contents

Abstract ii
Executive Summary iii
Authorship v
Acknowledgements vi
Glossary vii
Table of Contents viii
Table of Figures ix
Table of Tables ix
Chapter 1: Introduction 1
Chapter 2: Background 3
2.1 Caravan Parks 3
2.1.1 Unregistrable Movable Dwellings 5
2.1.2 Lifestyle Villages 6
2.1.3 Regulations for UMDs and Caravan Parks 8
2.2 Regulatory Agencies 9
2.2.1 Building Commission 9
2.2.2 Country Fire Authority and Fire Safety Guidelines 10
2.2.3 Victorian Municipal Building Surveyors Group 12
2.2.4 Department of Planning and Community Development 12
2.3 UMD and Caravan Park Legislation across Australia 12
Chapter 3: Methodology 15
3.1 Assess Current UMD Policy 15
3.1.1 Determine Appropriateness of Current UMD Classification 15
3.1.2 Comparing Current Guidelines and Regulations 15
3.1.3 Investigate the Permit Approval Process 16
3.2 Identify Fire Safety Risks in Caravan Parks 16
3.2.1 Fire Statistics 17
3.2.2 Fire Separation and Fire Fighter Access 17
Chapter 4 Results and Analysis 19
4.1 Assess UMD Classification 19
4.2 Comparing Current Guidelines and Regulations 21
4.3 Investigate the Permit Approval Process 22
4.4 Fire Statistics 24
4.5 Fire Separation and Fire Fighter Access 24
4.5.1 Fire Separation 25
4.5.2 Fire Fighter Access 27
Chapter 5 Conclusions and Recommendations 29
5.1 Recommendations 30
5.2 Future Work 32
Works Cited 34
Appendix A – Interview Questions 37
Appendix B – Fire Fighter Access Testing Pictures 39
Appendix C – Comparison of CFA Guidelines and BCA 41
Appendix D – Analysis of UMD Construction Standards 43

Table of Figures

Figure 1: Caravan Park Locations in Victoria 3
Figure 2: Typical Caravan Park 4
Figure 3: Two-Storey UMD 6
Figure 4: Example of a Lifestyle Village 7
Figure 5: RTR Part 1 Division 4 Section 35 8
Figure 6: Diagram outlining the general spacing requirements for adjacent caravans 11
Figure 7: UMDs with Draw Bars 19
Figure 8: Initial Interpretation of Section 35 22
Figure 9 A and B: Two Different Council Approval Processes 23
Figure 10: Ideal Fire Separation of 2000 mm 25
Figure 11: CFA Approved Spacing 26
Figure 12: CFA Fire Fighters Successfully Access Eaves with 1200 mm Separation 27
Figure 13 A and B: Obstructed Access Between UMD Structures 28
Figure 14: Recommended Approval Process 31

Table of Tables

Table 1: Spreadsheet for Comparing Regulations 16
Table 2: UMD vs. Class 1 Dwelling Purchase 21
Table 3: Comparison of CFA Guidelines and BCA 22
Table 4: Sample Permit Renewal Application 32

Chapter 1: Introduction

Caravan parks are quickly developing into a cornerstone of Australian lifestyle; not only do they serve as an affordable means of housing for a wide array of people, but they also provide a strong, tight-knit environment for a community to enjoy (Mason 2007). With a majority of retired people having an annual income of less than ten thousand dollars, and with a lack of affordable housing for low-income families, there has been a rapid increase in the popularity of caravan parks (Mason 2007). Aesthetically similar to trailer parks in the United States, caravan parks have recently developed from a temporary vacation campground into a more permanent residential location. Along with temporary housing in the form of trailers and residential vehicles (RVs), these caravan parks are now holding more and more Unregistrable Movable Dwellings (UMDs), which are permanent homes built around the chassis of a trailer.

In Victoria, these UMDs are exempt from the stringent Class 1 building regulations because of the Residential Tenancies Act of 1997. This same piece of legislation also contains the Residential Tenancies Regulations, which are a separate set of codes for UMDs and caravans. However, this document is outdated and is merely an attempt to copy previous versions of legislation. Regulatory agencies are concerned primarily with fire safety conditions because of the larger number of UMDs being placed in caravan parks. Existing safety guidelines and regulations need to be adapted to accompany the changing use of and growing demand for caravan parks.

Several other agencies share similar concerns. One such agency is the Country Fire Authority (CFA), which deals with all fire related matters outside of the metropolitan area. In July of 2006, the CFA published the *Caravan Park Safety Guideline*, which identified several major fire hazards, and the different ways to address them. Additionally, the Victorian Municipal Building Surveyors Group (VMBSG) has created a task force to help ensure that all councils are consistent in enforcing CFA recommendations. Together, this collaborative interest is aimed at achieving similar results that have already been achieved in other neighboring states. For instance, in 1995, South Australia passed the *Fire Safety Requirements in Caravan Parks and Residential Parks Act*. This piece of legislation contains requirements which are comparable to CFA recommendations, including minimal separation distances, fire fighting devices, and emergency control procedures.

Although the CFA works closely with local councils in order to improve caravan park safety, some developers are still reluctant to modify parks due to financial issues and existing infrastructure (Caravan Park Fire Safety Guideline online). While the CFA can recommend regulations, it is up to the Building Commission and the Department of Planning and Community Development to update legislation. The current lack of updated legislative standards to govern caravan parks could negatively impact the safety of tenants. With a revision of the Residential Tenancies Regulations to be released in 2009, the Building Commission of Victoria wants to better understand the implications of this amendment on fire safety regulations.

The goal of this project was to assess current UMD policy and to identify fire safety risks related to UMD structures in caravan parks. The goal was achieved by investigating fire fighter access, fire separation, and fire statistics in caravan parks, as well as assessing the UMD classification, comparing regulations and guidelines and investigating the approvals process. The team's research into these items suggested that while UMD classification as a caravan is necessary, the regulations that control them need to be updated. By adhering to CFA guidelines, and by streamlining the park approval process, the Building Commission can improve safety for UMDs within caravan parks.

Chapter 2: Background

This section provides a background on caravan parks and unregistrable movable dwellings, the regulatory agencies that deal with them, and other states' legislative attempts to solve similar problems.

2.1 Caravan Parks

Caravan parks are popular in Australia, both for holiday and for permanent residence. They are located throughout the state of Victoria (Figure 1), often close to popular tourist attractions and coastal sites.

Figure 1: Caravan Park Locations in Victoria

(viocparks.com.au/tourist.asp)

Although they were originally built only for seasonal use, by the 1980s, permanent residency in caravan parks became an established practice (Newton 2006). Part of the push behind living permanently in caravan parks is due to the concept of the Great Australian Dream. The Dream, in short, was "home ownership". As prices increase, buyers are looking at other, less expensive options- one of which is living in a caravan park. There are currently two main

demographics residing permanently in caravan parks: retired persons and low-income residents. Retired persons typically choose to live in caravan parks because of the life-style and the lower cost. Low-income residents typically reside in caravan parks because they were unable to obtain housing in any other form, neither private, public nor community housing (*Rental housing for lower-income older Australians*). A typical caravan park is shown in Figure 2.

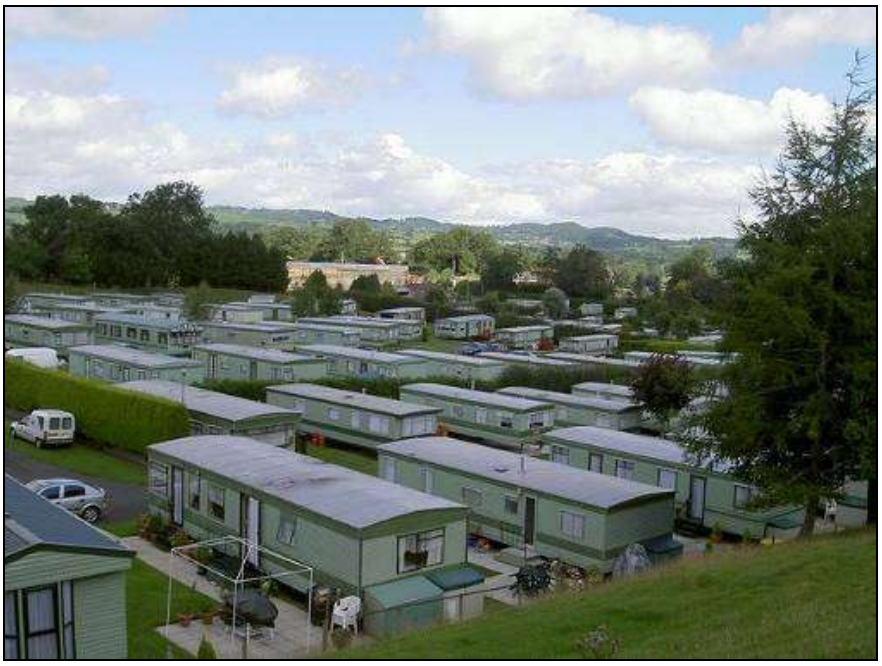


Figure 2: Typical Caravan Park
(geograph.org.uk/photo/136965)

People moving into caravan parks permanently brought about many changes to the industry itself. The most recent development is the introduction of unregistrable movable dwellings into caravan parks.

2.1.1 Unregistrable Movable Dwellings

Unregistrable movable dwellings, or UMDs for short, are movable dwellings built on a metal chassis (like a caravan) but cannot be registered as a vehicle (Residential Tenancies Regulations 1997 online). Legally UMDs are movable, and therefore are placed within caravan parks, but for all intensive purposes, once a UMD is installed, it stays put. This influx of UMDs into caravan parks is seen in many parks, both old and new. Older caravan parks still have sites for the traditional RVs and campers, but UMD structures are slowly creeping in and occupying sites. Also, some of the newer caravan parks consist of solely UMDs.

The first caravans were 2.5m wide and had affixed wheels for travel. They could be transported easily by any compact car and were marketed as such to people whose lifestyle required mobility. In the mid to late 1900's, manufacturers began building 3.3m wide homes, furthering the gap between travel trailers and the new version of less-than-mobile homes. Soon the units were being built even longer, wider and less mobile, thus becoming attractive as a less expensive and more permanent housing option. These homes were so immobile that they had to be reclassified, not as caravans, but as UMDs. One example of how large and immobile UMDs have become is shown in Figure 3. Despite the size and complexity of this dwelling, it can be broken apart into several pieces and trucked away in a matter of hours. However, transporting these types of homes is neither financially convenient nor reasonably practical. In fact, when a UMD resident wants to move from one caravan park to another, they often just sell their current UMD and purchase another one to avoid the hassle and the cost of moving their home.

Figure 3: Two-Storey UMD

2.1.2 Lifestyle Villages

A retirement village is a general term defined as a community with a demographic of mostly, or entirely, retired persons. They are not nursing homes, which many believe; "there is a huge misconception in the marketplace where a lot of people cannot see any difference between a nursing home and a retirement village, but they are distinct animals. Retirement villages are all about lifestyle and little to do with assisted care (Rod Baptist in Bullock 2007)." The main function of living in a retirement village is that they provide a place for senior citizens to live in their own home while still being able to socialize with people their own age. They can reduce social isolation, which in turn, can have beneficial effects on residents' health and well being. Today retirement villages house about five percent of Australia's retiree population, and there are close to two thousand villages containing one-hundred fifty thousand residents (Mason 2007). In total, the retirement village industry itself is growing at about three to four percent each year (Lague 2006).

The majority of the existing retirement villages throughout Australia cater to wealthy retirees who have hundreds of thousands of dollars to spend on housing. Unable or unwilling to pay for extravagant homes, retirees often seek less expensive rental property. But recently, the number of high-income families and individuals moving into cheap rental properties to save

money has increased; this resulting shortage of low-cost housing options forces pensioners to seek residence in caravan parks (Powers 2006). This creates an opening for developers to cash in by building new parks designed specifically for retirees.

"Lifestyle village" is a fancy marketing term used to describe a caravan park that contains UMDs marketed and sold to people over 55 years of age (Figure 4). These Lifestyle Villages often "evoke a strong sense of community" (Caravan Park Fire Safety Guidelines online), which is important in a retirement village. They also have less strict regulations pertaining to construction and obtaining permits (Residential Tenancies Regulations online), which makes them more affordable for residents.

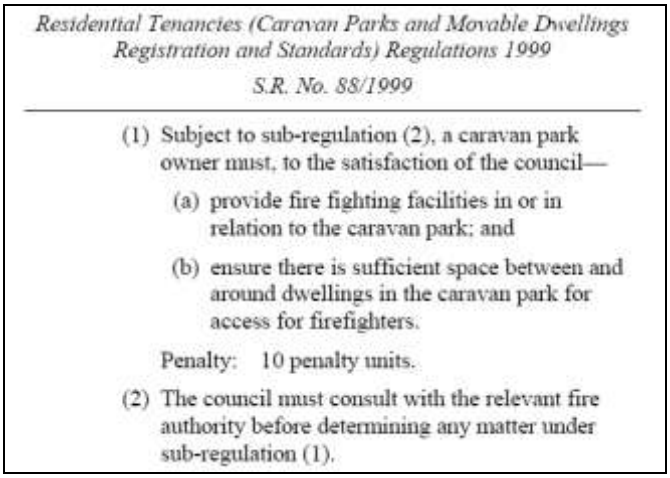
Figure 4: Example of a Lifestyle Village

The safety concerns, however, revolve around the developer's use of UMDs as homes. UMDs are exempted from traditional building regulations making them less expensive to build. The legislation that exempted UMDs from the Building Regulations created new regulations for them, but they are vague and leave much room for inconsistency across the state. Officials from the Building Commission, Department of Planning and Community Development (DPCD), and Country Fire Authority (CFA) all agree that if developers are going to continue to use UMDs in lifestyle villages, there needs to be some consistency within the regulations.

2.1.3 Regulations for UMDs and Caravan Parks

In Australia, all immobile buildings must meet the construction and safety standards written in the Building Code of Australia (BCA). UMDs, however, are exempt from the Building Code and Building Regulations under the 1997 Residential Tenancies Act (RTA). The RTA, along with describing the rights and duties of any resident/owner of a caravan park, also facilitates "the regulation of caravan parks and movable dwellings" (RTA 1997). These regulations apply to park owners and residents alike. It covers such topics as rent and other charges, the duties of park owner and residents, and necessary repairs. The RTA also gives the Governor in Council the power to create regulations with respect to the standards and registration. This includes the "health and safety standards for caravan parks in which both occupiers and owners must comply" (RTA 1997).

Specifically, the Residential Tenancies Regulations (RTR) were written by the Governor in Council to fill in the gap left by the Building Regulations when UMDs were exempted. An entire section entitled *Standards for Unregistrable Movable Dwellings and Annexes* discusses the construction, fire safety features, and maintenance of UMDs, including prefabricated holiday units. However, the regulations are sparse. The section regulating fire safety says nothing more than what is shown in Figure 5 below.



Residential Tenancies (Caravan Parks and Movable Dwellings Registration and Standards) Regulations 1999

S.R. No. 88/1999

(1) Subject to sub-regulation (2), a caravan park owner must, to the satisfaction of the council—

(a) provide fire fighting facilities in or in relation to the caravan park; and

(b) ensure there is sufficient space between and around dwellings in the caravan park for access for firefighters.

Penalty: 10 penalty units.

(2) The council must consult with the relevant fire authority before determining any matter under sub-regulation (1).

Figure 5: RTR Part 1 Division 4 Section 35

The lack of prescribed distances for "sufficient space" allows for inconsistencies between parks. The CFA has published guidelines for fire safety, discussed in section 2.2.1 of this report, but they are not referenced within the RTR.

Because of a recent increase use of UMDs in the lifestyle villages and caravan parks, building surveyors, CFA representatives, and the Building Commission question whether or not UMDs need to be exempt from the BCA. If residents are going to live in these units for thirty or more years, the vehicle-like classification might not be as pertinent as it was when initially instated. An upcoming review of the UMD regulations in 2009 could increase the safety of UMDs without significantly impacting the interests of the caravan park industry.

2.2 Regulatory Agencies

In Australia, as in most countries, the oversight of housing is done by more than one group. Some are operated by the government, some are private corporations, and a few are non-profit organizations. The Building Commission, Country Fire Authority, Victorian Municipal Building Surveyors Group (VMBSG), and the Department of Planning and Community Development are four institutions that work with caravan parks on various levels. The Building Commission is a state government agency that mandates and enforces construction standards and regulations. The CFA is in charge of handling all fire and emergency services within caravan parks, as well as promoting good fire safety practices. The VMBSG trains and helps contractors, builders, and owners of caravan parks to make sure they know and are compliant with regulations. Finally, the DPCD is a non-profit organization dedicated to combining the efforts of various community groups to attain a common goal. They also write, review and enact legislation in conjunction with the Building Commission. Because they all have an interest in the UMD industry, the opinions and views of representatives from each of these groups are necessary in determining the impact a change in fire safety regulations might generate.

2.2.1 Building Commission

Established by the Building Act of 1993, the Building Commission (BC) is an organization that oversees all building activity within the state of Victoria. They are responsible for creating the regulatory legislation that deals with building practices, along with approving any designs or methods that are associated with the construction of a building. The Building

Commission also plays a key role in enforcing essential safety measures, which are any items that deal with fire or life safety within a facility (Building Commission online). These safety measures include any aspect of a building that could help save the lives of the occupants, whether they are in the physical layout of the building (escape routes, alternate exits), or an actual piece of safety equipment (fire extinguisher, sprinklers).

The most important role of the Building Commission is to work alongside the Minster of Planning to revise and develop legislation in order to ensure that all regulations are necessary and up to date. The Building Commission looks to instill new regulations to help promote concerns of ordinary people, including energy efficiency, sustainability, and accessibility. Consequently, caravan park owners need to make an active effort to work with the Building Commission; if not, legislation might be passed which caravan park owners may think is unfair or unreasonable. By working in unison, the Building Commission and caravan park owners can improve standards throughout the state to promote safety without negatively affecting the economic aspects of the industry (Building Commission online).

2.2.2 Country Fire Authority and Fire Safety Guidelines

As the popularity of caravan parks continues to rise, the CFA's role becomes ever more crucial in regulating fire safety within the caravan parks. Caravan parks are built outside of major cities, and often by the sea side, where they are not protected under the jurisdiction of the Metropolitan Fire and Emergency Services Board. Therefore the RTR has placed them under the jurisdiction of the CFA (Caravan Park Fire Safety Guideline online). The CFA updated their *Caravan Park Fire Safety Guideline* in 2006 to outline how they wanted parks to meet fire safety requirements, specifically regulation 35 in the RTR.

Regulation 35 requires park owners to maintain sufficient space between dwellings for fire fighter access. However, it gives no specific numbers dictating how far apart caravans should be. The CFA attempted to fill in this gap with their guidelines. They recommend a minimum of 2000 mm between all caravans, with at least 1200 mm of unobstructed space (Figure 6). These specific distances are called Prescriptive Provisions and they are the simplest way to meet the access requirements. However, their simplicity may not be practical for all parks.

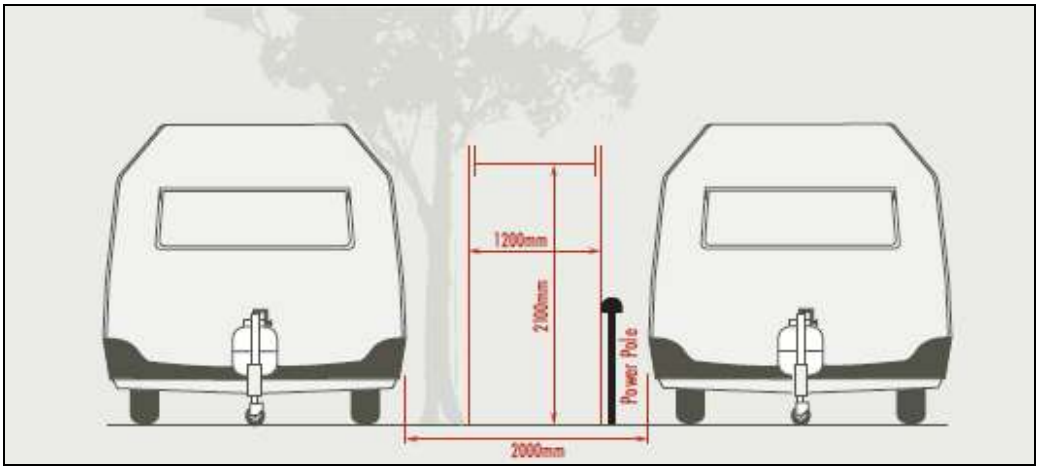


Figure 6: Diagram outlining the general spacing requirements for adjacent caravans
(CFA Online)

For cases in which the Prescriptive Provisions do not apply, a caravan park owner can meet the separation and access requirement by complying with Performance Measures. Conforming to Performance Measures requires a bit more effort on the owner's part- design proposals need to be drafted and approved by the CFA before construction can take place (Caravan Park Fire Safety Guideline online). These designs must show and prove compliance with the intended results of the Prescriptive Provisions, either through documentation, test certificates, or a written deposition from a fire safety engineer (Caravan Park Fire Safety Guideline online). The Performance Measures required by the CFA are simply more descriptive definitions of the general objectives.

The application of the guidelines is contingent upon the CFA's interaction with two other key groups: park owners and town councils. Prior to opening a caravan park, the owners must register with the local town council and obtain a license to open and operate the park. It is then the owner's responsibility to keep up with general maintenance of the park, and to ensure that all fire codes and regulations are adhered to. The local council is responsible for tracking compliance of caravan parks within their municipal boundaries and working with the CFA when further construction is performed at a caravan parks.

Although this method of approval is aimed for the development of new parks, another issue lies with compliance by existing caravan parks. Due to the existing design and infrastructure of some parks, it is considerably more difficult to bring them up to the codes outlined by the CFA (Caravan Park Fire Safety Guideline online); if a caravan park has been

well developed with several hundred tenants and other various facilities, organizing a communal shift can prove to be quite a task and quite expensive. Although park owners should modify their current establishments, financing these changes can be a significant burden, therefore impeding progress.

2.2.3 Victorian Municipal Building Surveyors Group

The Victorian Municipal Building Surveyors Group Inc is another collaborative group of building officers who work to promote standardization in building regulations and control (Victoria Municipal Building Surveyors Group online). Surveyors are the Australian equivalent of American building inspectors. They are employed by and represent the interests of local councils. In general, each local council is responsible for issuing all building permits, occupancy permits, and for conducting building inspections within the designated districts; if there are any issues, the council building surveyors deal with settling the matter. However, the regulations pertaining to UMDs lack Prescriptive Provisions, making it difficult to settle differences of opinion between developers and the CFA. A more prescriptive set of standards for caravan parks would directly help the efforts of the VMBSG.

2.2.4 Department of Planning and Community Development

The goal of the Department of Planning and Community Development (DPCD) is to try and unite citizens of a local community in order to achieve some common goal. By incorporating the views and efforts of citizens, various organizations, councils, and even government agencies, the DPCD works to accomplish those common goals (Department of Planning and Community Development online). With the ever increasing popularity of caravan parks, the DPCD will need to have a more integral role in the organization of caravan parks, both old and new. The main role of the DPCD in caravan parks is actually drafting and enacting the regulations. The results of this project will directly influence the DPCD in making its decisions on fire safety in UMDs.

2.3 UMD and Caravan Park Legislation across Australia

Safety in UMDs has been a concern all across Australia, not just in the state of Victoria. Because UMDs are located in caravan parks, caravan park legislation is being adapted to include

these fairly modern structures. To address the issue, other Australian states have drafted legislation to govern caravan parks and to help ensure that there is uniform compliance across all local parks. One such state is Western Australia, where the *Caravan Parks and Camping Grounds Act of 1995* was enacted to achieve the uniformity that is essential for the safety of residents; the initial push for the legislation was "to enable caravan parks to change from their traditional use for holiday purposes to one of multiple uses and, in particular, to permit permanent residency (Review of the Caravan Parks and Camping Grounds Act 1995 online)." The act gave authority to local governments and councils to enforce, to inspect, and to license caravan parks based on the outlined regulations (Review of the Caravan Parks and Camping Grounds Act 1995 online). The act was also developed to further provide guidance for effective licensing and monitoring of caravan parks, and to ensure that the overall layout of the park and amenities do not compromise the safety of residents. With the act also came the establishment of the Caravan Parks and Camping Grounds Advisory Committee, which was created in order to generate feedback for the government about any issues that exist with caravan parks and related legislation; this committee is meant to encompass the views of the government, residents, owners, and councils alike to ensure an equal voice from each sector (Review of the Caravan Parks and Camping Grounds Act 1995 online). Finally, the act also outlines regulations and requirements for vehicle access, housing layout, installation of fire fighting tools, and distance between housing specs (City of Albany – Caravan Parks & Camping Grounds online).

The state of South Australia also has legislation that creates a set of regulations for caravan parks in order to minimize damage to property and life (Fire Safety Requirements in Caravan Parks and Residential Parks online). Like Western Australia, local council approval in the form of permits is essential for the continued existence of a caravan park, and it is the park owner's responsibility to ensure the park complies with all regulations. There are also requirements for separation between buildings, locations of fire hydrants, and needing approval before any changes are made. Furthermore, there are requirements for essential safety provisions, which include mandatory fire alarms, smoke detectors, and fire extinguishers in all dwellings, which need to be provided by the owners (Fire Safety Requirements in Caravan Parks and Residential Parks online). Also each caravan park must have unobstructed access to a fire hose which is connected to a fire hydrant; again this should be incorporated into the general design and infrastructural layout of the caravan park (Fire Safety Requirements in Caravan Parks

and Residential Parks online). Overall, these pieces of legislation carry recommendations which are similar to those published in the CFA's *Caravan Park Fire Safety Guideline*. This further suggests that Victoria is behind in terms of safety standards in caravan parks compared to some other Australian states. However, it also suggests that Victoria is on the right track trying to deal with the emerging issue of UMDs in caravan parks. This legislation from neighboring states, along with the recommendations published by the CFA, provides the Victorian Building Commission a general idea of where they need to take the next revision of codes in order to ensure the safety of caravan park residents.

Chapter 3: Methodology

The goal of this project was to assess current UMD policy and identify fire safety risks related to UMD structures. The goal was achieved by assessing the UMD classification, comparing regulations and guidelines and investigating the approvals process, as well as investigating fire separation, fire fighter access, and fire statistic in caravan parks. The team relied heavily on information gathered from fire protection professionals, municipal council members and the visits to caravan parks throughout Victoria.

3.1 Assess Current UMD Policy

The possibility of changing the classification of UMDs was considered. In addition, the team conducted a comparative content analysis on existing codes and regulations to determine the common issues in these documents.

3.1.1 Determine Appropriateness of Current UMD Classification

The social context surrounding the use of UMDs was researched; in particular affordability, to determine if a simple solution to the problem would be reclassifying UMDs as Class 1 buildings, and placing their regulation within the BCA. The first step was to work with the Building Commission to determine why and how UMDs are not classified as Class 1 buildings. Then we asked in our interviews with employees of the CFA, Building Commission, and DCPD for their professional opinion, related to the possible reclassification of UMDs as Class 1 buildings. The possible impacts of reclassification were determined from the information gathered. Reclassifying UMDs could possibly save the Building Commission time and money if it proves to be more appropriate than updating unsuitable regulations.

3.1.2 Comparing Current Guidelines and Regulations

The current regulations for UMDs versus Class 1 dwellings were compared, in order to recommend relevant updates for the UMD regulations. The summarized results of this comparison were entered into an Excel spreadsheet. Then, for each RTR section, the comparable section in the BCA was summarized. Once the RTR and BCA sections were side by side the team introduced a color coding scheme to the chart. A sample section of the spreadsheet is shown below.

Table 1: Spreadsheet for Comparing Regulations

	Conflict with BCA? YES/VAGUE/NO	Analysis of Confliction	**RTR**	**BCA**
Location				
Summary				

An RTR section was flagged green if it had no comparable section in the BCA, or it was consistent with the BCA. It was flagged yellow if the inconsistency was vague and red if it was directly contradictory. The color coding was used as a quick reference tool, when discussing similarities and differences. Then the inconsistencies in these documents were analyzed and discussed based on the team's previous research and the results of the interviews. The team also used the same approach to compare the BCA with the CFA's Caravan Park Fire Safety Guidelines.

3.1.3 Investigate the Permit Approval Process

The team discovered from interviewing CFA Fire Safety Officers and Municipal Building Surveyors that the approval process, as it is written now, is quite vague. A flow chart of how the team perceived the regulations governing the permit approval process was created. Then interviewees from the CFA and VMBSG gave input on how they interpret the legislation in their councils. The interviewees described, in their own words, the process involved in getting approval to build a caravan park. From that, a basic flowchart depicting the individual's description of the process was created. Because each council handles the situation differently the team made several flow-charts and analyzed their similarities and differences. From that information a revision that not only could appeal to all parties involved (See 4.5), but also would be consistent for all councils was suggested.

3.2 Identify Fire Safety Risks in Caravan Parks

The primary concern for the Building Commission and other agencies is safety within caravan parks, and developing the best methods to effectively improve it. The issues that concerned the Building Commission included fire separation between dwellings, fire fighter access, and general statistics regarding fires and the damage they caused. The Building Commission regarded this as important information because it would provide the foundation and support for any changes that could be proposed. Drastically changing regulations and

requirements of caravan parks without any evidence of the need to do so could potentially have unnecessary negative impacts on the UMD industry.

3.2.1 Fire Statistics

In order to justify any intention of changing the fire safety regulations for UMDs and caravan parks, the Building Commission needs evidence to support their concerns. Information on fires from the CFA's Fire Inspection Record System (FIRS) was requested. The information the team tried to acquire was:

- Number of fires in caravan parks
- Number of fires involving UMDs
- Number of UMDs involved in fire
- Extent of damage (property/health)
- Any comments made by fire-fighters on access problems or separation

Along with statistics on past fires, the team attempted to gather information on conditions that could influence fires in the future.

3.2.2 Fire Separation and Fire Fighter Access

Three caravan parks were visited to investigate fire separation and fire fighter access. The team also contacted four CFA Fire Safety Officers and interviewed the Fire Safety Program Leader. Together, the Building Commission and the DPCD arranged for the team to visit three different caravan parks in Victoria. According to the Building Commission, the three parks represented a variety of application of the Caravan Park Fire Safety Guidelines. Accompanied by a representative from each of the two organizations, the team was able to visually observe the existing conditions in caravan parks and speak with developers, and sometimes resident council members. Developers were asked questions related to fire safety, and asked to comment on the Residential Tenancies Regulations and the CFA *Caravan Park Fire Safety Guideline* based on their experience and familiarity with it. At the beginning of our questioning, the team avoided asking questions about specific regulations; the questions were broad, in an attempt to determine whether or not the developers perceived a wider range of problems with the regulations. If the

discussion did not move towards fire safety, the team would ask questions with a narrower scope (See Appendix B for a detailed listing of these questions). Because compliance with the regulations was not within the scope their investigation, they refrained from taking actual measurements of access and separation between homes. Pictures were taken, however, to document the application of the guidelines and regulations in caravan parks.

When speaking with CFA representatives the team focused questions on their guidelines (See Appendix A for a detailed listing of these questions). The main objective was to let them discuss the guidelines and how they were being applied in conjunction with the regulations. They provided the team with their reasons to support wider fire separation standards than the ones required by the BCA. They also discussed fire fighter access and the testing CFA did to determine minimum spacing.

Chapter 4 Results and Analysis

The goal of this project was to identify fire safety risks related to UMD structures in caravan parks and to assess current UMD policy. The goal was achieved by assessing the UMD classification, comparing regulations and guidelines and investigating the approval process, as well as by investigating fire fighter access, fire separation, and fire statistics in caravan parks. This section contains the results of a content analysis of UMD regulations and interviews with caravan park developers, building surveyors, Fire Safety Officers, and DPCD representatives.

4.1 Assess UMD Classification

The team originally considered recommending eliminating the existing UMD classification to force these parks to comply with Class I dwellings codes. They assumed UMD structures were not readily movable and classifying them as Class 1 dwellings would not have a major impact. The first statement was shown to be false when the team visited caravan parks. For the smaller UMDs, draw bars were still attached to the chassis of the home, and the wheels were covered with wood paneling (see Figure 7). When challenged by his town council that the UMDs on site were not movable, one developer was able to arrange for a crane and truck to come in and move the dwelling within 24 hours. So although UMDs rarely if ever leave the site where they were first installed, they are still "technically" movable and cannot be classified as Class 1 dwellings.

Figure 7: UMDs with Draw Bars

The second hypothesis for reclassifying UMDs was refuted when government representatives and industry professionals agreed that UMD classification is necessary to provide affordable housing. This need for affordable housing is driven by the current housing crisis and Australia's growing aged population. According a 2001 study by the Australian Housing and Urban Research Institute (AHURI), a significant percentage of people who lived in caravan parks did so because of cost; "62% of households in caravan parks earned less than $500 per week". Another shocking statistic from this study showed that nearly 80% of caravan park residents had no college education, and 10% were unemployed. This same study also showed that retirees compose 42% of Australia's permanent caravan park resident population (*Housing Risk Among Caravan Park Residents* 2008).

In order to provide retirees with an affordable housing option, one developer took an in depth look at the market and created an age-qualified UMD community. First, the developer assumed that on average, a retiring person or couple could sell their home for approximately $300,000 AUD and collect a pension of $240 AUD a week. If the developer provides a UMD for approximately 65% of that profit, and a weekly rental fee that could be covered by the pension, it would supply the retiree with an adequate accommodation and a comfortable living budget. Furthermore, the government provides rental assistance to qualified retired people, thus making living in a UMD on a pension even more feasible.

Purchasing a UMD within a caravan park has several other cost-saving benefits as well. Given that UMDs are currently exempt from the Building Regulations, a builder is not required to obtain any building permits that are associated with Class 1 buildings. Class 1 dwellings are also required to achieve a 5 star level of energy efficiency. One developer, who's UMDs are manufactured to an average 4.5 stars, stated "increasing the efficiency to 5 stars could cost thousands of dollars". Lastly, UMD and caravan park lands are exempt from both land tax and stamp taxes (a tax on the purchased house). For a Class 1 dwelling, stamp tax can be approximately 10% of the total purchase, which is a significant amount of money for a retired person living on a fixed income.

Table 2 represents an approximate cost comparison analysis between purchasing a home or a UMD. The land and dwelling cost figures were obtained from an interviewee who based the numbers on current real estate values in the area. The land and stamp taxes were estimated using the calculation tables provided on the website of the State Revenue Office of Victoria. The cost

of domestic maintenance (i.e. utilities) was not included because the amount would be comparable for similar sized dwellings. Overall, when purchasing a UMD rather than a Class 1 home, a pensioner would have more than ten times the money left over to spend.

Table 2: UMD vs. Class 1 Dwelling Purchase

	UMD	CLASS 1
Purchasing Budget	$300,000	$300,000
Land Cost	X	$200,000
Dwelling Cost	$150, 000 - $200,000	$80,000
Land Tax	X	$200
Stamp Tax	X	$12,460
Total Cost	**$150, 000 - $200,000**	**$292,660**
Net Savings	**$100,000 - $150,000**	**$7,340**

4.2 Comparing Current Guidelines and Regulations

The three relevant documents the team compared were the Residential Tenancies Regulations (RTR), the Building Code of Australia (BCA), and the Caravan Park Fire Safety Guidelines. Within the RTR, Part 3 Division 4 Section 35, *Fire Prevention and Safety*, requires caravan park owners to provide fire fighting facilities and ensure sufficient space around dwellings for fire fighter access. It also requires councils to consult the relevant fire authority, which in Victoria is the CFA. The BCA and the CFA guidelines have Prescriptive Provisions and Performance Measures for fire separation. The BCA requires 1800 mm while CFA requires 2000 mm. There are several reasons the CFA chose 2000 mm over 1800 mm. Victoria's Building Regulations, which reference the BCA, require 2000 mm between two buildings. UMDs are typically built from low cost, flammable materials such as vinyl siding with polystyrene backing or timber framing. An increased separation decreases the risk of fire spread. There is no scientific evidence to support 1800 mm, it is an established benchmark. Finally, 2000 mm is an even, round number that park owners can remember and visualize. Developers and owners most often choose to meet Section 35 via Performance Measures because of the differences between the BCA and the guidelines.

Part 3 Division 4 Sections 25 and 36 require smoke alarms in each dwelling and a park emergency management plan, both of which are up to the standards of the CFA guidelines and

the BCA. A portion of the analysis is located in Table 3 below (full table in Appendix C). The team also compared Schedule 3 Section 1 of the RTR to the BCA. It covered construction standards, not related to fire safety and is located in Appendix D.

Table 3: Comparison of CFA Guidelines and BCA

Country Fire Authority - Caravan Park Fire Safety Guideline	Building Code of Australia
02 Prevention of Fire Spread	
►Firefighter access to and around buildings	
►Occupants can evacuate safely	
►Potential for spread of fire is reduced	
• 1200mm unobstructed separation	• 900mm unobstructed separation (3.7.1.3)
• 2000mm separation from external wall to external wall	• 1800mm separation from external wall to external wall (3.7.1.3)
• 2100mm vertical clearance must be maintained at all times	
03 Provision & Maintenance of Firefighting Equipment	
►Occupants can initiate an initial attack of the fire	
• Portable fire extinguishers in each dwelling (AS2444, RTR Reg35)	
• Fire blankets in each dwellings (AS2444, RTR Reg35)	
• Smoke alarms installed in each building (AS3786, RTR Reg25 & 26)	• Smoke alarms in compliance with AS3786 (3.7.2.2)
• 36m long hose reels installed throughout park to provide an intial attack until CFA arrives (AS2441)	

4.3 Investigate the Permit Approval Process

The team specifically investigated Section 35 of the RTR to determine how councils approve a park's fire safety. Section 35 requires a park to provide fire fighting access and facilities to the satisfaction of the council. However, the council must consult with the relevant fire authority. The team created a flow chart (Figure 8) to illustrate how they interpreted the legislation. The council consults with the CFA, and there is no direct contact between the CFA and park owners.

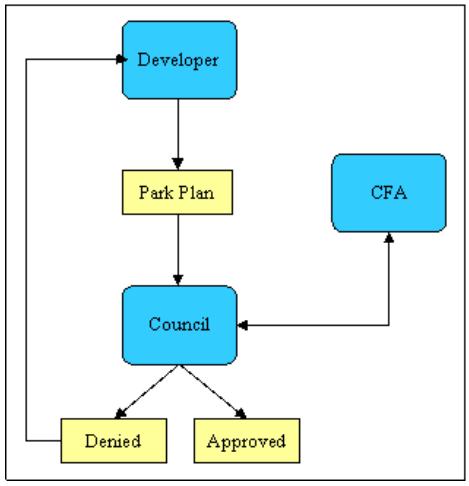


Figure 8: Initial Interpretation of Section 35

The team spoke to Fire Safety Officers and council officers to determine how they interpreted the process flow. One council officer explained that when the regulations were first written, the council ran caravan parks in Victoria. The problems began when caravan parks moved into the private sector and a third party became involved. He said in his council consulting with the relevant fire authority meant he ensures developers comply with the CFA guidelines (Figure 9A). However, the issue with approval was not with new parks being built, but that UMD owners build carports and verandas that encroach into designated fire fighter access and fire separation space. Also UMDs were being built that were too high and blocked out sunlight. There is no way for the council to keep track of incremental building within the park once it was built, because they lack the resources for annual inspections. A park owner applies for permit renewal each year, but the form contains little more information than the name and address of the owner and the number of sites. He said it is nothing more than a "rubber stamp" process. A Fire Safety Officer described a similar process in his council. He provides input on the layout and spacing of UMDs in a park to the council and developer, instead of the council officer relying on the guidelines (Figure 9B). He also suggests his organization lacks the resources for annual inspections.

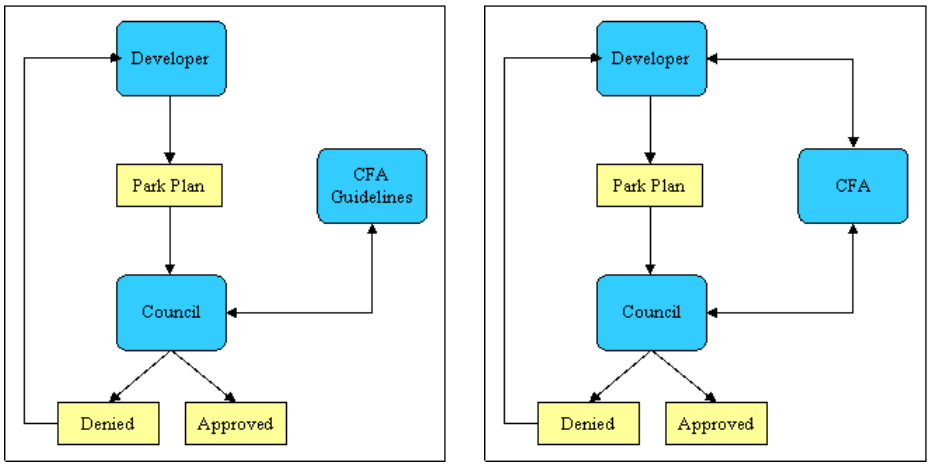


Figure 9 A and B: Two Different Council Approval Processes

4.4 Fire Statistics

The team searched for statistical information from the Fire Incident Report System (FIRS) on fires in UMD parks, but found none. CFA representatives and building surveyors recalled recent fire incidents in caravan parks, but not specifically involving UMDs. Despite the lack of hard evidence, a couple of different reoccurring conversations provided some support that danger is imminent.

Although there was no evidence to prove that UMDs in caravan parks are at great risk, several CFA officers shared similar opinions as to why parks are dangerous. Given the cost of these dwellings, the CFA officers pointed out that the non-age qualified caravan parks typically house people of lower incomes. The 2001 census placed 58% of caravan park residents in this bracket (*Housing Risk Among Caravan Park Residents* 2008). One CFA employee stated that "these people are more likely to participate in risky behavior, involving drugs, alcohol, and cigarettes." He continued to explain these "risky behaviors" put the resident at a higher risk of fire related accidents.

These officers also expressed unease with the construction materials of most UMDs. Although some developers may use UMDs built from non-combustible material, others utilize UMDs manufactured from more flammable material to cut costs. At least one park visited constructed UMDs with vinyl siding with a polystyrene backing, which is classified as combustible. In comparison, materials like brick and cement, commonly used in Class 1 dwellings, are classified as non-combustible. Therefore the risk of fires in UMD parks is greater than the available data implies.

4.5 Fire Separation and Fire Fighter Access

These topics seemed interchangeable at first, but the team learned that they are two overlapping, yet separate concepts. The CFA guidelines recommend 2000 mm of fire separation between UMDs, which is intended to prevent the spread of fire from one dwelling to the next. They also recommend 1200 mm of unobstructed space for fire fighter and equipment access. While some parks allow for proper fire separation, the spacing is occupied with foliage or domestic equipment that impedes fire fighter access. Other parks provide adequate fire fighter access, yet UMD units are spaced less than 2000 mm. Only parks that follow both sets of recommendations achieve the CFA's intended level of fire safety.

4.5.1 Fire Separation

Some developers complain that the CFA recommendations are more stringent than the BCA in terms of fire separation. In their *Caravan Park Safety* Guideline, the CFA recommends a fire separation distance of 2000 mm between dwellings. However, this figure exceeds the required 1800 mm of separation outlined by the BCA. Although no testing was done to support the 2000 mm figure, CFA agents used the same reasoning of construction materials and low income residents to further justify this larger distance. In their eyes, the likelihood of a severe fire in a caravan park community is greater than in a Class 1 community. Figure 10 depicts two UMDs that maintain the 2000 mm fire separation in accordance with CFA guidelines.

Figure 10: Ideal Fire Separation of 2000 mm

Many developers also hesitate to accept the CFA recommendations for fire separation because it costs them valuable space. One developer stated that adhering to the recommended 2000 mm between dwellings would cause the park capacity to fall from 26 UMDs per hectare to 20, a loss of about 20%. As a result, the developer would need to charge higher rent prices to recoup rent losses and keep other facilities and services operable.

In order to maintain affordability of the park, this developer proved that his design met the CFA Performance Measures. By using non-combustible building materials and applying

separation prescriptions from the BCA, the developer demonstrated that his park met safety requirements. The access between UMDs shown in Figure 11 was deemed acceptable by the CFA because the developer and fire protection engineer argued that the park had "the ability for fire brigade intervention…to be at least consistent, if not significantly better than a subdivision of typical Class 1 dwellings." The CFA felt that the park layout and infrastructure (paved streets, direct doorway access to the street, separation of 3550 mm in the rear, hose reels) provided them with ample fire fighting access and utilities.

Figure 11: CFA Approved Spacing

The major problem that council members and the CFA have is getting previously constructed parks to follow fire separation recommendations. Again, the main cause for this problem is cost. In order to bring parks up to code, park owners would need an overhaul of their park layout; expensive cranes and trucks would be needed to shift the UMD layout. Furthermore, this process reduces the number of UMDs or caravans that can fit into a park, which means that some existing residents would need to find another place to live.

4.5.2 Fire Fighter Access

The CFA requirement of 1200 mm of unobstructed fire access space was derived from numerous tests aimed at measuring how effectively firefighters could work between adjacent buildings. The CFA set up two movable walls in a warehouse and positioned them at various distances apart, ranging from 500-2000 mm. At each distance, they sent firefighters into the alley to perform various tasks (ladder eave access, victim rescue, 38 mm/64 mm charged hose drag, 38 mm/64 mm charged hose spray). To ensure comprehensive results, the fire fighters who performed the tests covered a variety of body weights, heights, types and sexes. The CFA even employed a professional ergonomist who worked with firefighters to assess how easily they could perform the various tasks.

The testing demonstrated that when attempting to access to eaves with less than 1200 mm of space, fire fighters had difficulty mounting the ladders because their oxygen tanks would be pressed up against adjacent buildings (Figure 12). Furthermore, without 1200 mm of space, fire fighters found it too difficult to manipulate 38 mm or 64 mm charged hoses, and they had issues with enough elbow room when trying to lift and carry a victim to safety. Please see Appendix B for more testing pictures.

Figure 12: CFA Fire Fighters Successfully Access Eaves with 1200 mm Separation

The current regulations state that an owner must "ensure there is sufficient space between and around dwellings in the caravan park for access for firefighters" (RTR, 1999). With a lack of numerical distances within the regulations, spacing between structures is inconsistent from park to park, and even from UMD to UMD. Some structures will have the required 1200 mm for fire access, but have a fence in between the structures (Figure 13A); other structures will have trees and bushes impeding access (Figure 13B). Again, the main issue is with existing parks that were developed prior to the 2006 set of recommendations; the CFA "acknowledged that complying completely with the prescriptive provisions will be difficult in most circumstances due to existing infrastructure and financial viability issues." For this reason, the new guidelines have incorporated Performance Measures so as to give current park owners options to improve their fire safety.

Figure 13 A and B: Obstructed Access Between UMD Structures

One developer argued against the need for unobstructed access between UMD structures is that in the case of fire between UMD structures, fire fighters would not travel down the alleys adjacent to the burning structure(s). The CFA agreed with this argument, but stated that adequate access a few units down from the burning structure would be necessary if they needed to bring a hose reel around to the back of the burning building.

Chapter 5 Conclusions and Recommendations

The goal of this project was to assess current UMD policy and to identify fire safety risks related to UMD structures in caravan parks. The team assessed the UMD classification and compared regulations and guidelines, as well as investigated the permit approval process, fire safety precautions, and fire statistics in caravan parks. After gathering the data and analyzing their results, the team produced several conclusions and recommendations to present to the Building Commission and achieve their goal.

The team concluded that the continuation of a separate classification for UMDs is necessary to provide an affordable housing option for Australians, particularly the retired. However, despite the lack of documented fires, increased UMD and caravan park safety is contingent upon updating and enforcing regulations. The Residential Tenancies Regulations (RTR) lacked definitive fire safety precautions, which allowed caravan parks across Victoria to exist at an elevated fire risk.

In an attempt to avoid "tombstone legislation", the Building Commission and Department of Planning and Community Development (DPCD) can mitigate risk by updating current regulations to include CFA recommendations for fire access and separation. Inserting Prescriptive Provisions into the regulations will be effective for decreasing risk in new parks, but those constructed prior to the 2006 CFA guidelines still pose a greater risk. It is difficult and expensive for established parks to meet the Prescriptive Provisions. Therefore, the regulations must also incorporate Performance Measures which allows older parks to meet the requirements without a drastic change in park layout.

When comparing the relevant pieces of legislation and recommendations, the team supported the CFA recommendations for fire access and fire separation and therefore agreed the current CFA recommendations should be adhered to. The access distance of 1200 mm was tested and proven, and the 2000 mm separation distance is reasonable when taking into consideration the Building Regulations of Victoria. The CFA is the relevant fire authority for caravan parks, and if they feel that 2000 mm is critical in promoting the safety of residents, then 2000 mm should be the benchmark.

Also, the approval process lacks definition and is open to interpretation. In theory, the CFA should have greater controls over park layout because their recommendations are aimed at

improving safety. Although town council evaluates all safety aspects of the park, the CFA should be directly consulted in the approval process to avoid any issues. With limited manpower in the CFA and town councils to conduct inspections, it is important to not only minimize and control problems before they arise, but also distribute the duties efficiently.

5.1 Recommendations

From the aforementioned conclusions, the team generated four recommendations to increase safety, overall communication, and eliminate confusion.

- **Reference the CFA guidelines in the RTR**

  Referring to the CFA guidelines would solve three issues. First, the CFA cannot be added to the RTR because the RTA is structured so that only the minister and the council have power. Adding a reference to CFA Guidelines would allow the CFA to have indirect power to mandate fire safety regulations. The CFA would also be able to update its own guidelines without going through the complicated process involved in updating the RTR. Finally, the recommendations allow for both Prescriptive Provisions and Performance Measures, which is necessary for compliance in both old and new parks.

- **Require the council to get approval from the relevant fire authorit**y

  The council will need approval from the CFA, but it is up to the developer to contact the CFA and arrange approval. The council, however, would still possess the power to deny approved layout, in which the case the developer must return to the CFA with a new layout and repeat the process. Figure 14 depicts the recommended approval process.

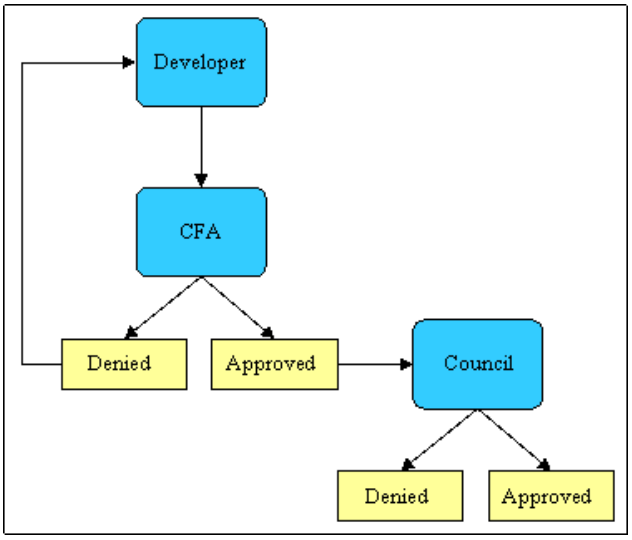


Figure 14: Recommended Approval Process

- **Require periodic park inspections**

  Neither the CFA nor the VMBSG employ sufficient staff to inspect every caravan park every year. Periodic inspections every 3-5 years would enable authorities to ensure continued compliance with regulations, along with ensuring controlled incremental building.

- **Require a more detailed permit renewal application**

  Using a more in depth renewal permit will allow councils to keep track of incremental building in caravan parks. The renewal permit would require verification of a CFA inspection within the last 5 years, thereby controlling incremental growth. This new document will also provide councils with annual statistical data on parks.

Table 4: Sample Permit Renewal Application

Caravan Park Permit Renewal Application
General Information
Park Name: _____
Park Address: _____ _____
Park Developer: _____
Park Manager: _____
Date: _____
Park Layout Information
Number of Sites: _____
Number of New Sites: _____
Number of Sites for Temporary Vehicles: _____
Number of Sites for Permanent Housing: _____
Residential Information
Number of Permanent Residents: _____
Number of Permanent Residences: _____
Number of UMDs: _____
Number of Caravans:
Number of Cabins: _____
Other Information
When was your park last inspected by the VMBSG? Please provide documentation.
When was your park last inspected by the CFA? Please provide documentation.

5.2 Future Work

The limited amount of time dedicated to this study did not permit the team to extensively address all the aspects related to fire safety in UMDs. However, other options have been identified that could prove useful if further examined. The following is a list of recommended avenues for further exploration:

1. **Minimum UMD fire separation testing**

   The CFA conducted live experiments with fire fighters trying to perform various tasks in confined spaces to derive the minimum 1200 mm of fire fighter access. However, this testing has not been performed to support 2000 mm of fire separation yet. To provide the industry with evidence of the minimum amount of fire separation necessary, the team and the CFA consider it beneficial to conduct controlled burn tests.

2. **Update construction standards**

   The team discovered several subtle differences between the RTR and the BCA for structural integrity, glazing, ventilation and installation of footings. The team cannot recommend the regulations adopt the BCA requirements in these areas because there was no further research into the subject. Extensive research and communication with industry

professionals, like contractors or manufacturers, would benefit the DPCD in future regulation updates.

Works Cited

Australian Housing and Urban Research Institute. *Risk Among Caravan Park Residents*. March 2008.

Building Commission. Melbourne, Victoria. Retrieved February 2, 2008 from <http://www.buildingcommission.com.au/www/html/56-introduction.asp>

Building Commission. (2006). *Essential Safety Measures Maintenance Manual*. Melbourne, Victoria.

Building Regulations, S.R. No. 68 (2006). Retrieved January 20, 2008 from <http://www.pic.vic.gov.au/resources/documents/Building_Regulations_2006.pdf>

Bullock, G. (2007, September 19). Resort retirement. *The Australian (Australia),* pp. 6.

City of Albany. *Caravan Parks & Camping Grounds*. Albany, Western Australia. Retrieved February 16, 2008 from <http://www.albany.wa.gov.au/website/uploads/27b_pdf_3.pdf>

Country Fire Authority. (2006). *Caravan Park Fire Safety Guideline*. Mt Waverly, Victoria.

Cummins, Carolyn. (2007, October 6). Riding a wave of baby boomers. [Electronic version]. *Sydney Morning Herald (Australia),* pp. 60.

Department of Local Government and Regional Development. (2005). *Review of the Caravan Parks and Camping Grounds Act 1995*. West Perth, Western Australia. Retrieved February 16, 2008 from <http://www.dlgrd.wa.gov.au/Publications/Docs/CaravanParksCampingGroundsActPaper.pdf>

Department of Planning and Community Development. Melbourne, Victoria. Retrieved February 4, 2008 from < http://www.dvc.vic.gov.au/>

Fire Safety Requirements in Caravan Parks and Residential Parks Development Act, 1995, South Australia. Retrieved January 29, 2008 from <http://dataserver.planning.sa.gov.au/publications/458p.pdf>

Frost, L. (2007, September 12). The challenge of an ageing population. *The Age (Melbourne, Australia),* pp. 14.

Kennedy, H. (2006, February 11). Village: life is not for all. *Herald Sun,* pp. M04.

Lague, M. (2006, July 3). Villages put in spotlight. *The West Australian (Perth),* pp. 36.

Mason, W. (2007, March 26). Living in your seventies. *Herald Sun (Australia),* pp. 30.

Newton, J. (2006). *Permanent residents in caravan parks, managers and the persistence of the social*. Retrieved January 20, 2008 from <http://find.galegroup.com/itx/infomark.do?&contentSet=IACDocuments&type=retrieve tabID=T002&prodId=AONE&docId=A158525944&sourcegale&srcprod=AONE&user roupName=mlin_c_worpoly&version=1.0 >

Power, E. (2006, August 7). Developers hit van parks; last refuge for low-income renters is vanishing. *Herald Sun (Australia),* pp. 11.

Residential Tenancies Act, ACT (1997). Retrieved January 20, 2008 from <http://www.legislation.act.gov.au/a/1997-84/current/pdf/1997-84.pdf>

Residential Tenancies (Caravan Parks and Movable Dwellings Registration and Standards) Regulations, S.R. No. 88 (1999). Retrieved January 20, 2008 from <http://www.dms.dpc.vic.gov.au/Domino/Web_Notes/LDMS/PubStatbook.nsf/0/A74275D041FC4D75CA256E5B0021A71F/$FILE/99-088sr.pdf>

Rental housing for lower-income older Australians 2008, AHURI Research & Policy Bulletin, no. 96. Retrieved March, 31 2008 from <http://www.ahuri.edu.au/publications/search.asp?ShowSearch=False&Search=Propertie Keywords=&Year=&Centre=&Search-Title=&Search-Summary=&Search Athor=&PublicationType=rap&Sort=Search-Title&Direction=ASC#results>

Victoria Municpial Building Surveyors Group. Parkdale, Victoria. Retrieved February 3, 2008 from <http://www.vmbsg.com.au/>

What is EPS, EPS Panel Group of Australia. Retrieved April 9, 2008 from <http://www.epspanelgroup.org.au/what.is.fire.php>

Appendix A – Interview Questions

Questions for CFA representatives-

Caravan Park Fire Safety Guidelines:

- What is reason for the 2m versus 1.8m fire separation?
- What is the reason for the 1200mm fire fighter access?
- Why is there requirement for fire-fighter access in the Residential Tenancies Regulations and not the BCA, and requirement for fire separation in the BCA and not the Residential Tenancies Regulations?
- How often would a fire-fighter use the minimum required access?
- What sections of the guidelines are most frequently questioned?
- Should the guidelines be incorporated into the Residential Tenancies Regulations?
- How many fires have occurred in caravan parks and UMDs?
- What is the risk of fire in UMDs?

Approval Process:

- Could you describe how the approval for a caravan park occurs in your council?
- How could this process be improved?
- Who inspects a caravan park or UMDs to ensure they comply?

How difficult is it to get pre-existing parks to meet performance measures?

Questions for developers-

Fire safety:

- Can you explain the fire safety problems that the CFA identified at Brookfield and how they were resolved?
- Are the CFA guidelines reasonable and appropriate for for your type of development?
- Are the Guidelines applied consistently in each CFA area?
- Are there opportunities for improvement?
- Is the council approval process applied consistently in relation to the CFA Guidelines?
- Are there any other suggestions or comment you would like to make in relation to fire safety in UMD villages?

Demographics and trends in relation to UMD villages:

- What sector or sectors of the community are choosing to live in UMD villages?
- Do you expect this to change in the future? (i.e. do you see yourself marketing to other sectors)
- Do you anticipate growth in this type of development?
- Can you estimate the growth –over 5yrs over 10yrs?

Extent of industry:

- Do you know the extent of the industry? (how many developers operate in Victoria?)
- Are you able to tell us who they are?

Fire insurance

- Most suburban residents take out household and contents insurance, do your residents take out the same type(s) of insurance?

Construction:

We are trying to obtain data in relation to UMD construction in comparison with a normal home.

- How are UMD's constructed and how are they erected on site.
- Even though exempt from the Building Act and Building Regulations, are UMD's in fact constructed in the same way that the Building Regulations would require?
    - Structurally?
    - Do they achieve 5 Star and if not do they have any level of insulation?
    - Do they have smoke detectors?
- Are there normally fences between UMD's.

Appendix B – Fire Fighter Access Testing Pictures

These are some additional pictures from the CFA Fire Fighter Access tests. These pictures were provided by the CFA.


1200mm


1200mm


700mm

Appendix C – Comparison of CFA Guidelines and BCA

Country Fire Authority - Caravan Park Fire Safety Guideline	Building Code of Australia
O1 Provision & Maintenance of Access	
O2 Prevention of Fire Spread	
►Firefighter access to and around buildings	
►Occupants can evacuate safely	
►Potential for spread of fire is reduced	
● 1200mm unobstructed separation	● 900mm unobstructed separation (3.7.1.3)
● 2000mm separation from external wall to external wall	● 1800mm separation from external wall to external wall (3.7.1.3)
● 2100mm vertical clearance must be maintained at all times	
►Fire Vehicle access to buildings	
● Access roads must have at least a 10m radius for turns	
● Average road grade must not be more than 8.1 degrees	
● Maximum road grade for a 50m distance is 11.3 degrees	
● Maximum entry and exit angle for any dip in the road is 7.1 degrees	
● Roads must be able with withstand 15 tonnes	
● Roads must be 4m wide without any obstructions, and have 4m of vertical clearance	
● Roads longer than 100m need either a turning circle, or 8m long "T" or "Y" head	
● Roads longer than 200m need passing bays every 200m (each bay should be 20m)	
O3 Provision & Maintenance of Firefighting Equipment	
►Occupants can initiate an initial attack of the fire	
● Portable fire extinguishers in each dwelling (AS2444, RTR Reg35)	
● Fire blankets in each dwellings (AS2444, RTR Reg35)	
● Smoke alarms installed in each building (AS3786, RTR Reg25 & 26)	● Smoke alarms in compliance with AS3786 (3.7.2.2)
● 36m long hose reels installed throughout park to provide an intial attack until CFA arrives (AS2441)	
►CFA has the tools to fight the fire	
● Fire hydrant system so that 120m of hose can reach all housing units	
● Pipe size and fitting requirements in compliance with AS2419.1	
OR	
● A static water supply of 45000L which can provide acces to units with a 60m hose from a tank or 120m hose from a hydrant	
● Tanks within 4m of hardstand to allow vehicles to connect to the system	
● Fittings must still be in compliance with AS2419.1	
O4 Identification & Management of Fire Hazards	
►Potential fire hazards are identified, and risk minimized	

	● Storage of gas in accordance with AS/NZS1596 and Dangerous Goods (Storage and Handling) Regulations 2000	
	● Electrical safety in compliace with AS/NZS3000 and AS/NZS3001	
	● Flammable liquids stored in accordance with AS1940 and Dangerous Goods (Storage and Handling) Regulations 2000	
O5 Emergency Management Plans		
►Emergency Plans developed and maintained		
	● Emergency Management Plans which comply with AS3745 and AS4360. If there is an excessive storage of hazardous materials on site, then AS1596, AS1940, and the Dangerous Goods (Storage and Handling) Regulations 2000 must also be consulted when developing an evacuation plan	
O6 Compliance with Legislative Requirements		
►Other legislative requirements are met		

Appendix D – Analysis of UMD Construction Standards

Schedule 3 Part 1 Section 1 contained the structure and design requirements for a UMD. The two main differences between this section and the BCA were structural integrity and glazing. The BCA and RTR require dwelling's construction in accordance with AS 1170.1 and AS 1170.2, the Australian Standard for combined, dead, live and wind loads. The BCA also requires construction to factor in snow, earthquake and other ground loads, but AS 1170.1 and AS 1170.2 generally ensure proper structural integrity. The RTR also requires manufacturers to choose glazing materials in accordance with AS 1288, which is consistent with the BCA's most basic requirements. The BCA details standards for glazing to meet a five star energy efficiency requirement, but because UMDs do not require energy efficiency, the regulation is sufficient. Section 2 attempted to copy building regulations that applied when the government first wrote it. However they have since updated the building regulations to no longer contain prescriptions for minimum room areas. A developer also noted that the market essentially regulates room areas, and a home with small rooms will not sell. Section 3 requires bath and laundry rooms to have floors and walls made of a "material impervious to moisture" and ceilings at least 1800 mm tall. This is consistent with the highest standards of the BCA for any "wet area". Section 4 covers lighting and ventilation requirements for UMDs. It is consistent with the BCA's lighting requirements, but would need to update to modern ventilation standards, if only slightly. Section 5 allows a UMD owner to remove the wheels and axels from their UMD and place it on footings 150 mm off the ground. The BCA has no requirement for spacing between a dwelling and the ground, presumably because Class 1 buildings have foundations. However, it does require 600 mm of spacing if the dwelling is located in a bushfire area. A table of the full analysis is located on the next two pages.

Comparison of RTR Schedule 3 Part 1 Section 1 with BCA

	Confliction with BCA? YES/VAGUE/NO	**RTR**	**BCA**
Location		Sch. 3, Pt. 1, 1(1)	3.11.1
Summary		UMD must be of a design that is structurally sound	Includes AS 1170.1&2 along with AS 1170.3&4 (snow and earthquake) along with several other actions
…		...1(2)	3.11.6 (d)
…		Footings of a UMD must be designed so relative movements under loading does not impair or damage the structural stability of the UMD	AS 2870
		...1(3)	
		A UMD must have its own chassis capable of supporting it at all times, including transportation	N/A
		...1(4)	
		Must have anchor points for tie down gear	N/A
		...1(5)	3.11.3 (c) (ii)
		Must be designed with AS 1170.1&2 - 1989, design wind speed min of 41 mps	AS/NZS 1170.2 or AS 4055
		...1(6)	3.11.6 (i) (i)
		Glazing materials chosen in accordance with AS 1288 - 1994	Glazing materials chosen in accordance with AS 2047 for some windows
		...1(7)	
		Average ceiling height for habitable room must be 2400mm for 2/3 of floor space	N/A
		…1(8)	3.8.2.2 (a)
		Minimum ceiling height for habitable room is 2100mm	Minimum ceiling heights for a habitable room (excluding kitchen) is 2.4m
		…1(9)	
		Enclosed floor area of residential UMD minimum 15 m sq	N/A
		…1(10)	
		Laundry or toilet must be separated by door from areas where food is prepared	N/A
		Transportable toilet must comply with clauses 1(1), 1(2)a&b, 2 and 3	N/A

Comparison of RTR Schedule 3 Part 1 Sections 2 - 6 with the BCA

	Confliction with BCA? YES/VAGUE/NO	**RTR**	**BCA**
Location		…2 **Room Areas OUTDATED**	
Summary		…3	3.8.1.2
…		If a UMD has shower, bathroom, or toilet: floor must be covered by a material impervious to moisture, walls must be minimum 1.8 meters and a material impervious to moisture	Wet areas must be water proof/resistant in accordance with Table 3.8.1.1
…		…4(1)	3.8.4.2 (i)
		Must have window area of at least 10% of floor area in all rooms	Natural lighting must be provided by windows that have an area not less than 10% of the floor area of the room
		…4(2)	3.8.5.2
		50% of aforementioned windows must be able to open to the outside	Ventilation may be provided by a window with an opening or operable size no less than 5% of the floor area required to be ventilated
		…5(1)	
		With council approval, wheels and axels may be removed and placed on footings	N/A
		…5(2)	3.7.4.1 FLOORING SYSTEMS
		When placed on footings, there must be 150mm between ground and UMD with adequate ventilation	(a) concrete slab on ground (c) framed floor with all joists/bearers less than 600mm above ground (d) If joists/bearers less than 600mm: (i) made of fire-retardant-treated timber (ii) enclosed by a wall (iii) enclosed by non-combustible sheet metal no less than 400mm above the ground
		... 6 (1)	
		Electrical installation and wiring in accordance with AS 3000–1991 or AS 3001–1990	N/A
		… 6 (2)	
		Plumbing in accordance with AS 3500.1.1–1998, AS 3500.1.2–1996, AS 3500.2.1–1996, AS/NZS 3500.2.2–1996, AS 3500.3.1–1998, AS/NZS 3500.3.2–1998, AS 3500.4.1–1997 and AS/NZS 3500.4.2–1997.	N/A