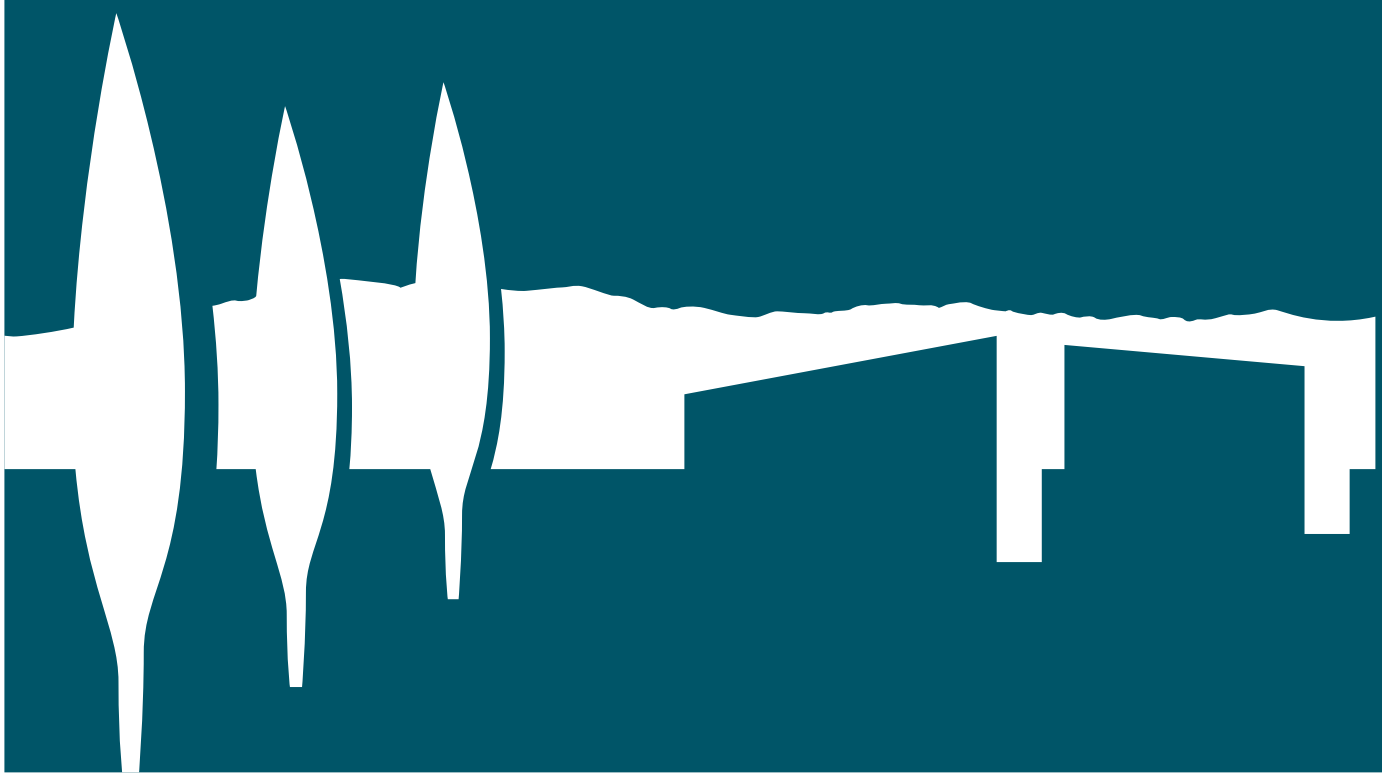
7.0

Movement Network



7.1 Introduction

A cohesive and efficient movement network is required for vehicles, pedestrians and cyclists. The new movement routes created as Rolleston develops will integrate with existing routes, providing effective linkages and efficient movement for all types of travel. There will be a focus on encouraging the community to use alternative transport methods reducing the use of private vehicles. Movement by walking, cycling and public transport reduces energy consumption, reduces greenhouse gas emissions, increases social interaction and helps build healthy communities.

7.1.1 MOVEMENT NETWORK AIMS

A key objective of the movement network is to route traffic (vehicle, cycle and pedestrian) on the most efficient and desirable routes. Movement routes can also be used to increase vibrancy and create a sense of place within the town.

The movement network aims of the Rolleston Structure Plan (RSP) are to:

- Provide efficient and safe routes for vehicles, cyclists and pedestrians connecting other locations to Rolleston and within the urban area
- Reduce vehicle dependency and encourage the community to adopt walking, cycling and public transport modes
- Route through-traffic away from the town centre and onto inner and outer by-pass routes
- Manage traffic speeds on the rural/urban interface to ensure residents' and road users' safety
- Use the existing road network to provide continuity for future expansion of the town
- Create liveable streets that embrace CPTED principles
- Integrate a cohesive open space network of parks, reserves, streets, walkways and cycleways
- Create attractive entrances, road corridors and streetscapes that provide amenity for all users and reflect the character of Rolleston
- Create a legible way finding system within the urban area for roadways, streetscapes, open spaces, and pedestrian and cycleway routes. This system should integrate signage, sculpture, artwork and landscape features into the urban fabric, allowing easy navigation by all users, and create amenity for the Rolleston community.

7.2 Road Hierarchy

A road hierarchy defines different classifications, functions and standards for roads, ranging from arterial roads which cater mainly for through traffic movement to local roads whose primary function is local access. The Structure Plan identifies a network of "main roads" which will connect key locations within Rolleston, including current and future neighbourhoods, and use the existing grid pattern. This network of "main roads" will be complemented by a "local roads" network which is intended to provide a high level of connectivity within neighbourhoods and a high level of accessibility for residents.

The road hierarchy provides a mechanism for integrating urban design principles with the engineering requirements of a road network.

At the "local roads" level, Council is planning for three road standards within urban townships, ranging from a "major" local access function to a "minor" local amenity function.

The Structure Plan signals the pattern of main roads development within the township, but does not specify the detailed form and location of local roads other than to provide for those connections that are considered significant.

The Christchurch, Rolleston and Environs Transportation Study (CRETS) included a hierarchy for the wider area, and an indication of a suitable approach for Rolleston. Given that a significant amount of analysis has been conducted as part of the Structure Plan process, while the Plan looks out much further in time than CRETS, it is appropriate for Council to use the CRETS hierarchy as a starting point for defining the future hierarchy and classification of road standards for Rolleston. The network will be developed to provide a good level of functionality of arterial and collector roads within the expanded township.

CRETS also resolved the ultimate form and location of key intersections linking Rolleston with State Highway 1. The map in Figure 7.1 shows these along with the CRETS road hierarchy. The map also shows the general location of an additional "cross-town" collector route to the south of existing development, and the proposed and indicative pattern of road and cycling connections in the vicinity of the second primary school, as envisaged in the South

Urban limit
Full Intersection - all movements
Grade Seperated Interchange
Grade Seperated Link
Restricted Access (left in, left out only)

Existing Local Road
National Arterial
District Arterial
Collector (Distributor)
Collector (Distributor) Proposed
Proposed Collector
Possible Connections (road \ cycleway)
Railway

Figure 7.1: Transport Network – CRETS Road Hierarchy and State Highway Connections

Rolleston Strategic Transportation Report.

Another important influence is the UDS, which signals a range of actions relating to strategic transport projects, walking and cycling, public transport and travel-demand management across the wider UDS area.

7.3 Key Entrances

7.3.1 ACCESS POINTS

The key road access to Rolleston is via State Highway 1 from locations to both north and south. There is also a network of rural two-lane district arterial roads connecting Rolleston with other Selwyn townships, including Springston, Darfield, Kirwee, Leeston, Lincoln, Prebbleton and West Melton.

CRETS anticipated the State Highway being 4-laned by 2021.

The intersections with State Highway 1 will be further developed over time, as envisaged in CRETS and as traffic demands require, generally as follows:

- A grade separated interchange at Weedons/Weedons Ross Road will form the main entrance into the town from SH 1 and Christchurch. Construction of the interchange is expected to be an NZTA responsibility, likely to occur in the medium term, beyond 2016. Timing relates to the development of the Rolleston Drive over-bridge to Izone .
- A grade separated link across the State Highway, extending Rolleston Drive to connect Izone with the rest of the town. This will occur when the existing traffic signals reach capacity and are removed, so the new bridge will improve highway traffic flows and safety. There will be no access from Rolleston Drive to the State Highway when this occurs. SH1 may be depressed under a near at grade connection between Rolleston Rd and Hoskyns Rd. This relates to issues with proximity to the railway level crossing. This work is expected to be a shared responsibility between SDC and NZTA, occurring in the medium term
- Restricted access (left turn in and left turn out only) from the State Highway to Tennyson Street, the Brookside Road service area and the BP garage. Preliminary roading plans have been developed for this area and timing could be in the short term (pre 2016).
- Restricted access (left turn in and left turn out only) from the State Highway onto Rolleston Drive (south) through the Catherine Fields subdivision. This will occur as and when significant traffic problems arise from the current form of the intersection, with work to be undertaken by NZTA.
- A "full at-grade" controlled intersection at Dunns Crossing Road, providing for all turning movements.
- Heavy vehicles accessing IZone from the State Highway will be encouraged to use the two "outer" intersections, and the Jones Road / Two Chain Road route.

An extension to Byron Street is planned and Council has purchased land to enable this to occur. The extension will mitigate the effects of the restriction at the Tennyson Street/Brookside Road connection to the State Highway and provide much improved east-west connectivity within this part of the town. It will also enable good access to the proposed future park'n'ride site.

7.3.2 ENTRANCE CHARACTER

The key entrances to Rolleston are significant opportunities to create distinctive landscape corridors, tree lined avenues, threshold or landmark features that reinforce the character of Rolleston as a regional urban centre. Notable entrance corridors are;

- Entry routes from State Highway 1 to Rolleston (Rolleston Drive south, Weedons/Levi Rd and Dunns Crossing Rd). The route could be developed as a landscaped boulevard along Weedons and Levi Roads creating an attractive and very legible entranceway.
- Lincoln Rolleston Road, where traffic will enter from Christchurch (south via Shands Rd and Selwyn Rd) and Prebbleton. The route from the Metropolitan Urban Limit (MUL) to Lincoln is the "alternative modes corridor" for public transport and cycling. Vehicular traffic will be encouraged to use Springston Rolleston Road to access Lincoln. Landscaping will be used on Lincoln Rolleston Road within the MUL to create a pleasant walking and cycling environment and signal the route as a key entranceway into the town.
- Springston Rolleston Road, where traffic will enter Rolleston from the south, from Lincoln and Lincoln University.

- Goulds Road, where traffic will enter Rolleston from the south west, from townships such as Leeston.

7.4 Main Roads (Primary) Network

The main roads network consists of arterial and collector roads as defined by hierarchy (see figure 7.2). The existing network forms a radial pattern from the existing town centre, with strong linearity, linking to other localities within the area. The linear and rural nature of the existing network creates a high speed environment with the need for management at intersections.

CRETS recommended the use of a ring road pattern for Rolleston, to reduce through traffic volumes in the town centre and maintain efficient access routes around and throughout the town. There are several levels at which this will operate. To facilitate use of these routes, intersection improvements will be required, in particular roundabout or priority controls.

An inner ring road will provide access to the town centre using Rolleston Drive.

Moving outwards, a series of ring routes uses the intersections with the State Highway at Weedons and Dunns Crossing Roads, connecting to Lowes and Levi Roads, the new CRETS collector road (ultimately connecting Weedons and Dunns Crossing Roads) and Selwyn Road. The route also extends across the State Highway using Two Chain Road and Jones Road to link the Izone Southern Business Hub.

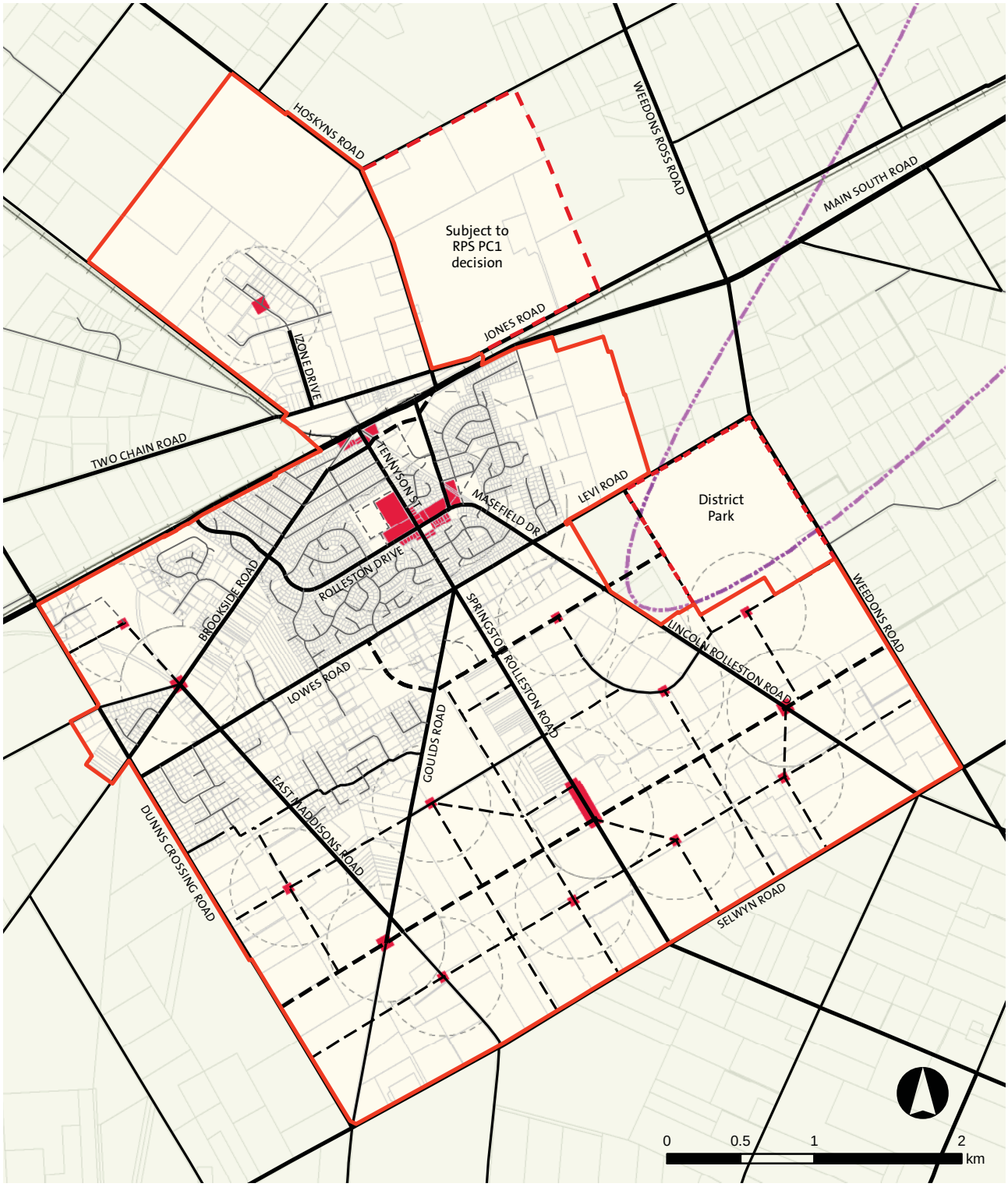
Some of the collector roads within the town centre, such as Tennyson Street north of Rolleston Drive, have a high amenity and town centre value and will as such be less focussed on efficient vehicle flows than other roads. Although vehicle access will be maintained, these roads will focus more on creating a safe and pleasant public space for pedestrians and cyclists. Lowes Road also has a particular focus on good walking and cycling links.

CRETS recommended intersection treatments throughout the current and future urban area. Typically, roundabouts and signed priority controls are envisaged, and these will need to be developed as the township grows or safety issues become of concern. The current speed environment of 100km/hr on the rural network will require careful management, particularly at urban / rural interfaces and where new community/recreational facilities are to be built.

A new roundabout has recently been installed at the Rolleston Drive/Tennyson Street intersection. The intersection of Masefield Drive and Rolleston Drive also presents a particular challenge for traffic management. This intersection divides two of the retail areas of the town and therefore must be pedestrian friendly and provide safe passage for cyclists, whilst allowing Rolleston Drive to function in its capacity as a collector road.

Traffic signals are not considered appropriate at this time, but in future as traffic levels grow and if cyclist / pedestrian safety concerns eventuate they may be used in place of roundabouts and in 'pedestrian priority' areas such as the core Town Centre.

The CRETS road will largely be built through new subdivision development. It has been shifted slightly to the south of the route indicated in the CRETS reports. This will enable it to avoid the SR8 (Branthwaite Drive) growth pocket which is timed for longer term development beyond 2041. This also resolves a potentially complex intersection treatment at Goulds Rd / East Maddisons Rd. Depending on its final location, it may still pass through land on the west side of Tennyson St which is already zoned, and this may require designation. The route will be developed in stages as follows:



Study area
Noise Contour
Town Centre
Neighbourhood Centre
Local Centre
5 Minute Walk (400m)
Rural land

Railway
National Arterial
Main (primary) roads
Proposed main (primary) roads
Local (secondary) roads
Proposed local (secondary) roads
Local (minor) roads
Proposed local (minor) roads

Figure 7.2: Main Roads - Primary Network

Growth Pocket	Linkage	Time Period	Construction Method
SR7	Goulds Road to eastern edge of SR7	By 2016	Subdivision
Private land	Eastern edge of SR7 to Springston Rolleston Road	By 2016	Designation/ property acquisition may be required
SR5	Dunns Crossing Road to Goulds Road	2017-2026	Subdivision
SR12	Springston Rolleston Road to boundary SR12 & SR13	2026-2041	Subdivision
SR13	Boundary SR12 & SR13 to Lincoln Rolleston Road	Long term, beyond 2041	Subdivision
SR15	Lincoln Rolleston Road to Weedons Road	Long term, beyond 2041	Subdivision

Management of access onto the main roads network is important for safety and efficiency reasons. The number of entry points onto the outer ring route (namely, Dunns Crossing, Selwyn and Weedons Roads) needs to be managed to maintain a higher speed environment. The Structure Plan provides for a green buffer between these key roads and housing, with walking and cycling and parallel internal local access roads.

Landscaping and entrance treatments will also be used to differentiate and identify those roads that are main access routes from those that form entranceways to residential areas.

7.5 Local Roads (Secondary) Network

Within Rolleston the main roads form a grid pattern with additional diagonal links which provide a good level of connectivity between neighbourhoods (see figure 7.2). The nature of previous growth in Rolleston has resulted in many areas of development not being well linked, where there are many long, poorly linked culs-de-sacs.

Future development of the local roads network in Rolleston will build on the linear nature of the existing primary network, while also recognising the urban character of existing developments. The local roads network will provide for a variety of road forms to be developed, including low speed environments and changes in direction to create interest. "Major" local roads will be more linear in nature to provide connectivity and better integrate with the main roads network.

The Structure Plan provides for connections between Neighbourhood Centres and local centres in a largely grid based pattern with some diagonal routes reflecting the existing angular character. The network also provides for additional connections between ODP areas and the main roads network, including the outer ring route comprising Dunns Crossing, Selwyn, and Weedons Roads. It is expected that all of these roads will be provided by developers as part of subdivision.

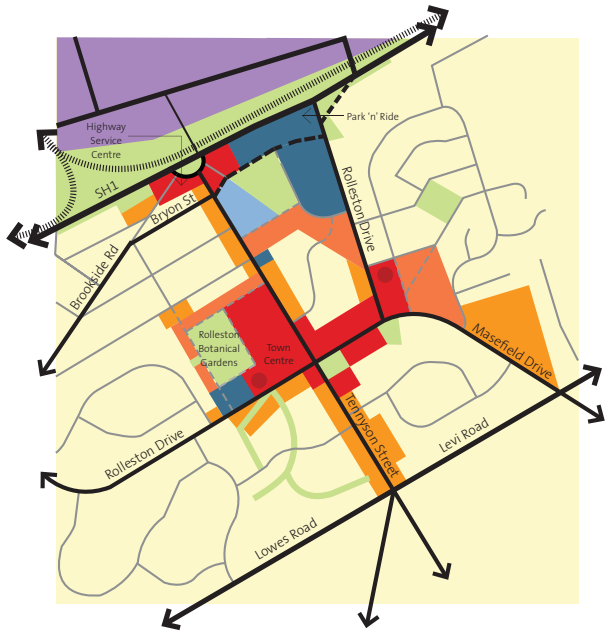
This pattern will provide a high level of connectivity within the new areas of the township, and be complemented by a denser, interconnected local roads network as subdivisional development occurs. This will be controlled through SDC's Subdivision Design Guidelines and District Plan provisions, which will also limit the maximum length of culs-de-sac.

7.6 Town Centre

The preferred option for the town centre involves the redevelopment of Rolleston Reserve and the creation of additional local roads, including a connection between Markham Way and Norman Kirk Drive and a potential new link between Tennyson St and Norman Kirk Drive to the south of the school. Both of these will require further discussion with affected parties, and funding considered, before they can be programmed. Furthermore, the new road, cycling and walking connections shown earlier will need to be developed or facilitated by Council, given Council ownership of land. Some of this will be required for higher density housing development, so it should be feasible to fund some of the infrastructure through the sale of medium to high density residential sites.

The core town centre will be a distinctive movement zone with a focus on retail, civic open space and higher density residential character, as described in Section 5. The streetscape design within this core will reflect the requirements of this land use and function, and reinforce the civic character of the Rolleston community. Streetscape design will integrate street furniture, lighting, signage and landscaping.

The proposed master plan for the Town Centre will be highly relevant to further development of the movement network in this area. (see daigram below)



7.7 Cycling & Pedestrian Networks

Pedestrian safety in Rolleston is a concern; long, straight, roads which currently have a rural character attract high speeds and have limited footpaths. The town's facilities are generally located on arterial and collector roads for easy access; however the higher speeds, increased road width and traffic volumes associated with these roads can present a safety issue. Road network design needs to incorporate a pedestrian and cycling network with crossing points that are fully integrated into the overall urban fabric of street furniture, lighting, signage and landscaping of the town.

Existing road reserves within Rolleston are generally wide and can provide opportunities to incorporate walking and cycling to further expand Rolleston's movement network. Walking and cycling routes may also be separate to vehicle routes, improving safety, as part of open space provision and landscape treatments to enhance amenity. "On road" cycle routes need to be on either appropriately designed streets or roads with specific cycle lanes. A problem with cycleways beside road carriageways (rather than being part of them) in urban areas is the safety issue with property entranceways and conflicts between cyclists and vehicles exiting properties. Mostly in Rolleston, the "built road environment" can cater for cyclists but "off road" facilities are also important to the network.

New development should also provide for interconnected walking and cycleway routes, integrated with open space and proposed green corridors and water races wherever possible.

New walking and cycling routes will connect to a wider network which includes Lincoln Rolleston Road and Boundary Road and is promoted as part of an alternative modes corridor in CRETS to connect Lincoln and Rolleston. A further important route will extend the network from the second primary school eastwards, ultimately connecting with the new regional 100ha Park.

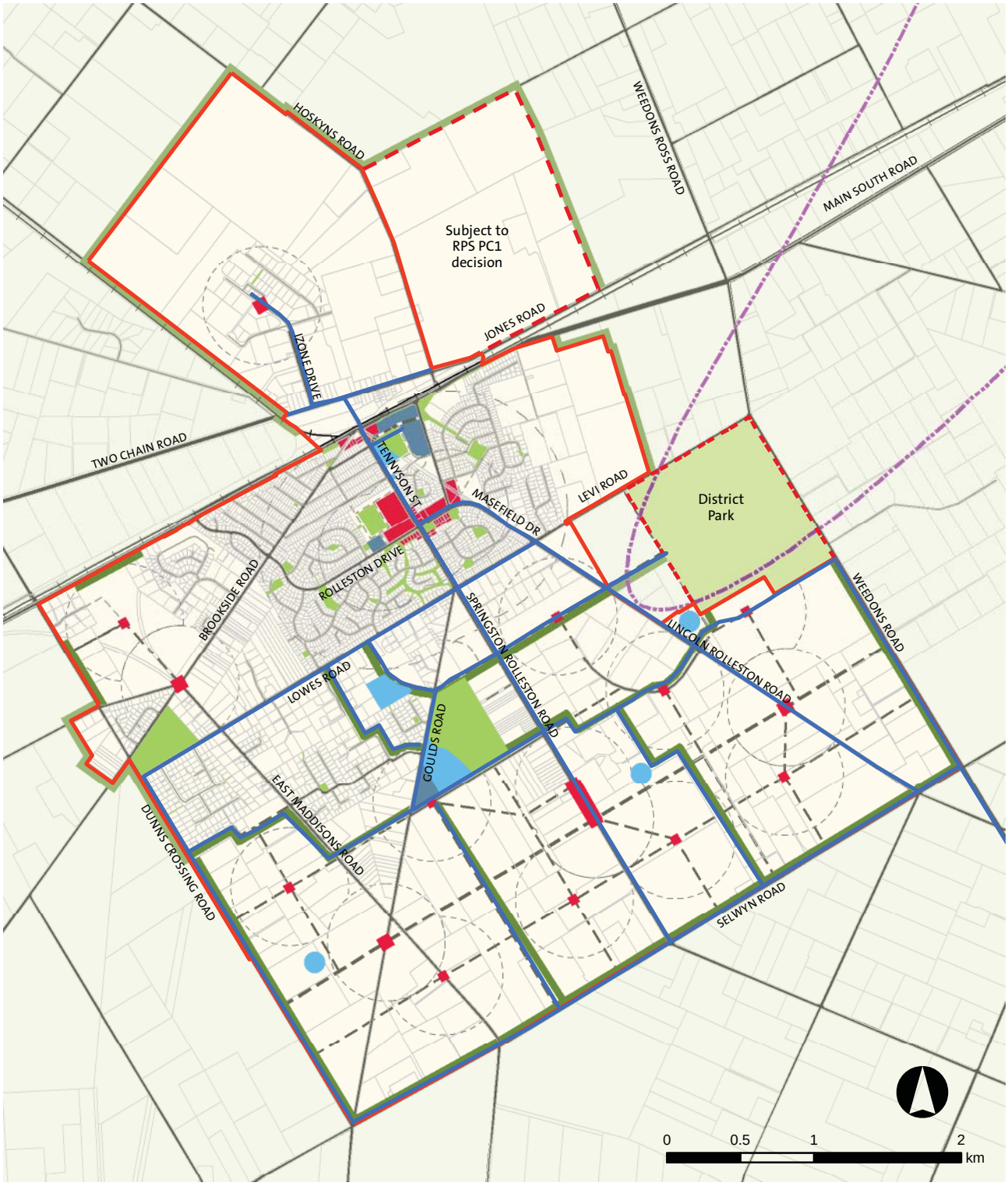
All walking and cycling routes will be well signed and provide a pleasant experience for users. Roundabout design will consider pedestrian and cyclist needs to ensure continuity of the walking and cycling network.

The walking and cycling network in Rolleston will be designed to meet the objectives and action plan of the Selwyn District Walking and Cycling Strategy. The strategy aims for Selwyn to be a place "where more people walk and cycle safely for transportation and enjoyment". One of the key aims of this strategy is to reduce car journeys of less than 2km. The action plan within the Strategy details standards by which the walking and cycling network will be designed.

The action plan also includes several key initiatives, which are included in the LTCCP for the 2009-2019 period, including:

- Rolleston to Lincoln cycleway development
- Rolleston to Templeton cycleway development
- Lowes Road cycleway
- Linkage between Rolleston and Izone
- Cycling and walking developments in the Recreation Precinct area and its environs

Key desire routes for cycleway development are shown below. These may be provided using a mix of on-road and off-road cycleways.



Study area
Noise Contour
Town Centre
Neighbourhood Centre
Local Centre
5 Minute Walk (400m)
Rural land
Community Facilities
Education Facilities
Recreation Precinct and Reserve

Cycle Routes
Railway
National Arterial
Main (primary) roads
Proposed main (primary) roads
Local (secondary) roads
Proposed local (secondary) roads
Local (minor) roads
Proposed local (minor) roads

Figure 7.3: Cycleway Routes

7.8 Public Transport

7.8.1 BUS SERVICES

Over time, as Rolleston grows, bus services will be expanded, connecting to the main nodes within the town; town centre, Izone, schools, neighbourhood centres, local centres and the recreational precinct. The internal bus network will connect to the park'n'ride facility and provide links to neighbouring towns such as Lincoln, Hornby and an express service to Christchurch City. The bus service will, with increased demand, provide a viable alternative to private transport with regular services and good connections.

The expected development of bus service routes is shown in the following figure. This will develop over time as development occurs.

7.8.2 RAIL SERVICES

Expansion of rail to include provision of passenger rail services could be a possible longer term future addition to Rolleston's public transport network. The UDS team is currently conducting studies into the viability of long term passenger transport services for Greater Christchurch, including rail systems. It is unlikely that Rolleston will have the population and trip demand necessary to make a specific service viable for some time, unless part of a wider integrated service with Christchurch.

7.8.3 PARK & RIDE FACILITY

A park and ride (park'n'ride) facility has been planned for siting adjacent to State Highway 1 near the Selwyn District Council offices. This would provide for commuters to park their vehicles and use public transport to access Christchurch City and other major locations. Such a facility would also provide for residents from outside Rolleston to park on a major access route and use public transport or pedestrian facility to access amenities within the town. There would also be provision for cyclists with secure cycle parking..

Pending further investigations and confirmation through the UDS public transport review process, financial provision has been allocated in the 2009-2019 LTCCP.

There are also longer term opportunities to expand park'n'ride to cater for potential passenger rail extensions. This expansion could be in the form a separate parking facility across the State Highway or through provision of a pedestrian overpass.

7.9 Rail Freight

Rolleston is located close to a node of the two main South Island railway corridors, connecting Invercargill to Rolleston/Christchurch and Greymouth to Christchurch/ Lyttelton. Currently these railway lines are mainly used for freight transport, especially coal from the West Coast.

Future extension of the railway network to provide rail services in Rolleston would provide increased opportunities for the Izone Southern Business Hub. An appropriate railway siding is needed to make use of the rail network for

- Study area
- Noise Contour
- Town Centre
- Neighbourhood Centre
- Local Centre
- 5 Minute Walk (400m)
- Rural land
- Community Facilities
- Education Facilities
- Recreation Precinct and Reserve
- Railway
- National Arterial
- Main (primary) roads
- Proposed main (primary) roads
- Local (secondary) roads
- Proposed local (secondary) roads
- Local (minor) roads
- Proposed local (minor) roads
- Destination Service to Lincoln
- Destination Service to ChCh
- Orbital Service
- Potential Service

Figure 7.4 Public Transport Route Patterns

freight in Rolleston, and planning is presently underway in scoping this.

7.10 Movement Network Summary

Table 7.1: Key Issues, Constraints & Design Outcomes

Item	Key Issues and Constraints	Design Outcomes	
Movement	Vehicular	High use of private vehicles for access to areas outside and within the town particularly related to commuting	Enhanced walking and cycling network. Good public transport links. Long term consideration of passenger rail to Christchurch
		High speed rural roads and interface with urban areas	Rural roads are part of the current character of Rolleston. Traffic controls, landscaping and narrowing in urban areas will be needed to manage speeds
		Road hierarchy is not clear to road users creating navigation difficulties	Urban design incorporating hierarchy of street design to assist legibility; use of signs and visual aids
		Over-reliance of culs-de-sac design, poor linkages	Application of SDC's subdivision standards which limit the lengths of new culs-de-sac.
	Cycling & Walking	Increasing use of roundabouts which are not cycle and pedestrian friendly	Consideration of most appropriate traffic control mechanisms for all road users; providing crossing points and facilities for pedestrians
		Lack of defined movement networks for pedestrians and cyclists	Design of integrated network of walking and cycling routes that offer where possible segregated routes connecting main nodes within the town
	Izone	Segregation of Izone from the rest of the town by the State Highway	Physical and visual connections to link both sides of the township including intersection improvements and provision of pedestrian and cycle access

Item	Key Issues and Constraints	Design Outcomes	
	Legibility	Current entrance experience into the Township is not clearly defined	Design of entrance boulevard along Levi Road and enhancements of entrances along Dunns Crossing Road, Lincoln Rolleston and Springston Rolleston Roads.

7.11 Implementation

7.11.1 ACTION PLAN

The likely land requirements, approximate timelines and cost implications have been assessed. The rate of development of the movement network is related to both the rate of population growth and subdivisional activity, and therefore subject to change. Some actions may need to be undertaken ahead of development occurring in order to provide appropriate connections.

Table 7.2: Movement Network Action Plan

Layer Component	Action	Land Requirements	Time Frame	Cost Implications
Road Network	Confirm road hierarchy within the MUL and for external connections to other destinations	N/A	Short term	Planning action, no capital cost.
	Construct CRETS 'cross-town' main road connection.	Part of the route may require designation.	All periods, staged	Largely developer provided. SDC may need to construct part through private property.
	Develop new local roads network as per Structure Plan	Provided by subdivisions	All periods	Developer funded
	Upgrade rural arterial road connection ChCh to Rolleston – Lincoln Rolleston and Selwyn Roads	Nil to minor	Short term	LTCCP provides for a $4m upgrade 2009-2012.
	Byron St extension	SDC ownership	Short term	LTCCP provides for Rolleston network upgrades
	Develop concepts for Gateway entrances to Rolleston, eg Boulevard, signage, lighting etc	Possible	Short term	No provision yet. Cost depends on design.
	Rolleston Drive / SH 1 changes	SDC ownership	Likely to be Medium Term	NZTA driven
	Tennyson St / SH 1 changes	Underway	Likely to be short term	NZTA driven with SDC input

Layer Component	Action	Land Requirements	Time Frame	Cost Implications
	Upgrade intersection controls, typically roundabouts	Possibly for corner splays.	All periods, staged	LTCCP provision or developer provided.
	General road improvements, including widening.	To be identified	Short term, then ongoing	LTCCP provides a district wide programme.
	Signage, lighting, streetscape provision – develop standards	Nil	Short term	Planning action, no capital cost.
Town Centre	New connections to Norman Kirk Drive – further discussion, confirm feasibility and funding.	School land and SDC land	Short term	No provision, to be determined.
	Tennyson St and Rolleston Drive upgrades	Nil	Short term	To be confirmed through master planning process.
Walking & Cycling	Develop internal walking and cycling networks, especially Lowes Rd, Recreational Precinct, schools, IZone	May require negotiation with developers	Short term, then ongoing	Partly developer provided, partly SDC. LTCCP has provision.
	Cycling connections to Lincoln and Templeton	On road	Short term	LTCCP has provision
	Review SDC footpaths policy for Rolleston and increase numbers of footpaths.	Nil	Short term	Developer funded for new subdivisions. LTCCP funding for dual footpaths on busier roads.

Layer Component	Action	Land Requirements	Time Frame	Cost Implications
Public Transport	Improved Public Transport Service, including liaison with ECan	N/A	Ongoing	ECan funds services, SDC will need to fund infrastructure (shelters etc)
	Park and Ride facility, to be confirmed through UDS PPT planning	2 ha, SDC ownership	Short term	LTCCP provision

Short term – to 2016, Medium term – 2017-2041, Long term – 2042-2075

Note: *implementing the above will also involve best practice urban design or placemaking principles.*

7.11.2 CHECKLIST

Good Urban Design

A cohesive and well planned movement system which caters for all modes (i.e vehicular, pedestrian, cyclists and public transport services) will support future growth of the urban area. This integrated movement framework will also provide effective Regional and District linkages, and create a series of ecological and open space corridors within the township and linked to its rural setting. Utilisation of existing roads is proposed whenever appropriate to the urban framework.

Sustainability

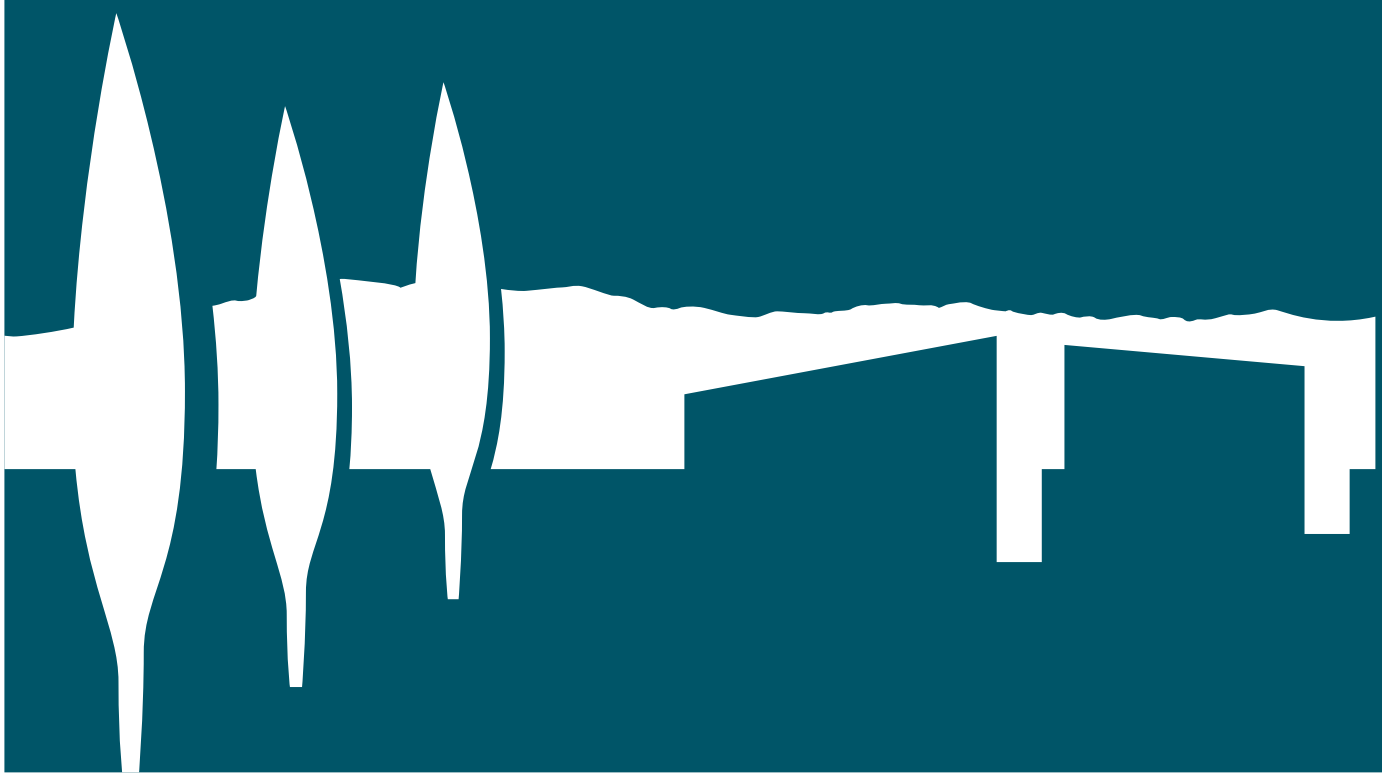
Achieving a compact transport system which includes a connected open space network of walkways and cycleways will reduce reliance on vehicle use, create safe, walkable neighbourhoods and ensure a more energy efficient outcome. These benefits will be further increased as the transport system adopts low impact urban design approaches and integrates public transport modes such as bus, shuttle and rail.

Ease of Delivery

Short term actions above can largely be achieved through provisions in the 2009-19 LTCCP, with much of the infrastructure being provided by developers as the township grows. There are some actions which require further planning effort and this may lead to designations being sought. Close and ongoing liaison with key stakeholders, such as Council's UDS partners (CCC, NZTA and ECan), will also be necessary.

8.0

Infrastructure



8.1 Introduction

The aim of this section is to illustrate how appropriate infrastructure networks are to be developed to service Rolleston with key utility services, such as water supply, wastewater, stormwater, power and telecommunications.

8.1.1 INFRASTRUCTURE AIMS

A successful infrastructure network provides an efficient and reliable service to the community, whilst being part of the urban fabric of the town and, where possible, realises opportunities to provide additional amenity value.

With this overall intention, the aims of the Rolleston Structure Plan (RSP) in relation to infrastructure are to:

- Provide an equal and appropriate level of service to all areas of the town
- Incorporate the "Five waters" design philosophy for sustainability into infrastructure planning from the start
- Ensure future networks meet the expectations of the future population of Rolleston
- Manage infrastructure networks in such a way as to mitigate environmental impacts and enhance aesthetics and ecological value
- Integrate infrastructure into the urban fabric of the town, particularly into the green networks, to maximise amenity and efficiency opportunities
- Pursue opportunities for low impact design solutions particularly associated with stormwater and its reuse
- Ensure demand management techniques and technology are incorporated at the design stage for all new developments and subdivisions

8.2 Water Supply

Rolleston is well-served by four deep (secure) groundwater wells. Water quality is high and no treatment is required. Households are connected to an unrestricted supply and are therefore able to take as much water per day as they wish. All properties are metered and billed on a volumetric basis with an element of fixed charge.

To meet increasing demand in Rolleston, new wells connecting to the confined aquifer will be required. These will be subject to obtaining resource consent.

Water demand in Rolleston is high, particularly in summer, and two resource consents (George St and Izone) currently require the Council to take all reasonable steps to avoid leakage from pipes and structures. This condition is expected to be applied to all future consents as the demand for water increases across the Region, and as climate change brings uncertainty in relation to supply. Further demand management techniques should be implemented to delay infrastructure investment and conserve supplies; it is expected that increasingly stringent resource consent conditions will be applied in the future and all new investment should be designed with this in mind.

Domestic and commercial water metering with volumetric charging will be applied to all properties within Rolleston. There is scope to further manage demand by optimising volumetric charging mechanisms should this be required in the future. Opportunities for grey water reuse, such as irrigation of forest areas near The Pines, have also been identified to reduce demand on aquifer supplies.

As development occurs, opportunities for increasing network interconnectedness will be sought to further improve the management of peak demands and increase resilience of the network. Developers will be responsible for reticulation within their developments, and for providing reticulation linkages to adjoining developments as required by Council.

Being able to distribute water from a number of wells across the town will ensure continuity of supply and maintain system turn over. Some pipelines may require capacity upgrades in time and this will be determined through hydraulic modelling of the system. Growth related upgrades and network expansions will be funded through development contributions.

8.3 Wastewater

Wastewater from Rolleston is treated at 'The Pines' activated sludge plant located west of Rolleston on School Road. Effluent is collected through a reticulated network and pumped directly to the treatment plant where treated effluent is discharged to ground by spray irrigation.

The Pines treatment plant is located on an 84 ha site and expansion of the plant is planned in three stages, to cater for growth in Rolleston and redirection of wastewater from Lincoln, Springston and Prebbleton. The first phase of expansion is planned for completion in 2009/10 which includes the installation of the new Southern Rolleston Pumping Station. Until this first phase of expansion is operational, further development in Rolleston is restricted.

Izone has an independent reticulation and pumping station for transferring wastewater flows to The Pines. Further development of the network in Izone is the developer's responsibility.

The layout of the reticulation is set out in a master plan for the Eastern Selwyn district .

A large proportion of wastewater in Rolleston will in future be conveyed by gravity mains to the new Southern Rolleston pumping station, located at the intersection of Springston Rolleston and Selwyn Roads. Gravity mains running east/west will collect wastewater from new subdivisions and convey it via a trunk main which will run from Lowes Road along Springston Rolleston Road to the Southern Pump Station. From there it will be pumped via a pressurised rising main along Selwyn and Dunns Crossing Roads to the treatment plant.

To enable development of the greenfield areas in Rolleston, sequencing of wastewater network extensions will complement residential staging as can be seen in Figure 8 1. The areas known as SR3 and SR4 fronting Levi Road are the first areas identified for development, to 2016. These areas, if they develop before the new infrastructure is constructed, will as an interim measure be served using the existing sewer network, and will utilise all remaining system and treatment capacity.

The installation of the trunk main along Springston Rolleston Road, connecting to the Southern Rolleston pumping station, is essential to enable reticulation servicing all other growth pocket areas connecting into it to be installed in conjunction with sequenced subdivisional development. It will also enable permanent service connections to be provided to SR3 and SR4.

The areas known as SR6 and SR7 are also part of the first stage of development and will be linked to the primary trunk main via new west to east mains, likely to be laid along Dynes Road and the new CRETS collector road. Because SR6 and SR7 are some distance from Springston Rolleston Road, the Council will need to provide or fund reticulation from that road to the boundary of each development area. Development to the south of SR6 and SR7, which also adjoins Springston Rolleston Road, is not sequenced until 2017-2026. The mains route following the CRETS road will depend on the final location of the new road, and may require a designation in existing zoned land to the west of Springston Rolleston Road.

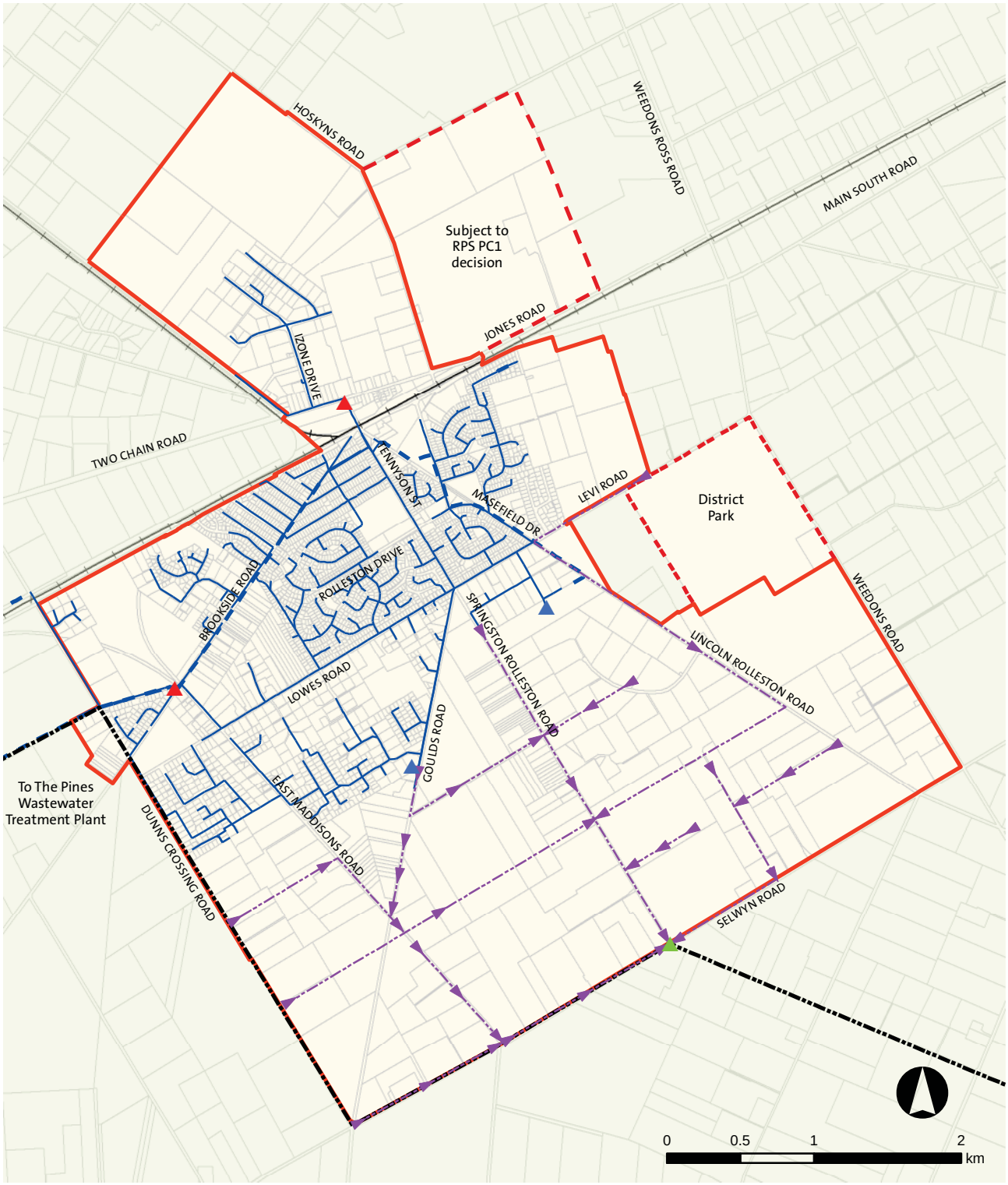
The sequencing of major wastewater infrastructure within the MUL, along with indicative responsibility for construction, is illustrated in table 8.1:

Table 8.1: Major Waste-Water Infrastructure

Asset Description	Areas Serviced	Time Period	Construction By
South Rolleston Pumping Station (SRPS)	All new development in MUL, plus other SDC townships	Immediate - Short term	SDC
Rising main from SRPS to The Pines	All new development in MUL, plus other SDC townships	Immediate - Short term	SDC
Springston Rolleston Rd trunk main from Lowes Rd to SRPS	All new development in MUL, some direct, some via other mains	Short term	SDC
Levi Rd, Lincoln Rolleston Rd to Helpet	SR3, SR4 plus intensification	Short term	Part SDC, part subdivision
Helpet to Springston Rolleston Rd (if capacity issues arise)	SR3, SR4 plus intensification	Short term	SDC
Dynes Rd to & inc part of Goulds Rd	SR6, SR7, plus intensification	Short term	Part SDC, part subdivision
Goulds Rd to new CRETS road	SR7 plus intensification	Short term	SDC
CRETS road, Springston Rolleston Rd to Goulds Rd	SR7	Short term	Part SDC, part subdivision
CRETS road, Goulds Rd to Dunns Crossing Rd	SR5 (part), SR9 (part)	Medium term (2017-2026)	Subdivision
East Maddisons Rd (N), inc to Dunns Crossing Rd	SR5 (part)	Medium term (2017-2026)	Part SDC (EM Rd), part subdivision
East Maddisons Rd (S)	SR9 (part), SR10 (part)	Medium term (2017-2026)	SDC and/or subdivision
Selwyn Rd (W) to SRPS	SR9 (part), SR10 (part), SR11 (part)	Medium term (2017-2026)	Part SDC, part subdivision
Selwyn Rd (E) to SRPS	SR12 (part), SR13 (part)	Medium term (2027-2041)	SDC and/or subdivision
Internal main to SR12	SR12 (part)	Medium term (2027-2041)	Subdivision
Internal main & connection to Lincoln Rolleston Rd	SR13 (part), SR15	Long term (beyond 2041)	Subdivision
Connecting main, Springston Rolleston Rd to Branthwaite Drive	SR8	Long term (beyond 2041)	Subdivision
CRETS road, Springston Rolleston Rd to Lincoln Rolleston Rd	SR12 (part), SR13 (part), SR14	Long term (beyond 2041)	Subdivision
Lincoln Rolleston Rd, CRETS road to Levi Rd	SR8 (part), SR14	Long term (beyond 2041)	SDC and/or subdivision
Additional trunk reticulation to be confirmed – may be internal or follow Weedons Rd, Selwyn Rd	SR14 (part), SR15 (part)	Long term (beyond 2041)	SDC and/or subdivision

Note that the 2008 Wastewater Master Plan did not allow for SR14 or SR15, so decisions will need to be made about which of the above mains will be used to service these areas, or whether to install additional mains.

The capital costs of wastewater network development undertaken by Council will be recovered via development contributions. This includes the Southern Rolleston pumping station, rising mains to The Pines, the trunk main along Springston Rolleston



Study area
Rural land
Railway
Abandoned Sewage Pump Station
Existing Sewage Pump Station
New Sewage Pump Station
Proposed Public Main
Proposed Rising Main
Existing Main
Rising Main

Figure 8.1: Wastewater Masterplan for Rolleston

Road, and any connecting mains to development boundaries that are needed to service growth pockets (such as to SR3, SR4, Dynes Road and the CRETS road routes, and others tabulated above). Infrastructure that serves both Rolleston and surrounding towns, such as Lincoln and Springston, will be funded via development contributions from all benefiting settlements. This includes the pumping station and rising mains to The Pines.

8.4 Stormwater Treatment, Use and Soakage

8.4.1 STORMWATER MANAGEMENT

Stormwater runoff in Rolleston is currently disposed of to ground via the free draining soils underlying the township. There are no surface watercourses within the town for stormwater to discharge into, and the few piped stormwater systems in the township are short and end in local discharge soakage points.

Each residential subdivision in Rolleston has its own stormwater treatment and disposal system with individual discharge consents granted by Environment Canterbury. This makes compliance with resource consent conditions a challenge for the Council adding additional costs for operation, monitoring and consents administration.

The Council will manage future development of the stormwater system in Rolleston by establishing principles for stormwater management and providing guidance and standards for developers. This is intended to avoid the proliferation of different management methods, some of which are considered inappropriate in an urban setting.

Stormwater will continue to be managed at a local, rather than "township" level, and there are no plans to develop integrated catchment management plans or seek global discharge consents. Developers within each outline development plan area will establish the amount of land required for stormwater treatment, flow paths and any retention ponds using the principles and standards established by Council, and obtain the necessary consents. It is expected that some efficiencies will be able to be obtained by considering cross boundary solutions with respect to adjoining subdivisions and developments in each ODP area. Plan Change 7 will be influential in determining how stormwater will be managed within Rolleston to mitigate any adverse effects to surface and underground waters.

The Council's 5 Waters Strategy seeks to identify opportunities and work towards integrated stormwater planning outcomes, assisted by appropriate design standards. There is an opportunity to adopt low impact urban design methods as Rolleston develops. Low impact urban design measures include the minimisation of earthworks and land form change, creating natural areas to manage stormwater quantity and quality whilst adding amenity and the use of water sensitive urban design.

Water sensitive urban design promotes the integration of stormwater, water supply and sewerage within a development precinct . WSUD approaches encourage;

- Detaining rather than rapidly conveying stormwater through an area
- Treating stormwater runoff using 'at surface' methods (such as bio-retention swales, constructed wetlands, green networks etc) integrated into the landscape design.
- Capturing and using rainwater and stormwater as alternative water sources to conserve potable water
- Using vegetation to filter water
- Water efficient landscaping
- Promoting water-related environmental, recreational and cultural values
- Harvesting local water for various uses including irrigation
- Maintaining natural hydrological areas such as wet or soakage areas
- Reusing water
- Localised wastewater treatment systems
- Maximising solar energy

8.4.2 'AT-SURFACE' APPROACH TO STORMWATER MANAGEMENT

An 'at surface' approach to stormwater management

in Rolleston is considered appropriate. This technique resolves some of the issues faced with traditional treatment methods when used at flat sites and can reduce infrastructure costs. The following diagram (fig.8.2) is indicative only, it illustrates how stormwater runoff from roads and buildings can be captured at surface and using a combination of small pipes and conveyance trenches be held and used within the road corridor to support vegetation and planting.

Localised treatment and infiltration sites can also be used before stormwater enters a pipe network or is discharged to groundwater. Planting can be used to filter and treat stormwater (such as in rain gardens, bio-retention ponds and vegetated swales). The plantings are easily integrated into the green network of the urban fabric. Stormwater can be retained at a local level, reducing the need to irrigate landscaped areas. As Rolleston has a dry climate and free draining soils, further measures can be used to further slow infiltration of any stormwater collected during long summer droughts and assist reuse for irrigation.

Street and subdivision design should accommodate and integrate at surface stormwater collection, transport, treatment, end use and ultimate disposal.

8.5 Paparua Water Race Network

The Paparua Water Race network flows from the Waimakariri River in the north, to the south and through Rolleston. The network dates back to 1884 and is still used for stock water purposes outside of the town boundary. Water races add to the rural character of Rolleston and will be enhanced and redirected where appropriate to create a feature. The races are generally narrow and feature on prominent roads such as Tennyson Street, Springston Rolleston Road and Goulds Road.

Water races are the only open waterways within the Rolleston Structure Plan area. Although these races are not natural waterways they possess many of the same characteristics as streams, attracting birds, fish and supporting a range of plants. Intensive maintenance can limit the attractiveness of the races, however the Structure Plan provides opportunities to increase their amenity value. Landscaping with suitable planting can create attractive green walkways and access corridors linking to public amenities and increasing opportunities for public access within and connecting to Rolleston.

The water race network also provides a visual corridor along which views of the Port Hills and the Southern Alps can be appreciated.

Access to the water's edge and resting places provide additional recreational opportunities. Recreational contact with race water should not however be encouraged at

Figure 8.2: Capturing street runoff 'at-surface'

present. Water quality samples from water races show high concentrations of coliform bacteria and other contaminants on occasions. Summer is a particular concern for contamination and for possible public access and contact recreation if races are enhanced. ECan's waterways enhancement programme recognises this contamination and seeks to reduce it. As part of its 5 Waters sustainability programme, Council could consider working with ECan to require all water races in rural areas to be edged with riparian vegetation to provide natural filtration, and all rural races to be fully fenced to prevent stock access.

8.6 Power

Power is supplied by Orion to Rolleston through overhead lines, drawn from Transpower's Springston substation (GXP, or Grid Exit Point), typically via high voltage 66kV, 33kV and 11kV lines. Within the Rolleston MUL a number of currently rural roads have 11kV voltage overhead reticulation as well as 400V local supply lines, namely Dunns Crossing, Selwyn, Weedons, Brookside, Dynes (part), Goulds, Springston Rolleston, and Lincoln Rolleston Roads. East Maddisons Road has a 33kV line. Orion is also planning to install a 66kV line on Weedons Road in the near future.

As urbanisation occurs, it is reasonable to assume that the public would expect many of these lines to be undergrounded. This is a costly undertaking, and depending on the configuration of high voltage and 400V lines in a road corridor the capital cost would be several hundred dollars per metre. This would total several million dollars over the whole MUL area. It is unlikely that Orion would undertake this undergrounding at its cost, so the costs would need to be met by developers. It is also unlikely that Council would wish to contribute such a magnitude of cost.

Expansion of the network will also be required to service the expected growth in Rolleston. This will involve the provision of new underground reticulation in new urban streets, in addition to new substations and other necessary infrastructure. Reticulation is typically provided by Orion as part of the land development process, with network strengthening (such as new substations) also being an Orion cost – which is ultimately passed on to consumers.

There are no high voltage Transpower lines within the Rolleston urban limit.

8.7 Telecommunications

Provision of a reliable and high speed telecommunications service in Rolleston is important for both residential and commercial customers. To encourage businesses and residents to locate in Rolleston, high levels of service are required, particularly relating to broadband internet connections. It is expected that additional telecommunications infrastructure will be required to meet the needs of the growing population.

New infrastructure within subdivisions is typically provided by telecommunications providers as part of land development, with network improvements or strengthening also being funded by that sector. In future more providers are also likely to provide infrastructure, such as Vodafone mobile telephony and potentially other communications technology.

On existing rural roads, as described above, telecommunications cables are typically located on the Orion above-ground system. If this is undergrounded there is also a component of telecommunications cost to be met.

8.8 Gas

Some parts of Rolleston have gas reticulation provided by Rockgas. Rockgas has plans to extend this network to provide supplies for residential and commercial purposes within the town.

8.9 Gravel Extraction

Active gravel extraction is not currently undertaken in Rolleston. The gravel pit that occupies the south-east corner of the urban limit is active, however supplies have been depleted. This site has potential for re-use as a recreational facility such as an off-road cycle area.

A gravel extraction facility to serve the Rolleston/ Selwyn area will be required. Due to the high cost of transportation, gravel needs to have localised sources. A gravel management strategy was created for the District that identified two areas in Rolleston as potential sites in

addition to other areas further from the town.

8.10 Infrastructure Summary

Table 8.2: Key Issues, Constraints & Design Outcomes

Item		Key Issues and Constraints	Design Outcome
Infrastructure	Water	High water demand putting a strain on aquifer resources	Use of demand management techniques, water metering and water re-use to reduce the effects of increased demand on the aquifer
	Wastewater	Increasing demand for sustainable wastewater treatment for Eastern Selwyn District	Expansion of The Pines wastewater treatment plant to cater for growth in Rolleston and surrounding towns
		Required expansion of the wastewater network	Implementation of eastern Selwyn Sewerage Scheme which includes collection, treatment and disposal upgrades
	Stormwater	Stormwater disposed of to ground with no integrated management	Use of 'at surface' stormwater management techniques, using natural vegetation to treat stormwater and retention to enable re-use
		Free draining soil types require high levels of irrigation with impacts on landscaping opportunities	Use of stormwater retention and water re-use to limit irrigation requirements using aquifer water. Landscape design using selected tree/ plant species which are drought tolerant but achieve amenity requirements (e.g. greening of streets, provision of shade & seasonal colour, attract birds etc).
	Water Races	Operational water races flowing through the town with periodically poor water quality	Landscaping and if appropriate diversion of water races to retain rural character of Rolleston and discourage public contact.
		A lack of natural surface watercourses limits opportunities for enhancement and creation of water based recreation facilities/ amenity values	Use of water races to create waterway features and enhance green linkages

8.11 Implementation

8.11.1 ACTION PLAN

The likely land requirements, approximate timelines and cost implications have been assessed. The rate of development of infrastructure is related to both the rate of population growth and subdivisional activity, and therefore subject to change. Some actions may need to be undertaken ahead of development occurring in order to provide appropriate connections.

Table 8.3: Infrastructure - Implementation Issues & Costs

Layer Component	Action	Land Requirements	Time Frame	Cost Implications
Water Supply	Development of demand management strategy to manage current demand.	Nil	Short to medium term	Various initiatives signalled in LTCCP.
	Leakage management.	Nil	Ongoing	Signalled in LTCCP.
	Obtain resource consents and construct new wells.	Possible – for headworks sites	Short term	LTCCP provision in place.
	Hydraulic modelling to confirm reticulation needs.	N/A	Short term	Planning actions
	New reticulation	None identified	All periods	Expect to be almost entirely met through development.
Wastewater	Implementation of Eastern Selwyn Sewerage Scheme, which includes upgrades to "The Pines', new SRPS, rising mains, detailed planning and network extensions in each ODP area.	Mostly achievable on existing roads and within new subdivisions. Some designations possible.	All periods	Bulk funding of ESSS provided in LTCCP ($84m over 13 years). Further SDC funding likely beyond that time. Recovery through development contributions.
Stormwater	Confirm principles and standards for stormwater management within subdivisions in Rolleston.	N/A	Immediate	Planning actions
	Encourage the application of of low impact and water sensitive urban design (LIUD & WSUD) principles by developers.	Provided by developers	Ongoing	Assess ongoing operating costs to SDC as part of the consent approval process.
	Include "at source" and 'at surface' techniques in subdivision design guidelines and engineering code of practice.	Provided by developers	Immediate	Planning actions
	Encourage developers to coordinate stormwater management within ODP (or parts thereof) areas.	Developer's responsibility	All periods	Capital costs met by developers

Layer Component	Action	Land Requirements	Time Frame	Cost Implications
Water Races	Water race enhancements. Include guidance for water race enhancement in sub-division guidelines.	Yes – if redirection proposed.	All periods	To be scoped.
Power	Develop SDC policy for undergrounding.	N/A	Short term	Could be significant if SDC contributes.
Telecommunications	Promote new technology	N/A	Ongoing	Telecommunications providers
Gas	Liaise with Rockgas re proposals for new services	N/A	Short term	None identified.
Gravel Extraction	Seek suitable location for extraction facility in Rolleston/Selwyn area. Beautification of depleted gravel pit on corner of Selwyn and Weedons Rds considering recreational uses	Yes – for new sites	Short term	To be scoped.

8.11.2 CHECKLIST

Good Urban Design

Protection and enhancement of the water race network will strengthen amenity values along movement routes and within proposed green corridors, creating a shared landscape and ecological asset for the community.

Sustainability

Further investigation of "at source" and 'at surface' stormwater design techniques is desirable, to identify means of applying low impact urban design to Rolleston's natural water cycle. The use of water demand management techniques and technology to reduce water consumption, along with grey water re-use, all contribute to sustainability objectives.

Ease of Delivery

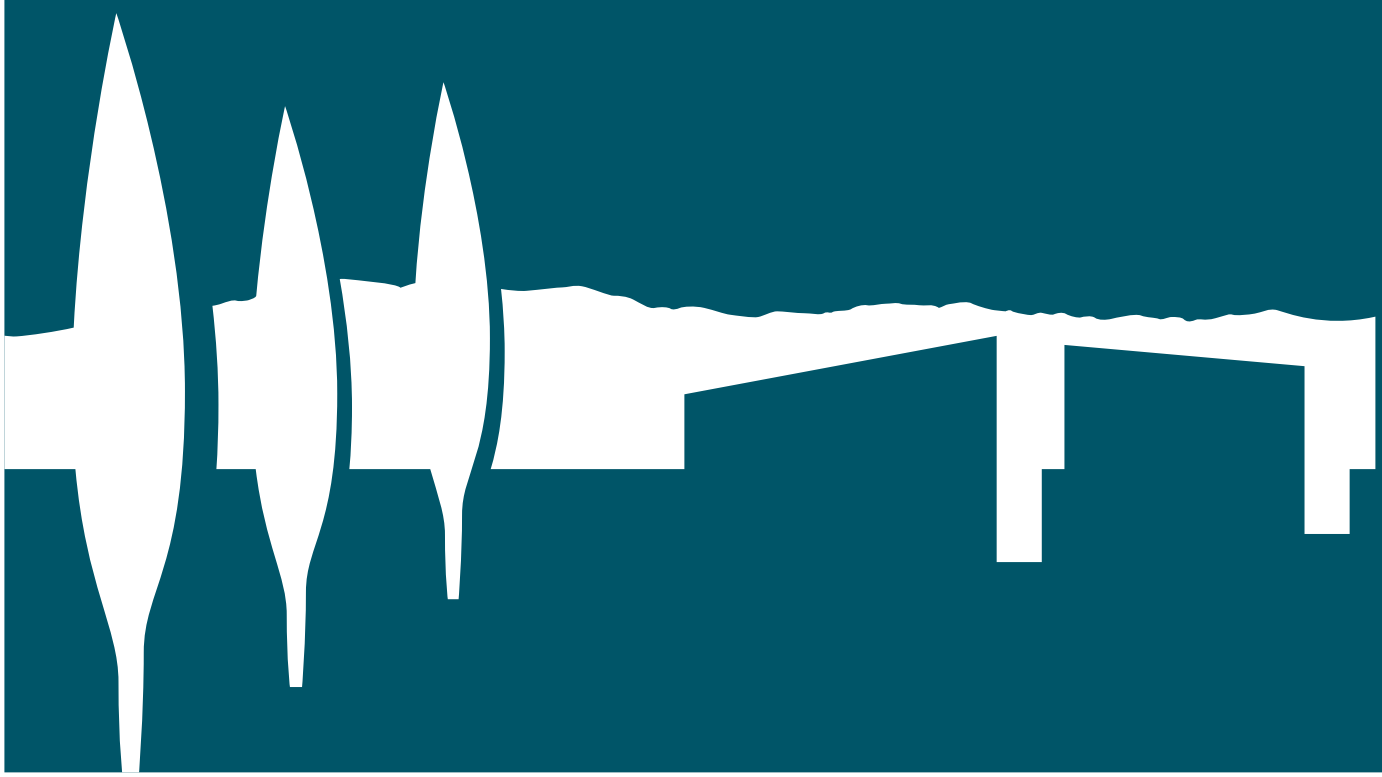
Significant SDC investment in the wastewater network in particular is a feature of this plan, even though much of the infrastructure will be provided as part of subdivision development. The 2008 wastewater master plan includes indicative sizing and costs for the new network, and these will be reviewed and more detailed planning and design work undertaken in advance of final decisions needing to be made on individual components.

Construction of an innovative and successful 'at-surface' stormwater management pilot scheme will be considered in order to demonstrate the benefits and feasibility compared to traditional, ad-hoc stormwater disposal methods used in Rolleston.

Obtaining community participation in the design process, construction and maintenance of the water race enhancements will be a key to its future success.

9.0

Implementation Plan



9.1 Introduction

This section brings together the action plans from previous sections and identifies the methods which could be used by Council in implementing these plans thus giving effect to the Structure Plan.

Comments are also made on key aspects, such as funding, affordability and master-planning.

9.2 Implementation Methods

There are several methods or approaches available to Council, including:

1. Statutory planning and District Plan mechanisms. The significance and importance of this mechanism is further explained below.
2. Investment in land, infrastructure and Council owned facilities and services, to facilitate, enable and support growth.
3. Participation in the 'market', either directly or in association with the private sector, for example in a possible 'demonstration project' for high density comprehensive housing using Council owned land.
4. Other direct actions by Council, such as investigating proposals, developing guidelines and standards, operational policies, etc.
5. Indirect actions by Council, such as coordinating, liaising, encouraging, promoting or facilitating action by others.
6. Requiring action by others, such as developer provided infrastructure.
7. Actions that other parties are expected to take for their own reasons.

The methods proposed for each action are identified in the tables later in this section.

9.3 Statutory Planning

9.3.1 OVERVIEW

The Structure Plan is an expression of intent by the Council which provides a strategic framework for urban growth in Rolleston. It is also a record of the partnership and consultation process between SDC and the Rolleston community. Implementation of the Structure Plan will require many of the actions to be translated into statutory documents.

9.3.2 DISTRICT PLAN

In order to implement the Structure Plan, a review of existing objectives and policies within the District Plan will be needed. Plan Changes may be needed which incorporate elements of the Structure Plan into the District Plan, and rezoning of some areas. The District Plan should contain strong specific policies that stage land use and facility development to ensure Rolleston will develop as a compact, well connected and appropriately serviced township as outlined in this Structure Plan. This should include a review of existing rules with consideration of good urban design principles, also referencing the Design Guide for Residential Subdivisions, and further development of rules around the new zones as required.

9.4 Funding & Affordability

Many of the actions in this Implementation Plan are significant new capital projects which require Council funding, some early and some spread over the planning horizon of the Structure Plan. These include new and improved roads, cycleways, wastewater systems, aquatic facilities and many other key assets. Some of these costs will be recoverable from developers, thus representing Council's 'forward investment' in the future growth of Rolleston, with a significant proportion of cost being ratepayer funded.

Furthermore, all new capital projects involving assets and facilities involve ongoing streams of operational expenditure – for day to day operations, the maintenance of assets and also their longer term refurbishment and renewal as they reach the end of their life. Naturally, as the population grows, so too does the rating base and the ability to service these costs. However, it is important to keep this in balance and long-term, inter-generational affordability must a key consideration of this Structure Plan.

A number of the facilities proposed, such as the aquatic facility and the 100ha regional park, represent an increased level of service not only for the residents of Rolleston but also the wider District. Such proposals will therefore need to be tested through consultation processes, including through this Plan.

Furthermore, achieving higher quality 'urban spaces', with green corridors and buffers, enhanced streetscapes, enhanced water races, and so on, will all require additional operating costs to be budgeted over time.

Activity Management Plans, the Long Term Council Community Plan (LTCCP) and annual budgeting processes will all be vital in enabling these matters to be properly considered and funded, covering all of the expenditure requirements in implementing the Structure Plan. This will enable the Council to prioritise the allocation of funds, reflecting the values that the community places on the different aspects of this Structure Plan.

Sources of funds that may be available to Council for implementing the Structure Plan include:

- Development Contributions – where the cost of the growth related component of any capital work undertaken by Council in Rolleston can be directly recovered from new subdivisional developments in the town
- SDC Rates – where the activity benefits the community and is to be funded by it
- SDC Reserve Funds – if available and appropriate to the purpose
- NZTA Financial Assistance – available for agreed transportation projects and operations
- Regional funding – where a project has wider benefit to the region outside of the District, it may be possible to seek funding from other local authorities or other parties. For Rolleston regional funding could be sought to support the purchase and maintenance of the proposed 100ha 'regional' park.

9.5 General Actions

The following are generic 'cross-layer' actions that will support the ongoing implementation of the Structure Plan:

- Coordination – a key to ensuring successful, ongoing management of future growth. This includes Council scheduling the provision of infrastructure and facilities in relation to the planned staging of urban, retail and residential zones in a timely fashion to support integrated growth.
- Prioritisation – determining an approach to prioritising funding allocation for key projects (e.g. Town Centre, Tennyson/Rolleston Drive Intersection, key streetscape zones, Recreation Precinct, Clock Tower Reserve area etc).
- Liaison – establishment of an ongoing liaison group within Rolleston including community and stakeholder representatives
- Master Planning and design guidance – see below

9.6 Master Planning & Design Guidance

Further development of design is appropriate for key areas or sites poised for redevelopment. This includes a Master Plan for the Town Centre, landscape concept proposals for key developments, and design guidelines for streetscapes and open space networks. The latter two would involve reviewing the SDC Design Guide for Residential Subdivisions against the Structure Plan, to identify any additional requirements that should apply specifically to Rolleston.

Such additional measures would help to ensure that future development successfully integrates the community's aspirations at a detailed scale, and also promotes a sense of place for Rolleston by utilising good place-making principles.

9.7 Summary Action Plan

9.7.1 GENERAL ACTIONS

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
NA	District Plan provisions required for proposed new zonings	NA	Immediate	Planning related	4
NA	Prioritisation of Council provided infrastructure and capital projects for Rolleston	Refer individual layers	Immediate	Planning related	4
NA	Coordination of facility and infrastructure provision for Rolleston across Council activities	Refer individual layers	Ongoing	Planning related	4, 6
NA	Maintain and extend external liaison, in order to engage the Rolleston community and key stakeholders in implementing the Structure Plan	NA	Immediate, then ongoing	Planning related	4, 5
NA	Undertake master planning in order to achieve multiple RSP outcomes and / or engagement of multiple stakeholders	May lead to specific land requirements	Immediate	Planning related	4

9.7.2 CENTRES LAYER

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
Town Centre	Masterplan for the town centre which outlines the elements. Further investigate possibilities for land swaps	Business 1 land swap between Masefield Mall land and Rolleston Reserve (approximately 3.5 Ha)	Short Term	$60,000 - $80,000	1, 4
	Upgrade of Tennyson Street and Rolleston 'High Street' for pedestrian priority	Nil	Short Term	To be scoped through masterplan	4, 2
	Develop town square for community events and market space	800-1000sqm	Short Term	To be scoped through masterplan	4, 2
	Establish a second anchor store along Rolleston Drive	Provided by developers	Short Term	Capital costs met by developers	7
	Business incubator units	Provided by SDC adjacent to Park 'n' Ride facility	Short Term	Public/ Private partnership with capital costs met by developers	1, 3
	Pilot comprehensive housing schemes within Rolleston Reserve, Civic Precinct and/or Masefield Mall land (following land swap)	1.5Ha –5 Ha depending on land availability	Short Term	Public/ Private partnership with capital costs met by developers	3, 5
	Establish town centre promotion and management structures	Nil	Short Term, then ongoing	To be scoped, but could be contributed to by retail operators	4
Neighbourhood and Local Centres	Incorporate centres within ODP areas, where applicable	Refer to Table 5-2: Neighbourhood & Local Centre Provision	Staged with development	Expect to be almost entirely met through development.	1, 6, 7
General	Retail Assessment Review	Nil	Short Term, then ongoing	$20,000 – 30,000	4

9.7.3 LAND USE LAYER

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
Residential	Pilot comprehensive housing schemes within Rolleston Reserve, Civic Precinct and/or Masefield Mall land (following land swap)	1.5Ha –5 Ha depending on land availability	Short Term	Public/ Private partnership with capital costs met by developers	1, 3, 5
Schools	Second Primary School	3 ha	Short Term	Ministry of Education	7
	Secondary School	6-8 ha	Short to Medium Term	Ministry of Education	5, 7
	Third Primary School	3 ha	Medium Term	Ministry of Education	7
	Additional Primary Schools	3 ha each	Long Term	Ministry of Education	7
	Additional/expanded Secondary School	Up to 6 ha	Long Term	Ministry of Education	7
Recreational Facilities	Recreational Precinct inc Swimming Pool	0.6-1.0 ha	Short Term	$7-8 million for pool[1]. Being consulted on as part of 2009 LTCCP	1, 2
	Indoor sports/recreation	0.6-1.0 ha	Short Term	Potentially significant, no LTCCP provision	1, 2
	Sports fields & courts	20-25 ha[2]	Short Term	Potentially significant, no LTCCP provision	1, 2
	Community (youth) Park	0.6 ha	Short Term	Moderate cost, not yet provided for	2
	BMX/MotorX Track	tbc	Short Term	Identified for funding from development contributions	2
Cultural/ Community	Extended library	To be developed on existing community centre site	Short term	Identified in LTCCP	2
	Social Services	Inc in Community Centre	Short Term	Minor cost	5, 7
	Art Gallery	To be determined	Medium Term	Potentially significant not yet provided for	2
	Integrated Medical Care Facilities	To be determined	Short term, then ongoing	Nil	5, 7
	Cemetery	8 ha	Medium to Long Term	No provision as yet	4, 2

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
Open Space	Develop town square for community events and market space	800-1000sqm	Short Term	To be scoped through master plan	4, 2
	Passive Neighbourhood Parks	28-42 ha[3]	Staged with development	Developer funded	6
	Playgrounds	26-29 ha[4]		Developer funded	6
	Regional Park	100 ha	Land Purchase – Short Term Development – Short-Medium Term	Land purchase likely to be several million dollars, not yet provided for. Development likely to be significant, not yet provided for	2

9.7.4 MOVEMENT LAYER

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
Road Network	Confirm road hierarchy within the MUL and for external connections to other destinations	N/A	Short term	Planning action, no capital cost.	4
	Construct CRETS 'cross-town' main road connection.	Part of the route may require designation.	All periods, staged	Largely developer provided. SDC may need to construct part through private property.	2, 6
	Develop new local roads network as per Structure Plan	Provided by subdivisions	All periods	Developer funded	6
	Upgrade rural arterial road connection ChCh to Rolleston – Lincoln Rolleston and Selwyn Roads	Nil to minor	Short term	LTCCP provides for a $4m upgrade 2009-2012.	2
	Byron St extension	SDC ownership	Short term	LTCCP provides for Rolleston network upgrades	2
	Develop concepts for Gateway entrances to Rolleston, eg Boulevard, signage, lighting etc	Possible	Short term	No provision yet. Cost depends on design	4, 2
	Rolleston Drive / SH 1 changes	SDC ownership	Likely to be Medium Term	NZTA driven	7
	Tennyson St / SH 1 changes	Underway	Likely to be short term	NZTA driven with SDC input	2

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
	Upgrade intersection controls, typically roundabouts	Possibly for corner splays.	All periods, staged	LTCCP provision or developer provided.	2, 6
	General road improvements, including widening.	To be identified	Short term, then ongoing	LTCCP provides a district wide programme.	2
	Signage, lighting, streetscape provision – develop standards	Nil	Short term	Planning action, no capital cost.	4
Town Centre	New connections to Norman Kirk Drive – further discussion, confirm feasibility and funding.	School land and SDC land	Short term	No provision, to be determined.	4, 2
	Tennyson St and Rolleston Drive upgrades	Nil	Short term	To be confirmed through master planning process.	4, 2
Walking & Cycling	Develop internal walking and cycling networks, especially Lowes Rd, Recreational Precinct, schools, Izone	May require negotiation with developers	Short term, then ongoing	Partly developer provided, partly SDC. LTCCP has provision.	2, 6
	Cycling connections to Lincoln and Templeton	On road	Short term	LTCCP has provision	2
	Review SDC footpaths policy for Rolleston and increase numbers of footpaths.	Nil	Short term	Developer funded for new subdivisions. LTCCP funding for dual footpaths on busier roads.	4, 6
Public Transport	Improved Public Transport Service, including liaison with ECan	N/A	Ongoing	ECan funds services, SDC will need to fund infrastructure (shelters etc)	5, 2
	Park and Ride facility, to be confirmed through UDS PPT planning	2 ha, SDC ownership	Short term	LTCCP provision	5, 2

9.7.5 INFRASTRUCTURE LAYER

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
Water Supply	Development of demand management strategy to manage current demand.	Nil	Short to medium term	Various initiatives signalled in LTCCP.	4, 2
	Leakage management.	Nil	Ongoing	Signalled in LTCCP.	2

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
	Obtain resource consents and construct new wells.	Possible – for headworks sites	Short term	LTCCP provision in place.	4, 2
	Hydraulic modelling to confirm reticulation needs.	N/A	Short term	Planning actions	4
	New reticulation	None identified	All periods	Expect to be almost entirely met through development.	6
Wastewater	Implementation of Eastern Selwyn Sewerage Scheme, which includes upgrades to "The Pines', new SRPS, rising mains, detailed planning and network extensions in each ODP area.	Mostly achievable on existing roads and within new subdivisions. Some designations possible.	All periods	Bulk funding of ESSS provided in LTCCP ($84m over 13 years). Further SDC funding likely beyond that time. Recovery through development contributions.	2
Stormwater	Confirm principles and standards for stormwater management within subdivisions in Rolleston.	N/A	Immediate	Planning actions	4
	Encourage the application of low impact and water sensitive urban design (LIUD & WSUD) principles by developers.	Provided by developers	Ongoing	Assess ongoing operating costs to SDC as part of the consent approval process.	5
	Include 'at surface' techniques in subdivision design guidelines and engineering code of practice.	Provided by developers	Immediate	Planning actions	4, 5, 6
	Encourage developers to coordinate stormwater management within ODP (or parts thereof) areas.	Developer's responsibility	All periods	Capital costs met by developers	5, 6
Water Races	Water race enhancements. Include guidance for water race enhancement in sub-division guidelines.	Yes – if redirection proposed.	All periods	To be scoped.	2, 5
Power	Develop SDC policy for undergrounding.	N/A	Short term	Could be significant if SDC contributes.	4

Layer Component	Action	Land Requirements	Time Frame	Cost Implications	Method
Telecommunications	Promote new technology	N/A	Ongoing	Telecommunications providers	5
Gas	Liaise with Rockgas re proposals for new services	N/A	Short term	None identified.	5
Gravel Extraction	Seek suitable location for extraction facility in Rolleston/ Selwyn area.				
	Landscape enhancement of depleted gravel pit on corner of Selwyn and Weedons Rds considering recreational uses	Yes – for new sites	Short term	To be scoped.	4, 2