



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Transforming Public Space

Re-generating Rissik Station

by Johannes Calvyn le Roux

Submitted in fulfillment of part of the requirements for the degree Master in Architecture (Professional),
in the Faculty of Engineering, Built-Environment and Information Technology, University of Pretoria.

Mentor: Nico Botes
Study leader: Raymund Königk

November 2008



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Soli Deo Gloria

Thank you also to: Nico Botes, Raymund Königk, my family

Preface	i	SWOT analysis	36
		Client body and user group	37
List of figures	v		
List of terms & abbreviations	ix	Chapter 5: Railways	39
		International railway redevelopment	39
		South African railway industry	40
		Railway station area redevelopment	41
Chapter 1: Introduction	1		
Introduction	1		
Background	2		
Research questions	3		
Assumptions & delimitations	3	Chapter 6: Design philosophy	43
Structure of the study	3	Design philosophy: the city and space	43
Research design	3	Design approach: adaptive reuse	46
Data analysis	3		
Chapter 2: Macro scale	5	Chapter 7: Precedent studies	49
Introduction	5	Functional precedents	49
Founding of Pretoria	5	TGV at Aix-en-Provence	49
Pretoria's development	5	TGV at Valence	51
Demographics	6	Theoretical precedents	53
Academic culture	6	Ara Pacis Museum	53
The name issue	6	Mill City Museum	55
Architectural context	7	The Faculty of Law	57
		Constitutional Court	59
Chapter 3: Meso scale	9	Chapter 8: Design development	61
Hatfield in context	9	Introduction	61
Beginnings of Hatfield	10	Design generators	61
Road linkages and transportation	11	generator 1: urban context	61
Historical survey	12	generator 2: form & space	62
Hatfield today	14	Concept model one	68
Hatfield Metropolitan Core Urban Development Framework	16	Concept model two	72
Group framework (START)	18	Concept model three	74
Chapter 4: Micro scale	21	Chapter 9: Technical resolution	81
Site selection	21	Introduction	81
Historical description	22	Historical study	81
Heritage value	22	Considerations	82
Impact of the Gautrain project	23	Investigation	83
Current conservation status	23	Existing & new structures	84
Preservation	23	Site access and parking	86
Legal requirements	23	Public space	88
Site analysis	24	Circulation	90
Urban analysis and proposal	26	Building programme	92
Streetscapes	32	Structural system	94
Serial vision	34	Vertical service ducts	98
Building assessment	35	Sun study	100
		Solar control	102
		Cooling system	104



Drawings	106
Existing site plan	106
Demolishments	106
Proposed site plan	110
Platform level plan	112
Ground floor plan	114
First floor plan	116
Second floor plan	118
Roof plan	120
Section AA	122
Section BB	124
Section CC	126
Section DD	128
Section EE	130
Northern facade detail	132
Station roof details	134
Retail & office wing details	137
Circulation bridge detail	138
Perspectives	140

Concluding comments	143
References	145

Chapter 1: Introduction	
1.01 Overview of historical sites around Hatfield	1
1.02 Old Fire Station, Hatfield	1
1.03 Old Post Office building, Festival Street	1
1.04 Old Arts building, University of Pretoria	1
1.05 Old Agriculture building, University of Pretoria	1
1.06 1923 Roman Catholic Church, Hatfield	1
1.07 Scene along Station Place Street	2
1.08 Mozambique Café	2
1.09 Urban scene in Europe	2
Chapter 2: Macro scale	
2.01 Pretoria Metro Area today	5
2.02 1908 map of Pretoria (Van der Waal Collection, University of Pretoria)	5
2.03 Map showing Pretoria's growth (Van der Waal Collection, University of Pretoria)	6
2.04 The original "Trapgewel Kerk" on Church Square (Van der Waal Collection, University of Pretoria)	6
2.05 Mass rally on Church Square (Van der Waal Collection, University of Pretoria)	6
2.06 The Netherlands Bank on Church Square (Van der Waal Collection, University of Pretoria)	6
2.07 Paul Kruger Street looking south towards Pretoria Station (Van der Waal Collection, University of Pretoria)	6
Chapter 4: Micro scale	
4.01 Site selection map	6
4.02 1929 aerial photo with Rissik Station (Van der Waal Collection, University of Pretoria)	6
4.03 Graphic representation of impact of Gautrain project on Rissik Station	6
4.04 Accessibility	6
4.05 Primary uses	6
4.06 Use distribution	6
4.07 Node-place	6
4.08 Movement patterns	6
4.09 Potential intervention areas at Rissik Station	6
4.10 Pedestrian access & user distribution	6
4.11 Connections to the city as a whole	6
4.12 Connections to the main streets and local surroundings	6
4.13 Concentrating pedestrian flows	6
4.14 Legibility analysis	6
4.15 Existing structures and uses	6
4.16 Proposed new structures and uses	6
4.17 Top view of proposed urban development concept model	6
4.18 View to the south	6
4.19 View to the north	6
4.20 Festival Street	6
4.21 Station Place Street	6
4.22 North view on Rissik Station along Festival Street	6
4.23 Looking west from the Festival Street bridge	6
4.24 Looking west from Festival Street	6
4.25 North view of Rissik Station	6
4.26 Rissik Station entrance	6
4.27 Stairs to platform	6
4.28 Platforms, tracks, & eastern footbridge	6



4.29 Waiting commuters on platform	34	7.17 Courtyard view (Architectural Record, 192(10):122-126)	55	9.12 Structural system	94
4.30 Plan showing viewpoints	34	7.18 Etched glass façade in the ruin courtyard (Architectural Record, 192(10):122-126)	55	9.13 Structure	96
4.31 Previous alterations on eastern façade	35	7.19 Approach	56	9.14 Wet services	98
4.32 Previous alterations on western façade	35	7.20 Library interior	57	9.15 Electrical services	99
4.33 Previous alteration work	35	7.22 Circulation bridge	57	9.16 Fire protection	99
4.34 Southern elevator tower	35	7.23 Internal courtyard	57	9.17 08:00 Summer solstice	100
4.35 Water penetration problems	35	7.24 The new Constitutional Court as viewed from the ramparts of the Old Fort (Angela Buckland)	58	9.18 12:00 Summer solstice	101
4.36 Alterations to ticket office	35	7.25 Great African Steps (Angela Buckland)	59	9.19 16:00 Summer solstice	101
4.37 Rail commuters	37	7.26 The foyer (Angela Buckland)	59	9.20 08:00 Winter solstice	100
4.38 Metrorail signage	37	7.27 Court chamber (Angela Buckland)	59	9.21 12:00 Winter solstice	101
4.39 Metrorail train, Hatfield	37	7.28 Foyer with gallery to the left (Angela Buckland)	59	9.22 16:00 Winter solstice	101
Chapter 5: Railways				9.23 Office interior with Colt shading (Colt International 2008)	102
5.01 TGV station at Aix-en-Provence, France (Botes 2004)	39			9.24 Colt louvre system (Colt International 2008)	102
5.02 Waterloo Station, London, England (http://www.networkrail.co.uk/waterloo.html)	39			9.25 Louvres on building exterior (Colt International 2008)	103
5.03 Artist impression of Hatfield Gautrain Station (http://www.gautrain.co.za/hatfield.html)	40			9.26 Solar control mechanism (Colt International 2008)	103
5.04 Gautrain construction signage, Hatfield	40			9.27 Louvre system on eastern façade	103
5.05 Gautrain route (http://www.gautrain.co.za/hatfield.html)	40			9.28 Frenger's Carat chilled beam (Frenger Systems 2008)	104
Chapter 6: Design philosophy				9.29 Fixing (Frenger Systems 2008)	104
6.01 Times Square, New York City (http://en.wikipedia.org/wiki/New_York_City)	43	8.01 View from the south onto Rissik Station	61	9.30 Multiservice Chilled Beam System (Frenger Systems 2008)	104
6.02 Scene in Greenwich Village, New York City (http://en.wikipedia.org/wiki/Greenwich_Village)	44	8.02 Western façade of Rissik Station	61	9.31 Cooling principle (Frenger Systems 2008)	104
6.03 Effect of spatial configuration as seen on New York City (http://en.wikipedia.org/wiki/New_York_City)	45	8.03 The Diplomat office building	62	9.32 Water point connection and flow control (Frenger Systems 2008)	105
6.04 People form bonds	45	8.04 Existing structures as design generators	62	9.33 Orientation (Frenger Systems 2008)	105
6.05 Origin Coffee	47	8.05 Linear form	62	9.34 Chilled beam in office setting (Frenger Systems 2008)	105
6.06 Waiting area	47	8.06 Base plane	63	9.35 Installation (Frenger Systems 2008)	105
6.07 Origin Coffee interior	47	8.07 Overhead plane	63	9.36 Existing site plan	106
6.08 Contrast between old and new	47	8.08 Vertical elements defining space: section	64	9.37 Structures demolished by Gautrain project	108
Chapter 7: Precedent studies		8.09 Vertical elements defining space: plan	64	9.38 Demolishments by this proposed project	109
7.01 Main approach (Botes 2004)	48	8.10 Entrance & approach: section	65	9.39 Proposed site plan	110
7.02 Interior view (Botes 2004)	49	8.11 Entrance & approach: plan	65	9.40 Platform level plan	112
7.03 View of the platforms (Botes 2004)	49	8.12 Legislative Assembly Building, Chandigarh, India, Le Corbusier, 1956-1959 (http://www.greatbuildings.com/cite/corbusier.htm)	65	9.41 Ground floor plan	114
7.04 Section (Architectural Review, 213(1274):51)	49	8.13 Path-space relations: station section	66	9.42 First floor plan	116
7.05 Site plan (Architectural Review, 213(1274):51)	49	8.14 Path-space relations: office/retail section	66	9.43 Second floor plan	118
7.06 View of platform level (Architectural Record, 213(1274):46-47)	50	8.15 Diagrammatic path-space relationship	67	9.44 Roof plan	120
7.07 Interplay of solid and void (Architectural Record, 213(1274):46-47)	51	8.16 View from the south to internal courtyard	68	9.45 Section AA	122
7.08 Cross section (Architectural Record, 213(1274):46-47)	51	8.17 Main entrance approach from the east	68	9.46 Section BB	124
7.09 Interior view with circulation (Architectural Record, 213(1274):46-47)	51	8.18 Top view of model	69	9.47 Section CC	126
7.10 Long section (Architectural Record, 213(1274):46-47)	51	8.19 Initial concept sketch	70	9.48 Section DD	128
7.11 Interior view of the Ara Pacis Museum (Architectural Review, 220(1316):56-61)	52	8.20 Initial plan drawing	71	9.49 Section EE	130
7.12 Main entrance (Architectural Review, 220(1316):56-61)	53	8.21 View from the north-east	72	9.50 Northern façade detail	132
7.13 Entrance lobby (Architectural Review, 220(1316):56-61)	53	8.22 Top view of model	73	9.51 Station roof edge detail	134
7.14 Site plan (Architectural Review, 220(1316):56-61)	53	8.23 View from the south to internal courtyard	74	9.52 Station roof gutter and column connection	135
7.15 Section (Architectural Review, 220(1316):56-61)	53	8.24 Main entrance	74	9.53 Station roof main truss	136
7.16 The ruin courtyard (Architectural Record, 192(10):122-126)	54	8.25 New structure envelope the old	74	9.54 Station roof cross bracing	136
		8.26 Top view	75	9.55 Roof detail - north façade	137
		8.27 Concept plan	76	9.56 Slab detail - south façade	137
		8.28 Concept services plan	76	9.57 Circulation bridge detail	138
		8.29 Refining the axial design	77	9.58 3D exploration	139
		8.30 Initial cross section through proposed structure	78	9.59 Assembly	139
		8.31 Initial section through existing structures	78	9.60 View from the proposed station plaza	138
		8.32 Initial longitudinal section	79	9.61 View of plaza and station	138
		Chapter 9: Technical resolution		9.62 Station concourse	138
		9.01 Early photo of Pretoria Station (Van der Waal Collection, University of Pretoria)	81	9.63 Looking east from Park Street	139
		9.02 Interior of one of the sheds (Van der Waal Collection, University of Pretoria)	81	9.64 View along Station Place Street	139
		9.03 Existing & new structures	84	9.65 Internal courtyard	139
		9.04 Site access and parking	86		
		9.05 Proposed public space	88		
		9.06 Ground floor circulation	90		
		9.07 First floor circulation	91		
		9.08 Second floor circulation	91		
		9.09 Ground floor programme	92		
		9.10 First floor programme	93		
		9.11 Second floor programme	93		

Adaptive reuse. Austin (1988:49) defines adaptive reuse as the principles through which "structurally sound older buildings are developed for economically viable new uses". This simply means that buildings are "modified to some degree to meet contemporary demand" (Reynolds 1982:45).

Anglo-Boer War. Refers to the war fought between the two Boer Republics (ZAR and Orange Free State) against Britain between 1899 and 1902. The war ended with the signing of the Treaty of Vereeniging in 1902 at Melrose House, Pretoria. The war is sometimes also referred to as the Second Anglo-Boer War and the South African War.

NHRA. National Heritage Resources Act (No.25 of 1999).

NZASM. Nederlandse Zuid-Afrikaansche Spoorweg-Maatschappij (Dutch South African Railway Company). The railways in the ZAR did not belong to the state. They were run by this private company. There were some other private railroads as well.

Preserve / Preservation. The objective is to keep the object in its existing state. Repairs must be carried out when necessary to prevent further decay. Damage and destruction caused by water, chemical agents and by all types of pests and micro-organisms must be stopped (Feilden 1994:6).

Rehabilitate / Rehabilitation. According to Feilden (1994:6) the best way to preserving buildings as opposed to objects is to keep them in use, and involve modernization with or without adaptive alteration. The original use is generally the best for conservation as it means fewer changes. Adaptive reuse of buildings thus falls under this method. It often is the only way that historic and aesthetic values can be saved economically and historical buildings brought up to contemporary standards.

SAHRA. South African Heritage Resources Agency.

ZAR. Zuid-Afrikaansche Republiek (South African Republic). It comprised the former Transvaal province, including the districts of Utrecht and Vryheid (Kwa-Zulu Natal). The Transvaal was divided into four smaller provinces after 1994, with the result that the Transvaal as a province ceased to exist.