# *4.* Spatial typologies

UC UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

isthmus

WOODS BAGOT

360

# *4.1* Movement typologies

## *4.1.1* Overlaps and design considerations

The Landscape Master Plan addresses pedestrian and shared movement across the University Campus, as do the Transport Strategy and Wayfinding Strategy. These documents inter-relate and should be read in conjunction with one another. In particular, all three strategies influence the movement of people around the campus, and a co-ordinated approach to the hierachy of shared paths and entrances, and the suite of design outcomes that will influence their visual cohesiveness and functionality should be considered.

**Across all strategies there is regard to:**

- Consistent street typologies and naming conventions- boulevard, street, lane
- Consistent path hierarchy (campus street network) - including width and materiality of paths and function (shared vs dedicated) to unify movement, wayfinding and landscape response
- Building interface: street address vs rear access and servicing, and mobility parking
- Accessibility and inclusiveness through universal design response
- Crime Prevention through Environmental Design (CPTED)

**Transport Strategy**

The Transport Strategy provides a package of transport strategies that support the wider vision for the University of Canterbury.

The TMP provides a toolkit based on best practice aimed at promoting sustainable travel choices and reducing the reliance on the car.

It will inform decisions on transport management approaches and allow UC to tailor its approaches to the needs of UC staff and students to 2023.

*Overlap of issues and design considerations and future management decisions with the Landscape Master Plan:*

- Bike park infrastructure – location, integration and mix of types- i.e. from moveable racks, to locked and/or covered
- Integration with uni-cycle route and retrofit of 'slow shared zones' such as intersect between plaza and uni-cycle route, including access to and along the river for pedestrians and learning environments
- Design of entrance boulevard and loop road-shared vs dedicated vehicle access
- Vehicle access for service delivery, emergency, field trips, mobility parking, access to carparks- and design of shared space zones (including University Drive intersect with plaza)
- Location of Ilam Road bus stop and affect on pedestrian movement, amenity, safety, environmental conditions, heritage constraints, entry hierarchy and prominance- options and alternatives
- Carpark location, layout, design and inclusion of Environmentally Sensitive Urban Design (ESD) features for stormwater filtration
- Ilam Road treatment- pedestrian crossings, entry and exit design, slow speed zone design
- Road crossings to complete recreational loops - specifically Ilam Road and Waimari Road
- Impact of sports club buildings and fields on people movement, parking etc.

**Wayfinding Strategy**

The purpose of the Wayfinding Strategy is to:

- Provide a holistic user-centric wayfinding strategy for the University of Canterbury
- Develop a legible campus that clearly articulates paths, nodes, landmarks, edges and districts to assist user navigation
- Define requirements of the signage suite that equip users with wayfinding cues at critical points of their journey
- Provide mechanisms for staged implementation
- Create a vibrant and legible campus for all

*Overlap of issues and design considerations and future management decisions with the Landscape Master Plan:*

- Entrance hierarchy and character – landscape conceptual themes integrated with location, scale, look and feel of entry signage
- 'Expression of disciplines' as part of inclusive communal spaces, rather than silos
- Marking campus boundaries through landscape and architectural response
- Wayfinding from carparks, bike share locations, including path and landscape cues
- Landmarks or markers for orientation, navigation and prominence of major entry and communal spaces to be integrated with artful landscape, temporary exhibitions, landmark plantings, architectural and sculptural features, and expression of cultural narratives.

**Issues and opportunities**

*Integration of Uni-Cycle Route*

One of the Christchurch City Council (CCC) major cycleway routes (Uni-Cycle Way) passes through the campus. The route is one of 13 major cycle routes aimed at providing safe, convenient and direct links between the central city locations including education facilities.

The Uni-Cycle route has a significant interface with the campus landscape. It passes through Ilam Fields, crosses Ilam Road, and crosses the end of the proposed Plaza, then running alongside University Drive until it meets Clyde Road - sometimes shared with the pedestrian path.

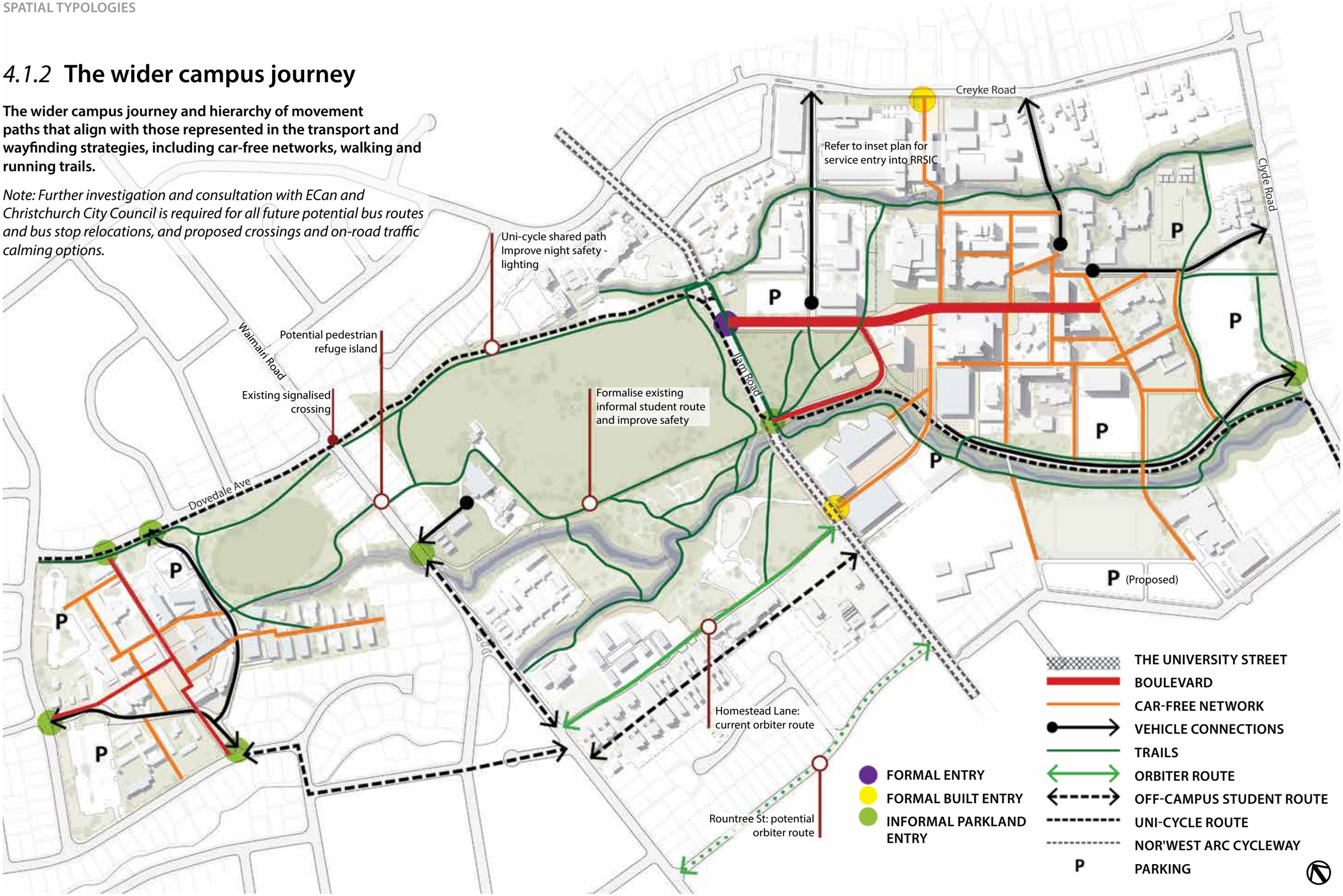
The campus landscape should be integrated with the uni-cycle route to ensure the safe and efficent movement of pedestrians and cyclists around campus. Crossings, slow shared zones and junctions will need to be retrofitted to the route as landscape projects are implemented.

In future, further opportunities to incorporate the uni-cycle route into a 'river side park edge' should be fully explored, particularly when University Drive is no longer needed as a through route. This includes naturalising stream edges and reducing hard surfaces where possible to inform future outcomes for spatial design, hardscape and materality of the spaces.

## *4.1.2* The wider campus journey

**The wider campus journey and hierarchy of movement paths that align with those represented in the transport and wayfinding strategies, including car-free networks, walking and running trails.**

*Note: Further investigation and consultation with ECan and Christchurch City Council is required for all future potential bus routes and bus stop relocations, and proposed crossings and on-road traffic calming options.*



# *4.1.3* Movement typologies in the campus core

### Boulevard and University Street

- Primary pedestrian and cycle movement network
- Managed vehicle access until the loop, then a car-free shared space
- Up to 12m wide
- Connection through important open spaces

### The Loop

- Restricted vehicle access
- Integrated into boulevard and peeling off around Okeover lawn

### Lane

- Secondary pedestrian and cycle movement network
- Car-free shared space
- Nominally 4-6m wide
- Function as 'activated connectors'
- to slow bikes and skateboards
- *Minor lane: Pedestrian only linkages, nominally 2-4m wide*

### Plaza

- Primary link between UCSA and boulevard / University Street
- Open plaza space: a mixture of expansive space, defined movement paths and pinch points
- Thresholds entering space and intersecting with uni-cycle route.

### Road

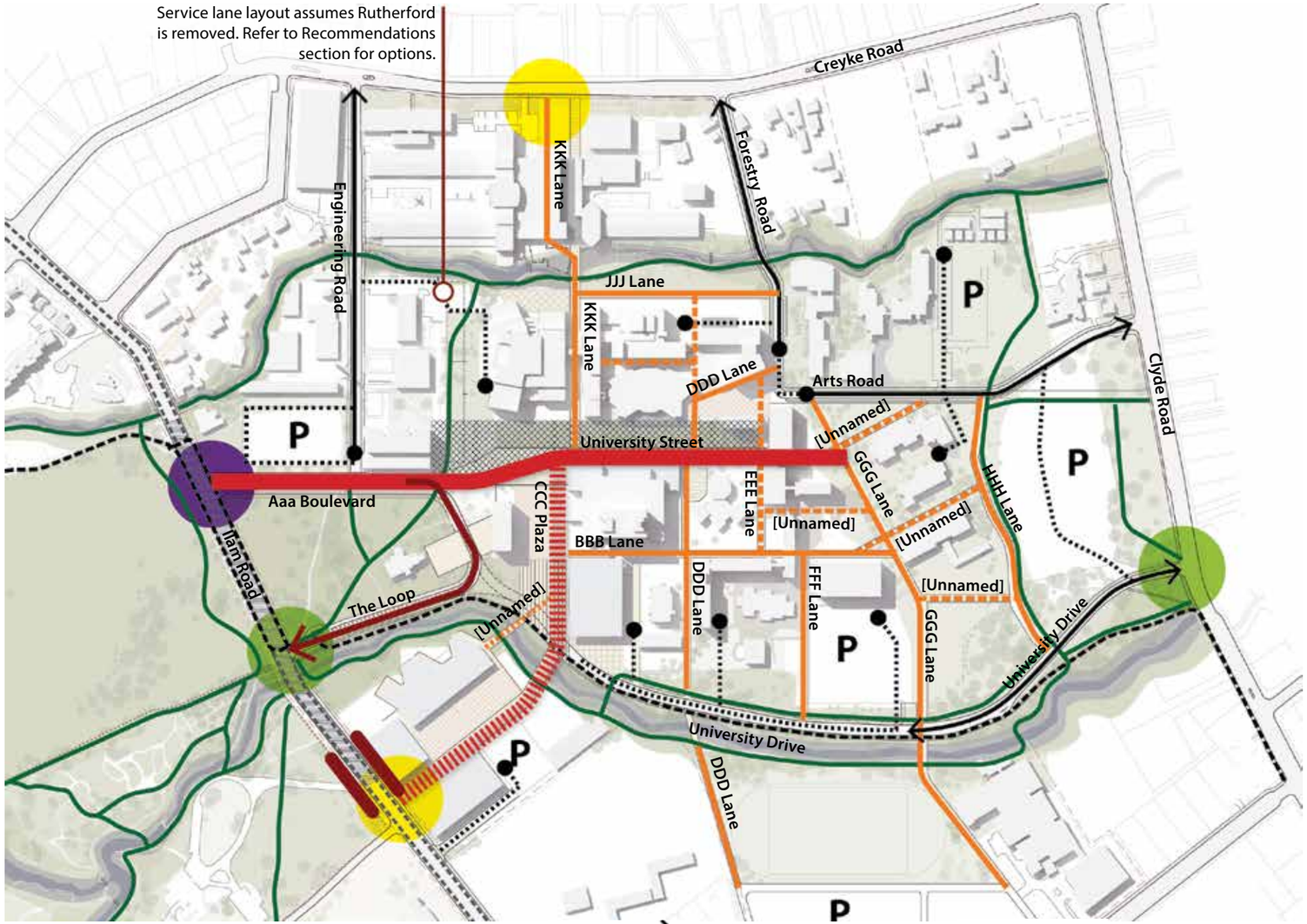
- Slow speed roads providing cars with access to parking areas
- Dedicated cycle lane
- Pedestrian footpath beside road

### Service road

- Occasional car use for loading and services to buildings

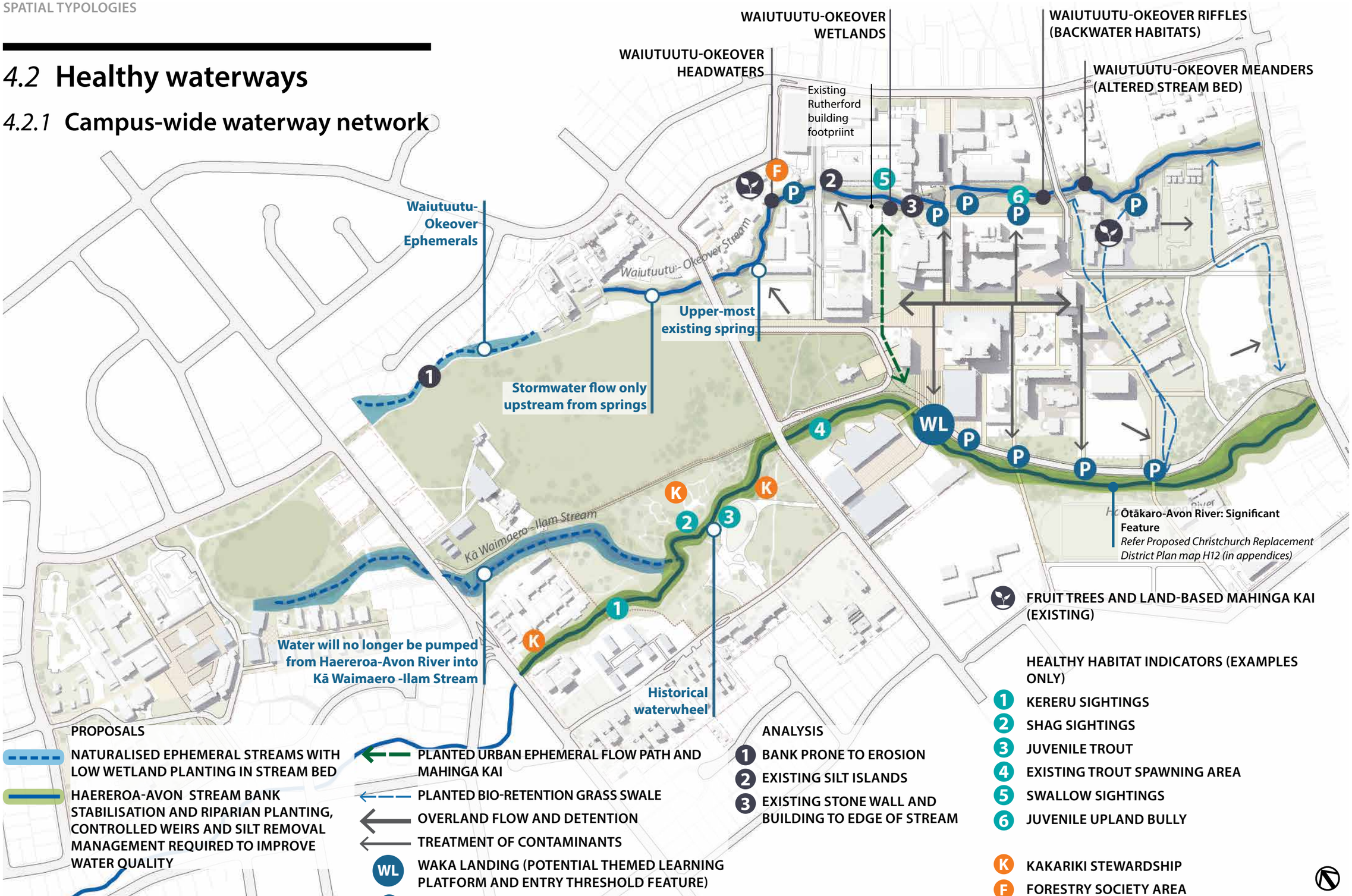
### Naming

Naming of lanes with letters (e.g. Aaa Lane) for consistency with the wayfinding strategy. Minor lanes are not included in the wayfinding address system and are unnamed.

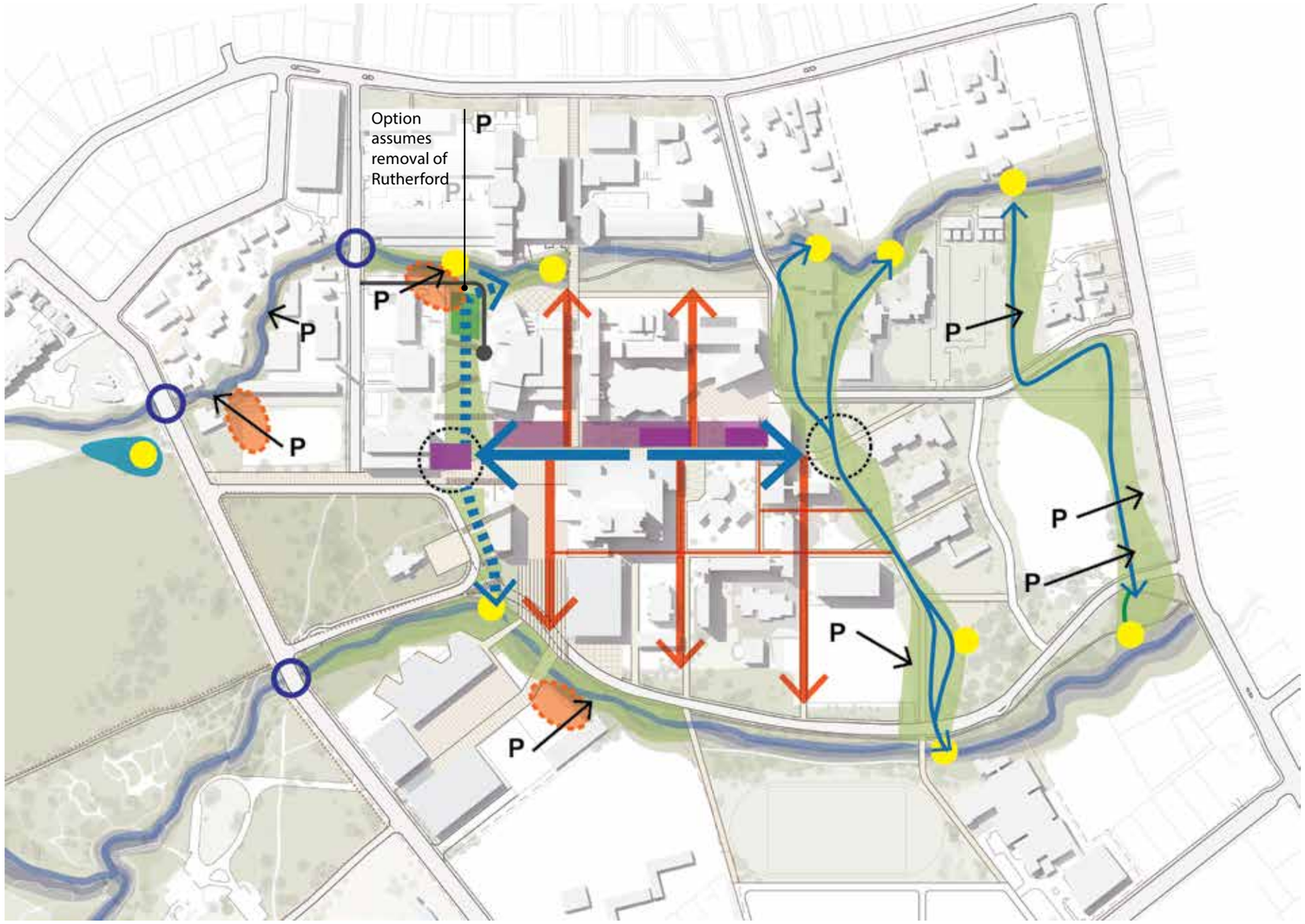


# *4.2* Healthy waterways

## *4.2.1* Campus-wide waterway network



## *4.2.2* Campus core integrated water systems


### 1. STORMWATER

- Planted ephemeral urban wetland with potential check dams to slow flow and catch sediment - integrated as pathways and bridges
- Open parkland grass swale, mounding and trees for filtering run-off
- Naturalised - multi braided ephemeral flow path
- Riparian edges, habitat buffer and unmown grass edges
- Overland flow and detention - Surface water collection in boulevard
- Field Wetlands and riparian edges address / express qualities of original Canterbury swamps and wetlands
- Managed discharge to streams
- Opportunity for water feature and detention at gateway with aquifer up top
- Integrated gravel based detention pits integrated with sunken seating areas (overlapping functions - no standing water but could be inundated)

### 2. CONTAMINANTS

- Treatment of roof contaminants and air conditioning in laneway rain garden
- P → Car park run off into open system
- Rain garden to address potential mixing of car park contaminants and stormwater drainage entering stream

### 3. STRUCTURES AND ROADS

- Access to RRSIC
- Check dam pathways
- Existing road culverts

## *4.2.4* Healthy waterways design matrix

The following design matrix has been informed by the *University of Canterbury - Issues and Options* document produced by the Sustainability Office, 2015

**Healthy Waterways**

| Issues/challenges | Opportunities/priorities | Design principles | Design considerations |
|---|---|---|---|
| Decline in water quality, low flows, sedimentation and modification to natural waterways | Sediment removal plan and programme to be put in place that balances maintenance frequency and cost with long term benefits.<br>Sediment traps and regular cleaning and flushing require ongoing maintenance regime and review of best practice approach.<br>Prioritise sediment management in Waiutuutu (Okeover) stream, plus naturalisation of Ka Waimaero (Ilam Stream)<br>Reintroduce wetlands and riparian plantings to support water quality improvements.<br>Develop a comprehensive Waterways Management Plan | Proper management of sediment and water quality is a high priority for achieving ecological restoration. To achieve waterway health this would need to take precedence over research and teaching objectives in the event of conflicting objectives or priorities. Further investigation and consultation should be undertaken with local and regional governing bodies (CCE and E-CAN) to improve water quality (Council maintain instream and the University of Canterbury maintain riparian edges). | Introduce best practice and cost effective tools for holistic water quality management, including: low cost innovations and trials for bank stabilisation, building materials, and whole of catchment management to lessen sedimentation effects..<br>Ephemeral streams should be naturalised with wetland planting to reduce maintenance.<br>Water is artificially pumped into streams to supplement flow and controlled by weirs to maintain water levels.<br>Continue to apply 'lessons learned' from restoring the Waiututu-Okeover stream to the Haereroa-Avon River, and Ka Waimaero Ilam Stream. |
| Loss of habitat and mahinga kai | Prioritise water quality and habitat for native birds and fish, including supporting fish passage<br>Record and publish institutional knowledge and evidence based research for stream restoration on Campus.<br>Utilise taonga and endemic species for riparian margins where possible, appropriately managed with mana whenua involvement. | Ensure ongoing kaitiakitanga (guardianship) by mana whenua Ngāi Tūāhuriri of UC waterways, with an emphasis on restoring their potential as mahinga kai (traditional food and other natural resources and the places where those resources are procured and produced. | Apply 'lessons learned' from restoring the Waiututu-Okeover stream to the Haereroa-Avon River, and Ka Waimaero Ilam Stream.<br>Water cleansing planting that supports mahinga kai and cultural narratives should be used where possible.<br>Regard to Ōtākaro-Avon River as a significant landscape feature in the Christchurch District Plan.<br>Consider measures to prevent pigeons nesting in the vicinity of buildings. |
| Stormwater discharge and contamination from roofs, carparks and roads | Integrated water systems to visibly treat and filter discharges into streams in order to improve water quality and in-stream ecosystem health.<br>Include requirement within new building and landscape project briefs to select building materials and systems that do not contribute to leaching and contamination of waterways, and ensure that buildings and landscapes are functionally integrated with water treatment systems. | Storm water run-off from all campus surfaces is treated using a range of filtration systems to remove contaminants and achieve improved ecological health of waterways on campus. | Overland flow and surface water collection into swale systems – consider maintenance including planted systems within campus core, and grass swales in outer parkland areas.<br>Water quality issues should be considered when selecting building materials and systems, to minimise leaching from building surfaces.<br>Where space constraints dictate (such as laneways) or within high amenity campus core spaces, integrated design solutions should be provided, including urban filtration beds, rain gardens and proprietary storm water treatment systems. |
| Whole of catchment issues | Long term to 2045: wider community engagement to address water quality and sediment issues | Recognition that UC streams are part of a larger catchment, which has an impact on water quality and quantity on UC streams and further downstream | Recognition that UC streams are part of a larger catchment, which has an impact on water quality and quantity on UC streams and further downstream l long term planning (2023-2045). Regard to Regional Planning matters for water quality (Canterbury Land and Water Regional Plan). |

**Learning**

| Issues/challenges | Opportunities/priorities | Design principles | Design considerations |
|---|---|---|---|
| Limited use of Haereroa-Avon River and Ka Waimaero (Ilam Stream)for teaching purposes | Increase the number of learning platforms associated with waterways, particularly for engineering, sciences and arts.<br>Innovate and build on the success and insights of Waiututu-Okeover stream as a teaching and demonstration waterway, but tailor learning opportunities to specific rehabilitation requirements of the Haereroa-Avon River and Ka Waimaero (Ilam Stream)<br>Establish a long term water quality monitoring programme for all campus waterways. | Provide a diverse range of settings and flexible spaces to explore pedagogical innovations, and take advantage of outdoor learning opportunities.<br>Utilise the waterways as a living laboratory, where students have the opportunity to conduct research and apply knowledge through stream restoration projects. | Locate platforms in stream edge locations where cause and effect on stream health can be monitored (e.g. dams, weirs, discharge points)<br>Utilise opportunities for stream bank stabilisation and dams/ weirs to create artful, functional and multi-purpose integrated structures that are sympathetic to ecological and cultural values. (e.g. Kopupaka Reserve, Auckland)<br>Potential 'waka landing' to provide multi-functional learning platform, stream access and welcoming/ gathering space that embeds cultural narratives.<br>Make research and monitoring programmes visible through temporary display and long term water quality monitoring programmes.<br>Control of water flow and sedimentation trials should be a visible part of the learning environment. |

| | | | |
|---|---|---|---|
| Limited visibility of stormwater management practices and environmental sustainability on campus | Embed sound stormwater management practices within the campus for research, training, industry engagement and community demonstrations.<br>Water features will be used throughout the campus to demonstrate the qualities of water and to enhance the ambience of outdoor spaces.<br>Wetland environments and filtration devices will be used throughout campus to condition water discharge into streams. | Integrate institutional and technological knowledge about UC waterways into waterway restoration projects and educational programmes.<br>Continue to support and promote research conducted on campus designed to improve stormwater quality in older suburbs such as Ilam.<br>Include best practice, cost effective and ecologically sound stormwater management practices which are integrated throughout the whole campus, with the long term aim of creating an exemplar stormwater management park for research, training, industry engagement, and community demonstrations. | Integrate opportunities for 'research on display' where possible, both of treatment system but also of design choices incorporated into buildings for improved water management (e.g. material choices, any harvesting and reuse.<br>Potential planted urban ephemeral flow path – to be considered as part of potential building removal and staging, balanced with vehicle manoeuvring and servicing needs for RRSIC. Balance service vehicle access requirements and water treatment solutions for all future building work on campus. Opportunities for interactive learning and strengthening 'stream to stream' character of the campus at the entry threshold to the campus heart. |

## Access

| Issues/challenges | Opportunities/priorities | Design principles | Design considerations |
|---|---|---|---|
| Access to and along streams for recreation (walking, running, cycling) | Connected pathway network utilising stream corridors, with opportunity to provide access to the waters edge at key locations along Haereroa-Avon River that could serve as educational and recreational spaces for the campus and wider community. | Provide access to and along the watercourses.<br>Provide a valuable community asset by offering a safe, pleasant environment for pedestrians and their hauora (wellbeing). | Learning platforms could be multifunctional spaces for break out study spaces, outdoor classrooms, social and passive recreation.<br>The uni-cycle route will be used by commuter cyclists, therefore pedestrian access alongside and across the cycle route to access streams should be considered (such as retrofitted 'slow zones'). |
| Perceived conflict between the ecological health of streams and providing access to streams either for teaching/ learning, or as bridges | Aspirations for access and learning should not compromise ecological restoration and water quality priorities. Instead, walkways, platforms, bridges and structures should be informed by waterway restoration objectives, and be located and designed in a way that contributes to waterway restoration education. | Apply best practice, cost effective solutions for designing and building ecologically appropriate access points, culverts and new bridges.<br>Careful design and management of plantings to provide conditions that support both ecological health and safe use and occupation of waterways. | Incorporate requirement for best practice standards into future design proposals and consultant briefs, including the requirement for specialist ecological review and input to the design process.<br>Consider cost effective structural solutions (span and profile- height above stream bed) materiality, shading and light for optimum instream habitat and health, balanced with accessibility and safety requirements. Any proposed works within waterways are likely to require a Regional Consent. |
| Adverse impact of culverts on ecological health of streams | Existing culverts should be removed as opportunities arise, prioritising the culvert between Engineering and Von Haast on Waiututu-Okeover Stream. | Apply best practice, cost effective solutions for designing and building ecologically appropriate access points, culverts and new bridges. | Consider movement hierarchy and hardscape material guide when balancing cost and appropriate design response for culvert replacements. |

## Building interface

| Issues/challenges | Opportunities/priorities | Design principles | Design considerations |
|---|---|---|---|
| Buildings encroaching or compromising stream habitat, health and safe access | Strengthen positive connections between the buildings and the stream, including outlook and surveillance. | Opening buildings and activities to the landscape to maximise the benefits of the amenity they offer.<br>Careful management of planting to provide conditions that support safe occupation. | An integrated design approach is required to ensure that building setbacks, interfaces and interstitial spaces are sympathetic to the character and function of waterways, and allow for continuous access and planted ecological corridors.<br>Consider building roof materials, and avoid the use of heavy metals that may contaminate waterways (such as Copper, Zinc etc). |
| Lack of resilience to flooding and drought | Capacity for significant rainfall events within the campus landscape will ensure that increased building development does not have a negative impact on the receiving environment. | All new build sites must incorporate best practice and cost effective stormwater remediation and filtration devices. | Balance hardscape with soft landscape to innovatively address overland flowpaths within landscape infrastructure so that they are attractive and functional when dry or wet. |
| Adverse impact of culverts on ecological health of streams | Existing culverts should be removed as opportunities arise, prioritising the culvert between Engineering and Von Haast on Waiututu-Okeover Stream. | Apply best practice for designing and building ecologically appropriate access points, culverts and new bridges. | Consider movement hierarchy and hardscape material guide when balancing cost and appropriate design response for culvert replacements.<br>Consider the impact of increased learning platforms on potential flooding risks by providing integrated solutions, informed by modelling and stormwater engineering input. Not all learning platforms need be at the same height in relation to permanent water level or low flows. A range of options should be considered across the campus waterways matched to learning opportunities and integrated with functional requirements (such as bank stabilisation). |

# *4.2.5* Precedents: integrated water systems

Stormwater and contaminant treatment systems should be designed to integrate into their landscape setting. Design of treatment systems should be consistent with the typologies of the space they are within, and should align with other relevant principles. Below are some examples of integrated solutions that are both functional and artistically woven into the landscape fabric from urban settings to parkland.

**Contaminants: treatment integrated into the urban streetscape**




**Stormwater: making surface water collection visible**




**Stormwater: parkland, roads and paths**


# *4.2.6* Precedents: structures, bridges and culverts

Structures within waterways such as bridges and learning platforms, should be designed to minimise footprint and respond to regional consenting requirements. Bridges should have a light and open form that prioritises ecosystem health and engages with the landscape. Learning platforms may be integrated into other functions such as bank stabilisation or weirs, and enable access to and along waterways as a part of an inclusive and accessible campus movement network.

**Landscape structures can express treatment systems and cultural narrative**

**Bridge design: light and open design qualities**

**Potential bridge design reference: engineering students' bridge building competition**

# *4.3* Activating the campus

### Principles

- Outdoor spaces will be designed in collaboration with the community to enhance opportunities for the campus community to relax and enjoy the campus environment.
- Space activation designs shall consider the impact of seasons throughout the year to ensure that 'summer' active spaces do not create 'winter' black spots on campus.
- A spectrum of cost effective tactical solutions can be delivered to activate the campus. Refer to Section 9 for recommended delivery tactics.

### Issues

- Keeping students on campus (sticky campus and urban buzz)
- Shelter and environmental mitigation for both summer and winter use.
- Noise conflicts with active spaces and lecture theatres.
- Maintenance and management of temporary furniture.
- Programming and co-ordination of events.
- Managing boundary relationships with the community and being a good neighbour.

### Opportunities

- Campus running loops with distance markers for active use of campus trails, utilising the waterways.
- All weather activity magnets in the campus core- e.g. stage for events (and covered activities), exhibition space, multi use hardcourt, playable urban environment (e.g. fitness and parkour, skatable features).
- Warm campus heart created through sheltered microclimates (walls, edges, planting), warm materials for seating, and deciduous trees for sunny lawns.
- Activated laneways- opportunistic sheltered breakout spaces for outdoor learning, studying and social interactions, with ground floor building design providing interstitial spaces for seating.
- Integration of orchards, community gardens and sand or hard courts near Ōtākaro-Avon River student accommodation to encourage communal activities.
- Unstructured play and adaptable, flexible spaces of varying size for temporary activities and year- round use (e.g markets, food trucks, events in campus core).
- Gardens for contemplation and immersion in nature to support health and wellbeing of campus community (including heritage spaces)
- BBQ's and open kitchens to support communal gatherings, particularly around the UCSA.
- Nature and free play environments to support childcare facilities
- Events concentrated within the campus core as a priority to feed urban buzz, rather than diluting across campus.
- Maintaining grounds for public access and engagement.

### Recreational activation

*Guidelines from the Campus Master Plan*

RECREATION AND PLAY: Passive and active recreation areas are located primarily along the Ōtākaro-Avon River and provide facilities for the wider community to engage with the campus. These activities could include play space particularly adjacent to the schools, fitness equipment, spaces for yoga and Tai chi etc.

SPORT: Ilam Fields provides both formal and informal sports facilities. This area of the campus provides opportunities for the wider community to engage with the campus, along with this Kirkwood will be reinstated to a sporting field. There is also opportunity to activate underutilised areas with new temporary sports facilities such as a skateboard rink or an outdoor court.

*Design considerations*

- Transport review of Ilam Road and Waimari Road crossing points to complete recreational trail loop – transport review.
- Review of sport codes to occupy fields, including layout and consultation.

### Social activation

*Guidelines from the Campus Master Plan*

SOCIAL: Social spaces can be small or large providing a range of opportunities for individuals and large groups to gather and interact. Spaces are chosen for their current merits, relationship to significant campus buildings or for their climatic qualities of shelter and aspect.

EVENT: Two event spaces have been identified. The first event space is located within the centre of the campus, between Puaka-James Hight, Matariki, the Rutherford and RRSIC. The space caters for large gatherings for example during Orientation/ Open Day. The second event space provides breakout space adjacent to the proposed Hall which will cater for external events such as conferences or performances.

BREAKOUT: Breakout spaces are an extension of the internal environment into the landscape. These spaces will be located adjacent to the satellite hubs, lecture theatres and learning spaces providing opportunities to continue discussion and interaction outdoors.

COMMUNITY: Community spaces on campus currently include the two community gardens Okeover and Dovedale. These can be supported with additional facilities on the edge of campus such outdoor meeting spaces and BBQ sites. Okeover House will be repurposed as a focus for university community life.

*Design considerations*

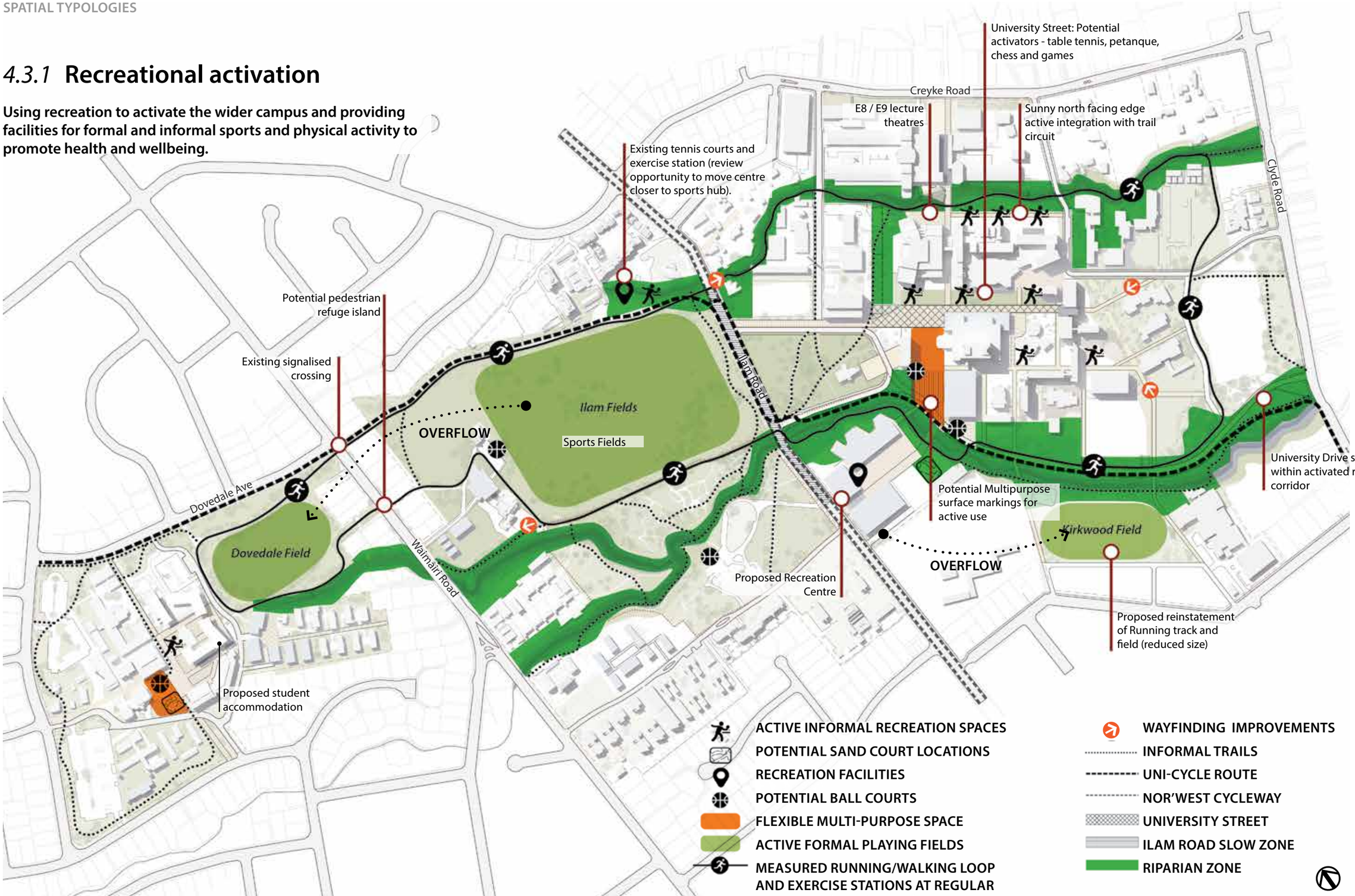
- Activation possibilities includes learning opportunities, event locations, play, potential community garden and orchard sites, and places to sit and relax.
- Potential contemplative spaces connect to a network of garden trails that wind along the river, through native planting, and through Ilam Gardens.
- In the heart of Dovedale and Ilam campuses, flexible communal lawn and hardscape are enhanced with exhibition opportunities. Sheltering 'wind mitigation' spots allow these central spaces to be inhabited in a range of weather conditions.
- There is opportunity for the Geography department to undertake work on sheltered spaces in campus as part of a research programme .

*Recommendations*

- Consider developing and managing events programme that informs infrastructure required for core communal spaces, management strategy for zones and appropriate activities, and booking system requirements.
- Review use, layout and efficiency of sports fields to inform spatial allocation and supporting facilities required for sporting codes: rugby, football, cricket, hockey, athletics. Include best location for hardcourts / tennis courts near sports hubs and integration of Uni-Cycle path network in more detail.

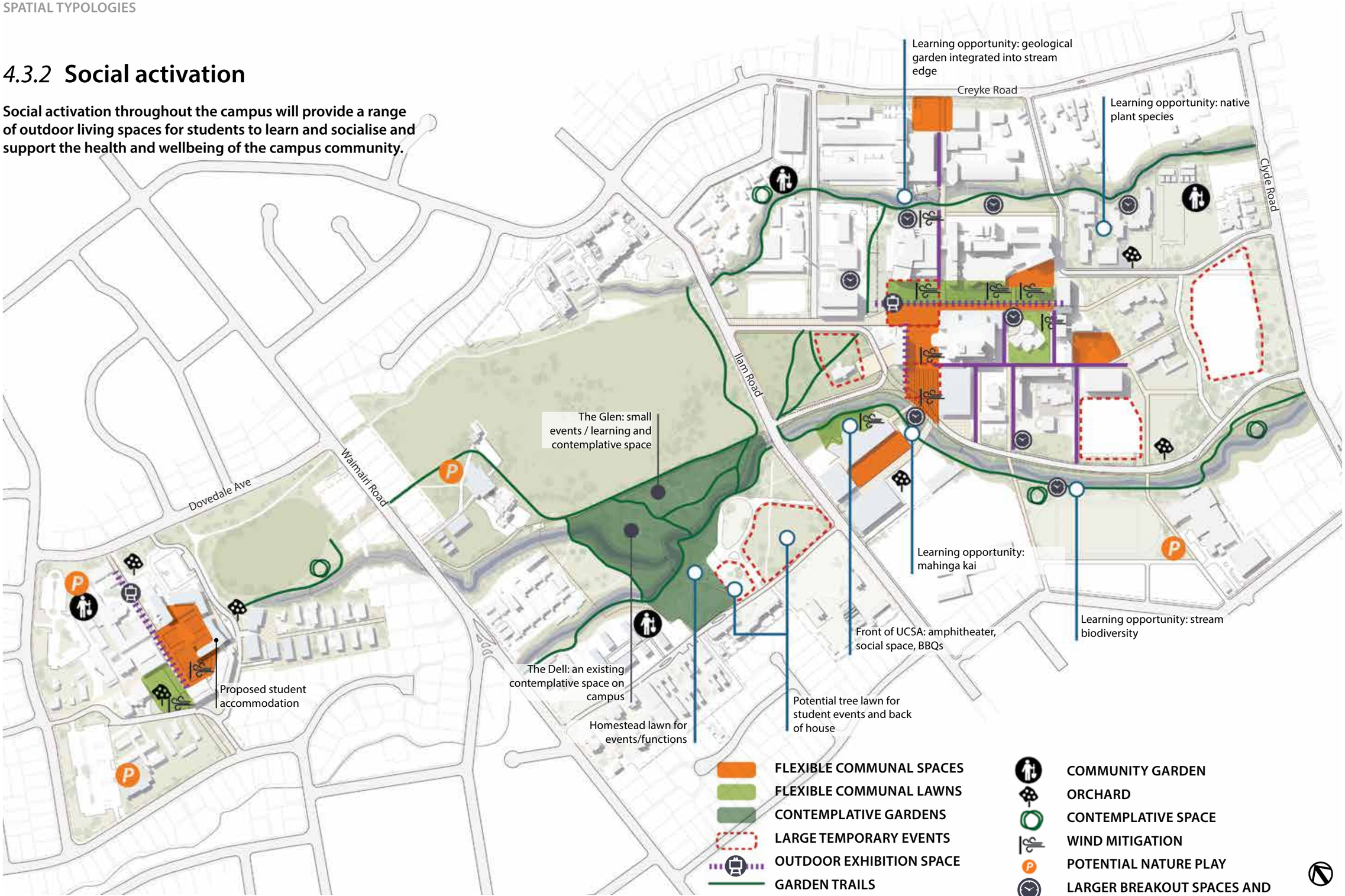
# *4.3.1* Recreational activation

**Using recreation to activate the wider campus and providing facilities for formal and informal sports and physical activity to promote health and wellbeing.**



# *4.3.2* Social activation

**Social activation throughout the campus will provide a range of outdoor living spaces for students to learn and socialise and support the health and wellbeing of the campus community.**



# *4.3.3* Precedents: activated campus

### Activated campus core

### Activated parkland

### Contemplative spaces