Functional Heritage

Reconnecting with the iron web

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Explanatory Document

*A Research Project submitted in partial fulfilment of the requirements
for the degree of Master of Architecture (Professional).*

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Dunedin from the Bay

Go, trav'ler, unto others boast

Of Venice and of Rome;

Of saintly Mark's majestic pile,

And Peter's lofty dome;

Of Naples and her trellised bowers;

Of Rhineland far away:—

These may be grand, but give to me

Dunedin from the Bay.

Thomas Bracken, 1890 ¹

(Writer of the New Zealand

National Anthem)

¹ Janine Faulknor and New Zealand Ministry for Culture and Heritage Te Manatu Taonga, "Thomas Bracken's grave," Te Ara Encyclopedia of New Zealand – Te Ara Encyclopedia of New Zealand, July 17, 2015, accessed September 14, 2017, <https://teara.govt.nz/en/photograph/22768/thomas-brackens-grave>.

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Dedication

This document is dedicated to the Mornington residents who fought desperately until the very end to preserve the historic Mornington Cable-Car system. This represents the dream they never got to witness.

Abstract

Historic buildings are becoming redundant in the face of contemporary development, although the potential for adaptative reuse is increasing in popularity. Through strategic design intervention, many historic buildings could become functionally relevant during the 21st century.

The purpose of this work is to develop an architectural solution for the adaptive reuse of an historic building. The intention is for the building to become functionally relevant in 21st century Dunedin, so the project explores the adaptive reuse in relation to an existing proposal for a new cable-car depot in the city. The project grew from a personal passion for New Zealand's architectural heritage and, in particular, Dunedin due to its growing reputation as the heritage capital of New Zealand. For this reason it should be acknowledged that the site was selected at the beginning of the project, and all investigation has been conducted specifically in relation to the chosen site.

The site in Dunedin that has been chosen is the currently neglected historic former Mornington Cable-Car Depot. A systematic study will be conducted that is based on architectural, historical, and context analysis, to provide insight into the adaptive reuse of a piece of architectural heritage.

There has been widespread theoretical views about the adaptation of historic buildings for reuse since discussions on the topic reached their peak in France and England during the nineteenth century. The primary motive behind these discussions seems to stem from issues around authenticity. Should it be allowed for an historic building to be restored to its original condition when much of the building may no longer exist? If restoration is allowed does this result in a fraudulent imitation of the original? This dilemma continues as an on-going argument in heritage conservation.

The intention of this work is to refocus how the chosen building is regarded by the community. For example, “it’s an old building past its use-by-date because the cable-car is no longer in existence.” The re-purposing of the building could change the focus to one where the potential of the building is not only realised, but is actually valued and revered for its history, cultural heritage and place in Dunedin society.

Figure 1: Our Ladies Church, Dresden, 1726–1743. Largely destroyed by bomb damage in 1945.

Figure 2: Our Ladies Church, Dresden, 1726–1743 controversially restored 1993–2005.

I.1 Key Terms

The key terms are defined according to the ICOMOS New Zealand Charter (2013) and were used as a starting point for this project.

Authenticity *the truthfulness or credibility of the existing historic building and its cultural heritage values.*¹

Cultural Heritage Values *an historic building or site that possesses aesthetic, architectural, functional, historical, commemorative, landscape, monumental, social, spiritual, symbolic, traditional or other tangible and intangible values as related to human activity.*²

Intervention *any activity that causes disturbance or alteration of the existing fabric and can include invasive investigation of built structures, and intervention for conservation purposes.*³

Preservation *all actions taken to maintain an historic building or site, while minimising change.*⁴

Fabric *all physical material of an historic building and site, including its structure, surfaces, fixtures, and fittings and landscape gardens and plantings.*⁵

¹ International Council on Monuments and Sites, *ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value*, (Auckland: ICOMOS, 2010), 9

² ICOMOS New Zealand Charter, 9

³ ICOMOS New Zealand Charter, 10

⁴ ICOMOS New Zealand Charter, 10

⁵ ICOMOS New Zealand Charter, 10

1.2 Background

In New Zealand, when a building's function becomes obsolete it is common practice to demolish it and to replace it with another building that specifically caters for the new function. Although the listing of historic buildings by local council, or government bodies, seeks to prevent wilful demolition these measures do not safeguard historic buildings from becoming redundant or deteriorating to a point where they are beyond repair. In the case of historic buildings that are demolished, this results in the loss of architectural heritage as well as the stories and associations that are linked to that particular building.⁶ As an alternative to the loss of unlisted architectural heritage, this project will examine the potential for an historic building and its function to develop with Dunedin, so ensuring the long-term preservation of built-heritage. An agreed philosophy has not yet been developed for the adaptive reuse of historic buildings as both conservation and legislative guidelines are subjective.

Past and current theoretical positions about heritage conservation have been analysed to inform the design guidelines. To begin, the origin of the primary positions in heritage conservation is explored, from when they began in ancient Greece and Rome, through to the Renaissance Period. This discussion is followed by an evaluation of the positions and their impact on influential philosophies of the nineteenth century. It was the writings of French architect Eugène Emmanuel Viollet-le-Duc and English authors and architects John Ruskin and William Morris that were at the centre of the nineteenth century discussions, and thus form the foundation of 20th and 21st century philosophy for the reuse of historic buildings.⁷

The use of these design strategies, and their associated implications, is investigated through a study of precedents. Each precedent provides insight into different design strategies that can be used for the adaptive reuse of redundant historic buildings. The precedents examined are the adaptive reuse of: the National Dance Centre, in Paris, Castelvechio Museum, in Verona; the Caixa Forum, in Madrid; and the Washington and Mason Cable-Car Depot in San Francisco.

⁶ Bollack and Frampton, *Old Buildings, New Forms*, 11

⁷ Jukka Jokilehto, *A History of Architectural Conservation* (New York: Routledge, 2017), 149

1.3 Aim and Objectives

The aim of this work is to develop an architectural solution that can be used for enabling a neglected historic building to become functionally relevant in the 21st century. The intention is for the architectural significance of the historic building, and its symbolic and cultural values, to be considered. The main focus of the project is to propose how the historic building can be revitalised in regard to the current plan to rebuild the Mornington Cable-Car system thus enabling the building to be used for a contemporary function. This project suggests a possible 'next phase' in the life of the historic building that has been chosen - the former Mornington Cable-Car Depot in Dunedin, New Zealand - as the site is currently under-developed in spite of its strong urban connections.

1.4 Research Question

How could an historic building be adapted to facilitate reconnection with its community and to make it functionally relevant in the 21st century?

I.5 Project Outline

After becoming aware of The Dunedin Lightrail Heritage Trust proposal to construct a new cable-car building in Mornington Park, it was decided that an alternative proposal should be provided so that the original historic cable-car building could be reused. The Trust's proposal is to not only construct a new Mornington cable-car building, but to build a new line along the original cable-car route (1883-1957) as a heritage tourist attraction. The original Dunedin cable-cars, on permanent loan from Christchurch's Ferrymead Heritage Park, will be used on the new line.⁸ While a new line is required, a new building does not necessarily have to be built.

The intention of this work is to demonstrate that the adaptive reuse of the original former Mornington Cable-Car building (c1882), which still exists, is a viable option as it will give the opportunity to create a complete heritage tourist attraction/hub in Dunedin. As part of the alternative proposal, the function of the historic building can be enhanced by providing space for other related functions, such as a cable-car maintenance facility, a museum, and gallery space for the Otago Art Society.

⁸ "Proposal to Reintroduce The Dunedin High Street Cable Car Line," Dunedin Cable Car Trust Publication, 2017.

Figure 3: The Mornington Cable-Car Line (1883-1957).

I.5.I Trust Cable-Car Route vs Suggested Route

Figure 4: Proposed cable-car routes.

The Dunedin Lightrail Heritage Trust intends to construct a new cable-car depot (refer A) in Mornington Park at the end of the reconstructed Mornington Cable-Car Line (yellow). However, an extension of this route (red) would allow the cable-car to follow the original route of 1883-1957, and for the historic Mornington Cable-Car Depot (refer B) to be used instead of the planned new depot (refer A). The historic Maryhill Cable-Car Line (1885-1955) could also be reconstructed (refer blue).

1.6 Scope and Limitations

This project develops a design proposal for the adaptive reuse of a building of historical significance. The design will, therefore, consider the cultural heritage values of the chosen building, and the context in which it was previously used. After conducting archival research, an evaluation of past and current literature, the relevant precedents, and site specific investigation, an appropriate design will be made. The final design will suggest the next phase for the role of the building within the city of Dunedin.

The first limitation is that the original plans of the Mornington Cable-Car Depot are no longer in existence. However later plans, obtained from the Dunedin City Council Archives, have been analysed so that logical assumptions could be made about the original building. The second limitation that should be acknowledged is that there is a dearth of specific, technical information about the machinery that is necessary to operate a cable-car line. Thus, the available information was supplemented after analysis of the Washington and Mason Cable-Car building and line in San Francisco.

1.7 State of Knowledge in the Field

Continual discussion in heritage conservation is about whether an historic building should be restored to its original condition. Does restoration result in an imitation/fake building? Furthermore, if an historic building is destroyed should it ever be rebuilt?

The acclaimed publications *A Conservation Movement* (Miles Glendinning, 2013) and *A History of Architectural Conservation* (Jukka Jokilehto, 2002) identify two influential nineteenth century philosophies; Scrape (Restoration) Philosophy and Anti-Scrape Philosophy, which are catalysts for discussion around the conservation and re-use of historic buildings. In Scrape Philosophy the architect is given permission to restore a heritage building in the style of the original building.¹ Anti-Scrape Philosophy takes the position that restoration of an historic building corrupts the building's authenticity.² It is recognised by

¹ Miles Glendinning, *The Conservation Movement: A History of Architectural Preservation: Antiquity to Modernity* (London: Routledge, 2013), 91

² John Ruskin, *The Seven Lamps of Architecture* (New York: John Wiley, 1849), 162

some theorists and architects that both Scrape and Anti-Scrape philosophies, are extreme and controversial views as they encourage a 'blanket' style philosophy for historic buildings.³

As complete agreement for one, or the other view, is not possible it is decided that a study of theoretical design strategies would be of benefit, so a precedent analysis was completed. Precedents such as the adaptive reuse of the National Dance Centre, demonstrate how new design intervention can be used within an existing building, while having minimal effect on the existing heritage fabric. This and other precedents provide insight into the various levels of design intervention in the adaptation of heritage buildings. The design intervention can range from minimum intervention through to extensive modification of the existing building.

Conclusions from both the literature and precedents will be used to inform the design guidelines (4.1) for the adaptive reuse of the former Mornington Cable-Car Depot.

Figure 5: The former Mornington Cable-Car Depot, Eglinton Road, Dunedin.

³ "LibGuides: Architectural History: Historic Preservation," Historic Preservation - Architectural History - LibGuides at Cape Fear Community College, accessed October 12, 2017, <http://libguides.cfcc.edu/c.php?g=321666&p=2151747>.

I.8 Methodology

Figure 6: Roof truss (on-site visit).

Four methods were used in this project to obtain the information required to inform the design guidelines for enabling the depot building to become functionally relevant in the 21st century. These methods were field trips to the site of the Mornington Cable-Car building, examination of relevant literature, examination of precedents, and the constructing and trialling of different designs concepts by the use of drawings and models.

Mornington Cable-Car Building On-Site Research

The cultural heritage values of the Mornington Cable-Car site were identified from when the historic building was initially constructed in 1882. For this reason, an analysis of the building was completed, as well as the cable-car system itself, to enable understanding of the building's original function as a cable-car depot. This required an historical analysis, an architectural analysis and context analysis. From January to June 2017 several sources were accessed to obtain this information.

The historical analysis was conducted by visiting the city archives at the Council Buildings in the Octagon, Dunedin. Copies of floor plans from 1960 – 1995 were obtained so they could be referred to throughout the design process. Copies were made of the historical photos of the building so that any parts of the building that had been demolished or moved, over time, to be identified.

A visit was made to the Hocken Library in Dunedin to source additional photos and plans, although few photographs from that era were available. However, some from the 1970's were of interest as they were of a time prior to the alterations that were made to the facade. Searches for photographs of the surrounding buildings from that era were also made in case they included glimpses of the Mornington Cable-Car Building. Several photos of adjoining buildings that included the cable-car building were found.

The Alexander Turnbull Library website was used to access aerial photos taken by Whites Aviation of Mornington suburb. Several photographs of Mornington

taken during the 1950s did not add anything to what was already known about the building.

To supplement this gathered information several site visits were also made.

Field trips provide a primary source of information. So two trips were made to Dunedin to inspect the Mornington Cable-Car Building and to look for any remaining physical evidence of those aspects that had been demolished. The resulting information was used to inform design decisions.

During the field trips an approach was made to the Senior Heritage Planner of Dunedin City Council, the chairman of the Dunedin Light Rail Heritage Trust, and the current owner of the building, to inform them about the project and to see if they had any constructive information that they could offer. The Senior Heritage Planner was able to confirm that the former Mornington Cable-Car Depot is not a listed building by the council. The owner of the building was able to provide access into the interior of the building.

Three unescorted tours were made of the inside of the building with the permission of the owner. These tours of the building were supplemented by the videos and photographs taken at the time of the visit.

Literature Analysis

Both primary and secondary sources were used to obtain general information about the conservation and reuse of historic buildings, including current and past theoretical positions. Literature that compares the theories was used to assess their relevance for the proposed design. Additional literature was used to gain understanding about the implications of adaptive reuse of redundant historic buildings. This method allowed for evaluations to be made about various theories that would help in developing design guidelines for the project. Graham Stewart, a renowned New Zealand historian and expert on cable-cars and trams, identifies many of the technical aspects as well as the social signifi-

cance that cable-cars played in people's lives prior to the 1960s. This information is necessary for understanding what design and programme allows for historical aspects to be incorporated in an appropriate design.

Precedent Analysis

An analysis of precedents will enable the adaptive reuse of historic buildings to be compared and evaluated based on the degree of intervention and number of changes made to the heritage fabric. To provide an understanding of a broad range of design strategies for adaptive reuse, and their implications for the adaptive reuse of the former Mornington Cable-Car Depot, particular precedents is based and analysed based on their degree of intervention: minimum, medium and extensive. An example of each type of intervention was chosen based on the strategy of their design architect(s). Their strategy could then be evaluated in regard to the overall effect it would have on the heritage fabric of the Mornington Cable-Car building. Design guidelines were then formulated from information and ideas gained from the precedents and literature. The design guidelines give direction to the design concepts according to the principles of intervention deemed suited for the different parts of the depot building. Design concepts were experimented through the use of physical and digital models, and drawings, to explore their potential effectiveness.

Design Trials

Physical and digital design concepts were produced using information gathered from the various methodologies. Multiple concepts, based on different design propositions, can be used as a design tool to investigate their effectiveness when making the building functionally relevant in the 21st century. The effectiveness of each concept could then be evaluated based on how much of the building would be retained, which parts of the building could be retained based on the degree of historical significance, and how well the concept would function to meet the needs of, and satisfy, the new function. Therefore, the evaluation considered the functionality and the degree of retention of the existing

Mornington Cable-Car building while making it functionally relevant in the 21st century. Each concept was developed, analysed and tested. The successful components of the first concept were then incorporated into the second model concept, and so on until the final design when it was deemed that the project’s design aims and objectives had been achieved. As the concepts progressed, more developed design models were digitally produced.

2.0 Literature Review

The literature review begins with a broad discussion of the origin of philosophy relating to heritage conservation, specifically regarding the reuse of historic buildings. This discussion is followed by critical analysis of influential views about the philosophies relating to Scrape and Anti-Scrape.⁹ The impact of these philosophies on modern heritage legislation and guidelines is discussed under 20th and 21st Century Philosophy, including the theory of architect Carlo Scarpa. From these discussions specific design implications and possibilities are identified that can be used for the adaptive reuse of the former Mornington Cable-Car Depot.

2.1 Philosophy from Western Antiquity through to 19th Century

Theoretical discussion based on the conservation and reuse of historic buildings began in Western antiquity, originating in Greece and Rome. At this time, interest about the care of historic buildings was confined to religion and use of the places of worship.¹⁰ However, Renaissance interest during the 15th-17th centuries was about the revival of the classical world and included the adaptation of ancient monuments, which was one of the earliest examples of adapting historic forms for new use.¹¹ These ideas became central to the 19th century discussion about heritage conservation.¹²

However, widespread discussion on the reuse of historic buildings did not become prominent until the 19th century and developed primarily from the ideas of the Renaissance period. In France restoration was considered acceptable, whereas in England there was focus on the condemnation of 'fakes' and the impact of restoration on the authenticity of an historic building.¹³ During the 1840s, discussion began in England and France about conservation and the reuse of historic buildings. The discussion eventually became heavily

9 "LibGuides:Architectural History:HistoricPreservation," HistoricPreservation - Architectural History - LibGuides at Cape Fear Community College, accessed October 12, 2017, <http://libguides.cfcc.edu/c.php?g=321666&p=2151747>.

10 Jokilehto, *A History of Architectural Conservation*, 5

11 Bie Plevoets, "Adaptive Reuse as a Strategy towards Conservation of Cultural Heritage: a Survey of 19th and 20th Century Theories.," WIT Transactions on The Built Environment, accessed June 25, 2017, http://www.academia.edu/1473330/Adaptive_Reuse_as_a_Strategy_towards_Conservation_of_Cultural_Heritage_a_Survey_of_19th_and_20th_Century_Theories.

12 Glendinning, *The Conservation Movement*, 2

13 Glendinning, *The Conservation Movement*, 2, 3

influenced by: Scrape Philosophy influenced by the writings of French architect Eugène Emmanuel Viollet-le-Duc (1814-1879), and Anti-Scrape Philosophy that was influenced by the writings of English theorist John Ruskin (1819-1900)¹⁴ with architects and theorists from both countries supporting one or other of the philosophies. Both philosophies shared the common aim of finding relevance in historic buildings for contemporary times, such as restoring a building so it could be returned to a former state, or what was thought of as a former state (Scrape), or leaving a building in ruins as a marker of history (Anti-Scrape).¹⁵

Scrape Philosophy was concerned with returning an historic building to its original form through reinstatement and the restoration of lost, or deteriorated, elements and features. In contrast, Anti-Scrape Philosophy regards historic buildings as though they belonged to the era in which they were constructed and rejected that it was possible for a later generation to restore them authentically.¹⁶

The views and positions of Scrape and Anti-Scrape were central to the development of government and local policy in conservation and the reuse of historic buildings. In 1877 English Anti-Scrape theorists William Morris and Phillip Webb formed The Society for the Protection of Ancient Buildings (SPAB), which was born directly out of Anti-Scrape Philosophy, and became the first English body to promote heritage conservation.¹⁷ The Society strongly condemned Scrape Philosophy for its lack of concern about authenticity.¹⁸ By the mid-20th century, there was discussion about conservation and the reuse of historic buildings which, for the first time, identified a world-wide objective to be aware of heritage and its need for protection. These discussions led to the founding of a variety of global organisations, such as the International Council on Monuments and Sites (ICOMOS), whose mission is to promote conservation, protection, use, and the enhancement of historic buildings.¹⁹

14 Norman Tyler, Ted Ligibel, and Ilene R. Tyler, *Historic Preservation: An Introduction to its History, Principles, and Practice* (New York: W.W. Norton & Co., 2009), 19

15 Jokilehto, *A History of Architectural Conservation*, 159

16 Glendinning, *The Conservation Movement: A History of Architectural Preservation*, 3

17 Developed and Managed by Netconstruct - www.netconstruct.co.uk - 44 (0)1937 581 123, "The Society for the Protection of Ancient Buildings," SPAB: The Manifesto - conservation principles, philosophical basis, SPAB manifesto, William Morris in 1877, accessed June 25, 2017, <https://www.spab.org.uk/what-is-spab/-the-manifesto/>.

18 "SPAB: The Manifesto - conservation principles, philosophical basis."

19 "Ottawa, Ontario, Canada," Accueil - International Council on Monuments and Sites, accessed July 10, 2017,

Figure 7: Restoration of a demolished chimney, Treaty of Waitangi House, Bay of Islands, New Zealand (Scrape). (Photo: William Howse).

Figure 8: Repair of a chimney, Treaty of Waitangi House, Bay of Islands, New Zealand (Anti-Scrape). (Photo: William Howse).

2.1.1 Discussion of Scrape Philosophy

“To restore an edifice is not to maintain it, repair or remake it, it is to re-establish it in a complete state that may never have existed at any given moment in the past”²⁰

Figure 9: The church of Saint-Sernin in Toulouse was 'restored' by Viollet-le-Duc in the 1860s. In the 1980s, the church was 'de-restored.'

<http://www.icomos.org/en/about-icomos/mission-and-vision/icomos-mission>.

20 Parul Jain Follow, "Viollet le duc," LinkedIn SlideShare, November 11, 2013, accessed September 15, 2017, <https://www.slideshare.net/paruljain310/viollet-le-duc-28125841>.

Prior to the mid-1800s, historic buildings were either maintained by local craftsmen or left to deteriorate. Architect Viollet-le-Duc provided a different method based on the idea that historic buildings should be reconstructed according to the objectives of the original architect, rather than be rebuilt as they once were.²¹ This involved envisaging what the original architect may have 'conceived' as a design concept rather than what was 'physically' built²² and meant returning an historic building to a state interpreted as being correct by the new architect(s). Scrape Philosophy encouraged restoration where architects took 'artistic license' when changing and adding to the existing form. However, the changes to the building could excite controversy when the work was made to appear as though it was part of the original building with the changes unable to be identified.²³ Scrape Philosophy was not only approved in Viollet-le-Duc's home country of France but also became accepted throughout the western world. In 1855 Viollet-le-Duc became an honorary member of the Royal Institute of Architects, England, followed by similar recognition in Milan and the United States of America.²⁴

Viollet-le-Duc argued that the integrity of an historic building was compromised by its deterioration and additions.²⁵ For example, in the restoration of the La Madeleine de Vezelay in France, new brickwork was used to replicate and replace deteriorating ornamentation, and new statuary was installed based on what architect Viollet-le-Duc regarded as appropriate.²⁶ The original flying buttresses were replaced by new strengthened buttresses that were constructed using forms as though in the style of a medieval building, even though they had not previously existed.²⁷ At Notre-Dame in Paris, 28 statues of kings were reinstated on the western facade that had previously been destroyed in the Revolution.²⁸ To restore, as Viollet-le-Duc stated, is “not only to preserve it, to repair it, or to rebuild it” but to also “bring it back to a state of completion.”²⁹

21 Glendinning, *The Conservation Movement*, 91

22 Glendinning, *The Conservation Movement*, 78

23 Glendinning, *The Conservation Movement*, 117

24 Jokilehto, *A History of Architectural Conservation*, 152

25 Glendinning, *The Conservation Movement*, 91

26 Jokilehto, *A History of Architectural Conservation*, 152

27 Jokilehto, *A History of Architectural Conservation*, 152

28 Glendinning, *The Conservation Movement*, 91

29 Jokilehto, *A History of Architectural Conservation*, 155

2.1.3 Impact on 20th and 21st Century Philosophy

This section examines 20th and 21st century philosophy that was influenced by Scrape and Anti-Scrape, including the philosophy of architect Carlo Scarpa.

20th and 21st century philosophy, influenced by Anti-Scrape Philosophy, is that new additions to an historic building should be perceived as a new layer of history and that additions should be built in the materials and form of the time in which they are built.⁴³ This ensures clarity, as each layer of change is then identifiable from another. 20th and 21st century philosophy is based on the idea that it is possible for historic buildings to develop while maintaining their cultural heritage values.⁴⁴ Therefore, ‘alteration’ is the adapting of building for a contemporary function, so becoming an object of continuity.⁴⁵ For the purposes of this project, 'Alteration' is defined later in this document in Design Guidelines (4.1), under the ICOMOS New Zealand Charter (2010) definition of 'Adaptation'.

Both Scrape and Anti-Scrape Philosophy are central to the development of the idea that alteration is a process to re-purpose an historic building for new use.⁴⁶ Viollet-le-Duc’s position that historic buildings could be altered is supported when from a functionalist viewpoint, all architecture will eventually be deemed a waste of space by some agency or another, so various architectural strategies for intervention in existing buildings is relevant.⁴⁷ The alternative is that a city is populated by decaying, disused buildings.⁴⁸

2.1.3.1 Philosophy of Carlo Scarpa (1906-1978)

"To lay bare the original construction, to reconstruct in the imagination, if not completely in reality, how the castle has previously functioned." ⁴⁹

Italian architect Carlo Scarpa is one of the first architects to practice ‘conscious’

43 Fred Scott, *On Altering Architecture* (London: Routledge, 2008), 51
44 Scott, *On Altering Architecture*, 11
45 Scott, *On Altering Architecture*, 212
46 Scott, *On Altering Architecture*, 47-51
47 Scott, *On Altering Architecture*, 5, 6
48 Scott, *On Altering Architecture*, 1
49 Bollack and Frampton, *Old Buildings, New Forms*, 15

2.1.2 Discussion of Anti-Scrape Philosophy

“To restore a historic building... means the most total destruction which a building can suffer: a destruction out of which no remnants can be gathered; a destruction accompanied by a false description of the thing destroyed” ³⁵

Figure 10: John Ruskin painting showing an 'authentic' ruin. Kenilworth, n.d.,The Huntington Library, Art Collections.

35 Olimpia Niglio, "John Ruskin: The Conservation of the Cultural Heritage," Academia.edu, accessed September 1, 2017, http://www.academia.edu/3684733/John_Ruskin

With restoration, heritage fabric that was removed was frequently stored as a way of justifying its replacement. However, it then became just an artifact and was lost to the building itself.³⁰ To some, the restoration of damaged features was controversial as the changes were regarded as an attempt to 'reverse' and / or 'confuse' the building’s history.

Deception became an issue due to the lack of concern for authenticity in Scrape Philosophy.³¹ As a consequence, there was a rebellion by some architects, and architectural theorists, which eventually led to the formation of Anti-Scrape Philosophy.³² Critics, such as French historian Paul Leon reviled Viollet-le-Duc’s position, claiming that if a monument is to be a testimony to the past it should be left in the state that it was bequeathed. It was considered to be deceitful to replicate and / or add elements to an historic building, so placing oneself in the position of original architect(s).³³ And so Anti-Scrape Philosophy, as dubbed by William Morris in 1877, was born.³⁴

30 Norman Tyler, Ted Ligibel, and Ilene R. Tyler, *Historic Preservation*, 21
31 John Ruskin, *The Seven Lamps of Architecture* (New York: John Wiley, 1849), 161
32 Glendinning, *The Conservation Movement*, 94
33 Norman Tyler, Ted Ligibel, and Ilene R. Tyler, *Historic Preservation*, 20
34 "Glossary of Terms," Glossary of Terms | Understanding Conservation, accessed November 13, 2017, <http://www.understandingconservation.org/content/glossary-terms>.

Architects and theorists criticised Scrape Philosophy for its manipulation of authenticity, as they preferred to preserve and maintain historic buildings.³⁶ Anti-Scrape Philosophy, largely influenced by English architects and authors John Ruskin, leading art critic of the Victorian period, and William Morris, artist and designer, is the foundation of 20th and 21st century philosophy. Ruskin argues that historic buildings should be preserved in an unmodified condition as relics of the past and should, therefore, not be improved or restored.³⁷ In this respect, age is considered beauty and, after several centuries, the wear and tear from human occupation contributes to the attractiveness and maturity of a building.³⁸ He suggests that society has no right to interfere with what has been handed down. Although restoration can produce accurate replicas of lost features and elements the original is then falsified. Ruskin discredits Scrape Philosophy / restoration and suggests that the more accurate the replica, the more that it seeks to mislead.³⁹ He felt so strongly about this that he said:

“Do not let us talk then of restoration. The thing is a Lie from beginning to end.” ⁴⁰

Ruskin emphasises the importance of maintenance, a sentiment echoed by William Morris.⁴¹ Ruskin’s stance is that with adequate upkeep, historic buildings will not deteriorate to the point where the building is compromised and so requires restoration. To avoid the need for restoration, or indeed Scrape Philosophy itself, he maintains that a historic building should be given support only and in fact, all new work should only be in support of preserving what already exists, until the building reaches a point where it should be allowed to perish.⁴²

20th and 21st Century Philosophies are influenced by Anti-Scrape Philosophy in that cultural heritage needs to be preserved and easily identified.

36 Jokilehto, *A History of Architectural Conservation*, 180
37 Ruskin, *The Seven Lamps of Architecture*, 162
38 Ruskin, *The Seven Lamps of Architecture*, 160
39 Tyler, Ligibel, *Historic Preservation*, 21, 22
40 Ruskin, *The Seven Lamps of Architecture*, 162
41 Jokilehto, *A History of Architectural Conservation*, 180
42 Jokilehto, *A History of Architectural Conservation*, 180

alteration.⁵⁰ At a time when many in the architectural community did not recognise modification of existing architecture as being true architectural work, Scarpa is credited for making alteration just as valid as new-build projects.⁵¹ However, it was not until after Scarpa's passing that his work was actually recognised.⁵² Like Ruskin, Scarpa regarded imitation as immoral and so interventions should go beyond merely imitating existing forms.⁵³ Scarpa deconstructed a building to expose existing and new materials in order to showcase the construction techniques, as he considered that the honest use and representation of materials is important. Scarpa used historical and archaeological discoveries to give him ideas about how to proceed with alteration.⁵⁴ It was through historical research that he gained understanding of a particular building.⁵⁵ Subsequently, his work has provided a method that allows gradual discovery and change and, although haphazard, creates a comprehensive working pattern.⁵⁶ Italian architect Sergio Los identifies Scarpa's design strategy for alteration as being juxtaposition. Scarpa was concerned with historical transparency and sought to expose the history of the building through a well-ordered juxtaposition of the historical fabric and any subsequent addition(s).⁵⁷ His career was therefore, spent unearthing architectural traditions of the past, deciphering, and then redefining the existing architectural forms.⁵⁸

The work of architect Carlo Scarpa provides a precedent for the adaptive reuse of historic buildings (3.2).

50 Sergio Los, *Carlo Scarpa* (Köln:Taschen, 2009), 32
51 Sergio Los, *Carlo Scarpa* (Köln:Taschen, 2009), 32
52 Los, *Carlo Scarpa*, 32
53 Los, *Carlo Scarpa*, 73
54 Scott, *On Altering Architecture*, 212
55 Scott, *On Altering Architecture*, 212
56 Scott, *On Altering Architecture*, 210, 211
57 Los, *Carlo Scarpa*, 73
58 Los, *Carlo Scarpa*, 36

2.2 Policy Literature

The review of literature about policy examines the impact that Scrape, Anti-Scrape, and 20th and 21st Century Philosophy have had on legislative guidelines as they were developed about the conservation and reuse of historic buildings. Legislation is now regarded as being essential in a modern society to maintain responsible actions toward historic buildings.⁵⁹ However, not all historic buildings are protected by legislation but most seem to be covered by policy. Policy in New Zealand is formed by government departments, such as Heritage New Zealand, and local councils.⁶⁰ Initially, in England in the 1870s, policy was limited to the protection of ancient monuments. These days, however, in most countries policy as well as legislation can apply to entire areas of historical interest rather than just a specific site.⁶¹

2.2.1 SPAB (England)

The policy for the conservation of historic buildings in England has, over time, been developed by several entities. SPAB had its origins from Anti-Scrape Philosophy and was founded in 1877 by William Morris.⁶² The society sought to unite those who opposed restoration, and instead promoted maintenance and conservation. Despite Anti-Scrape Philosophy originally discrediting restoration, these days SPAB is primarily concerned with 'misguided restoration' and advocates for historic buildings to survive as long as possible, but with the least possible modification.⁶³ It sees the unnecessary renewal of worn elements, or the whole reproduction of lost elements, as being detrimental to the authenticity of an historic building.⁶⁴ The SPAB underlying inference is that as historic buildings age, the bond with their site strengthens.⁶⁵

59 Jokilehto, *A History of Architectural Conservation*, 1
60 "Policy for Government departments' management of historic heritage 2004 (August 2004)," Manatū Taonga - Ministry for Culture & Heritage, accessed October 04, 2017, <http://www.mch.govt.nz/research-publications/our-research-reports/policy-government-departments-management-historic-heritag>.
61 Jokilehto, *A History of Architectural Conservation*, 1
62 Jokilehto, *A History of Architectural Conservation*, 184
63 "The Society for the Protection of Ancient Buildings," SPAB: SPAB's Purpose - Regular maintenance of old buildings, restoration, repair, authenticity, preserve, accessed June 15, 2017, <https://www.spab.org.uk/what-is-spab-/spab-s-purpose/>.
64 "The Society for the Protection of Ancient Buildings," SPAB: SPAB's Purpose - Regular maintenance of old buildings, restoration, repair, authenticity, preserve, accessed June 15, 2017, <https://www.spab.org.uk/what-is-spab-/spab-s-purpose/>.
65 "SPAB's Purpose."

An historic building still belongs to its location no matter how corrupted the building might have become. This means that context is important, as maintaining a relationship between a building and its site promotes integrity and so for this reason SPAB supports the gutting, or some form of demolition, rather than the relocation of an historic building.⁶⁶

In 1931 the First International Congress of Architects and Technicians of Historic Monuments adopted the Athens Charter for the Restoration of Historic Monuments.⁶⁷ Later, in 1964, a meeting in Venice by architects and specialists in historic buildings took this concept a stage further by creating the International Charter on the Conservation and Restoration of Monuments and Sites. Also arising from this meeting was a proposal from the United Nations Educational, Scientific and Cultural Organisation (UNESCO) that resulted in the International Council on Monuments and Sites (ICOMOS) that was set up to administer the charter.⁶⁸

The 1965 ICOMOS had its New Zealand equivalent established in 1987.⁶⁹ The current ICOMOS New Zealand Charter (2010) is the fundamental document which provides definitions and guidelines for the conservation of historic buildings in New Zealand.⁷⁰

2.2.2 ICOMOS New Zealand Charter (2010)

The ICOMOS New Zealand Charter (2010) provides a benchmark through its guiding principles for conservation standards and practices that are used in the country's council district plans and also by the government department of Heritage New Zealand.⁷¹ ICOMOS acknowledges that the people of New Zealand, perhaps due to Māori influence, have particular ways of perceiving,

66 "SPAB's Purpose."
67 "Rome, Lazio, Italy," Accueil - International Council on Monuments and Sites, accessed October 03, 2017, <http://www.icomos.org/en/charters-and-texts/179-articles-en-francais/ressources/charters-and-standards/167-the-athens-charter-for-the-restoration-of-historic-monuments>)
68 Glendinning, *The Conservation Movement*, 199,200
69 "ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage," ed. ICOMOS (New Zealand Revised 2010), 1
70 *ICOMOS New Zealand Charter*, 1
71 "Charters - New Zealand, 2017, accessed September 10, 2017, <http://icomos.org.nz/charters/>.

identifying with, and conserving cultural heritage.⁷² It is the physical evidence of the past that needs to be preserved so conservation work should not only maintain, but also reveal, the authenticity of the place.⁷³ It has to be explicitly justified when evidence of any period or activity is obscured in the course of removing something physical, and this interference should be kept to a minimum. However, removal is permitted when it does not result in a reduction of the cultural heritage value.⁷⁴

The charter also suggests that both the tangible values (physical) and intangible values (in relation to people) of cultural heritage should not only be understood but actually acknowledged as apart of any adaptive reuse project, so resulting in the least possible loss of heritage fabric and the retention of the cultural heritage values.⁷⁵

Heritage New Zealand maintains a list of heritage places that can be used as a source of information about nationally significant historic buildings and sites.⁷⁶ Inclusion on the list does not give automatic protection.⁷⁷ However, there is the opportunity to obtain funding from the National Heritage Preservation Incentive Fund which helps with the retention of historic buildings. It allows for the provision of a heritage property being included in the local district plan heritage schedules.⁷⁸

2.2.3 ICOMOS Australia (Burra Charter 1999)

ICOMOS Australia, adopted in 1979, is known as The Burra Charter. The Burra Charter (1999) is more extensive than the ICOMOS New Zealand Charter (2010) and provides a slightly different perspective as it specifically refers to ‘minor demolition’ in its guidelines. Although the Charter acknowledges that

72 "Charters - ICOMOS," *ICOMOS New Zealand*, 2017, accessed September 10, 2017, <http://icomos.org.nz/charters/>.

73 *ICOMOS New Zealand Charter*, 1, 2, 3

74 *ICOMOS New Zealand Charter*, 3

75 *ICOMOS New Zealand Charter*, 2

76 "About the List," *Heritage New Zealand*, 2017, accessed May 26, 2017, <http://www.heritage.org.nz/the-list/about-the-list>.

77 "About the List"

78 "About the List"

any level of demolition is destructive of heritage fabric, minor demolition is permitted as part of conservation but it should be only the bare minimum.⁷⁹ However, careful consideration about the disposal or reuse of the heritage fabric should be made before beginning the process.⁸⁰

The impact of this heritage policy on the design for the adaptive reuse of the former Mornington Cable-Car Depot is discussed in conjunction with precedent and literature conclusions in the Conclusion section (4.0).

3.0 Precedents

Three precedents have been selected to ascertain how dominant design strategies can be used in the adaptive reuse of historic buildings. Each precedent is from a category based on the level of intervention with existing heritage fabric. The categories are: minimum, medium, and extensive intervention. Minimum intervention is when the intervention has little impact on the existing heritage fabric of the building so any changes are able to be reversed. Medium intervention is when only moderate changes are made to the existing fabric but in this situation the changes can not be reversed. Extensive intervention is when there is large-scale demolition or removal of the existing heritage fabric. A fourth precedent is about cable-car depot typology, as it will assist in the analysis of the function of the Mornington Cable-Car Depot. This range of precedents will enable insight to be gained about the function and potential design of the adaptive reuse of the Mornington building.

79 "Burra Charter," (Australia 1999), 6

80 "Burra Charter," (Australia 1999), 6

3.1 Minimum Intervention

Precedent: Former Administrative Centre of Pantin, Paris adapted to function as the National Dance Centre by Antoinette Robain and Claire Gueysse, 2004.

*"The building... now stands as an inspiring example of how a building can escape demolition and experience a reincarnation."*⁸¹

Figure 11: The new internal facade (red) to redefine circulation routes.

Figure 12: Colour is used to distinguish new intervention from the existing building.

81 ArchitectureWeek - Design - Centre National de la Danse - 2004.0922, accessed July 02, 2017, http://www.architectureweek.com/2004/0922/design_I-I.html.

The former Administrative Centre of Pantin in Paris that was completed in 1972 by architect Jacques Kalisz, was adapted to function as the National Dance Centre by architects Antoinette Robain and Claire Guieysse and was completed in 2004.⁸² This particular precedent represents a minimum intervention strategy where the preservation of existing heritage fabric is prioritised. Although precedents with a similar level of intervention were examined, the National Dance Centre was selected for several reasons: the way that the architects approached the adaptive reuse; the minimal impact of the intervention on the integrity of the building; the integration of new circulation patterns; the use of both texture and colour to distinguish new design decisions from those of the original architect. The use of similar strategies could allow the heritage fabric of the former Mornington Cable-Car Depot to be preserved.

Prior to commencing the design work on The Administrative Centre, Robain and Guieysse sought to understand the building as if it was they who had originally designed it.⁸³ They were inspired by the significant role that the Administrative Centre had played in the social history of north eastern Paris and so wanted a design that would preserve the existing building and its integrity.⁸⁴ This understanding, and consequent familiarity, allowed them to mentally manipulate the building and to consider new functions that would allow the existing heritage fabric to be preserved with only minimum change to the building.⁸⁵

The focus was on a design intervention that would sit within, as well as around, the existing volumes. For example, a dance rehearsal space now floats within the volume of a previously existing room and so provides acoustic insulation without requiring the modification of the existing envelope – it is 'a box within a box'.⁸⁶ Open courtyards are enclosed by new roofs that 'float' above the existing building, making it clear that they are only there to mediate the existing environment.⁸⁷

82 ArchitectureWeek - Design - Centre National de la Danse - 2004.0922, accessed July 02, 2017, http://www.architectureweek.com/2004/0922/design_I-I.html.

83 Timotimor, "Baukunst: Das Centre National de la Danse in Pantin Staffel 8 (2/5)," YouTube, November 07, 2015, accessed June 29, 2017, <https://www.youtube.com/watch?v=n8hj4yfxREM&t=1194s>.

84 "Baukunst: Das Centre National de la Danse in Pantin Staffel 8 (2/5)."

85 "Baukunst: Das Centre National de la Danse in Pantin Staffel 8 (2/5)."

86 "Baukunst: Das Centre National de la Danse in Pantin Staffel 8 (2/5)."

87 Timotimor, "Baukunst: Das Centre National de la Danse in Pantin Staffel 8 (2/5)," YouTube, November 07,

3.2 Medium Intervention

Precedent: Former medieval castle, Verona, adapted to function as Castelvecchio Museum (1956-1964) by Carlo Scarpa

*"The work is literally and metaphorically an instrument of interpretation."*⁹⁰

Figure 13: Partial demolition.

The circulation of the building was adapted by the insertion of an internal partition, constructed behind the original front façade, and which runs the full length of the building.⁸⁸ The introduction of the partition created new thresholds and penetrations to reconfigure the circulation of the building and avoided the need to create new openings in the walls of the existing building, so preserving the original fabric (refer Fig 11).

Colour and texture have been used to distinguish the new design decisions from those of the original architect, which allows each change to be clearly identified (refer Fig 12).⁸⁹ In fact, the intervention is often emphasised through the use of colour schemes which contrast with the colour palette used in the original building. For example, the internal partition behind the original street facade is immediately noticeable through the use of a red render, creating a striking feature compared to the original grey.

Although the adaptive reuse of the National Dance Centre focuses on the preservation of the original fabric it does not seem to acknowledge the original function of the building as an administrative centre. The current occupier and users of the building are, therefore, perhaps denied knowledge of not only how the spaces previously functioned but also the associated cultural history.

Antoinette Robain and Claire Guieysse did not 'restore' the Administrative Centre of Pantin and the heritage fabric remained unchanged, which is the stance of Anti-Scrape Philosophy. However, they used new design interventions and made distinctive changes through the use of colour and texture to alert viewers to the changes within. The changes could be considered the use of 20th and 21st Century Philosophy. Some may view the architects' mental manipulation of the original building as an attempt to emulate the thoughts of the original architect Jacques Kalisz, which could be construed as part of Scrape Philosophy.

2015, accessed June 29, 2017, <https://www.youtube.com/watch?v=n8hj4yfxREM&t=1194s>.

88 Timotimor, "Baukunst: Das Centre National de la Danse in Pantin Staffel 8 (2/5)," YouTube, November 07, 2015, accessed June 29, 2017, <https://www.youtube.com/watch?v=n8hj4yfxREM&t=1194s>.

89 Timotimor, "Baukunst: Das Centre National de la Danse in Pantin Staffel 8 (2/5)," YouTube, November 07, 2015, accessed June 29, 2017, <https://www.youtube.com/watch?v=n8hj4yfxREM&t=1194s>.

90 Fred Scott, On Altering Architecture (London: Routledge, 2008), 210

The former medieval Castelvecchio in Verona was constructed between 1354 and 1376, architects unknown. It was adapted by architect Carlo Scarpa from 1956 – 1964 to function as Castelvecchio Museum.⁹¹ This precedent is an example of intervention that is between preservation and extensive design intervention. Although other precedents with a similar level of intervention were considered, the Castelvecchio Museum was specifically selected for use as a precedent for two important reasons: juxtaposition, or a contrast between new and former, takes account of the fact that parts of the existing building are from different eras; unique design techniques that are utilised to exhibit historic artefacts. To clearly identify the different parts of the former Mornington Cable-Car Depot that were built at different times, similar design strategies could be used.

Scarpa regarded Castelvecchio as being ‘full of deception’ as it was confused by the layers of architectural additions that obscured the original form.⁹² Instead of preserving it, Scarpa unraveled the building so that it could exhibit its own history.⁹³ To reveal the original identity of the building, he began by cleaning the building of "bogus decoration...to lay bare the original construction, to reconstruct in the imagination, if not completely in reality, how the castle has previously functioned."⁹⁴ Layers of additions are now exposed and the relationships they have with each other are expressed.⁹⁵

Juxtaposition is used as a technique to distinguish between existing and new fabric and, as mentioned, was favoured by Scarpa. For example, the new floor is intentionally highlighted as a new addition as it is set back from the base of the original interior walls.⁹⁶ On the exterior of the building, a smooth external render was applied which stops short of corner junctions, window detailing, and the ornamentation. The technique makes the new additions stand out while embellishing the original heritage features.⁹⁷ In the main plaza an asymmetrical window design, using offset mullions, is juxtaposed against the symmetrical

91 Los, *Carlo Scarpa*, 72

92 Los, *Carlo Scarpa*, 74

93 Los, *Carlo Scarpa*, 73

94 Bollack and Frampton, *Old Buildings, New Forms*, 15

95 Bollack and Frampton, 15

96 Los, *Carlo Scarpa*, 78

97 Los, *Carlo Scarpa*, 74

balance of the original building.⁹⁸ Scarpa also used juxtaposition when designing new additions to the building. For example, on the ground floor a cube shaped addition is inserted into an existing archway opening. Although similar materials are used to the existing material palette, the newly laid bricks are of a different colour and shape to contrast with the original brickwork of the facade.

In the interior spaces, museum artefacts are showcased through the use of contrasting materials and by shafts that are used to view the different artefacts. Textured and coloured dado have been applied to the surface of the existing walls, creating a contrasting backdrop behind the statuary.⁹⁹ Circulation patterns and thresholds allow the artefacts to be viewed from close-up, as well as from a distance to emphasise their wider context within the museum exhibition.

The Castelvecchio Museum project addresses possible treatment of the juncture between the parts of an historic building that have been constructed in a different period can be treated. Under Scarpa's design scheme the fourteenth century tower and its adjoining later addition are separated by ‘partial demolition’, allowing the earlier tower to sit free as it had before (refer Fig 13).¹⁰⁰ The evidence of the former connection has been left on the adjacent facade to illustrate how the two portions were once joined, with further emphasis given by the placement of a statue at the junction.¹⁰¹

Carlo Scarpa used a combination of an Anti-Scrape Philosophy and 20th Century Philosophy when converting Castelvecchio to a museum. He did not attempt to restore the building so his strategy was influenced by Anti-Scrape. However, he did not leave the building completely unchanged which means that it was not pure Anti-Scrape Philosophy. Rather he used alterations to alert the viewer to the changes that were made and, in fact, he emphasised those changes. The alterations are a use of 20th Century Philosophy.

98 Los, *Carlo Scarpa*, 74

99 Los, *Carlo Scarpa*, 87

100 Los, *Carlo Scarpa*, 74

101 Los, *Carlo Scarpa*, 74

3.3 Extensive Intervention

Precedent: Former Mediodía Electric Power Station, Madrid, adapted to function as Caixa Forum Museum, by Herzog and du Meuron, 2001-2008

*"The architects reused the landmarked brick shell...inserting new elements surgically"*¹⁰²

Figure 14: New design intervention above and below the Caixa Forum.

102 Robert Klanten and Lukas Feireiss, *Build-on: Converted Architecture and Transformed Buildings* (Berlin: Gestalten, 2009), 95

The former Mediodía Electric Power Station in Madrid, that was constructed in the late 19th century, architect(s) unknown, was adapted to function as a museum and cultural centre known as Caixa Forum, by architects Herzog and du Meuron from 2001-2008.¹⁰³

Herzog and du Meuron used extensive intervention. This type of strategy can be controversial as it often results in the demolition of existing heritage fabric. Although precedents with a similar level of intervention were examined, the Caixa Forum was specifically selected as a precedent for several reasons: its relationship with the surrounding environment; the construction of intervention both above and below the original building; and the techniques used for the new openings made in the historic facades. This precedent is useful for evaluating design strategies that could be employed when adapting the former Mornington Cable-Car Depot into its surrounding context, including Mornington Park.

The intention of architects Herzog and du Meuron was to make the nineteenth century industrial building functional in the 21st century.¹⁰⁴ The first step involved complete demolition of the building, apart from the protected external brick facades. This provided space for larger internal volumes to be constructed as the original rooms were too small to accommodate the proposed new function. Through the use of concrete and steel structures internally, the facades were then able to be elevated to provide a pedestrian connection between the plaza and the new ground floor, allowing what had been isolated spaces to become public spaces.¹⁰⁵ In total, an additional two storeys were added to the existing building. The added floor and roof above the original building blends it with the heritage context by which it is surrounded. This is achieved by the form of the roof being designed with indentations which are shaped to mimic the roof lines of the neighbouring heritage buildings. Although the colour of the roof reflects the colouring of the original brick facade of the power station, there is a contrast in texture to distinguish between old and new. After bricking up

103 "CaixaForum Madrid by Herzog & de Meuron," Dezeen, November 13, 2013, accessed September 26, 2017, <https://www.dezeen.com/2008/05/22/caixaforum-madrid-by-herzog-de-meuron/>.

104 Klanten and Feireiss, *Build-on*, 95

105 Klanten and Feireiss, *Build-on*, 95

3.4 Cable-Car Depot Typology

the original window openings, new openings in the walls of the original brick exterior were deliberately offset to identify them from the type and position of the original windows (refer Fig 15). This means that modifications to the facade that can be distinguished from the original building.¹⁰⁶ A further visual link with the building's surroundings is made through the use of a green wall, which are live plants on the wall of the neighbouring building, thus providing a connection with the neighbouring park.¹⁰⁷

Herzog and de Meuron partly used Anti-Scrape Philosophy as none of the Mediodía Electric Power Station was restored, although the building was subjected to several changes so that it became functionally relevant. The full scale demolishing of the interior and the subsequent additions were a drastic 21st century strategy. They did not use the Scrape/restoration philosophy in the revival of the building.

Figure 15: The original facade geometry with new openings deliberately off-set.

¹⁰⁶ 23 March, 2017 By Charles Jencks, "A civic masterpiece": Charles Jencks on Herzog & de Meuron's Elbphilharmonie," Architectural Review, accessed July 02, 2017, <https://www.architectural-review.com/buildings/a-civic-masterpiece-charles-jencks-on-herzog-and-de-meurons-elbphilharmonie/10018171.article>.

¹⁰⁷ Klanten and Feireiss, *Build-on*, 95

Precedent: Washington and Mason Cable-Car Depot, by unknown architects, San Francisco, 1982

*"San Francisco's cable-cars are symbolic of the charm and distinct flavour of the city. In no other place can you ride a moving national historic monument."*¹⁰⁸

Figure 16: Giant pulley wheels in the main atrium.

Figure 17: The facades of the Washington and Mason Cable-Car Depot were preserved.

¹⁰⁸ Cable Cars," Fisherman's Wharf San Francisco, accessed July 03, 2017, <http://www.visitfishermanswharf.com/cable-cars/>.

The Washington and Mason Cable-Car Depot in San Francisco was constructed in 1887, architects unknown, and since then has continuously functioned as a cable-car depot until the present day. However, it was extensively refurbished in the 1980s due to deterioration.¹⁰⁹ This precedent is useful as it represents cable-car depots as a typology. Although there are multiple precedents of cable-car depots, the Washington Cable-Car Depot was selected for several reasons: the cable-car building was constructed in the same period as the Mornington Cable-Car Depot; the building has undergone adaptive reuse; and the precedent provides insight about a cable-car depot programme and related technical requirements.

The Washington and Mason Cable-Car Depot was the terminal building for cable-car routes on both Washington and Manson Streets.¹¹⁰ From the outside it is not immediately obvious that it is a cable-car building, except for the arched brick entranceway on the Washington Street façade that allows the cable-cars to enter and exit the depot. Internal functions, such as storage lines, workshops, and machinery are concealed by an external brick facade with industrial steel windows. A significant architectural change to the exterior of the building took place in 1906 when, as an earthquake precaution, the main chimney was reduced in height from 57m to 18m.¹¹¹

In 1957, the San Francisco authorities considered replacing the cable-car system with diesel buses but, after public protest, the cable-car system was retained.¹¹² It was argued that the cable cars were an integral part of the city and a significant and popular tourist attraction. However, by the 1970s the cable-car system and depot had deteriorated to the point where, in 1982, the mayor of San Francisco commissioned a \$60 million USD refurbishment to cater for an increased number of cable-cars¹¹³ and the upgrade of the line network.¹¹⁴

¹⁰⁹ Rebuilding the Cable-car System, accessed June 15, 2017, <http://www.cablecarmuseum.org/rebuild.html>

¹¹⁰ Rebuilding the Cable-car System, accessed June 15, 2017, <http://www.cablecarmuseum.org/rebuild.html>

¹¹¹ Rebuilding the Cable-car System, accessed June 15, 2017, <http://www.cablecarmuseum.org/rebuild.html>

¹¹² "Rebuilding the Cable-car System."

¹¹³ "Rebuilding the Cable-car System."

¹¹⁴ David Dugan, "Remembering the Cable-car Rebuild 25 Years Later," Market Street Railway, October 11, 2014, accessed June 15, 2017, https://www.streetcar.org/1984_rejuvenation/.

Although most of the original building was demolished, with the interior being rebuilt of concrete and steel, the street façades of the building and the smoke stack have been preserved.¹¹⁵ The refurbishment also includes a tourist based programme for the building, which was originally designed for only cable-cars and did not provide for any interaction by the public. Passengers had previously boarded and alighted at a stop outside the building. With the refurbishment, the interior layout enables cable-car machinery to be viewed from the public spaces within the building. The other public spaces include a gift shop and museum.

The architects involved in this municipal building are unknown, although they were probably local council / Government employees. No part of the building was restored, although the shell of the building was preserved, both of which are considered to be part of Anti-Scrape Philosophy. However, 20th and 21st Century Philosophy was used in the refurbishment and the alterations that allowed the building to be re-purposed in some of its functional aspects.

Local examples of cable-car depots, such as the Wellington Kelburn Cable-Car are not as relevant to this project as the Washington Cable-Car Depot as the Wellington cable car operates on a purpose-built route and is separate from the road network, and so lacks interaction with the streetscape, unlike the chosen precedent.

¹¹⁵ "Rebuilding the Cable-car System."

San Francisco Cable Car Barn, 2017

Figure 18: Ground floor plan of the Washington and Mason Cable-Car Depot with analysis of the floor use. The cable-car turnable is popular with tourists.

4.0 Literature and Precedent Conclusion

This section applies literature, policy guidelines and practical experiences from the precedents to the chosen subject building, the former Mornington Cable-Car Depot, Dunedin. The resulting conclusions and learnings were used to inform the guidelines for the design for the adaptive reuse (4.1).

SPAB guidelines encourage preservation of heritage fabric and, when required, the use of new design intervention in preference to restoration.¹¹⁶ This is to make the original distinct from the new so that there is no deception and authenticity is maintained. Hence, the restoration of the now demolished large brick chimney of the Mornington Cable-Car Depot would be considered as misguided if SPAB guidelines were followed.¹¹⁷ However an alternative strategy to reproducing the chimney form could be used, which would still allow the chimney be distinguished as a new addition and maintain the authenticity of the building.

The ICOMOS New Zealand Charter (2010) raises implications for the adaptive reuse of the Mornington Cable-Car Depot. The building is 'tangible' evidence of continuity between past, present, and future due to it being one of the oldest buildings in Mornington Village. The building also has strong intangible values because, for many decades, it was the social hub of the community as the centre of the Mornington public transport system. These 'tangible' and 'intangible' values could be acknowledged if the building is again used as a cable-car depot, through the use of an appropriate design intervention and development of a programme, which would enable the historical significance and cultural heritage of the building to be retained.

ICOMOS New Zealand Charter (2010) and the Burra Charter (1999) provide guidelines about the removal of heritage fabric, although the Burra Charter (1999) uses slightly different wording and refers to the use of 'minor demolition'. Both charters seem to reinforce that demolition, while only minor, is acceptable. This gives wider scope as to what can be done to heritage buildings such as the Mornington Cable-Car Depot. Minor demolition could be justified as it would

¹¹⁶ "SPAB's Purpose."

¹¹⁷ "SPAB's Purpose."

be desirable to reveal the historical layers and, therefore, the cultural heritage values of the building. It is the junctions between the 1883, 1903 and 1925 parts of the building that could be partially demolished so that the different building eras can be revealed and identified. Careful consideration, about the reuse or disposal of the heritage fabric, would need to be made before any planned demolition.¹¹⁸

In addition, there could be further implications for the Mornington Cable-Car Depot when taking the local district plan into consideration.

The Dunedin City Council lists historic buildings for protection. However, the Mornington Cable-Car Depot is not listed under the Dunedin City Council District Plan (2013) (refer Appendix 1). Although not currently listed, the building has one of the ‘largest, longest and most prominent individual street façades’ in Mornington village which, under the district plan, is a requirement for it to possess significant town-scape or heritage value. In addition, the building can be seen on the ridge line from other Dunedin suburbs and, according to the requirement of Schedule 25.1 in the district plan, ‘the building’s appearance can be observed from a specific area’. It also meets the requirement in the district plan of having ‘multiple street frontages’ as two façades are visible. It is for these reasons that care should be taken with the design for adaptive reuse.

Knowledge gained from the literature and precedent review is now discussed to investigate possible design strategies for the adaptive reuse of the former Mornington Cable-Car Depot.

If Scrape Philosophy is used for the adaptive reuse of the former Mornington Cable-Car Depot there are issues that first need to be considered. If, as is required when using Scrape Philosophy, the work is designed to fit the aesthetics of the current building so it all seems to have been constructed at the one time, it would significantly compromise the authenticity of the building. Even if the design work is, theoretically, adhering to the architect(s)’ original objectives, this would prove impossible to validate. The lack of original plans, documents, and clear photos would not enable conjecture about the architect(s) thoughts or design aspirations. Another issue is that the later additions in 1903 and 1925 are not in keeping with the original building and would need to be demolished to

¹¹⁸ ICOMOS New Zealand Charter, 7

adhere to the principles of Scrape Philosophy. Although it could be argued that Robain and Guieysse tried to relate to the Administrative Centre of Pantin, as if they themselves had been the original architect(s), they sought only to ‘understand’ the building rather than to put themselves ‘in the shoes’ of the original architect.¹¹⁹

The principles of Anti-Scrape Philosophy would also lead to issues regarding the adaptive reuse of the former Mornington Cable-Car Depot. As maintenance of the building would be the primary focus, it would mean that only essential work could be carried out to ensure the survival of the building, with the overall aim being to preserve the building in its current condition. As Ruskin’s theory of allowing aspects to be maintained in their condition of deterioration would be applied, any work carried out should not impact on the existing fabric. This, however, would limit use of the building for any new function and might contravene current health and safety legislation. In addition, it would result in further decline of those aspects of architectural and cultural significance. Nevertheless, using Ruskin’s approach of ‘only maintaining’ the building, would allow preservation of those aspects of historical significance that could prove to be of more interest in their current state.

As with the Administrative Centre of Pantin, the use of a design intervention that sits within and around the existing volumes of the Mornington Cable-Car Depot, would minimise change to the existing fabric (refer Fig 19). In a similar way, the emphasis of new intervention through the application of colour and texture could also be employed, which would allow the different historical layers of the building, such as the basement, ground floor, and rear of the building, to be clearly distinguished. Also, using Scarpa’s idea where he highlighted artefacts in the Castelvecchio Museum, heritage features could be identified and showcased through the use of juxtaposition with, for example, a new background wall (refer Fig 20). Such items, that acknowledge the original functions of spaces within the Mornington Cable-Car Depot, also have the potential to enrich a tourist-based museum programme in the same way as in the refurbishment of the Washington and Mason Cable-Car Depot.

Although some 20th and 21st century philosophy could be considered more

¹¹⁹ ArchitectureWeek - Design - Centre National de la Danse - 2004.0922, accessed July 02, 2017, http://www.architectureweek.com/2004/0922/design_I-I.html.

Figure 19: The use of new partitions to adapt the circulation of the former Mornington Cable-Car Depot, similar to the National Dance Centre,

controversial, the building could, like the Washington and Mason Cable-Car Depot, retain the facades but be gutted and rebuilt with the purpose of reuse being paramount in the redesign. This would fit with the functionalist view that all architecture is superceded at later times. The Caixa Forum is an example of demolition, in either part or all of the building, permitting complete reconfiguration of the available space, and with the space being increased when complementary additions are made to the building. The additions can be made to stand out through the use of contemporary design and materials so that the addition is clearly acknowledged. However, the Caixa forum approach has the potential to severely compromise the cultural heritage values of the Mornington Cable-Car Depot, due to the extensive demolition and removal of heritage fabric. Alteration would minimise the level of demolition as more of the building would be kept intact allowing retention of most of the heritage fabric.

The demolition of the interior spaces of the Washington Cable-Car depot compromised the integrity of the building and, as a consequence, the authenticity of the heritage cable-car experience. The architectural strategy that was used provides understanding of what could be avoided in the adaptive reuse of the Mornington Cable-Car Depot. However, their primary cable-car tourism based programme could be adapted and expanded for the Mornington Cable-Car Depot.

As the former Mornington Cable-Car Depot is not protected under the Dunedin City Council District Plan (2013), or listed by Heritage New Zealand, the design for adaptive reuse is only restricted by self-imposed design choices. To maintain and adapt the building on its original site and in accordance with its character and distinct history, no matter the level of intervention, will ensure continuity of the cultural heritage.

Figure 20: Potential for a new addition in an existing opening in the Mornington Cable-Car Depot (top). Potential for the use of external and internal renders to emphasise historical features of the former Mornington Cable-Car Depot, using juxtaposition. (centre and bottom).

4.1 Guidelines for Design

Three design strategies became evident in the Conclusion section (4.0) and they will be used in combination to inform the design proposal for the adaptive reuse of the former Mornington Cable-Car Depot. Combining the strategies will enable the historic building to be adapted for reuse, whilst still retaining its authenticity, and to highlight the cultural heritage values of the building and site. There will be no attempt to restore the existing building. As a result, there is no ethical compromise required when considering the reuse of the Mornington Cable-Car Depot. Instead, the design will focus on adapting the building for reuse.

The first two strategies of 'adaptation' and 'preservation' are based on the ICOMOS New Zealand Charter (2010) definitions and are viable strategies for the adaptive reuse of historic buildings. The third term, 'alternative representation', was developed for the purposes of this project and is based on the ICOMOS definition of 'reconstruction' but is not limited to it.

Adaptation

*Adaptation means the process(s) of modifying a place for a compatible use while retaining its cultural heritage value. Adaptation processes include alteration and addition.*¹²⁰

As adaptation is the alteration(s) made to the existing building fabric the alterations will, in this instance, be kept to a minimum if demolition of heritage fabric is required. Alterations will be made where the functioning of the Mornington Cable-Car Depot building is compromised by its current form, and to reveal aspects of cultural heritage that are currently obscured, or perhaps compromised. Addition(s) using contemporary materials will be made so that the addition(s) can be distinguished from the existing building. This will enable the intervention to be understood as completely new, and will not compromise the authenticity of the original building.

Preservation

Preservation of a place involves as little intervention as possible, to ensure its long-term

¹²⁰ "ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage," ed. ICOMOS (New Zealand Revised 2010), 8

*survival and the continuation of its cultural heritage value. Preservation processes should not obscure or remove the patina of age, particularly where it contributes to the authenticity and integrity of the place, or where it contributes to the structural stability of materials.*¹²¹

Preservation will be used for those areas of the Mornington Cable-Car Depot building that, in their current state, contribute to the building's authenticity and integrity. This implies that only maintenance will be used in particular areas, so minimising removal of heritage fabric.

Alternative Representation

*Alternative Representation is when the original form is reproduced using a different material(s) to the original. Therefore, the new form is clearly identified as 'new' despite being in the form of the lost element. Alternative representation is therefore different to Reconstruction as defined by ICOMOS New Zealand Charter (2010). Reconstruction is when a form is reconstructed as closely as possible to the original, which involves using similar, although new, materials.*¹²² *Alternative Representation might also involve the newly reproduced form being used for a function different to that of the original form.*

Alternative representation is used in this project when documentary evidence exists to be able to reproduce the form that has been lost, to maintain the integrity of the building. This will involve judgement as to their degree of importance. The intention is to augment understanding of the building's cultural heritage, while contributing to the functionality of the adapted building.

The design strategy for the Mornington Cable-Car Depot will use a combination of adaptation, preservation, and alternative representation so that demolition is minimised, the building is adapted for reuse, the heritage fabric is preserved, authenticity is maintained and the cultural heritage is both exposed and highlighted. The Design Guidelines were further developed through historical, architectural and context analysis, which in combination, informed the developed design (9.7).

¹²¹ ICOMOS New Zealand Charter, 6
¹²² ICOMOS New Zealand Charter, 7

5.0 Historical Analysis

The suburb of Mornington was established in 1862 and, by the 1880s, was a busy suburban area. The growth of the suburb was fuelled by the further development of an adjoining suburb, The Exchange, during the Otago gold rush.¹²³ However, settlement of Mornington suburb was delayed due to the steep and treacherous conditions that proved challenging to settlers who wished to build homes there. The introduction of two cable-car lines: the Mornington line in 1883 (refer Fig 22), and the Maryhill line in 1885¹²⁴ (refer Fig 21) made it possible to live and travel between the city and Mornington. Because of this the cable-cars, over time, became an integral part of the Dunedin public transport system.

However, the role of the Dunedin cable-cars went beyond a form of transport as they became an important part of daily life for both locals and tourists.¹²⁵ They had a distinctive red, black and cream colour scheme. In addition, the Maryhill line was the steepest line in the Southern Hemisphere.¹²⁶ A common sight was the Mornington locals gathered at the top of Maryhill listening to the shrieks of the tourists as they plunged over the edge.¹²⁷ The 1890 Thomas Cook & Son New Zealand Pocket Travel-guide informed visitors that “No-one thinks of leaving Dunedin before having taken a trip by the Mornington cable-car up High Street...and on the [Maryhill line].”¹²⁸ New Zealand cable-car and tramway historian, Graham Stewart, recounts his own memories of the Mornington cable-car system in the 1950s, and how the cable-cars became intertwined with the social life of the Dunedin community :

*“The cable-cars were a meeting place where everyone swapped stories and the local gossip... There was a friendly intimacy about the ride - one couldn't be snobbish when sharing a toehold with a dozen others.”*¹²⁹

¹²³ Raymond Philip Hargreaves, *The Top of The Hill: A Short History of Mornington and its Buildings* (Dunedin, N.Z.: Otago Regional Committee, New Zealand Historic Places Trust, 1983), 1

¹²⁴ Hargreaves, *The Top of The Hill: A Short History of Mornington and its Buildings*, 8

¹²⁵ Bill Campbell and Raymond Philip Hargreaves, *Straphangers & Grippers: The Ups and Downs of the Mornington Cable-Car System, 1883 to 1957* (Dunedin: Otago Heritage Books, 1994), 20

¹²⁶ Graham Stewart and Lorraine Olphert, *Fares Please! The Horse, Steam & Cable Trams of New Zealand* (Wellington, N.Z.: Grantham House, 1997), 155, 168

¹²⁷ Don McAra, *Hold Very Tight Please! The Cable-cars of New Zealand* (Wellington, N.Z.: Grantham House, 2007), 51

¹²⁸ Campbell and Hargreaves, *Straphangers & Grippers*, 20

¹²⁹ Graham Stewart, "Cableways And The No. 93," *Cableways*.

Figure 21: The Maryhill Cable-Car Line on Glenpark Avenue (1885-1955)

Figure 22: The Mornington Cable-Car Line on High Street-Eglinton Road (1883-1957)

The growth in use of private motorcars in the mid-20th century, coupled with the financial constraints of World War Two which limited the necessary maintenance of the cable-car system, resulted in the phasing out of cable-cars. This began with the closure of the Maryhill line in 1955, followed by the Mornington line in 1957¹³⁰ (refer Fig 23). Many of the Mornington residents campaigned in an effort to save the cable-car system as a tourist attraction and heritage experience but this was not supported at the time by the Dunedin City Council. Consequently, the cable-cars were replaced with the more modern trolley bus, imported from Britain.¹³¹

As many of the cable-car lines originated in the Princes Street/Exchange area, the closure of the Mornington and other Dunedin cable-car lines led to a decline not only in that suburb, but that part of Dunedin, as the cable-car network had played a large part in the life of the city.¹³² On the 21st March 1983, a New Zealand Historic Places Trust (now known as Heritage New Zealand) plaque was placed on the former Mornington Cable-Car Depot to commemorate a century since the opening of the service. The plaque was unveiled by the gripman of the last cable-car trip, Mr Jack Johnston.

Although the original cable-car system was a tourist attraction, the Mornington Cable-Car Depot did not specifically cater for tourists. This means there is the potential for the former Mornington Cable-Car building to be adapted and developed for use as a heritage tourist-based programme, which would complement Dunedin's claim as the heritage capital of New Zealand. In addition, by using new design intervention for the building, provision could be made for a museum so that, as well as a cable-car ride, tourists can experience yesteryear when cable-cars were the main form of public transport and embedded in the social life of Mornington residents.

130 Campbell and Hargreaves, *Straphangers & Gripps*, 57
131 Campbell and Hargreaves, *Straphangers & Gripps*, 57
132 McAra, *Hold Very Tight Please*, 38

"It was a moving moment as the last cable-car to Mornington made its historic journey up High Street... now the relic of another era" ¹³³

Figure 23: Otago Daily Times (Dunedin) cartoon after the Mornington Cable-Car Line closed in 1957.

133 Campbell and Hargreaves, *Straphangers & Gripps*, 71

6.0 Architectural Analysis

The architectural analysis presents an outline of architectural changes that were made and impacted on the cultural heritage values of the former Mornington Cable-Car Depot building. Several of the architectural changes are related to the development of the cable-car system, which is discussed in the preceding historical analysis. This section focuses on the architectural implications for the building itself. The analysis is based on research by Dunedin cable-car historians, archival photographs, and the building plans of the Mornington Cable-Car Depot (refer Appendix 2).

The first cable-car depot was constructed in August 1882 in time for the opening of the Mornington cable-car line on 21 March 1883.¹³⁴ The ground level was timber framed and clad in corrugated iron, with a masonry basement underneath.¹³⁵ The function of the building was for the storage and maintenance of cable-cars and included an engine house, forge, and a wood-work shop. Following the opening of the Maryhill line, on 10 March 1885, the building catered for the servicing of the line and its cable cars and allowed passengers to transfer between the two lines.¹³⁶

The Mornington Cable-Car Depot was in service for over 20 years until it was destroyed by fire at approximately 3am on 9th February, 1903. The fire, at that time, was the worst in Mornington's history. It destroyed the entire cable-car depot and chimney, except for the basement (refer Fig 26).¹³⁷ From October that year until the 14th of December 1903,¹³⁸ the Dunedin City Council rebuilt the cable-car depot and, due to its materials, was built on the original 1882 basement that survived the fire. The reopening of the building was on 14th December 1903 which could explain why the year 1904 was, as shown in a photograph, written across the parapet of the newly built cable-car depot. The chimney was rebuilt by the 18th January 1905 (refer Fig 24).¹³⁹

In the 1920s, the Mornington and Maryhill cable-car system was extensively

134 Campbell and Hargreaves, *Straphangers & Gripps*, 9
135 Campbell and Hargreaves, *Straphangers & Gripps*, 24,25
136 Campbell and Hargreaves, *Straphangers & Gripps*, 12
137 Campbell and Hargreaves, *Straphangers & Gripps*, 25
138 "Mornington Tramways," Otago Daily Times (Dunedin), October 3, 1903, 12784th ed.
139 Campbell and Hargreaves, *Straphangers & Gripps*, 36

Figure 24: The rebuilt chimney nearing completion in 1905.

modernised through a building addition and a change to how the cable cars were powered. This modernisation had significant architectural implications for the Mornington Cable-Car Depot as, in 1925, the cable-car system was converted from a coal fired system to an electric powered system, which meant that the 1905 brick chimney was redundant. As a consequence, the chimney, which had been a distinctive monument on the Dunedin skyline, was demolished and replaced by a new engine house for electric machinery. The new engine house was an addition to the rear of the 1882 basement and the 1903 ground level (refer Fig 25).

Dunedin cable-car historian, Don McAra, recalls how the interior of the Mornington Cable-Car Depot in the 1950s (refer Figs 28 and 29) was of great interest to passersby as they got a glimpse of the interior and the small traverser trolley distributing the cable-cars and trailers to their storage lines. Passengers had to walk through the depot to the rumble of electric machinery that operated the pulley-system cables located in the engine room. The sound faded as they approached the brightly coloured Maryhill cable-car waiting on the other side of the building.¹⁴⁰

Minor architectural changes were made to the building from 1925 until the closure of the cable-car system in 1957. After the cable-cars had ceased operation, the depot was used to store the bodies of the new trolley-buses that had arrived from Britain. The building was subsequently leased to local businesses before being sold to a private buyer in 1961.¹⁴¹ The first post cable-car era modifications to the building took place in 1961-62, when the machinery and rails were removed, and the maintenance pits filled in, to allow the building to function as warehouse and retail space (Refer Appendix 2).

Some time after the 1950s the original ornamental cornice on the front façade and the small chimney in the original staff dining room, were removed.

Two events had significant impact on the architectural form of the Mornington Cable-Car Depot. As mentioned, there was a fire in 1903 that destroyed the building. The inclusion of the basement into the rebuilt depot meant that the

¹⁴⁰ McAra, *Hold Very Tight Please*, 38
¹⁴¹ Campbell and Hargreaves, *Straphangers & Gripps*, 105

building then consisted of two distinct eras: the 1882 basement, and the 1903 ground floor. The demolition of the 1905 chimney and its replacement with the saw-tooth 1925 industrial engine house introduced a third era to the building. New design intervention would enable this layered history, and associated cultural heritage values, to be revealed.

Design Possibilities

The demolition of the 1905 brick chimney in 1925 compromised the symbolic identity and dominance of the building on the Mornington ridge-line. There is a design opportunity for the chimney to be reproduced using alternative representation as it could be re-purposed in its use while still adding to the identity of the depot.

During the 1980s the original windows on the 1903 western façade were blocked in which severed the relationship between the building and the adjoining lane way. This left only the front and rear facades as having openings. Thus, there is the potential for reconnecting the building with the lane way.

As the building was originally designed for the machinery of a steam powered system that was then replaced by an electric system, there is now the opportunity to future-proof the cable-car system by using technology such as solar power with battery storage.

Diagrams on pages 48-51 are architectural analysis of the Mornington Cable-Car Depot (Figs 28-37).

Figure 25: Mornington Cable-Car Depot building from 1925 onwards.

Figure 26: A 1903 photograph showing the masonry basement walls that survived the fire, prior to being incorporated into the rebuild.

Figure 27: Pre-1950s photographs of the rebuilt Mornington Cable-Car Depot.

Figure 28: Analysis of ground floor layout of the Mornington Cable-Car Depot in the c1950s, showing how the building was designed for little public interaction.

Figure 29: Analysis of basement layout of the Mornington Cable-Car Depot in the c1950s, showing how the basement was not accessible to the public.

Figure 30: Architectural analysis of the proportions of the 1903, 1882, and 1925 parts of the depot building. The analysis highlights the horizontal language of the 1903 front facade, rectangular form of the 1882 basement, and distinctive triangular roof form of the 1925 era. This existing architectural language could be used to inform the height, proportions and scale of new design intervention.

Figure 31: A digital model of the former Mornington Cable-Car Depot as of September 2017 (rear and front views).

Figure 32: Exterior materiality of the 1903 part of the Depot.

Figure 33: Exterior materiality of the 1925 part of the Depot.

Figure 34: 1903 north facade openings.

Figure 35: 1903 south facade openings.

Figure 36: 1925 south facade openings.

Figure 37: 1925 west facade openings.

7.0 Context Analysis

An analysis of the urban and suburban environment has been carried out in order to understand the suburb of Mornington, including pedestrian and traffic flows and relevant implications for the design. Design possibilities and their implications for the adaptive reuse of the Mornington Cable-Car Depot are identified in the following diagrams and photographs.

The cable-car depot is located within the suburb of Mornington, which adjoins The Exchange suburb area of Dunedin City (refer Figure 41). Eglinton Road, where the depot building is located, runs east-west through Mornington and is a continuation of High Street that then extends through to The Exchange (refer Fig 38).

Aerial views of the site and context can be seen in Fig 39. Figures 40-48 indicate the surrounding urban context of the depot building and the cable-car lines that served it.

— Pedestrian flow
— Traffic flow

Figure 38: Eglinton Road running east-west through Mornington suburb, showing the depot building in the centre.

Figure 39: Regional, locale and site location.

Figure 40: The original routes of the Mornington and Maryhill cable-car lines that used to meet at the Mornington Cable-Car Depot.

Figure 41: Analysis of the Mornington Cable-Car Depot in relation to the original route of the Mornington and Maryhill Cable-Car Lines, shown in red.

Figure 42: Analysis of Mornington Village, showing the depot building at the centre.

Figure 43: Eglinton Road showing the former Mornington Cable-Car Depot on the right.

Figure 44: Analysis of the Eglinton Road elevation showing the height of historic Mornington Post Office in relation to the historic Mornington Cable-Car Depot. In addition, the height of the large brick chimney (now demolished) is shown. It can be concluded that the chimney played a vital role in achieving visual connection with the site from around Dunedin city.

Figure 45: Analysis of the surrounding Victorian and Edwardian architecture within close proximity to the depot, demonstrating the potential for this to be a heritage precinct.

Figure 46: Analysis of the Mornington Cable-Car Depot and how it has the potential to be integrated into a tourist heritage trail that includes many of Dunedin's most prominent historic buildings. A heritage trail could connect with the Dunedin cruise ship terminal at Port Chalmers.

Figure 47: Analysis of the cable-car lines (green) that originally connected with the tram lines (red). The joint cable-car and tram network formed the Dunedin public transport system up until the 1950s. The Mornington Cable-Car Depot (top left) is the last surviving cable-car depot in Dunedin.

Figure 48: Figure ground analysis of Mornington Village showing the depot in red in relation to Mornington Park. There is the potential to create a pedestrian and / or cable- car connection between the depot building and Mornington Park, in the unbuilt space opposite the site. (North up page).

Analysis of the site resulted in several conclusions that are relevant for future design decisions about the Mornington Cable-Car Depot building. The eastern facade of the former cable-car depot building is obscured by the Mornington Health Centre, which is a two level commercial space constructed c1970. The western facade of the building faces onto a shared access-way (refer Fig 54). At the rear of the building, there are two parts that form the southern façade, the 1903 cable-car depot and the 1925 engine house, which faces south onto Henderson Street that is a 'no-exit' service street. There are also two vacant sections at the rear of the depot building which could be built on (refer Fig 54). Across the road there are steps that provide public access from Henderson Street through to Glenpark Avenue (refer Fig 49). Opposite the building's front façade, that faces north, and across Eglinton Road, is Mornington Park, which has panoramic views across Dunedin city (refer Fig 51-52). The rear of the depot building has views out towards St Clair beach (refer Fig 55).

Figure 49: Analysis of the Glenpark Avenue public access-way connecting Glenpark Avenue with the rear of the former Mornington Cable-Car Depot.

Figure 50: Eglinton Road, showing the former Mornington Cable-Car Depot.

Figure 51: Panorama showing Mornington Park opposite the former Mornington Cable-Car Depot.

Figure 52: Panorama of Mornington Park showing the former Mornington Cable-Car Depot at the top of the Mornington ridge-line.

Figure 53: Panorama from lower Mornington showing the rear of the former Mornington Cable-Car Depot on Henderson Street.

Figure 55: Panorama from the rear of the former Mornington Cable-Car Depot towards St Clair.

Figure 54: Site plan showing the shared access-way and the potential for extending the building onto vacant sites on Henderson Street.

7.2 Field Trips

In May 2017 two trips were made to inspect the former Mornington Cable-Car Depot, and its context. Information gathered from observations made during the trips was used to inform decisions about the design for adaptive reuse of the building. The findings of the trips are shown through the following photographs and comments (refer Figs 56 - 63). There is potential for these historical elements to be acknowledged and / or incorporated as part of the adaptive reuse.

Observations Field Trip One 16th May 2017

Figure 56: Original workshop windows on western facade.

Figure 57: 1903 roof trusses at western end of ground floor.

Figure 58: Original sash window on northern facade.

Figure 59: Remains of original cable-car track in part of retaining wall, southern boundary.

Observations Field Trip Two 25th May 2017

Figure 60: Original cable-car machinery connections on basement floor.

Figure 61: Original cable-car rope poking through northern basement wall.

Figure 62: Part of the original basement staircase on western basement wall.

Figure 63: Historic Roslyn Cable-Car cutting in Highgate, Dunedin. The Roslyn and Kaikorai Cable-Car lines originally passed through the town belt and sub parks.

The following series of photographs taken during the field trips depict the location of the depot building and its interior. These photographs were used to provide understanding of the building and site during the design process.

Figure 64: Eglinton Road frontage.

Figure 65: Pedestrian crossing, Eglinton Road, opposite the depot building.

Figure 66: Lane-way on western boundary.

Figure 67: Disused asphalt area at rear of depot building.

Figure 68: The 1925 engine house backing onto Henderson Street with service access.

Figure 69: Interior depot building facing Eglinton Road.

Figure 70: Interior of 1903 cable-car storage area.

Figure 71: Corrugated iron roofing on building.

Figure 72: Storage space on ground level.

Figure 73: Basement showing columns and 1882 masonry walls.

Figure 74: Service entry to basement from Henderson Street.

8.0 Programme

Almost all New Zealand cable-car and tramway depots were demolished during the latter half of the 20th century.¹⁴² However, the Mornington Cable-Car Depot remains and the intention of this project is to reintroduce the cable-car function into the original building in relation to the Dunedin Lightrail Heritage Trust plan to reconstruct the cable-car line from The Exchange to Mornington. The focus is ‘how can the introduction of a contemporary cable-car function/programme be introduced while retaining and enhancing the cultural heritage values of the building and site’.

*"The reintroduction of cable-cars will create a world-class tourist attraction in the heart of Dunedin, integrate a safe, responsive and sustainable form of public transport into the city's public transport system and make Dunedin a more accessible, active, sustainable and wealthy city."*¹⁴³ Dunedin Lightrail Heritage Trust

8.1 Development of Programme

Reestablishing the Mornington line would not necessarily result in the adaptive reuse of the depot building becoming financially viable. Projects frequently require more than just one programme to fund the adaptive reuse of a building. For this reason, more than one programme is considered to be necessary for the adaptive reuse of the former Mornington Cable-Car Depot. However, consideration also should to be given to the impact that the programme(s) would have on the cultural heritage value of the building and site.

In order to expand the projected reopening of the Mornington line, the original Dunedin cable-car network, which ceased operation in the 1950s, was examined so that the possibility of constructing additional cable-car lines could be explored. Two cable-car lines that originally connected with the Mornington Cable-Car Depot were identified: the Eglin Road and Maryhill lines. Both lines were evaluated for their potential to enhance the cultural heritage value of the

site and improve the feasibility of the project. Due to being the steepest cable-car line in the Southern Hemisphere, the Maryhill cable-car line (1885-1955) was identified as having the greater potential to improve the financial viability of the programme as the line was a significant tourist attraction in Dunedin during its years of operation. Reopening the Maryhill line would connect the cable-car system to the lower reaches of Mornington suburb, which is on a hillside, so potentially increasing patronage.

Other possible functions operating in Dunedin were investigated to ascertain their suitability for the site. They were also assessed as to their potential to add to the cultural heritage as well as contribute to the financial feasibility of the project. Three functions were identified: gallery space for The Otago Art Society; a restaurant; and accommodation. Due to its historical relevance and attraction for tourists, The Otago Art Society gallery was evaluated as having the greatest potential for not only integration into the primary function of the building, but also contributing financially to the project. There is also an historic component as the opening of the Mornington and Maryhill cable-car lines in the 1880s coincided with the development of early photography in New Zealand. The cable-cars were depicted in some of the first photographs that were taken and in artistic works of the time. They were also frequently depicted on postcards.¹⁴⁴ There are several Dunedin artists who, even today, include cable-cars in their work even though the cable-cars are no longer operating. These artists often exhibit their work in the space provided by The Otago Art Society.

As mentioned, The Otago Art Society that was established in 1897, still provides space for exhibiting and selling local art and is currently located in the Dunedin Railway Station (refer Fig 75). The gallery is popular and is frequently visited by locals and tourists. Its current space is on the upper level of the railway station but being in the railway station means that it is disconnected from the main pedestrian routes. When entering the railway station the gallery is not immediately obvious as the stairway is tucked away in the corner with a small door at the top.

¹⁴⁴ Inmagic DB/TextWebPublisher PRO - DB/TextWebPublisher cannot be accessed in this way, accessed September 26, 2017, <http://www.aucklandcity.govt.nz/dbtw-wpd/exec/dbtwpub.dll>.

¹⁴² "History," History of the Cable Car | Wellington Cable Car, accessed June 21, 2017, <https://www.wellingtoncablecar.co.nz/English/About-Us/History.html>.
¹⁴³ "Proposal to Reintroduce The Dunedin High Street Cable Car Line," Dunedin Cable Car Trust Publication, 2017.

The restaurant / café function, although financially viable, would not add to the cultural heritage value although it would provide a service to visitors so will be considered.

Dunedin is the only main centre without a facility for the conservation and maintenance of historic cable-cars and trams. The Museum of Transport and Technology (MOTAT) in Auckland, Ferrymead Heritage Park in Christchurch and the Wellington Tramway Museum all provide facilities (refer Fig 76). This presents an opportunity to further expand the programme for the Mornington Cable-Car Depot, as the New Zealand Rolling Stock Register shows that there are currently eight Dunedin cable-cars and trailers in the process of conservation work or stored in preparation for conservation work. The adaptive reuse of the former Mornington Cable-Car Depot provides a unique opportunity to use these cable-cars once they have been repaired and to establish a facility for their ongoing maintenance. The inclusion of a cable-car maintenance facility would expand the cultural experience of visitors.

Figure 75: Analysis of the Otago Art Society's current location in the Dunedin Railway Station.

8.2 Design Brief

After the analysis of the Washington and Mason Cable-Car Depot the requirements of a cable-car depot are identified and listed below. There is a difference in the length of the cable-cars for each of the lines although they are the same width.¹⁴⁵ The number of cable-cars required is based on information from cable-car and tramway historian, Graham Stewart. Requirements for the cable-car maintenance facility were identified from a similar facility located at MOTAT. Requirements for museum space is related to the size and number of historic artefacts that are likely to be sourced from the Otago Settlers Museum, Dunedin.

Mornington Cable-Car Depot

Equipment and Machinery

- Storage sidings
- Traverser
- Turn-table(s)
- Electric drive
- Giant pulley wheels
- Tension and support machinery
- Maintenance pits
- Storage for spare parts

Staff

- Crew locker room
- Lunchroom
- Restroom(s)
- Staff Offices

Cable-Car Lines

Maryhill Cable-Car Line:

- 2 cable-cars dimensions: 2.1m x 4.6m x 2.4m.¹⁴⁶

Mornington Cable-Car Line:

¹⁴⁵ Graham Stewart and Lorraine Olphert, *Fares Please! The Horse, Steam & Cable Trams of New Zealand* (Wellington, N.Z.: Grantham House, 1997), 163-170
¹⁴⁶ Graham Stewart and Lorraine Olphert, *Fares Please! The Horse, Steam & Cable Trams of New Zealand* (Wellington, N.Z.: Grantham House, 1997), 163-170

- 5 cable-cars: dimensions: 2.1m x 5.5m x 2.4m.¹⁴⁷
- 5 trailers: dimensions: 2.1m x 5.2m x 2.4m.¹⁴⁸

Cable-Car Maintenance Facility

- Forge
 - Woodwork equipment
 - Painting booth
 - Storage space for spare parts
- Staff
- Lunchroom
 - Restrooms

The requirements of the Otago Art Society were identified after visiting the site.

Otago Art Society

- Gallery spaces
 - Gift shop space
 - Sculpture/small works space
 - Jewellery exhibition
- Staff
- Office/reception space
 - Lunchroom
 - Restroom(s)

Museum

- disused and damaged machinery and equipment
- documents, relics and photographs

The requirements for a Restaurant/café will be determined by the leaseholder.

¹⁴⁷ Graham Stewart and Lorraine Olphert, *Fares Please! The Horse, Steam & Cable Trams of New Zealand* (Wellington, N.Z.: Grantham House, 1997), 163-170
¹⁴⁸ Graham Stewart and Lorraine Olphert, *Fares Please! The Horse, Steam & Cable Trams of New Zealand* (Wellington, N.Z.: Grantham House, 1997), 163-170

Figure 76: Analysis of the tramway maintenance and repair facility at MOTAT, Auckland and Ferrymead in Christchurch.

Figure 78: Original plans for cable-car machinery at the Roslyn Cable-Car Depot, Dunedin.

Figure 77: Giant pulley wheels in the Roslyn Cable-Car Depot, Dunedin. Demolished 1957. The machinery at the Mornington Cable-Car Depot was similar.

9.0 Design Process

9.1 Analysis of Existing Building

At the beginning of the design process the issues considered were: where should the new design interventions be, and what alterations could be made to the existing building.

Figure 79 shows the entire site and its relationship to the surrounding streets and to Mornington Park. The rear of the site has direct access to Henderson Street and there is the possibility to extend the current building to the rear. The building could be made even larger if use is made of the two vacant sections. There is also the potential to make a connection to Mornington Park which is across the road from the front of the building.

Figure 79: The entire site and context.

Figure 80: Cross-section

Figure 81: Existing basement and possible extension.

Figure 82: Mornington Cable-Car Line (Red). Maryhill Cable-Car Line (Green). Glenpark Avenue public access way (yellow).

9.2 Design in Relation to Context

There are design issues in regard to the movement of cable-cars between the park and the front of the depot building (refer Fig 82).

Cross-sections of the site and its context were drawn to explore and evaluate how the Mornington cable-car line could travel across, above, or below Eglinton Road to access the cable-car depot building. To have cable-cars travelling above Eglinton Road (refer Fig 84) would pose issues as the cable-car would need to enter the building at a height that would require demolition of the front historic façade on Eglinton Road. Another option would be to replicate the line as it existed between 1883 and 1957, and that is to have the cable-car line at 90 degrees to the building so that the cable cars cross Eglinton Road and go straight into the depot. These days, however, Eglinton Road is a busy arterial route to the surrounding suburbs so even halting traffic temporarily for cable-cars to cross would disrupt the flow of traffic.

After accessing the two options, it was decided that a third option needed to be considered. An underpass below Eglinton Road is the most viable as it would permit the cable cars to travel along the edge of the park prior to their descent down High Street to The Exchange (refer Fig 83). A walkway would be provided for pedestrians and the underpass would also permit the cable-cars to enter the basement of the building. This would make good use of the basement which does not currently allow access to the building itself so is being used as a car park and for storage.

Figure 83: Underpass.

Figure 84: North-south cross sections showing potential for a cable-car overpass or underpass to connect the Mornington Cable-Car Line with the depot building.

Figure 85: Glenpark Avenue historic public access-way.

The rear of the building offers further design possibilities. One is to link the building to the Glenpark Avenue public-access-way (refer Fig 85). The access way consists of steps that were first built in the 1880s, and were parallel to the original route of the Maryhill line (1885 - 1955). The public access-way could be connected, through the depot building basement, with the proposed underpass, so creating access for pedestrians all the way from Glenpark Avenue to the shops and Mornington Park. Another would be to reconstruct the Maryhill Cable-Car line on its original route. If the Maryhill line is reinstated then the cable-car would enter the basement from the rear of the building and passengers can gain ready access to the shops and Mornington Park (refer Fig 86).

Figure 86: North-south section showing the underpass connecting with Maryhill Cable-Car Line and Glenpark Avenue Public Access-way.

9.3 Mornington Cable-Car Depot Building

The multiple architectural changes made to the Mornington Cable-Car building after the 1920s compromised the symbolic and cultural identity of the building. The most significant changes were the demolition of the large engine-house chimney, the demolition of the smaller chimney on the Eglinton Road frontage, and the removal of an ornamental cornice and the lettering on the front facade. As discussed in 4.1, the design guidelines for this project does not, for reasons of authenticity, include restoration so this means the large and small chimney, ornamental cornice and missing lettering will not be restored. However, these features can be reproduced using alternative representation to facilitate understanding of the cultural heritage values, and how the building used to be, with the changes being clearly distinguished through contemporary materials (refer Fig 88).

Although there are no plans available that show the location of the large chimney that was demolished, there are multiple pre 1925 photographs that show the form and approximate height of the chimney (refer Fig 89). These can be used to guide the reproduction of the form. It seems that the engine-house, built in 1925, is in the position where the chimney once stood. Rather than demolish the engine-house, the chimney would, therefore, be reproduced in a new location using alternative representation. Although the chimney would be located in a new position the different eras of the building will still be evident as the chimney will have a 'contemporary' appearance as well as a new function.

After the fire of 1903, the rebuilt interior consisted, a social hall, dining room and a concrete safe which were all demolished in the 1990s. This demolition not only compromised the cultural heritage values of the building but also understanding of how the building originally functioned. However, there is evidence of the various rooms on the floors and walls. The Dunedin City Council Archives also have plans that show the actual location of the walls (refer Appendix 2) that would make it possible using alternative representation to reproduce new walls, in the same places as the originals. This space could be used for a new function, such as the gallery space.

Figure 87: Showing the potential for the adaptive reuse of the former Mornington Cable-Car Depot to facilitate the adaptive reuse of other redundant historic buildings in the area. These include former grocery store buildings constructed in the 1880s along the Maryhill (Glenpark Avenue) cable-car line.

Figure 88: Elements that could be reproduced using alternative representation.

Figure 89: The Maryhill cable-car line with the depot and large chimney on the Mornington ridge line c1910.

Figure 90: The large chimney and the cable-cars are now just a memory. The monumental status of the building has been severely compromised.

9.4 Theoretical Design Trials I

Design Trial One

Diagram One shows analysis of how minor demolition can be used to reveal layers of construction from different eras. Minor demolition allows any junctions from the different eras to be readily identified (refer A) and also provides the opportunity to perhaps uncover original circulation routes through the building. This can stimulate ideas about new design intervention within areas that have been demolished (refer B). However, minor demolition requires the demolition of heritage fabric, it could compromise the cultural heritage values of the building and site. Nevertheless the uncovering of the historical aspects of the building would contribute to visitors' heritage experience.

Figure 91: Diagram One.

Design Trial Two

Diagram Two shows analysis of the insertion of new design intervention within the upper and basement levels (refer A) and in the roof space above the existing building (refer B) to enlarge and adapt the current usable space. However, this would mean that historic aspects, such as the 1903 roof trusses (refer C), would have to be demolished and perhaps discarded. An advantage of using this design would be that any increase and/or adaptation of existing space would permit the introduction of a new programme (s) for the building.

Figure 92: Diagram Two.

Design Trial Three

Design three shows analysis of the potential for a floor to be added above the building (refer A). The addition could be partially concealed behind the parapet (refer B) so that change in the building's appearance would be minimal. As an alternative, the changes could be made obvious so that it is clear that an addition has been made to the existing form. The benefit of this strategy is that the cultural heritage value of the building and site would be preserved. Again this design would provide additional space to allow for the different programmes.

Figure 93: Diagram Three.

Figure 94: Diagram Four.

Design Trial Four

The diagram indicates how the building could be returned to its original configuration as a cable-car depot. However, to return the building to its original configuration would require the restoration of lost architectural features (refer A) which are evident in the few photographs that are available. A more complete restoration would pose problems due to the lack of early plans of the building and other relevant photographs. Restoration of any features could be considered ‘dishonest’ as it would compromise the authenticity of the building.

Conclusion from Design Trials

Design Trials Two and Three do not compromise the authenticity of the existing depot building because new interventions would be clearly distinguishable due to the use of contemporary materials. Both designs would provide the additional space that is required by the programme. However, Design Two involves discarding heritage fabric whereas Design Three achieves the requirement of providing additional space without compromising the integrity of the building. These considerations: authenticity, additional space, and integrity of the existing building, guide the first full design scheme for the adaptive reuse of the Mornington Cable-Car Depot.

9.5 First Complete Design Scheme

As can be seen in figures 95 and 96 a top floor addition to the building would create additional space. The extra space could be used for a restaurant / café (refer Fig 97), as the addition would give panoramic views across Dunedin. This would be pleasant for diners and would attract tourists, while at the same time maximising use of the site. The cable-car engine house and maintenance facility could be located in the basement where there is service access from Henderson Street. Although the added top floor would not be built across the full width of the building it could still allow for an atrium to be built that would extend from the basement to the top of the new addition. This would add to the heritage cable-car experience as visitors could view cable-car maintenance from the atrium. In addition, viewing shafts from the proposed museum on the upper level (refer Fig 97) would give another perspective of the maintenance facility.

An historical analysis of the building prompted the various design locations and some of the form for the proposed new intervention. For example, originally the route for pedestrians through the cable-car depot was through the centre of the building so the atrium could be located in a central position to pay homage to the past. The engine house could be located in the original position of 1882, and the reproduction chimney could be the same form as the original chimney but using alternative representation. The new chimney would allow the building to regain its previous monumental status on the Mornington ridge line (refer Figs 89 and 90). The shortcomings of this particular design is that the proposed position of the reproduced chimney, using alternative representation, would require demolition of the heritage fabric and the added storey would interfere with the original form of the building as it would only be part of the width (refer Fig 95), rather than the whole width of the building. If the new storey was built across the whole width the original ‘elongated look’ of the building would be compromised. Another issue is that the design scheme does not permit acknowledgement of the various eras of the current building.

The focus of the next design is not to place greater emphasis on one part of the building than another, as though one part of the building has greater

cultural heritage values than the other parts, but rather that each part has its own unique cultural heritage values which may benefit from a unique design approach. While investigating the possible design concepts for each part, the functionality of the building for the new programme is also be considered.

For the above reasons, a design using alternative representation, new design intervention, and adaptation is used in an effort to acknowledge both the cultural heritage values of the site and to allow the historical layers of the building to be revealed. At present, it is difficult to distinguish the different eras of the various parts of the building (refer Fig 98). For example, inside the building the thresholds are blurred so it is difficult to identify the historical layers, or the tangible aspects, and intangible aspects that contribute to the cultural heritage values of the building. Prior to the 1903 fire, and rebuild, the basement was visible from Eglinton Road and this aspect could be reinstated, albeit in a slightly different form, as a link to the past.

After determining that there are three distinct eras in the depot building, 1882, 1903 and 1925, colour and texture are explored as a way to identify them (refer Fig 100). However, the use of colour and texture might damage the original surfaces and, due to the large expanses involved, would not necessarily add to the awareness about the historical layers that make up the building. It could just seem than an interesting colour palette was being used in the building. Despite these issues, colour and texture could still be used to make the new design interventions readily identifiable from the building in its current form. To ensure that the different interventions are readily apparent as being alternative representation or additions, they should be consistent in the appearance of materials used, texture and colour.

Initially, 'partial demolition' was considered. This would allow parts that had been built at a later time to be distinguished from that of the original build (refer Fig 99), and so reveal the historical layers. Partial demolition would also allow the reconfiguration of circulation patterns to improve flow within the building. An additional benefit of partial demolition would be to increase the amount of natural light in different parts of the building. However, partial demolition would necessitate the removal of heritage fabric and pose problems as to how and where the heritage fabric would be disposed of, or how it could be reused. To avoid partial demolition and the removal of heritage fabric, and make clearer the different eras of the building, further designs are trialled.

Figure 95: Front view of the depot building.

Figure 96: Rear view of the depot building.

Figure 97: Sectional comparison of previous building and proposed additions.

Figure 98: Different eras of the Depot.

Figure 99: 'Partial demolition'

Figure 100: Colour.

9.7 Developed Design Scheme

Hand-drawn architectural sketches of a building renovation project. The sketches include a side elevation, a cross-section, and a material schedule. Annotations describe structural changes like raising trusses, adding supports, and removing chimneys. A material schedule table lists items like Malena, Iron Corrugation, Steel perforated, Stone, and Timber (beams).

Side Elevation Annotations:

- raising these trusses above other ribs to a higher entrance
- Supports? Chimney
- raise these trusses above other ribs to a higher entrance
- messy details between full glass to floor level
- new glazing underneath
- see up, same strategy as chimney
- around of porch & back of porch
- main
- allowing allows penetration on east
- 2m
- 1.5m
- red? or not
- light into basement
- Redes new
- new supports to carry
- Chimney removal on on plinth is well?
- Continue Truss Strategy
- Carry Structure
- malates T&G of original doors gone now

Material Schedule Table:

Malena	
Iron Corrugation	brick (red)
Steel perforated	
Stone	remove paint on 1975 entrance side
timber (beams)	

Figure 105: Rough sketch of potential changes

Figure 105: Rough sketch of potential changes

Figure 105: Rough sketch of potential changes

Figure 105: Rough sketch of potential changes

Figure 105: Rough sketch of potential changes

Figure 105: Rough sketch of potential changes

Figure 105: Rough sketch of potential changes

9.7 Developed Design Scheme

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9.7 Developed Design Scheme

Figure 107: The raising of the historic Drents museum building, which allowed the heritage fabric of the ground floor to be preserved and a new space constructed below.

GROUND FLOOR (EXISTING)

GROUND FLOOR PROPOSED

Figure 108: Plan of the ground floor (upper level) showing potential for new addition in disused asphalt area.

BASEMENT PLAN (EXISTING)

PROPOSED BASEMENT PLAN

Figure 109: Proposed additions either side of the existing basement to create a complete basement under the depot building.

Figure 110: A design trial model experimenting with lifting the 1903 part of the building.

Figure 111: Structural system which could be used to support the cable-car lines (red).

Figure 112: Model showing potential for concrete pre-cast or cast in-situ elements which could be used to support the 1903 part of the depot building.

The proposed underpass will enter the basement on the west side of the building (refer Fig 109). However, to be able to access the 1882 basement from the basement extension, some minor demolition would be required to provide for pedestrian access and perhaps cable-car access to the maintenance facility. The heritage fabric from the minor demolition will be stored in the basement and can be used for any future repairs.

The excavation on the eastern side of the basement (refer Fig 109) would provide the necessary space for machinery required to operate the cable-cars, as a dedicated clean, dust-free space separate to the workshop is required. The original 1882 basement area could be developed as part of an atrium that goes through to the top of the upper level. As in San Francisco, the working giant-pulley wheels of the cable-cars could be located in the centre of the atrium in the basement so they can be easily viewed.

Lifting part of the building is important to separate the 1882 era from the 1903 era of the building and create a distinctive threshold when entering the 1925 part of the building. However, equally important is maintaining the horizontal look of the façade at the front of the building (refer Fig 113). This means that the roof-line must be considered when the gap is created between the basement and the upper level of the building. Therefore, any change must be subtle so that the alteration in the roof-line is barely perceptible.

The proposed design of the large chimney will be located in the centre of, and rise above, the addition that is built over the excavated basement on the western side (refer Fig 110). Contemporary materials will be used so that the chimney is clearly distinguished as being built in the 21st century. The reproduced small chimney, again using alternative representation, will be located behind the parapet in its original position to further provide a tangible understanding of the building's cultural heritage. However, it will not burn coal as it used to but instead be used as a passive ventilation shaft.

The original lettering of *Mornington Municipal Buildings, 1904.* will be reproduced on the parapet using alternative representation. The missing cornice on the parapet will also be reproduced through the use of alternative representation

so that the form of building is the same as before, but the changes can be easily identified.

The design is prompted by the need for adapted reuse of the building in a contemporary society, and the functions that would then ‘fit’ this historic building. One function envisaged for the building is a restaurant that provides out door seating as well as a viewing deck so that it attracts both locals and tourists. The space could be leased out as this would help fund the adaptive reuse of the building and additions.

The large chimney would be used as a lift-shaft to take visitors between the underpass and upper level and, while functional, would also be an attraction to those exploring the site (refer Fig 122). It would also permit understanding of the tangible and intangible values of the Mornington Cable-Car Depot.

In the 1903 upper level, the social hall and dining room walls would be reproduced using alternative representation where the walls originally were. The other places the marks of the previous walls and doors will be framed, or highlighted in some way, as a reminder of the earlier era and how the building functioned at that time. The larger remaining space, formerly the social hall, would allow the Otago Arts Society to display artworks for visitors’ consideration and purchase. Leasing this space would also contribute to funding the changes for the adaptive reuse of the building. After consideration, both the museum and the maintenance area will be located in the enlarged basement. The Southern Heritage Trust may be interested in leasing the basement space and operating the museum as they collaborate with others in heritage activities. They also run heritage events.¹⁴⁹ The maintenance area could be leased to the Dunedin Light-Rail Heritage Trust so that they can use it for cable-car repair and refurbishment. These functions would help with funding the project.

¹⁴⁹ "Home," Southern Heritage Trust, accessed October 04, 2017, <http://www.southernheritage.org.nz/>.

Figure 113: The raised part of the building in relation to the underpass, showing the building lifted a minimum amount from the ground to respect the horizontal language of the facade.

Figure 114: Plans of options for the proposed rear addition that surrounds the 'alternative representation' of the large chimney (centre). The addition would be used for restaurant and viewing deck. Large chimney to be purposed as a lift.

PROPOSED REAR ADDITION

EXISTING 1925 ENGINE HOUSE

Figure 122: Proposed rear addition (left) showing Maryhill Cable-Car Line and public access way.

Figure 123: Developed design scheme showing the proposed underpass, new intervention in Mornington Park and at the rear of the depot building.

10.0 Conclusion

This project examines the potential for an historic building to reconnect with the community while becoming functionally relevant in the 21st century. The focus was to determine an architectural solution for the reuse of a neglected historic building, by integrating contemporary aspects, in relation to a current proposal in Dunedin. The proposal by the Dunedin Lightrail Heritage Trust to reconstruct the Mornington Cable-Car Line and a new depot prompted the idea that the original Mornington Cable-Car Depot could be reused as a cable-car depot. By re-establishing the cable-car function, after the last cable-car ran in Dunedin more than 60 years ago, provided a unique opportunity for the design of the building to reveal its evolution through the different eras and so emphasise its cultural heritage.

To honour the refurbishment it was necessary to take heed of the debates about heritage conservation to ensure that each intervention and its impact did not detract from, but enhanced, the Mornington Cable-Car Depot. Relevant precedents, with their approach and result, were evaluated, and in some instances used in a design that might be applied to the depot building. Several designs were discarded or partially used during the design process to achieve the optimal, final design for the adaptive reuse of the depot building. Some contemporary aspects were introduced while befitting the original intention for the building to be reused as a cable-car depot. Other functions, that complement the main function, are proposed not just for their financial contribution to the project but to reinforce and add to the heritage value of this particular site.

The initial designs changed as it was realised that restoration would undermine the authenticity of this historic building. For this reason, ‘alternative representation’ was defined for the purposes of this project, as a sensible and viable approach to maintain the authenticity of the building. Nevertheless, concessions had to be made in the effort to differentiate new from old. This involves using materials that are different to those of the original building or demolished form. In addition, the design ensures that where minor demolition is required the very minimum of heritage fabric will be disturbed or demolished.

The alternative representation of the two chimneys, cornice, lettering, and internal walls will augment understanding of the cultural heritage value of the site, whilst contributing to the functionality of the building so that it is relevant to a 21st century society.

When the concept of lifting the 1903 part of the building was first considered, it was thought that this decision could provoke reaction as it might be considered that separation of the levels could prejudice the integrity of the building. The final design seeks to ameliorate these potential concerns through the use of strategies in keeping with the architectural language of the existing building. Architectural and historical analysis, and the precedents, provided techniques that were extrapolated so that the building would not only reveal its cultural heritage, but retain and protect it, while maintaining its relationship with the ground.

If this design project was to be continued, exploration of the requirements of cable-car machinery and its implication(s) for the final design could be identified and resolved in more detail. In addition, if the project was broadened beyond its current scope, the implications of earthquake strengthening could also be investigated.

The final design strives to fulfil what was intended, that the cultural heritage is retained and valued but that the functionality of the building makes it suitable for reuse, while still maintaining its integrity. Each era is acknowledged for its contribution not only to the building itself but as a record of what took place in the history of Dunedin. Hence the building acts as a reminder of what has gone before, while fulfilling its destiny as a cable-car depot, and could ultimately stimulate a momentum for change in the local urban landscape.

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3. The Mornington Cable-Car Line (1883-1957).
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37. 1925 west facade openings	59. Remains of original cable-car track in part of retaining wall, southern boundary	85. Glenpark Avenue historic public-access-way.	111. Structural system which could be used to support the cable-car lines (red).
38. Eglinton Road running east-west through Mornington suburb, showing the depot building in the centre.	60. Original cable-car machinery connections on basement floor	86. North-south section showing the underpass connecting with Maryhill Cable-Car Line	112. The raised part of the building in relation to the underpass, showing the building lifted the minimum.
39. Regional, locale and site location.	61. Original cable-car rope poking through northern basement wall	87. Showing the potential for the adaptive reuse of the former Mornington Cable-Car Depot to facilitate the adaptive reuse of other redundant historic buildings.	113. Potential for concrete pre-cast or cast in-situ elements.
40. The original routes of the Mornington and Maryhill cable-car lines that meet at the Mornington Cable-Car Depot.	62. Part of the original basement staircase on western basement wall	88. Elements which could be reproduced using 'alternative representation.'	114. Plan views of possible options for the proposed rear addition, surrounding the alternative representation.
41. The Mornington Cable-Car Depot in relation to the original route of the Mornington and Maryhill Cable-Car Lines in red.	63. Historic Roslyn Cable-Car cutting in Highgate, Dunedin.	89. The Maryhill cable-car line with the site and original chimney on the Mornington ridge line c1910.	115. Curved roof of the original upper level of the Mornington Depot, prior to 1903 fire.
42. Mornington Village, showing the depot at the centre.	64. Eglinton Road frontage	90. The chimney and the cable-cars are now just a memory.	116. Cable-Car 'giant' circular pulley wheel system (basement).
43. Eglinton Road showing the former Mornington Cable-Car Depot on the right.	65. Pedestrian crossing, Eglinton Road, opposite the depot building.	91. Diagram One.	117. Proposed circular addition at rear of building, referring to the proportions of the existing building.
44. Eglinton Road elevation showing the height of historic Mornington Post Office in relation to the historic Mornington Cable-Car Depot.	66. Lane-way on western boundary.	92. Diagram Two.	118. Proposed addition at the end of the underpass in Mornington Park.
45. The surrounding Victorian and Edwardian architecture within close proximity to the depot, demonstrating the potential for this to be a heritage precinct.	67. Disused asphant area at rear of depot building.	93. Diagram Three.	119. Exploration showing the 1903 part of the depot building raised off the ground, revealing the 1882 basement .
46. The Mornington Cable-Car Depot has potential to be integrated into a tourist heritage trail that includes many of Dunedin's most prominent historic buildings. (Image adapted from Auckland City Libraries Heritage Images Online: NZ Map 29)	68. The 1925 engine house backing onto Henderson Street with service access	94. Diagram Four.	120. Front facade as existing.
47. Cable-Car (green) and tramway routes (red) that existed in Dunedin prior to the 1950s. The Mornington Cable-Car Depot (top left) is the last surviving cable-car depot in the city. (Image adapted from Auckland City Libraries Heritage Images Online: NZ Map 29)	69. Interior depot building facing Eglinton Road	95. Front view.	121. Floor plan showing potential for cable-car line to rise up through the ground floor in the atrium.
48. Figure ground drawing of Mornington Village showing the depot in red in relation to Mornington Park.	70. Interior of 1903 cable-car storage area	96. Rear view.	122. Proposed rear addition (left) showing Maryhill Cable-Car Line and public access way.
49. The Glenpark Avenue public access-way connecting Glenpark Avenue with the rear of the former Mornington Cable-Car Depot.	71. Corrugated iron roofing on building.	97. Sections.	123. Developed design scheme (plan and section) showing underpass, and new intervention at the rear of the site.
50. Eglinton Road, showing the former Mornington Cable-Car Depot.	72. Storage space on ground level.	98. Different eras of the Depot.	Final Presentation Drawing Figures
51. Panorama showing Mornington Park opposite the depot.	73. Basement showing columns and 1882 masonry walls.	99. 'Partial demolition'	124. Site plan
52. Panorama of Mornington Park showing the depot at the top of the Mornington ridge-line.	74. Service entry to basement.	100. Colour.	125. Basement and Ground floor plans
53. Panorama from lower Mornington showing the rear of the former Mornington Cable-Car Depot on Henderson Street.	75. The Otago Art Society in the Dunedin Railway Station.	101. Existing building	126. Long Section (North-South)
54. Site plan showing the potential for extending the building onto vacant sites on Henderson Street.	76. The tramway maintenance and repair facility at MOTAT, Auckland and Ferrymead in Christchurch (Adapted from MOTAT Archives).	102. Design trial one	127. Cross-section (West-East)
55. Panorama view towards St Clair beach at the rear of the building	77. Giant pulley wheels in the Roslyn Cable-Car Depot, Dunedin.	103. Design trial two	128. Rear perspective
56. Original workshop windows on western facade	78. Original plans for cable-car machinery at the Roslyn Cable-Car Depot, Dunedin.	104. Design Trial Three	129. Front perspective from Mornington Park
	79. The entire site and context.	105. Rough sketch	130. Front showing 1903 part of building raised off ground
	80. Cross-section	106. Underpass	131. Mornington Park entry to underpass and cable-car lines
	81. Existing basement and possible extension.		132. Junction / threshold between 1903 and 1925 parts of the building
	82. Mornington Cable-Car Line (Red). Maryhill Cable-Car Line (Green). Glenpark Avenue public access way (yellow).		133. Underpass entrance in Mornington Park
			134. Underpass showing area of turntable beneath Mornington Park
			135. Entrance to Otago Art Society gallery rooms in 1903 part of building
			136. Interior of rear viewing deck
			137. Tunnel entry to underpass
			138. Detailed model
			139. Context and light model (plaster and timber)
			140. Drone aerial image
			141. NZIA Student Awards Presentation 2017
			142. Long Section B

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13.0 Appendices

13.1 Appendix One

Conversation with Dunedin Senior Heritage Planner Mr Dan Windwood, 21st August 2017 at the Dunedin City Council Offices at the Octagon, Dunedin. Mr Windwood said that the former Mornington Cable-Car Depot was not listed for protection in the Dunedin City District Plan (2013).

13.2 Appendix Two

Dunedin City Council Archives plans of the former Mornington Cable-Car Depot, 172-176 Eglinton Road, Mornington, Dunedin.

Building Plan - 1961 6982 Alteration to Building (Floor and Cross Sections)

Building Plan - 1963 10440 Erect Retaining Wall for Carpark

Building Plan - 1965 13461 Alteration for Kodak Limited

Building Plan - 1984 7353 Alteration to Building (Floor 2)

Building Plan - 1984 7353 Alteration to Building (Floor)

Building Plan - 1984 7353 Alteration to Building (Structural)

Building Plan - 1992 3576 Alteration to Building, Office and Storeroom (Elevation and Sections)

Building Plan - 1992 3576 Alteration to Building, Office and Storeroom (Roof and Details)

Building Plan - 1995 5450 Alteration to Building, Car Access Area (Elevations and Sections)

Building Plan - 1995 5450 Alteration to Building, Car Access Area (Site and Details)

13.3 Appendix Three (Final Drawings and Models / NZIA Student Awards Presentation)

Figure 124: Basement and Ground Floor Plans

Figure 125: Cross-Section (West-East)

Figure 126: Site Plan

Figure 127: Long Section A (North-South)

Figure 128: Long Section B (North-South)

Figure 129: Rear perspective showing tourist view deck and alternative representation of chimney

Figure 130: Front perspective from Mornington Park

Figure I31: Front showing 1903 part of building raised off ground

Figure 132: Mornington Park entry to underpass and cable-car lines

Figure 133: Junction / threshold between 1903 and 1925 parts of building

Figure 134: Underpass from entrance in Mornington Park

Figure 135: Underpass viewing area of turntable beneath Mornington Park

Figure 136: Entrance to Otago Art Society gallery rooms in 1903 part of building

Figure 137: Interior of rear viewing deck

Figure 138: Tunnel entry to underpass and High Street

Figure 139: Detailed model

Figure 140: Context and light model (plaster and timber)

Figure 141: Drone aerial image render

Figure 142: NZIA Student Awards Presentation 2017