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Technical Report Number 5

Assessment of Effects

## Urban Design

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**For the Christchurch Southern Motorway Stage 2 and  
Main South Road Four Laning**

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This Technical Report has been produced in support of the Assessment of Environmental Effects (AEE) for the Main South Road Four Laning and Christchurch Southern Motorway Stage 2 Project. It is one of 20 Technical Reports produced (listed below), which form Volume 3 of the lodgement document. Technical information contained in the AEE is drawn from these Technical Reports, and cross-references to the relevant reports are provided in the AEE where appropriate.

A Construction Environmental Management Plan (CEMP) has been prepared to provide the framework, methods and tools for avoiding, remedying or mitigating environmental effects of the construction phase of the Project. The CEMP is supported by Specialised Environmental Management Plans (SEMPs), which are attached as appendices to the CEMP. These SEMPs are listed against the relevant Technical Reports in the table below. This Technical Report is highlighted in grey in the table below. For a complete understanding of the project all Technical Reports need to be read in full along with the AEE itself; however where certain other Technical Reports are closely linked with this one they are shown in bold.

## Schedule of Technical Reports for the AEE

No.	Technical Report Title	Primary AEE Chapter Reference	SEMPs
1	Design philosophy statement	4	
2	Traffic and transportation effects report	11	Construction Traffic Management Plan
3	Assessment of stormwater disposal and water quality	19	Erosion and Sediment Control Plan, Accidental Aquifer Interception Management Plan
4	Landscape and visual effects	15	Landscape Management Plan
5	Assessment of effects – urban design	14	Landscape Management Plan
6	Urban and landscape design framework	14, 15	Landscape Management Plan
7	Landscape context report	15	Landscape Management Plan
8	Assessment of operational noise effects	17	
9	Assessment of construction noise & vibration	17	Construction Noise and Vibration Management Plan
10	Assessment of air quality effects	18	Air Quality Management Plan
11	Geotechnical engineering and geo-hazards assessment	3, 21	
12	Assessment of archaeological effects	24	
13	Social impact assessment	26	
14	Economic impact assessment	25	
15	Cultural impact assessment	23	
16	Contaminated land assessment	22	
17	Aquatic ecology assessment	20	
18	Terrestrial ecology assessment	20	
19	Lighting assessment	16	
20	Statutory provisions report	6, 28	
-	Construction Environmental Management Plan	5	

For further information on the structure of the lodgement documentation, refer to the 'Guide to the lodgement documentation' document issued with the AEE in Volume 1.

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## 1 EXECUTIVE SUMMARY

- 1.1 This report is an assessment of the urban design effects associated with the Christchurch Southern Motorway Stage 2 (CSM2) and Main South Road Four Laning Project (MSRFL), together referred to as the Project. This assessment has been prepared to address the requirements of the Resource Management Act 1991 (RMA).
- 1.2 The Project is for the construction, operation and maintenance of the CSM2, a four-lane median separated motorway. The Project also includes the widening and upgrading of Main South Road to provide for a four-lane median separated expressway along this existing arterial route.
- 1.3 The Christchurch Southern Motorway Stage 1 (CSM1) Environmental, Urban Design and Landscape Master Plan (Masterplan) contains a design vision of a landscaped parkway for all of the Christchurch Southern Corridor projects. This is an important objective specific to the CSM2 Project's landscape and urban design. CSM2 continues this parkway concept through to its connection with the Main South Road.
- 1.4 The key areas where effects on urban design are identified are the entrance or gateway at the Christchurch City and Selwyn District boundary (Marshs/Shands Rd interchange) and bridge designs.
- 1.5 From an urban design perspective the Project is consistent with regional planning, and will offer important accessibility to greenfield residential and business areas. It therefore offers a significant benefit in terms of encouraging appropriate land use and urban form. The Project has a moderate enhancement taking into account all of the amenity effects.
- 1.6 Based on these features and other matters detailed in this report, my overall assessment is that the Project will have moderate positive effects on the environment from an urban design perspective.

## 2 INTRODUCTION

- 2.1 This report is an assessment of the urban design effects associated with the Project. This AEE has been prepared to address the requirements of the RMA.
- 2.2 The NZ Transport Agency (NZTA) requires that urban and landscape design considerations are addressed within an Urban and Landscape Design Framework (ULDF), as required by its Urban and Landscape Frameworks – Highways and Operations Guideline 2009. The ULDF for the Project is included in the lodgement documentation as Technical Report 6.

### 3 DESCRIPTION OF PROPOSAL

3.1 The NZ Transport Agency (NZTA) seeks to improve access for people and freight to and from the south of Christchurch via State highway 1 (SH1) to the Christchurch City centre and Lyttelton Port by constructing, operating and maintaining the Christchurch Southern Corridor. The Government has identified the Christchurch motorway projects, including the Christchurch Southern Corridor, as a road of national significance (RoNS).

3.2 The proposal forms part of the Christchurch Southern Corridor and is made up of two sections: Main South Road Four Laning (MSRFL) involves the widening and upgrading of Main South Road (MSR), also referred to as SH1, to provide for a four-lane median separated expressway; and the construction of the Christchurch Southern Motorway Stage 2 (CSM2) as a four-lane median separated motorway. The proposed construction, operation and maintenance of MSRFL and CSM2, together with ancillary local road improvements, are referred to hereafter as 'the Project'.

#### 3.3 MSRFL:

Main South Road will be increased in width to four lanes from its intersection with Park Lane north of Rolleston, for approximately 4.5 km to the connection with CSM2 at Robinsons Road. MSRFL will be an expressway consisting of two lanes in each direction, a median with barrier separating oncoming traffic, and sealed shoulders. An interchange at Weedons Road will provide full access on and off the expressway. MSRFL will connect with CSM2 via an interchange near Robinsons Road, and SH1 will continue on its current alignment towards Templeton.

Rear access for properties fronting the western side of MSRFL will be provided via a new road running parallel to the immediate east of the Main Trunk rail corridor from Weedons Ross Road to just north of Currags Road. For properties fronting the eastern side of MSRFL, rear access is to be provided via an extension of Berketts Drive and private rights of way.

The full length of MSRFL is located within the Selwyn District.

#### 3.4 CSM2:

CSM2 will extend from its link with SH1 / MSRFL at Robinsons Road for approximately 8.4 km to link with Christchurch Southern Motorway Stage 1 (CSM1, currently under construction) at Halswell Junction Road. The road will be constructed to a motorway standard comprising four lanes, with two lanes in each direction, with a median and barrier to separate oncoming traffic

and provide for safety.<sup>1</sup> Access to CSM2 will be limited to an interchange at Shands Road, and a half-interchange with eastward facing ramps at Halswell Junction Road. At four places along the motorway, underpasses (local road over the motorway) will be used to enable connectivity for local roads, and at Robinsons / Curraghs Roads, an overpass (local road under the motorway) will be provided. CSM2 will largely be constructed at grade, with a number of underpasses where elevated structures provide for intersecting roads to pass above the proposed alignment.

CSM2 crosses the Selwyn District and Christchurch City Council boundary at Marshs Road, with approximately 6 km of the CSM2 section within the Selwyn District and the remaining 2.4 km within the Christchurch City limits.

### 3.5 Key Design Features:

The key design features and changes to the existing road network (from south to north) proposed are:

- a new full grade separated partial cloverleaf interchange at Weedons Road;
- a new roundabout at Weedons Ross / Jones Road;
- a realignment and intersection upgrade at Weedons / Levi Road;
- a new local road running to the immediate east of the rail corridor, to the west of Main South Road, between Weedons Ross Road and Curraghs Road;
- alterations and partial closure of Larcombs Road intersection with Main South Road to left in only;
- alterations to Berketts Road intersection with Main South Road to left in and left out only;
- a new accessway running to the east of Main South Road, between Berketts Road and Robinsons Road;
- an overpass at Robinsons and Curraghs Roads (the local roads will link under the motorway);
- construction of a grade separated y-junction (interchange) with Main South Road near Robinsons Road;
- a link road connecting SH1 with Robinsons Road;

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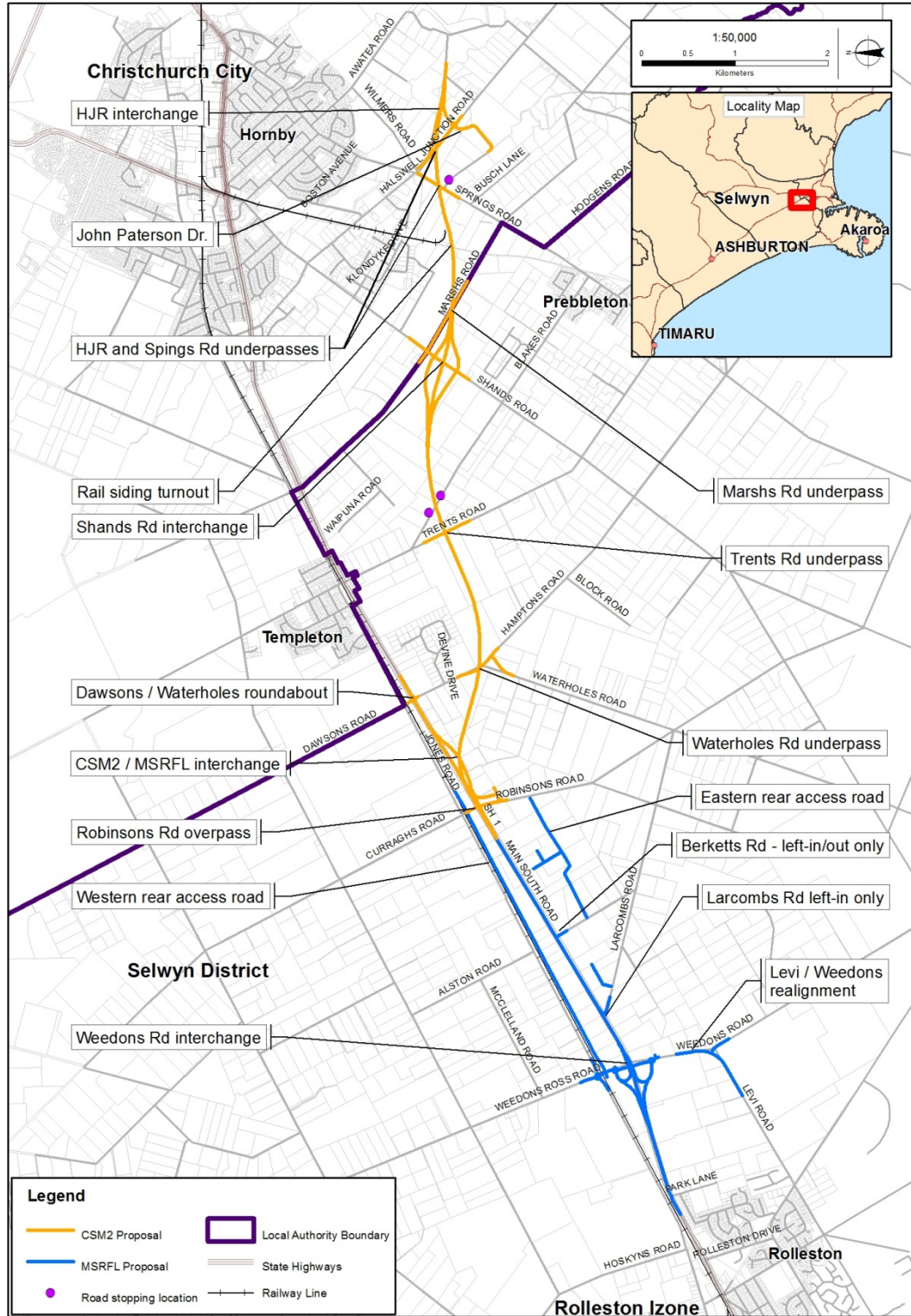
<sup>1</sup> CSM2 will not become a motorway until the Governor-General declares it to be a motorway upon request from the NZTA under section 71 of the Government Rounding Powers Act 1989 (GRPA). However, for the purposes of this report, the term "motorway" may be used to describe the CSM2 section of the Project.

- a short new access road north of Curraghs Road, adjacent to the rail line;
- a new roundabout at SH1 / Dawsons Road / Waterholes Road;
- an underpass at Waterholes Road (the local road will pass over the motorway);
- an underpass at Trents Road (the local road will pass over the motorway);
- the closure of Blakes Road and conversion to two cul-de-sacs where it is severed by CSM2;
- a new full grade separated diamond interchange at Shands Road;
- an underpass at Marshs Road (the local road will pass over the motorway);
- providing a new walking and cycling path linking the Little River Rail Trail at Marshs Road to the shared use path being constructed as part of CSM1;
- an underpass at Springs Road (the local road will pass over the motorway);
- a new grade separated half interchange at Halswell Junction Road with east facing on and off ramps linking Halswell Junction Road to CSM1; and
- closure of John Paterson Drive at Springs Road and eastern extension of John Paterson Drive to connect with the CSM1 off-ramp via Halswell Junction Road roundabout (east of CSM2).

The proposed alignment is illustrated in Figure 1 and encompasses the MSRFL and CSM2 alignments between Rolleston and Halswell Junction Road.



Figure 1: Proposal Location Plan



## 4 RELEVANT STATUTORY AND NON-STATUTORY PROVISIONS

### 4.1 Statutory Documents:

### 4.2 Christchurch City Plan (CC Plan):

4.2.1 **Appendix A** to this report shows the existing zoning of land adjacent to the proposed motorway. Marshs Road is the boundary between the Christchurch City and Selwyn District areas. The Project alignment passes through Business 5 and Business 7 (Wilmers Road Special Provisions), and Rural 2 zones in the Christchurch City area.

4.2.2 **Appendix B** to this report shows the extent of Plan Changes 47 and 54 which are alongside the Project alignment.

#### 4.2.3 Business 5 Zone

This zone is entitled 'General Industrial' in Section 1.13 of the CC Plan. It is characterised by a wide range of both light and heavy industry, processing and warehousing. The CC Plan anticipates a lower level of environmental outcomes in response to its location and character. Point (e) of the anticipated environmental outcomes for the Business 5 zone provides;

*"A distinctly "industrial" visual environment, dominated by buildings and storage, but with provision to gradually improve and enhance street scene character upon development or redevelopment, with frontage landscaping to mitigate building scale and storage areas."*

#### 4.2.4 Business 7:

This is a zone specific to an area used for gravel extraction, waste disposal and more recently, mushroom farming. The Business 7 zone is mainly in the CSM1 area and alongside Halswell Junction Road, so there are no urban design issues for the Project.

### 4.3 Selwyn District Plan (SDP):

4.3.1 The Project alignment passes through the Inner Plains zone and is adjacent to the existing Development Area zone (Claremont subdivision) and Living 2 zone (Aberdeen subdivision). Refer to the plan at Appendix A.

4.3.2 Plan Change 7 to the SDP is located alongside the Project immediately north of Rolleston (Refer **Appendix B**). I reviewed the subdivision plans with Mr. Milne, (the NZTA's landscape and visual expert), and there are sufficient landscape buffers within those plan changes to avoid any urban design effects. We concluded that Mr. Milne's Landscape and Visual Assessment would address the

landscape effects of the Project on the land within these two plan changes.

#### 4.3.3 Prebbleton Structure Plan (February 2010)

The CSM2 alignment is consistent with the shaded area shown on the Prebbleton Structure Plan (PSP). The urban design issue is maintaining the urban rural separation between Christchurch City and Prebbleton as described in Sections 8.2 and 8.3 of the PSP;

“The perception of Prebbleton as a separate place to Christchurch will be threatened by any development in the current ‘rural gap’.”

and,

“The motorway extension is a further potential threat and will need to be sensitively designed and landscaped.”<sup>2</sup>

The CSM2 alignment is located in the ‘rural gap’ in the Shands Road interchange vicinity. The landscape design proposal is shown on drawings 62236-B-L019 and 62236-B-L021. These show the extensive planting along the southern edge of CSM2 to maintain the parkway concept which will also maintain the rural amenity desired in the PSP. The two overbridges will be the most visible elements of CSM2 but the Marshs Road Bridge is on the Christchurch City boundary and will be immediately alongside the future industrial subdivision. The abutments to the Shands Road overbridge are extensively planted and in my opinion will not be visible from the Aberdeen subdivision due to the extensive shelter belt and CSM2 planting. This position is consistent with Mr. Milne’s visual assessment in Section 7.3(i) on page 33 of Technical Report 4, Volume 3.

#### 4.4 Canterbury Regional Policy Statement (RPS):

4.4.1 Proposed Change 1 (PC1) to the RPS, once operative (after appeals are resolved), will insert a new Chapter 12A to the RPS. PC1 covers the development of the Greater Christchurch area and includes provisions to implement the Greater Christchurch Urban Development Strategy.

4.4.2 Issue 6 of PC1 is titled Amenities. It currently reads;

*“Development within Greenfields Areas or as part of residential*

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<sup>2</sup> Prebbleton Structure Plan, page 18

*intensification, if poorly designed, can adversely affect urban amenity values; rural amenity values; heritage; health and safety; access to community, educational, social and commercial facilities, and overall liveability.”*

PC54 and the CSM2 alignment north of Marshs Road are in the Greenfield Business Areas identified in the PC1 for new business zoned areas.

- 4.4.3 Policy 7 of PC1 covers Development Form and Design. It currently states;

*“Greenfields development, intensification, and development of Key Activity Centres should give effect to urban design best practice. The principles of the Urban Design Protocol (Ministry for the Environment, 2005) shall be observed when preparing or assessing any urban development and the following matters shall be provided for:”*

The following points from Policy 7 have relevance to the urban design AEE for this Project:

- “(a) Good safe connectivity within the area, and to surrounding areas, by a variety of transport modes, including motor vehicles, cycling, pedestrian and public transport, and provision for easy and safe transfer between modes of transport;*
- (c) Provision for effective, efficient and attractive walk and cycleways, preferably integrated with open space and stormwater detention areas, within, across and linking beyond the area;*
- (g) Protection and enhancement of significant natural, ecological, landscape, cultural and historic heritage features;*
- (i) Provision for a high standard of visual interest and amenity;*
- (k) Effective and efficient use of existing and new infrastructure networks; and*
- (l) Appropriate relationships in terms of scale and style with the surrounding environment.”*

- 4.4.4 **Appendix C** to this report is part of the current Map 1 PC1 (which will become part of Chapter 12A) to the RPS. The light green filled areas show the Greenfield Business Areas that extend across the Project alignment in the Marshs Road area. I have added the blue hatching to identify the PC54 area and the black dotted line to show the Project alignment.

**4.5 Non-statutory Documents**

**4.6 Environmental, Urban Design and Landscape Masterplan: Christchurch Southern Motorway;**

4.6.1 This Masterplan is an urban design and landscape framework for Christchurch Southern Motorway Stage 1 (CSM1). It was prepared by Beca for the NZTA in May 2010, as part of the CSM1 project.

4.6.2 Section 1.1 from the CSM1 Masterplan contains a design statement intended for all of the Christchurch Southern Corridor projects. The design vision is to provide an environment that supports the green, leafy “Garden City” image that Christchurch City Council (CCC) aspires to:

*“The long-term vision is a grand parkway with road and cycleways passing through stands of mature canopy trees that display seasonal change and offer a scale that can be enjoyed by all modes of travel.”*

4.6.3 Section 2.2 Regional Context of the Masterplan outlines some design issues for CSM2:

*“Phase 2 extension is a future link that will continue CSM westward from Springs Road to emerge onto SH1 west of Templeton. It is here that the real opportunity is available to develop a southern gateway for Christchurch. The South West Area Plan proposes additional industrial land uses in the area, which could potentially present an unattractive entrance with large format buildings turning their backs onto the motorway.*

*A wide designated land area for planting and enforced building setbacks would assist the continuation of the semi-rural character and provide a more gentle and controlled transition into urban Christchurch....*

*The execution of landscaping and planting for the stage 2 extension should pay attention to achieving a ‘gateway’ experience that can be recognised in both east and west bound travel directions. The planting strategy in particular should create a progressive transition between the semi-urban environment and the rural environment.”*

- 4.6.4 Other key components for CSM2 to include, as set out in the Masterplan are;
- 'views to the Southern Alps and Port Hills at key points'
  - 'a long gently curvilinear alignment that reveals itself gradually'<sup>3</sup>

#### 4.7 South West Area Plan

- 4.7.1 The South West Area Plan (SWAP) is a Structure Plan developed by CCC to guide development on the south western rural edge of Christchurch. Plans for residential development in the Knights Stream area, business greenfield development in Marshs Road, improved cycle and pedestrian linkages and a proposed gateway area are all relevant to the Project.
- 4.7.2 **Appendix D** to this report shows the projected land use scenario for the SWAP in year 2041.
- 4.7.3 **Appendix E** to this report is a plan from the SWAP which nominates the Halswell Junction/Shands Road roundabout as a Christchurch Southern Gateway location and also proposes an indigenous tree corridor along the CSM2 alignment as far south as Marshs Road.
- 4.8 Other general reference documents include;
- NZ Urban Design Protocol 2005
  - NZ Transport Strategy 2008
  - NZTA Planning Policy Manual 2007: Section 3.5.2 Urban Design
  - NZTA Urban Design Professional Services Guide 12
  - NZTA Urban Design Policy 2009
  - NZTA Noise Barriers Design
  - RTA Bridge Aesthetics
  - NZTA Urban Design Principles: Road Bridge Guidance Notes
  - NZTA Urban Design Principles: Noise Wall Guidance Notes

## 5 METHODOLOGY

### 5.1 RMA Requirements

- 5.1.1 The term 'urban design' is not used in the RMA so this section of the report sets out my interpretation of urban design assessments required by Part 2 of the RMA.
- 5.1.2 Section 5 of the RMA promotes the sustainable management of natural and physical resources which enables people and communities to provide for their social, cultural and economic

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<sup>3</sup> CSM1 Masterplan Section 1.1 Design Statement page 5.

wellbeing. Therefore, an urban design assessment of environment effects (AEE) should examine the effects of a proposal on liveability and amenity of buildings, places, public spaces and networks as parts of neighbourhoods, towns and cities.

- 5.1.3 Section 5 (2)(a) requires management of the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while meeting the reasonably foreseeable needs of future generations. This involves consideration of future urban development that could be undertaken under District Plan provisions or is changed as a consequence of the Project.
- 5.1.4 Section 6 of the RMA 'Matters of National Importance' elevates the significance of particular places and issues. These matters should be carefully considered if they feature as part of an urban area affected by the Project. This is highlighted as a separate Matters of National Importance assessment section.
- 5.1.5 Section 7(b) requires particular regard to be had to '*the efficient use and development of natural and physical resources*'. Therefore, an urban design AEE will cover effects on urban structure, urban form and potential land uses. In particular, effects on agreed regional plans, structure plans, district plan provisions and best practice urban design. These issues are covered in an assessment section entitled 'Land Use and Urban Form'.
- 5.1.6 Section 7(b) requires a consent authority to have particular regard to the efficient '*use*' of natural and physical resources. Therefore an urban design AEE will cover effects on accessibility and connectivity to enable efficient use. This assessment involves considering effects on walking, cycling, as well as the motor vehicle. It may differ from a transport planner's assessment, as it involves examining the effect on proposed land use and amenity of public spaces such as streetscapes. These issues are covered in an assessment section entitled 'Accessibility'.
- 5.1.7 Section 7(c) requires that an AEE pay regard to '*the maintenance and enhancement of amenity values*'. Section 7(f) of the RMA requires that regard to be had to '*maintenance and enhancement of the quality of the environment*'. Therefore an urban design AEE will consider a proposal's spatial effects on amenity, character and quality of spaces or buildings in urban areas. These issues are covered in an assessment section entitled 'Amenity'.

## 5.2 Investigation and Assessment Process

- 5.2.1 This section outlines the process undertaken for determining and assessing the urban design effects of the Project in terms of the RMA.
- 5.2.2 The alignment plans, bridge designs and the draft Landscape and Visual Assessment were reviewed prior to a site visit. Relevant statutory and non-statutory documents were also read and issues were listed for consideration prior to the site visit.
- 5.2.3 A site visit on September 28, 2011 was undertaken to establish the existing conditions. This visit followed the route alignment with closer inspections where it crossed existing roads and the houses which require noise walls on the Main South Road. Templeton, Prebbleton, Claremont and Aberdeen were visited to understand their urban character and visual connection to the Project alignment.
- 5.2.4 A briefing meeting was held with Mr Cooke, who is the landscape architect for the Project design. This meeting reviewed his landscape concept design in response to Mr. Milne's Landscape and Visual Effects Technical Report.
- 5.2.5 After the site visit, I telephoned Mr Milne to review his existing character assessment of the Project and landscape mitigation plans. I agreed with his existing character assessment and mitigation proposals for the rural section south of Marshs Road. We agreed that I would concentrate my assessment on the urban area north of Marshs Road whilst he would assess the Project's effects in the rural area south of Marshs Road as the only potential adverse urban design effects in this area are of a visual nature.
- 5.2.6 Council Consultation  
I met Selwyn District Council (SDC) planning and urban design officers during the September 28 2011 site visit. They confirmed that SDC did not have any plans for rezoning within the Project area, other than existing plan changes. Access issues for properties on Main South Road were the main topic of discussion, with SDC officers supporting the inclusion of a new access lane alongside the railway if funded by the NZTA. Although there are a number of existing commercial properties along the Main South Road SDC officers did not want to encourage this activity, so did not see any need for rezoning in this area.
- 5.2.7 Urban design issues for the interface between the Project and land rezoned as a result of PC54 were discussed with CCC officers by telephone. Officers advised that they could not discuss the PC54 urban design issues in detail as CCC had not confirmed the Commissioner's decision on PC54. As that decision was confirmed on



April 15, 2011 as this report was being finalised, further consultation with CCC was not possible.

## 6 EXISTING ENVIRONMENT

6.1 For the purposes of describing the existing environment, I have considered the Project area in three sections.

6.2 Main South Road:

This stretch of road has a number of light industrial businesses that have developed in an unplanned manner with no specific zoning or spatial plan. Whilst these businesses change the existing environment away from a pure rural character, it is understood that there is no desire from SDC to introduce comprehensive rezoning for urban or business activities. Therefore, design issues in this area are primarily landscape design issues and are covered by the Landscape and Visual Effects Assessment (Technical Report 4).

6.3 MSRFL to Shands Road:

This is a rural area and therefore, any changes to the environment will result in landscape effects, rather than urban design effects. The landscape architect's assessment of this area is that the flat topography of the plains largely forms an open expansive natural character although this is dominated by the agricultural land use they support. The immediate surrounding landscape is organised around geometric patterns – roads, farm tracks, field patterns, shelter belts and woodlots.

6.4 Shands Road to Halswell Junction Road:

Business activity is dominated by light industrial and industrial activities in Christchurch City's Business 5 Zone. This zone is located north of Sir James Wattie Drive and Halswell Junction Road. There are a number of businesses with large storage yards and relatively little landscape screening. Newer developments include large industrial warehouses for manufacturing and logistics businesses. The flat land increases the visual dominance of these warehouses in the area.

Streetscapes are typical for industrial areas with wide driveways for truck access and few street trees. There are no footpaths in the Project area. The more recent large scale developments include landscaping in their front yards, but the overall appearance is typical of industrial areas and low in amenity.

The remaining land has a mixture of rural and rural residential activity. The rural residential areas are concentrated to the east of Springs Road and the Aberdeen development on the north western edge of Prebbleton. The Little River cycle trail passes across the alignment between Shands and Springs

Road. There are two transmission lines that cross the proposed alignment near the intersection of Marshs and Shands Roads.

- 6.5 It is noted that there are no existing footpaths along any of the rural local roads that cross the CSM2 alignment or along the existing SH1 in the MSRFL section.

## **7 ASSESSMENT OF URBAN DESIGN EFFECTS**

- 7.1 The assessment of urban design effects is divided into four sub-sections;

7.1.1 'Matters of National Importance', which relates to section 6 of the RMA;

7.1.2 'Land Use and Urban Form' which relates to section 7(b) of the RMA;

7.1.3 'Amenity' which relates to Part 2, Section 7(c) and 7(f) of the RMA;  
and

7.1.4 'Accessibility' which relates to Section 7(b) of the RMA.

### **7.2 Matters of National Importance**

There are no urban design effects that are matters of national importance as listed in section 6 of the RMA.

### **7.3 Land Use and Urban Form Effects**

#### **7.3.1 Key Matters for Assessment**

#### **7.3.2 Regional Policy Statement (RPS)**

7.3.2.1 Appendix C to this report shows part of Map 1 from the RPS. The light green fill shows the greenfield business expansion areas in the Project vicinity. I have added the blue hatching to show Plan Change 54 and a black dotted line shows the proposed CSM2 alignment.

7.3.2.2 CSM2 will sever part of the PC54 land between Marshs Road, CSM2 and the disused railway track (refer Appendix B). This will appear as an isolated triangle-shaped pocket of light industrial buildings outside the CSM2 alignment. The better urban design solution would have been for CSM2 to define an urban boundary for the PC54 land and the neighbouring parcels of land east to Springs Road. If the triangle of land remains zoned for business activity it will weaken the ability of CSM2 to provide a strong physical boundary for the Christchurch City urban limit.

7.3.2.3 However, the Council's decision on PC54 has approved the rezoning of this triangle of land as Business 5. It is my opinion that this re-zoning does not give the best urban design outcome, but this issue is outside of the scope of this Project and the designation for CSM2.

7.3.2.4 I note that at the time PC54 was decided, the Minister for Canterbury Earthquake Recovery had used his powers to make PC1 operative. That version shows the alignment of CSM2 on Map 1. PC1 has now reverted to its proposed status subject to Environment Court appeals following a decision of the High Court.

### 7.3.3 South West Area Structure Plan

7.3.3.1 Appendix D to this report shows a projected 2041 land use scenario under the SWAP. This plan predates PC1 (Chapter 12A) of the RPS, so does not show the greenfield business sites. CSM2 is shown further to the north with an interchange at the Marshs and Shands Road intersection. The actual Project alignment is further south to that shown in the SWAP plan.

7.3.3.2 Appendices B, C and D to this report show a proposed greenfield residential growth area to the east of the Project area on Halswell Junction Road.

### 7.3.4 South of Shands Road Interchange:

This area is a rural zone with some light industrial ribbon development along the Main South Road. SDC officers have confirmed that while they support inclusion of a rear access lane for properties on the Main South Road, they do not want to encourage further non rural activities. Therefore, any effects arising from changes from the Project in this area are landscape effects and are addressed by the Landscape and Visual Assessment Technical Report 4.

### 7.3.5 **Assessment of Land Use and Urban Form Effects**

7.3.5.1 CSM2 is included in the SWAP.

7.3.5.2 The Knights Stream greenfield residential area is sufficiently separate from the Project alignment for negative urban design effects on this area to be avoided. The Halswell Junction Road interchange will offer excellent access, so the Project has a positive effect in terms of implementing this growth area.

- 7.3.5.3 The extent of greenfield business area has been extended by PC1 (to become Chapter 12A) to the RPS. The Halswell Junction Road and Shands Road interchanges offer excellent accessibility to these business growth areas.
- 7.3.5.4 From an urban design perspective, the Project is consistent with regional planning and will offer important accessibility to greenfield residential and business areas. As a result, it offers a significant enhancement in terms of land use and urban form.
- 7.3.5.5 The issue of appropriate land use on the PC54 land severed by CSM2 is important from a compact urban form and strong urban boundary perspective. Although the potential severance effect is created by the Project alignment, the industrial zoning and resulting buildings are outside the scope of this Project and the designation sought, so are not considered to be a direct effect of the Project.

## 7.4 Amenity Effects

### 7.4.1 Key Matters for Assessment

#### 7.4.2 CSM1 Parkway Design Vision:

The parkway design vision in the Masterplan is the guiding urban design objective for the overall Christchurch Southern Corridor RoNS project. CSM2 has a gently curving alignment that opens to views of the Southern Alps and Port Hills. The landscape concept design prepared by Mr. Cooke also creates a parkway appearance, so overall the Project is consistent with the CSM RoNS design vision.

#### 7.4.3 CC Plan Business 5;

The anticipated environmental outcome for the Business 5 Zone (quoted in paragraph 4.2.3 above) shows that there is little amenity requirement for the Business 5 zone and that landscape mitigation is only envisaged on street frontages. Given that the interface of this zone with CSM2 is a rear yard, the Business 5 zone provisions do not specify any specific amenity requirements for the Project.

#### 7.4.4 RPS PC1 (to become Chapter 12A):

As discussed, Issue 6 and Policy 7 points (i), (k) and (l) of PC1 addresses amenity requirements in the greenfield development areas.

#### 7.4.5 SWAP Tree Corridor:

Appendix E to this report shows a proposed 'indigenous tree corridor' located on Knights Stream and parts of the CSM2 alignment. However the proposed CSM2 alignment is further south than that

shown on the SWAP. In discussions with CCC officers, they have not made any requests for inclusion of the indigenous tree corridor along the northern edge of CSM2.

#### 7.4.6 PC54 Land

7.4.6.1 There is a significant amenity issue in how the PC54 land will be developed alongside CSM2. Appendix F to this report shows the Decisions Version of the PC54 Outline Development Plan (ODP) to be included in the CC Plan. Appendix G to this report shows the Indicative Cross Section along Marshs Road as part of the publicly notified PC54 documents. Both of these plans include a 40 metre wide landscape strip and an additional 6 metre setback to potential buildings along the Marshs and Shands Road boundaries. The buffers are required to mitigate visual effects of urban development on the adjacent rural zone.

7.4.6.2 The NZTA made a submission on PC54 that the CSM2 alignment should be shown on the PC54 ODP, given that the alignment was shown in the RPS at the time the submission was made (because at that time the Minister's version of PC1 was operative as Chapter 12A of the RPS). However, this was opposed by the landowner and it is not included in the Decision Version ODP. CCC officers confirmed that the District Plan rules will only require a 1.5 metre minimum yard to CSM2, as the site already has more than one road frontage.

7.4.6.3 Therefore, according to the rules in the District Plan, it is possible that warehouses 12 to 20 metres high could be erected, which would affect the visual amenity for CSM2 road users at Christchurch's southern entry. **Appendix H** to this report is a corridor cross section through this part of the Project showing the designation width, possible building heights and the height limit through the PC54 area. The five metre tree is the landscape architect's recommendation for probable tree heights in this area. The section shows that if erected, a 12-20 metre high warehouse would visually dominate the view from CSM2.

7.4.6.4 Page 9 of CCC's decision on PC54 adds the following new assessment matter to 6.7.2 Street Scene of the CC District Plan:

*'(g) Within that part of the Business 5 Zone covered by the Outline Development Plan (Sir James Wattie Drive –*

*Appendix 21) the effect of reducing that standard on the visual amenity of the adjoining Rural Zone and nearby public cycleway, and on the approach to Christchurch along Shands Road or Marshs Road.”*

7.4.6.5 The CCC's decision raised concerns about visual impacts of the approach to Christchurch along local roads, but does not consider the same approach along CSM2. The number of people driving along CSM2 will be much greater than along local roads so the visual catchment will be much larger. In my opinion, there should be equal buffers along Marshs Road and CSM2, with the interface issues being less sensitive on Shands Road.

7.4.6.6 My professional opinion is that there is a high probability of a poor urban design outcome for an important entry to Christchurch. However this urban design issue is not an effect caused of the Project. Rather, it would be a potential effect of PC54 on road users using the future CSM2.

#### 7.4.7 Gateway Location

7.4.7.1 The SWAP shows a southern gateway located at Halswell Junction Road. This interchange has north facing ramps only, so it will be a gateway that is driven past when entering or leaving Christchurch (see Appendix E). More importantly, it would be beyond the rural/urban edge so would lose relevance as a city gateway. If a southern gateway is to be marked in one place, then it is considered that the Shands Road interchange is a better location. Shands Road interchange will be the place where urban buildings first become visible, and as it has south and north facing ramps, could become a true gateway.

7.4.7.2 The question of the southern gateway's location was raised with CCC officers, but they advised that it is too early to finalise the location. SDC officers have indicated they prefer the Shands Road location to mark the rural/urban edge, but should not impact on the rural character.

7.4.7.3 The CCC Annual Plan (2011/2012) provides funding for a “landmark” pedestrian bridge structure at Carrs Rd which is located in the CSM1 project area. While CCC has committed to the pedestrian bridge it has not yet confirmed if extra funding to design a “landmark footbridge” will proceed.

7.4.7.4 Mr Milne, Mr Cooke and I all agree that Shands Road interchange is the best gateway location. However both

locations in the CSM2 area are included as options in the Project ULDF. It is important to note that the southern gateway is a CCC initiative and that the Project design does not preclude either the Carrs Road pedestrian bridge, Halswell Junction Road interchange or Shands Road interchange being chosen by CCC.

#### 7.4.8 Acoustic Mitigation

7.4.8.1 The only noise fence in the section north of Marshs Road is shown on Sheet 28 Appendix A to the Landscape and Visual Assessment (Technical Report 4). This is a 1.8 metre high fence around House 27 (H27) will screen noise from the proposed Springs Road overbridge embankment. It is similar to existing fences so are in keeping with the existing environment.

#### 7.4.9 Bridge Design

7.4.9.1 The proposed concept designs for the Weedons, Waterholes, Springs and Halswell Junction Road Bridges have spill through abutments and a steel pedestrian balustrade, with the concrete barrier between the footpath and carriageway on the overbridge. The bridge deck is constructed from 900mm deep DHC planks. These bridges are simple in construction, appearance and are consistent with the CSM1 'parkway design vision'.

7.4.9.2 The Trents Road and Shands Road Bridges are proposed to have open spill through abutments and consistent pier designs, but change to a "super tee" deck structure. From an urban design perspective, this change is considered acceptable, as the visual difference for the motorist is minimal.

7.4.9.3 If the Shands Road Bridge is to form part of a southern gateway, then the bridge structure may require design enhancement. The headstock beam may need to be reviewed to provide less interruption to shadow lines from the cantilevered footpath, and enhanced pier designs could be used as part of an enhanced gateway treatment. This issue is raised in the ULDF but is a potential positive effect, rather than an adverse effect of the Project.

7.4.9.4 The Main South Road southbound and Marshs Road overbridges have open spill through abutments and pedestrian/traffic barriers that are consistent with other bridges. However, the deck structure changes to steel beams

due to the long spans over CSM2 at the centreline piers. This introduces another deck soffit and the change with concrete beams at the outside piers results in a different bridge type. Barriers and abutment treatment on these bridges will be consistent with the Project's visual and thematic design concepts.

- 7.4.9.5 Footpaths have been included on one or both sides of all bridges. In terms of cycling facilities, the vehicle carriageway is considered wide enough for the number of cyclists that use the local roads. However the 2 metre path on the southern side of the Marshs Road over bridge should be reviewed if it is to form part of a shared path route.
- 7.4.9.6 Overall, the bridge designs are generally consistent with the exception of the Main South Road Southbound and Marshs Road bridges. The desire for more consistent bridge appearances from an urban design perspective was considered and balanced against structural design and cost constraints with a decision to maintain the existing design.

#### 7.4.10 Assessment of Amenity Effects

- 7.4.10.1 The Project is consistent with the CSM RoNS Parkway design vision. The Project will provide a significant enhancement for motorists compared to using the existing SH1. The Project will also provide off corridor positive amenity benefits for Templeton, with a 40% reduction in traffic volumes on SH1.
- 7.4.10.2 The industrial urban area north of Marshs Road has a low existing amenity and there are no specific requirements in the RPS, CC Plan for the CSM2 project area. Therefore, with the proposed landscape mitigation, the Project will have only minor urban design amenity effects.
- 7.4.10.3 The proposed Knights Stream greenfields residential area is sufficiently separate from the Project alignment that there will be no urban design amenity effects on this residential area.
- 7.4.10.4 Shands Road interchange is preferred as a gateway location rather than Halswell Junction Road, but the design does not preclude either option if CCC selects the latter. Therefore there are no urban design amenity effects of the Project on a gateway location.
- 7.4.10.5 Generally the bridges are consistent with a parkway appearance. However, the Main South Road Southbound



Bridge and Marshs Road overbridge are visually different to the CSM1 bridge designs. Therefore the current design of these bridges will have a minor negative effect on visual amenity.

7.4.10.6 Overall, the parkway appearance of CSM1 will be extended through to the Main South Road in a convincing manner, which is regionally important as a major gateway for Christchurch City. Taking into account the negative effects of the design of some bridges, the Project will result in moderate positive urban design amenity effects.

#### 7.4.10.7 PC54 Development

I have not included the effects of PC54 in this part of my assessment, as they are not effects of the Project designation. However, I consider that if the built outcome is a line of blank warehouse walls facing the motorway, this would have a significant negative effect on amenity for the entry/exit appearance for Christchurch City for road users.

## 7.5 Accessibility Effects

### 7.5.1 Key Matters for Assessment

#### 7.5.2 Cycle Linkages:

The NZTA and CCC have agreed that the Project will provide a footpath and cycle link along the southern side of CSM2 from Halswell Junction Road to the disused railway track. The cycle trail will use the railway track to access Marshs Road, and then pass across the new Marshs Road overbridge. This will form the walking and cycling link shown on the SWAP.

#### 7.5.3 Road Network:

The key design features and changes to the existing road network (from south to north) proposed are:

7.5.3.1 A new full grade separated partial cloverleaf interchange at Weedons Road maintains all local vehicle connections. The overbridge will improve the local road connection across SH1. There are no existing footpaths but a footpath has been included on the overbridge.

7.5.3.2 A new local road running to the immediate east of the rail corridor, and to the west of Main South Road, between Weedons Ross Road and Curraghs Road. This road will

provide rear access for properties that currently have access from the Main South Road.

- 7.5.3.3 Alterations and partial closure to the Larcombs Road intersection with Main South Road will allow left entry only. A long detour to Weedons Road or Shands Road will be required to enter Main South Road.
- 7.5.3.4 Alterations to the Berketts Road intersection with Main South Road will allow left in and left out movements. A long detour to Weedons Road or Shands Road will be required to travel north as the right hand exit on to the Main South Road will be removed.
- 7.5.3.5 Robinsons / Curraghs Roads will connect through an underpass below the Main South Road. This will improve local connections across the corridor, but the only access will be the southbound exit from CSM2. All other movements are removed so a detour to Weedons Road or Shands Road will be required.
- 7.5.3.6 The construction of a grade separated Y-junction (interchange) will maintain northbound and southbound access from Main South Road;
- 7.5.3.7 A short new access road north of Curraghs Road, adjacent to the rail line is proposed to maintain private property access at the Main South Road interchange.
- 7.5.3.8 A new roundabout at SH1 / Dawsons Road / Waterholes Road;
- 7.5.3.9 Access along Waterholes and Trents Roads will be maintained on an overbridge. Blakes Road is severed by CSM2 but the distance to Shands and Trents Roads is short, so reasonable access will be maintained.
- 7.5.3.10A new grade separated full diamond interchange is proposed at Shands Road;
- 7.5.3.11 Access along Marshs and Springs Roads will be maintained on overbridges.
- 7.5.3.12A new grade separated half interchange at Halswell Junction Road with two east facing on and off ramps linking Halswell Junction Road to CSM1;
- 7.5.3.13It is proposed to form a new connection to John Paterson Drive from Halswell Junction Road.

#### 7.5.4 Assessment of Accessibility Effects

- 7.5.4.1 There are currently no footpaths on the local roads within Christchurch City and Selwyn District in the vicinity of the Project. Therefore the inclusion of footpaths on all of the bridges provides a benefit for joggers and pedestrians.
- 7.5.4.2 With the exception of Blakes Road, all local roads will remain connected with the Project in place. Severing Blakes Road is considered to be acceptable, as it is a shorter length road connecting Trents and Shands Road and therefore, the cul-de-sac lengths and detours created are short.
- 7.5.4.3 The only major vehicle movement that will be affected are the right turns into and out of Larcombs and Berketts Roads and the left exit from Larcombs Road. The detours created to access the Main South Road are significant, but the roads are too small to justify additional interchanges.
- 7.5.4.4 A new rear lane is proposed along the railway to provide access to properties on the north-western side of the Main South Road. The lane connects to the Weedons Road interchange to give access north and south along SH1. Properties connected to that lane will have improved access, given the proposed Weedons Road interchange avoids the existing right turns across a busy highway.
- 7.5.4.5 Properties on the south-eastern side of Main South Road will have access to local roads provided as part of the Project. The loss of direct access to SH1 has to be balanced against the danger and difficulty of right turns over the existing highway.
- 7.5.4.6 Cycle facilities along Marshs Road are proposed to connect the Little River Trail to Shands Road. This is sensible from an urban design perspective as the existing disused railway route north of CSM2 is likely to end up between blank warehouse walls or fences, and in an underpass under CSM2. This is an unattractive view for a recreational cycle trail and would raise CPTED4 issues.
- 7.5.4.7 The main off-corridor benefits from an urban design perspective will be reduced 40% reduction of traffic in Templeton and good access to the Knights Stream greenfield

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<sup>4</sup> Crime Prevention through Environmental Design.

residential area<sup>5</sup>. Templeton is a town that is divided by the Main South Road, so a reduction in traffic will improve walking and cycling connections. The proposed Halswell Junction Road interchange will offer good accessibility for the Knights Stream greenfield residential site.

7.5.4.8 As the adverse access effects along Main South Road are on a limited number of properties that already have compromised access, these effects are considered to be minor. Improvement of the local road cross corridor connections, pedestrian connectivity in Templeton and general access to the Knight's Stream residential area are community wide benefits, so they offer moderate benefits.

7.5.4.9 Therefore from an urban design perspective, overall, the Project offers a moderate benefit in terms of accessibility.

## 7.6 Overall Assessment

I consider that a combined assessment of the land use, urban form, amenity and accessibility effects will be that the Project offers a moderate benefit in terms of urban design effects.

## 8 CONCLUSION

### 8.1 Land Use and Urban Form Effects

8.1.1 The SWAP includes the CSM2 alignment and provides a land use framework for the Project area north of the Shands Road interchange. The Project is consistent with the SWAP, maintains existing local road linkages and encourages the proposed land uses.

8.1.2 From an urban design perspective the Project is consistent with regional planning and will offer important accessibility to greenfield residential and business areas. The Project offers a significant benefit in terms of land use and urban form.

### 8.2 Amenity Effects

8.2.1 The curved alignment, grass centre median and landscaping creates the parkway desired in the Environmental, Urban Design and Landscape Masterplan. The proposal allows for vistas of the Port Hills and Southern Alps.

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<sup>5</sup> Traffic reduces from 26,400 to 15,400 per day in 2016, and similar percentage reductions beyond that date.

- 8.2.2 The industrial urban area north of Marshs Road has a low existing amenity and there are no specific requirements in the RPS, CCC District Plan for the Project area. Therefore, the proposed landscape mitigation means the Project will have minor adverse urban design amenity effects.
- 8.2.3 The Project alignment is sufficiently separate from the proposed Knights Stream greenfields residential area in that it will have no urban design amenity effects on this residential area.
- 8.2.4 Shands Road is preferred as a Southern gateway location rather than Halswell Junction Road interchange. The Project design does not preclude either option and the Project will have no effects on selecting a Southern gateway location.
- 8.2.5 Generally, the bridges are consistent with a parkway appearance, but the Main South Road Southbound Bridge and Marshs Road overbridge are different to the other bridges visually. Therefore, these bridges, as currently designed, will have a minor negative effect on visual amenity.
- 8.2.6 Overall, the parkway appearance of CSM1 will be extended through to the Main South Road in a convincing manner. This is regionally important as a major gateway for Christchurch City. After weighing these positive effects against the adverse effects of two of the bridge designs, it is considered that the Project will provide moderate enhancement in terms of urban design amenity.

### 8.3 Accessibility Effects

- 8.3.1 The Project significantly improves accessibility to important greenfields business and residential development areas.
- 8.3.2 The inclusion of footpaths on all of the bridges provides a benefit for joggers and pedestrians.
- 8.3.3 As the adverse effects on Main South Road are on a limited number of private properties that already have compromised access, the restriction on their access is a minor negative effect.
- 8.3.4 Improvement of the local road cross corridor connections, pedestrian connectivity in Templeton and general access to the Knight's Stream residential area are community wide benefits, so they will provide moderate positive effects. Therefore, from an urban design perspective, the Project offers a moderate enhancement in terms of accessibility.

**8.4 Other Effects**

8.4.1 The issue of appropriate land use on the PC54 land bisected by CSM2 is important from a compact urban form and strong urban boundary perspective. Although the potential severance effect is created by the Project’s alignment, the zoning and resulting buildings are outside of the scope of the Project designation. Therefore, any adverse amenity effects on road users arising from a line of blank warehouse walls facing the motorway are not considered to be an effect of the Project.

**8.5 Overall Effect Assessment**

Considering these features together, my assessment is that the Project will have moderate positive effects from an urban design perspective.

Kevin Brewer  
November 2012

**Appendices (refer to Volume 5):**

Appendix A	District Plan Zoning	GHD/Beca Figure 8
Appendix B	Plan Changes	GHD/Beca Figure 11
Appendix C	ECAN RPS PC1	Part Map 1 PC1 (will become Chapter 12A)
Appendix D	SWAP	Figure 5 Land Use Scenario 2041
Appendix E	SWAP	Plan 3 landscape Character
Appendix F	PC54	Outline Development Plan
Appendix G	PC54	Landscape Strip Indicative Section
Appendix H		Cross Section PC54 land