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**GREENWAY TO THE FUTURE?**  
**THE USE OF GREENWAYS IN ROAD MANAGEMENT**

A thesis  
presented in partial fulfilment  
of the requirements  
for the degree of  
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at Massey University

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## ***ABSTRACT***

Traditionally, roads have been viewed adversely in regard to the environment, and are considered one of the most serious threats to the landscape fragmentation process. This thesis examines the applicability of the greenway concept in New Zealand for enhancing the roading network, while providing connections to the surrounding landscape. Derived from the discipline of landscape ecology, the greenway concept advocates for a spatially structured landscape where corridors and stepping stones are designed to connect isolated patches.

Several methods have been used to gather information for this thesis. A comprehensive literature review provides a general overview of the greenway concept and the landscape and roading management regimes in New Zealand. Three case studies are investigated in two research phases. Firstly, institutional documents relevant to each case study are analysed to identify policy constraints and opportunities for greenway application in these areas. Map analysis constitutes the second analytical phase. The connectivity concept is applied to each case study area to determine the extent of connectivity within the case study landscapes, and the future implications of utilising roads as greenways in New Zealand.

Several conclusions were reached in this thesis. The greenway and connectivity concepts may be more applicable to significantly modified and fragmented landscapes than landscapes which are less modified. The following benefits may be derived from applying these concepts to New Zealand roads and landscape. First, connections between landscape elements are enhanced. Second, the connectivity concept can be used to prioritise landscape elements which require conservation. Third, the greenway and connectivity concepts can be used to mitigate the adverse environmental effects of the roading network.

However, the greenway and connectivity concepts are limited in their ability to influence road design - due to the overriding requirements of road safety. Greenway roads require extensive policy coordination between the agencies involved in landscape and road management. While DoC and regional councils offer potential opportunities to achieve such integration in New Zealand, the present policy situation reveals significant gaps in coordination, despite comprehensive requirements by the Resource Management Act 1991. Therefore, the application of the greenway concept to roads and landscapes in New Zealand requires changes within the present management regime.

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## **TABLE OF CONTENTS**

<b>ABSTRACT</b>	<b>ii</b>
<b>ACKNOWLEDGEMENTS</b>	<b>iii</b>
<b>TABLE OF CONTENTS</b>	<b>iv</b>
<b>LIST OF FIGURES</b>	<b>viii</b>
<b>LIST OF TABLES</b>	<b>x</b>
<b>LIST OF MAPS</b>	<b>xii</b>
<b>LIST OF ABBREVIATIONS</b>	<b>xiii</b>
<b>GLOSSARY</b>	<b>xiv</b>
<b>CHAPTER ONE: INTRODUCTION</b>	<b>1</b>
WHY ROADS?	2
THESIS AIM, OBJECTIVES AND RESEARCH QUESTIONS	4
Objective One	5
Objective Two	5
Objective Three	5
RESEARCH DESIGN AND METHODOLOGY	6
Literature Review	6
Greenway Concept	6
New Zealand Management Regime	7
Empirical Research	8
Case Study Selection	9
Analysis of Institutional Documents and Maps	13
Institutional Documents	13
Maps	13
Scope of Thesis	15
PROBLEMS ENCOUNTERED DURING RESEARCH	15
Deficiency of Ecological Information in New Zealand	15
The Uniqueness of New Zealand	16
THESIS OUTLINE	17
<b>CHAPTER TWO: GREENWAYS IN CONTEXT</b>	<b>19</b>
THEORETICAL CONTEXT OF GREENWAYS	19

LANDSCAPE ELEMENTS	23
Corridors	24
Patches	26
Patch Size and Shape	26
GREENWAY EVOLUTION	29
THE USEFULNESS OF GREENWAYS	32
Arguments for Greenways	32
Arguments Against Greenways	36
DEFINITION OF GREENWAYS	38
Greenway Typologies	39
CONCLUSIONS: TOWARDS A GREENWAY TYPOLOGY	45
<b>CHAPTER THREE: ROAD AND LANDSCAPE MANAGEMENT IN NEW ZEALAND</b>	<b>48</b>
INTEGRATION OF CONSERVATION INTO LAND USE SYSTEMS	48
CONFLICTING USES OF ROADS	50
HOW IS THE LANDSCAPE AND ROAD NETWORK MANAGED IN NEW ZEALAND?	50
Resource Management Act 1991	52
Local Government Act 1990	56
Transit New Zealand Act 1989	56
FACTORS TO BE CONSIDERED IN ROAD DESIGN	62
CONCLUSIONS	63
<b>CHAPTER FOUR: CASE STUDY ROADS</b>	<b>65</b>
CHARACTERISTICS OF EACH ROAD	65
Case Study One: State Highway 54	68
Case Study Two: Pohangina Valley East Road	70
Case Study Three: Sandhills Bypass	70
MANAGEMENT REGIME OF CASE STUDY ROADS AND SURROUNDING LANDSCAPES	72
Policy Coordination	72
Criteria for Analysing Policy Coordination	74
Road Design Criteria	76

Biodiversity Protection Criteria	78
Coordination Between Agencies in Management of Scenic Outlook	83
CONCLUSIONS	84
<b>CHAPTER FIVE: CASE STUDY MAP ANALYSIS</b>	<b>86</b>
CASE STUDY METHODOLOGY	87
Assumptions to Analysis	87
Information Requirements	89
Determination of New Patches and Corridors	90
Problems With Connectivity Concept	92
Map Overlays	93
ANALYSIS OF CASE STUDIES	95
Case Study One: State Highway 54	95
Selection of New Patches and Corridors	96
Placement of New Patches and Corridors in Road Reserve	99
Elimination of New Patches and Corridors in Road Reserve	100
Case Study Two: Pohangina Valley East Road	102
Selection of New Patches and Corridors	103
Placement of New Patches and Corridors in Road Reserve	104
Elimination of New Patches and Corridors in Road Reserve	105
Case Study Three: Sandhills Bypass	107
Selection of New Patches and Corridors	108
Placement of New Patches and Corridors in Road Reserve	112
Elimination of New Patches and Corridors in Road Reserve	112
CONCLUSIONS	115
<b>CHAPTER SIX: CONCLUSIONS, RECOMMENDATIONS, ISSUES FOR FUTURE RESEARCH</b>	<b>117</b>
<b>THESIS OBJECTIVES REVISITED</b>	<b>117</b>
<b>ADEQUACY OF GREENWAY AND CONNECTIVITY CONCEPTS</b>	<b>120</b>
<b>RECOMMENDATIONS</b>	<b>122</b>
<b>ISSUES FOR FUTURE RESEARCH</b>	<b>123</b>
Issues for Science	123

Issues for Planning	124
<b>APPENDICES</b>	<b>126</b>
<b>APPENDIX 1: ISSUES AND INSTITUTIONAL CONTEXT FOR LANDSCAPE PROTECTION</b>	<b>127</b>
<b>APPENDIX 2: DEFINITION OF “ROAD” [LG ACT 1990]</b>	<b>146</b>
<b>APPENDIX 3: PRINCIPLES AND ELEMENTS IN ROAD DESIGN</b>	<b>147</b>
<b>APPENDIX 4: MAP OVERLAYS FOR CASE STUDY ANALYSIS</b>	<b>156</b>
<b>BIBLIOGRAPHY</b>	<b>170</b>
CITED AND GENERAL SOURCES	170
MAPS	186
STATUTES	187

## *LIST OF FIGURES*

FIGURE 1.1	Diagrammatic representation of the relationship between road systems and wildlife	3
FIGURE 1.2	Research Design and Methodology	7
FIGURE 1.3	Profile of Roads in Relation to Landscape	12
FIGURE 2.1	Landscape Interactions Between Patch and Matrix	21
FIGURE 2.2	Landscape Interactions Between Habitation and Matrix; Patch and Patch; and Patch and Corridor	22
FIGURE 2.3	Landscape Interactions Between Corridor Types	23
FIGURE 2.4	What is Biological Diversity?	31
FIGURE 2.5	Riparian Zone: Geomorphic Zones and Management Possibilities	34
FIGURE 2.6	Greenway Planning Strategies Devised By Ahern	43
FIGURE 3.1	Integrated Landscape Management in New Zealand	51
FIGURE 3.2	Planning Relationships of Organisations Administering the Land Transport System in New Zealand	58
FIGURE 3.3	Sight Distance Measurement Diagram	61
FIGURE 4.1	Aerial Plan and Length of Case Study Roads	67
FIGURE 4.2	Original Network of "The Great Swamp" in 1840 and the Remaining Wetlands in 1993	69
FIGURE 4.3	Criteria for Analysing Extent of Policy Coordination Between Management Agencies and Degree of Support for Greenway Initiatives	75
FIGURE 4.4	Traffic Sight Lines at Road/Rail Level Crossings and Road Intersections for RDC	79
FIGURE 5.1	Assumptions and Methodology for the Application of the Connectivity Concept	88
FIGURE 5.2	Map Overlays Used for Each Case Study	94
FIGURE A3.4	Hierarchy of Policy and Plans Under the Resource Management Act 1991	132
FIGURE A3.5	Typical Highway Cross-Sections	150
FIGURE A3.6	Techniques to Integrate Road Design and Topography	152
FIGURE A3.7	The Use of Planting to Enhance Linkage Between Patches Along the Roadside	153
FIGURE A3.8	The Use of Planting to Frame Views in Road Design	153

FIGURE A3.9	Techniques in which Roadside Planting can Enhance the Landscape Grain	154
FIGURE A3.10	The Use of Planting to Enhance Road Safety	155

## *LIST OF TABLES*

TABLE 2.1	Corridor Type and Characteristics Identified by Forman and Godron (1986)	25
TABLE 2.2	Patch Type and Characteristics Identified by Forman and Godron (1986)	27
TABLE 2.3	Definition, Types, Characteristics, Information Needs and Implementation Issues of Greenways	40
TABLE 2.4	Greenway Classification Based on Areal Scale and Associated Attributes	42
TABLE 2.5	Typology of Greenway Types for this Thesis	46
TABLE 3.1	Potential for Greenway Objectives to Achieve Resource Management Act 1991 Principles	55
TABLE 3.2	Recommended Roading Hierarchy by Transit New Zealand	60
TABLE 3.3	Recommended Minimum Sight Distance From Intersections by Transit New Zealand	62
TABLE 4.1	Number of Lanes Proposed for the Sandhills Bypass	71
TABLE 4.2	Agencies and Associated Documents Involved in Management of Case Study Roads and Landscapes	73
TABLE 5.1A	Placement of Patches and Corridors, SH 54	97
TABLE 5.1B	Placement of Patches and Corridors in SH 54 Road Reserve	99
TABLE 5.1C	Elimination of Patches and Corridors from SH 54 Road Reserve	100
TABLE 5.2A	Placement of Patches and Corridors, Pohangina Valley East Road	104
TABLE 5.2B	Placement of Patches and Corridors in Pohangina Valley East Road Reserve	104
TABLE 5.2C	Elimination of Patches and Corridors from Pohangina Valley East Road Reserve	105
TABLE 5.3A	Placement of Patches and Corridors, Sandhills Bypass	110
TABLE 5.3B	Placement of Patches and Corridors in Sandhills Bypass Road Reserve	112
TABLE 5.3C	Design Speeds and Minimum Sight Distances to and from Intersections Along the Sandhills Bypass	113

TABLE 5.3D	Elimination of Patches and Corridors Along the Sandhills Bypass Road Reserve	113
TABLE A3.4	Methods Available for Landscape Protection Under Resource Management Act 1991 and Statutes Administered by DoC	134

*LIST OF MAPS*

MAP 1	Location of Case Study Roads	11
MAP 2	Designation of Sandhills Bypass Route	14
MAP 5.3D	State Highway 54 Overlay Number Four	101
MAP 5.4D	Pohangina Valley East Road Overlay Number Four	106
MAP 5.5E	Sandhills Bypass Overlay Number Five	114
MAP 5.3A	State Highway 54 Map Overlay Number One	158
MAP 5.3B	State Highway 54 Map Overlay Number Two	159
MAP 5.3C	State Highway 54 Map Overlay Number Three	160
MAP 5.4A	Pohangina Valley East Road Map Overlay Number One	162
MAP 5.4B	Pohangina Valley East Road Map Overlay Number Two	163
MAP 5.4C	Pohangina Valley East Road Map Overlay Number Three	164
MAP 5.5A	Sandhills Bypass Map Overlay Number One	166
MAP 5.5B	Sandhills Bypass Map Overlay Number Two	167
MAP 5.5C	Sandhills Bypass Map Overlay Number Three	168
MAP 5.5D	Sandhills Bypass Map Overlay Number Four	169

## *LIST OF ABBREVIATIONS*

CMP	Conservation Management Plans
CMS	Conservation Management Strategies
DoC	Department of Conservation
EIA	Environmental Impact Assessment
FHF	Forest Heritage Fund
GW	Greenway
KCDC	Kapiti Coast District Council
LG Act	Local Government Act 1990
LWRRDC	Land & Water Resources Research & Development Corporation
MDC	Manawatu District Council
MWRC	Manawatu-Wanganui Regional Council
n/a	Not Applicable
PNA	Protected Natural Areas
RDC	Rangitikei District Council
RAP	Recommended Area for Protection [DoC]
RPS	Regional Policy Statement
RM Act	Resource Management Act 1991
SH 54	State Highway 54
SH 1	State Highway One
TNZ Act	Transit New Zealand Act 1989
WRC	Wellington Regional Council

## **GLOSSARY**

**Formally protected areas:** Areas which are managed by formal protection mechanisms, such as reserves and covenants under the Reserves Management Act 1977 and Queen Elizabeth II National Trust Act 1977, or where there are legal conditions on resource consents relating to the area.

**Informally protected areas:** Areas which are identified in district plans or recommended for protection by DoC [RAP], but have no formal protection mechanisms or resource consent conditions relating to the area.

**Mesic Interior:** The innermost component of a patch or corridor.

**Nodes:** Nonlinear elements that can be considered to be a place or an event, for instance: patches, habitats, protected areas (Lineham et al. 1995).

**Road:** The strip of land along which vehicles travel. Roads usually have a paved or formed surface (Bennett, 1991:100).

**Road Reserve:** The total strip of land that is reserved for transportation purposes. There is usually a clearly defined boundary on either side of a road reserve where it abuts the adjacent land; but in some situations, such as forests or arid shrublands, the boundary may not be visibly defined (Ibid).

**Roadside:** The strip of land between the edge of the road and the adjacent boundary of the road reserve. The road “verge” or “right-of-way” are terms that are used elsewhere to refer to this land (bid).