

**DRAFT ŌTĀKARO
AVON RIVER CORRIDOR
REGENERATION PLAN**

**SUPPLEMENTARY
INFORMATION DOCUMENT**

**Information to sit alongside
and support the Draft
Ōtākaro Avon River
Corridor Regeneration Plan**

**REGENERATE
CHRISTCHURCH
TE KŌWATAWATA**



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1. Introduction

1.1 Document purpose and relationship to the Regeneration Plan

This Supplementary Information Document sits alongside the draft Ōtākaro Avon River Corridor Regeneration Plan (Regeneration Plan), and provides/summarises information relating to the development of the Regeneration Plan.

It summarises the process used to develop the Regeneration Plan, our next steps following public notification (sections 1.2 and 1.3), and the public engagement undertaken (section 2). Integrated Assessment, Cultural, and Planning Assessment Summaries are also provided (sections 3 to 5).

It also summarises a range of technical and other reports and assessments that have been commissioned/prepared by Regenerate Christchurch to further assist in the development of the Regeneration Plan (section 6). These reports build on the information gathered and commissioned by Regenerate Christchurch throughout this process, and have been used to inform the way in which the preferred land uses and activities have been provided for in the Regeneration Plan.

A summary of the resulting proposed changes to the Canterbury Regional Plans and Christchurch District Plan is outlined in section 7.

1.2 The process used to develop the Regeneration Plan

The [Greater Christchurch Regeneration Act 2016](#) required an Outline to be developed for a Regeneration Plan.

The [Outline for the Ōtākaro Avon River Corridor Regeneration Plan](#) (the Outline) was prepared by Regenerate Christchurch and approved by the Minister supporting Greater Christchurch Regeneration in March 2017.

The Outline includes details about the proposed scope and intended outcomes of the Regeneration Plan; how it will meet the [purposes of the Greater Christchurch Regeneration Act 2016](#); and the proposed process for developing the Regeneration Plan, including the expected timeframes and opportunities for public engagement.

The process of developing this Regeneration Plan has included the following four steps.

1. Research

Between March and May 2017, Regenerate Christchurch engaged with Christchurch communities to understand their needs and seek ideas on how the [Regeneration Area](#) could meet these needs, including through a [Community Needs Assessment Survey](#).

Collection and analysis [of information and knowledge about the land](#), communities, infrastructure and other relevant matters were completed and communicated publicly through technical summaries, studies and a [land information viewer](#) (an online interactive map).

2. Visioning

The [Vision and Objectives](#) were developed following public, stakeholder and strategic partner feedback and these played a critical role in the identification, assessment and evaluation of the wide range of possible land uses and activities that might be included in the Regeneration Plan.

[Land Use Assessment Criteria](#) were developed based on the Vision and Objectives to assist in comparing possible combinations of land uses and activities for the Regeneration Area.

3. Design

Twelve broad land uses were identified, drawing on the ideas, proposals and suggestions gathered during the research and visioning steps. [Land Use Assessment Reports](#) were then prepared that examined how each land use could contribute to the Vision and Objectives. These were supported by a wide range of studies covering commercial feasibility, economic assessment and business cases.

The technical investigations confirmed that there are significant geotechnical constraints on the use of the land. Because the land dropped considerably in the earthquakes, it is subject to the hazards of river flooding and coastal inundation. Detailed studies focused on the technical and financial feasibility of ground remediation to re-establish building platforms suitable to address the risks of liquefaction, lateral spread and flood hazard. They found that, although it is technically possible to prepare the land for large-scale development, the costs of doing so outweigh the value created and the risk of failure in the future.

Other findings included:

- Sufficient trunk-water, wastewater and cable network services are available to provide for all potential land uses ([Horizontal Infrastructure Assessment](#));
- Flood mitigation is best provided through a network of stopbanks and stormwater pumping stations ([Land Use Assessment Report Flood Mitigation](#));
- There is the opportunity to treat urban stormwater from up to 2600 hectares through 80 hectares of wetlands and detention ponds located within the area ([Land Use Assessment Report Water Quality](#));
- Confirming the feasibility of productive land uses, whitewater sports hub and other commercial recreational and leisure facilities ([Land Use Assessment Reports](#) and supporting technical studies);
- Identifying the options for transport solutions, principles of ecological restoration, opportunities for recreation and needs for community places and spaces ([Land Use Assessment Reports](#) and supporting technical studies);
- Confirming the feasibility of options to provide for flatwater sports ([Indicative Business Case](#) and [appendices](#));
- Identifying the options for visitor attractions and a projection of potential visitor numbers ([Land Use Assessment Report Visitor Attractions](#)); and
- Forecasting the economic impacts and property value impacts of the development of the Regeneration Area ([Property Value Impact](#))

Long List – 20 land use options

A list of 20 land use options (the Long List) was then developed, being different combinations of the optional land use types.

Land use types that form necessary infrastructure (such as stopbanks), or that are required because of the geotechnical constraints, were identified and considered to be the common elements.

The Long List of 20 land use options was assessed against the Vision, Objectives and [Land Use Assessment Criteria](#) and was supported by Land Use Assessment Reports and other technical studies.

The Shortlist – 10 land use combinations

Ten land use combinations were selected (the Shortlist).

[Public and stakeholder feedback](#) was provided on the Shortlist in October and November 2017. Following public feedback, the Shortlist underwent further assessment (refer to [Management Assessment of Shortlist of Land Use Options](#) and an [addendum](#)), which revealed the common, predominant focuses or characteristics among the land use options.

The options were grouped according to these themes:

- Experiencing Nature;
- Activity and Play; and
- Food and Culture.

Refined Shortlist

Three distinct areas or 'Reaches' in the Regeneration Area outside the common elements (the Green Spine) were matched with thematic grouping because of their location and natural features. The Green Spine and the three Reaches made up the [Refined Shortlist](#).

Feedback on the Refined Shortlist was sought through the [Red Zone Futures exhibition](#) held in August 2018. The feedback received helped to determine the preferred land uses and activities described in the Regeneration Plan.

4. Creating the Plan

Each previous step contributed important information to enable the development of the Regeneration Plan. In addition, Regenerate has also undertaken and commissioned a range of assessments (attached to, and summarised in, this document) which have informed the way in which the preferred land uses and activities have been provided for in this Regeneration Plan.

During September and October 2018 Regenerate Christchurch sought the views of the parties listed in [Section 29 of the Greater Christchurch Regeneration Act 2016](#) and amended the Regeneration Plan as thought appropriate.

On 13 November 2018, Regenerate Christchurch publicly notified the Regeneration Plan and invited written comments ([section 34 of the Greater Christchurch Regeneration Act 2016](#)).

1.3 Next steps

Following public notification, Regenerate Christchurch will consider the feedback received, and make any appropriate amendments to the draft Regeneration Plan. Following that, an Evaluation Panel will assess the draft Regeneration Plan against the [Integrated Assessment criteria](#) and provides its feedback to the Regenerate Christchurch Board.

Regenerate Christchurch will then finalise the draft Plan, and then seek Ōtākaro Limited's consent to submit the draft Regeneration Plan to the Minister for Greater Christchurch Regeneration ([section 35\(4\) of the Greater Christchurch Regeneration Act 2016](#)).

If consent is given, Regenerate Christchurch will then submit the draft Regeneration Plan to the Minister for Greater Christchurch Regeneration for consideration ([section 35\(1\) of the Greater Christchurch Regeneration Act 2016](#)).

2. Public engagement

Regenerate Christchurch prioritised engagement with all sections of the community in the development of this Regeneration Plan.

This included:

- Close working relationships with strategic partners Christchurch City Council, Te Rūnanga o Ngāi Tahu, Environment Canterbury, Ōtākaro Limited and the Crown;
- Regular communications with the owners of private properties that remain within the Regeneration Area;
- Specialist advisory groups including community members and local and international technical experts;
- Engagement with groups including the Earthquake Disability Leadership Group, Community Language Information Network Group, and representatives from the business sector, Pasifika communities, the faith-based sector and non-government organisations; and
- Extensive engagement with children and young people.

Engagement has been conducted through a range of mechanisms to ensure that different parts of the community have the opportunity to contribute. This included:

- Opportunities for people to meet Regenerate Christchurch staff face to face through an Open Day at Haeata Campus, a month-long exhibition in Cashel Mall, a travelling exhibition and stakeholder workshops;
- Opportunities to view online content, including video, animations, social media and uploaded documentation; and
- Research surveys and feedback.

Research findings have provided an evidence base in the development of the Regeneration Plan.

The [Community Needs Assessment Survey](#) (February–March 2017) produced the following themes to inform the development of the Vision and Objectives:

- A desire to protect and restore the natural environment of the Regeneration Area, with a particular focus on the protection of groundwater and enhancement of water quality;

- Safe, well-designed spaces that are resilient to hazards and adaptable to climate change; and
- Opportunities for people from different communities to gather and connect.

The [Red Zone Futures Survey](#) (May–June 2018) produced the following feedback on the refined shortlist that formed the basis of the Regeneration Plan:

- 89% of respondents rated the Refined Shortlist positively;
- 91% rated the Green Spine positively; and
- 90% agreed that the Refined Shortlist would make a positive contribution to the natural environment.

3. Integrated Assessment

This report outlines how the Integrated Assessment (IA) methodology was used throughout this process to contribute to the development of the Draft Regeneration Plan. The report records the background information on IA's, the timeline and process for the series of IA's carried out, the workshop methods, and a summary of results from all workshops.

The first workshop focussed on developing the criteria which would be used to carry out the IA of the land uses and activities throughout the process. The second workshop (which comprised two parts) then used that criteria to evaluate the Refined Shortlist Spatial Plan (which was showcased for public feedback during the Red Zone Futures Exhibition Period). The third and most recent workshop then used the criteria again to evaluate an early version of the Regeneration Plan.

The [IA workshop report can be accessed here](#).

4. Cultural summary

The Regeneration Area falls within the takiwā (area) of Te Ngāi Tūāhuriri Rūnanga. The values and interests of the rūnanga have been facilitated through and represented by Matapopore Charitable Trust and Mahaanui Kurataiao Ltd. A report prepared by Mahaanui Kurataiao Ltd summarises the involvement of Te Ngāi Tūāhuriri Rūnanga in the development of the Spatial Plan for the Regeneration Area. The involvement of mana whenua includes the following.

- **Cultural Design Strategy:** To clearly define and articulate the cultural input to the design phase,¹ Matapopore developed a Cultural Design Strategy. The Strategy is a framework for future land use within the Ōtākaro Avon River Corridor based on the concepts and values of mahinga kai, the restoration of the mauri of the water and a greater connection between the community and the natural environment. Practical measures such as physical works (i.e. planting to enhance in-stream and spawning habitats and riparian margins) and policy considerations are included in the Strategy.
- **Cultural Values Report:** Regenerate Christchurch commissioned a Cultural Values Report from Mahaanui Kurataiao Ltd. This report more closely references the policies of the statutory Mahaanui Iwi Management Plan, and describes the range and nature of potential

¹ www.regeneratechrichurch.nz/otakaro-avon-river-corridor, The Ōtākaro Avon River Corridor process

threats or risks to cultural values arising from land use change in the Regeneration Area.

- The report notes that manawhenua is concerned with the environmental integrity of the whole of the Ōtākaro Avon River Corridor and not just specific archaeological sites or wāhi tapu. This includes the recognition and protection of values relating to the mauri and health of the river, the restoration of aquatic and terrestrial habitat, the treatment of riparian margins, the maintenance and enhancement of wetlands, ease of accessibility to the water, maintenance of the integrity of the cultural landscape, the protection of wāhi tapu, and removal of contaminated land. Accordingly, land development proposals need to identify if, and to what extent, a proposal may impact on the function and integrity of the whole of the Ōtākaro/Avon River (including its landscape, ecological and hydrological functions), along with impacts on mahinga kai and taonga species.
- A key cultural outcome is to recognise and progressively restore the natural ability of the corridor to provide flood protection, filtration and other ecosystem services. The highest priority for Te Ngāi Tūāhuriri is the treatment of stormwater and the enhancement of Te Oranga Waikākāriki/Horseshoe Lake, which is complemented by a preference to avoid or minimise earthworks and modification to the river corridor, maintaining its integrity as a natural river system.
- **Integrated Assessment:** Matapopore has actively participated in the Integrated Assessment workshops conducted by Regenerate Christchurch to ensure cultural values were considered within a multidisciplinary context.
- **Hui:** Te Ngāi Tūāhuriri Rūnanga has met with the Regenerate Christchurch Board at hui hosted at the Tuahiwi Marae.
- **Spatial plans:** Matapopore Charitable Trust has actively partnered with Regenerate Christchurch in developing iterations of the Spatial Plans for the Red Zone Futures Exhibition and the draft Regeneration Plan. Designers from the Matapopore Charitable Trust were part of the Ōtākaro Avon River Corridor design team.
- **Contribution to the writing of the draft Regeneration Plan:** Mahaanui Kurataiao Ltd has assisted with scoping the content and chapters of the draft Regeneration Plan and provide assistance with the drafting of relevant provisions contained in Appendix 1. Matapopore Charitable Trust has supported the development of the draft Regeneration Plan through the development of a mahinga kai framework, key graphic design elements and the incorporation of te reo in the draft Regeneration Plan.
- **Partner comments:** Te Rūnanga o Ngāi Tahu provided written comments to Regenerate Christchurch on the draft Regeneration Plan during the section 33 views period ending on 26 October 2018. Regenerate Christchurch has given due consideration to these comments and made changes to the draft Regeneration Plan as thought to be appropriate. Section 34(3) of the GCRA requires Regenerate Christchurch to publish a concise statement of views under section 33 (including those of Te Rūnanga o Ngāi Tahu) at the time of public notification.

The [Summary Cultural Values Report: Ōtākaro Avon River Corridor](#) can be accessed here. Its purpose is to identify and describe those cultural values of importance to manawhenua and it was prepared to inform the draft Regeneration Plan.

5. Summary of planning assessment

Regenerate Christchurch has undertaken an assessment of the Regeneration Plan against a range of statutory and non-statutory documents. In particular, the assessment identifies how the Regeneration Plan responds to the direction of those documents as they relate to the following topics:

- Recovery and regeneration
- Indigenous biodiversity
- Freshwater resources
- Cultural
- Economic development
- Natural hazards
- Resilience
- Landscape and design
- Transport and accessibility
- Recreation and community facilities and open space
- Coastal environment
- Contaminated land
- Specific activities

The Regeneration Plan has then been assessed as to how it relates to these topics, with summaries provided on how the Regeneration Plan aligns with the direction in the identified statutory and non-statutory documents.

[The Planning Assessment can be accessed here.](#)

6. Supporting information summary

Regenerate Christchurch commissioned or undertook a range of technical and other assessments to support the development of the Regeneration Plan. These assessments build on the technical analysis previously commissioned or undertaken by Regenerate Christchurch, and have informed the spatial plans and the proposed amendments to statutory instruments (i.e. the planning provisions contained in Appendix One of the Regeneration Plan). Summaries of each of these reports/assessments are provided below.

6.1 Land constraints

Document and reference	Report description
Ōtākaro Avon River Corridor Regeneration Area – Land constraints and environmental	This report identifies and collates existing technical information related to specific land constraints, including: natural hazards (including climate change and sea level rise); stormwater and flood management; geotechnical matters; and hydrogeology, springs and groundwater management. The report also includes an environmental impact

<p>impact assessment (October 2018)</p>	<p>assessment and recommendations and/or mitigation measures.</p> <p>The information on which the report is based has been gathered and reported incrementally since the Canterbury earthquakes.</p>
<p>Key findings</p> <ul style="list-style-type: none"> • Natural hazards risk management: The Regeneration Area is subject to substantial natural hazards risk and the report describes a range of natural hazard risk management concepts and examples relevant to the Regeneration Area. • Stormwater management: Management of stormwater and flooding is likely to become increasingly important in the future. The report provides a summary of land use constraints relating to stormwater and flood management and identifies areas where these constraints might be significant for regeneration planning, noting that much of the Regeneration Area is potentially subject to flooding and that it is not feasible to avoid this hazard and it can only be mitigated. • Geotechnical: The report summarises the key geotechnical constraints, examples of which include the potential for severe area-wide lateral spreading, liquefaction-induced strength loss on design of foundations and underground structures/infrastructure, and high groundwater tables etc., most of which apply across the entire corridor. • Hydrogeology, springs and groundwater management: The report summarises these constraints and notes they have not typically been given as much attention as flooding and geotechnical issues and may become increasingly significant in the future. The constraints identified include: high groundwater table; impacts of sea level rise; historic groundwater wells; springs; and ponding of water on the ground surface. <p><i>Assessment of environmental impacts</i></p> <ul style="list-style-type: none"> • The report identifies particular land constraints that are most significant in relation to four general types of potential land uses, which are termed as: ‘green’ (e.g. ecological restoration, parks, community gardens); ‘blue’ (e.g. stopbanks, stormwater basins, wetlands, waterbodies); ‘connections’ (e.g. walking and cycling paths, roads, bridges, infrastructure); and ‘built’ (e.g. Landings, Edge Housing, adaptive buildings). • The assessment has identified three primary types of environmental impact: potential positive impact; potential negative impact that is managed by high-level provisions in the Regeneration Plan or other existing plans; and potential negative impact where mitigation will need to include more detailed situation-specific measures developed as a matter of detail during future work. • The report summarises the environmental impacts of each land use type, what could be done to enhance positive impacts or mitigate negative impacts, and how the mitigation or enhancement will be achieved. Selected examples for each land use type are summarised below. 	

- 'Green' land uses: In terms of natural hazard risk management, it is recommended to locate 'green' land uses in areas subject to the most severe and/or multiple hazards. The proposed Green Spine is considered to implement this approach well by locating this area near the river edge, which is typically subject to the most severe consequences from earthquakes, floods and sea level rise. In terms of stormwater and flood management, the positive impacts include improved water quality, additional habitat, improved habitat connectivity, and relocation of stopbanks. Examples of potential negative impacts include potential adverse effects on water quality in Waikākāriki/Horseshoe Lake and water quality for mahinga kai and recreational water use. Assessment matters in the planning provisions provide for consideration of these impacts and water quality can be addressed further as part of the Implementation Plan including the biodiversity and ecological restoration guidelines.
- 'Blue' land uses: In terms of mitigation of natural hazards risk, it is recommended that natural hazards risk infrastructure be designed so that it is easily adaptable in the future if necessary, such as providing for the height of stopbanks to be increased. The Regeneration Plan response is a positive impact as it allows for stopbanks to be upgraded in the future and proposes rules requiring setbacks from infrastructure, as well as detailed assessment matters for Green Spine infrastructure.
- 'Connections' land uses: With respect to stormwater and flood management, no positive effects have been identified and the potential negative effects include bridges constraining flood flows, relocations of stopbanks and implications for river crossings, and staged construction. To mitigate impacts, bridges and culverts should be adequately sized and capacities able to be increased if needed, key crossing points should be located where bridge spans can be shorter, and adequate access to stopbanks and connections should be provided. The report notes that these matters could be addressed in an Infrastructure Guideline for the Regeneration Area or by the existing Christchurch City Council infrastructure design standard, that an Implementation Plan should consider how works will be staged to manage impacts, and that specific implementation will need to be a matter of detailed design.
- 'Built' land uses: With respect to geotechnical constraints, a positive impact identified is lateral spread mitigation works; i.e. any large structures located close to the Ōtākaro/Avon River may require ground improvement to limit lateral spreading and this will also help to limit damage to the river banks in an earthquake. The spatial plan identifies preferred locations for Activity Areas and Landings, and Landings are typically located beside bridges that could benefit from ground improvement works required for adjacent buildings. Mitigation can be developed further in detailed design as part of the Implementation Plan.
- In summary, all of the identified potential negative impacts can be managed under the planning framework or as part of design and implementation. Existing city-wide constraints mean that achieving some of the long-term aspirations outlined in the Regeneration Plan will require

action from other parties outside the Regeneration Area (particularly regarding water quality constraints for mahinga kai and recreation).

6.2 Terrestrial ecology

Document and reference	Report description
<p>Ōtākaro Avon River Corridor Regeneration Plan High-Level Ecological Impact Assessment: Terrestrial Ecology (Boffa Miskell, 18 October 2018)</p>	<p>This report provides: an overview of the existing terrestrial ecology values of the Regeneration Area (including terrestrial vegetation communities and habitats, riparian vegetation, wetlands and terrestrial fauna); a high-level assessment of the potential effects of the activities included in the Regeneration Plan on terrestrial ecology values; and recommendations to address potential effects on terrestrial ecology values. It also identifies where amendments to the provisions are required to better manage effects on terrestrial ecology values.</p>
<p>Key findings</p> <ul style="list-style-type: none"> • Much of the Regeneration Area, particularly the three Reaches, is former residential land with exotic grassland and retained trees and shrubs that are generally of low ecological value. However, these areas do provide habitat and food sources for fauna and act as corridors to assist the movement of fauna within and through the Regeneration Area. • Within the Regeneration Area, the areas of highest ecological value have been identified as Sites of Ecological Significance (SES) by the Christchurch City Council. They are: <ul style="list-style-type: none"> ○ The Ōtākaro/Avon River and its tributaries, primarily for its aquatic ecology values, but also for its riparian wetland vegetation and its role as important habitat for birds. This SES includes Cockayne Reserve, a large, representative remnant of riparian wetland vegetation that provides habitat for water birds; ○ No. 2 and Old No. 2 Drains, which enter Horseshoe Lake Reserve and have values for indigenous fish that largely contribute to the waterway’s significance; ○ Horseshoe Lake Reserve, a relatively large area of wetland vegetation that is representative of the Low Plains Ecological District and provides habitat for a diverse assemblage of water bird species; and ○ Anzac Drive Reserve (part of the Travis Wetland SES), which provides a very important ecological linkage between the Ōtākaro/Avon River and Travis Wetland. • The Travis Wetland and the Ihutai/Avon Heathcote Estuary are both SES outside of the Regeneration Area, but are of very high ecological value and are immediately adjacent, and connected, to the Green Spine. 	

- Outside identified SES, other areas identified as having important terrestrial ecology values are: Corsers Stream, which supports representative restored riparian wetland vegetation and is an important ecological corridor between Travis Wetland and the Ōtākaro/Avon River; and two stormwater treatment wetlands north of Donnell Sports Park in close proximity to Corsers Stream that have indigenous-dominated wetland vegetation and are likely to provide good habitat for indigenous fauna.
- Some of the activities included in the Regeneration Plan provide opportunities to enhance the ecological condition and value of these terrestrial habitats within, and adjacent to, the Regeneration Area. Other proposed activities have the potential to have adverse effects on terrestrial ecology values.
- High-level recommendations to address potential adverse effects on terrestrial ecology values are identified in the report. Key examples include the following.
 - Vegetation and habitat removal: Any trees and shrubs of value are identified during the detailed design stage and potential projects are located or designed in a manner that will avoid their removal; projects are located outside SES and away from areas of naturally occurring indigenous vegetation and habitats where possible and, if the clearance of indigenous vegetation and habitats is unavoidable, careful assessment and analysis of the potential impacts are undertaken and effects are mitigated; the removal or disturbance of large exotic trees, indigenous riparian vegetation and indigenous dominated riparian wetlands on the margins of the Ōtākaro/Avon River is avoided.
 - Birds: Any trees and shrubs of particular value as habitat for terrestrial birds are identified during the detailed design stage and, where practicable, their removal is avoided.
 - Lizards: A suitably-qualified herpetologist is engaged to develop a Lizard Management Plan for the Regeneration Area that meets Department of Conservation approval.
 - Indirect effects: These include disturbance to birds as a result of construction and human disturbance; terrestrial fauna and potential conflicts with people; light pollution; and pest plant introduction.
- Positive outcomes are identified including: an eco-sanctuary; extensive indigenous planting, which will create a substantial area of habitat, improved food sources, improved ecological resilience etc.; saltmarsh restoration; wetland restoration and enhancement; and enhanced riparian margins.
- The report considers whether proposed amendments to Resource Management Act 1991 documents are appropriate, and identifies where amendments are required to better manage effects on terrestrial ecology values. In general, the report concludes that the issues identified are addressed in the Regeneration Plan or can be addressed by way of ecological guidelines/principles and biodiversity standards as part of detailed design, or subject to separate processes (i.e. the Wildlife Act 1953), and suggests amendments to provisions where considered necessary.
- Several potential ecological restoration projects are proposed within the Regeneration Area: an eco-sanctuary; extensive planting of indigenous vegetation; saltmarsh restoration; and

wetland restoration and enhancement. These projects are expected to have substantial benefits for a number of ecosystems within the Regeneration Area.

- Overall the Regeneration Plan is expected to result in substantial benefits for the terrestrial ecology of the Regeneration Area. However, if the potential ecological restoration projects are not implemented, these substantial positive outcomes will not be realised.

6.3 Aquatic ecology

Document and reference	Report description
<p>Ōtākaro Avon River Corridor – High-Level Ecological Impact Assessment: Aquatic Ecology (Boffa Miskell, 1 November 2018)</p>	<p>This report provides: an overview of the existing aquatic ecology values of the Regeneration Area (including water quality, in-stream and riparian habitat, aquatic species, fish spawning areas and fish passage); a high-level assessment of the potential effects of the activities included in the Regeneration Plan on aquatic ecology values; recommendations to address potential effects; and a recommendation to include a set of ecological principles in an Implementation Plan.</p>

Key findings

- The Green Spine is dominated by the Ōtākaro/Avon River and its tributaries, which include both natural and human-made waterways (wetland drainage channels).
- Five SES are located within or adjacent to the Regeneration Area (also identified in the Terrestrial Ecology Report).
- Many of the waterways within the Regeneration Area have degraded habitat with high levels of deposited sediment and poor water quality due to urbanisation and continued inputs of untreated stormwater, which carries sediments, heavy metals and other contaminants toxic to aquatic life. The need to maintain waterways as drainage networks also compromises their ecological health.
- The waterways support a threatened fish species (lamprey) and numerous at-risk species (longfin eel, īnanga, giant bully and bluegill bully). Torrentfish have recently been recorded in the mid reaches. All of the Ōtākaro/Avon River and tributaries within the Regeneration Area are within the tidal influence and are mapped as an īnanga spawning habitat. The invasive plant species, yellow flag iris, is abundant in the lower reaches and not suitable for spawning.
- The species are migratory and require access to and from the sea, and therefore the Ōtākaro/Avon River and its tributaries form an important ecological migratory corridor.
- Ōtākaro Avon River, No. 2 Drain, Corsers Stream and waterways within Anzac Drive Reserve are of high ecological value. Dudley Creek and Waikākāriki/Horseshoe Lake are of moderate to

high ecological value as the water quality conditions are degraded but they support at-risk freshwater fish species.

- Proposed activities have been considered and recommendations to avoid or minimise effects on aquatic ecology are provided, including:
 - Opportunities to enhance the riparian corridor, bank, and in-stream habitat should be prioritised to bring ecological benefits and positive effects of the potential projects;
 - Management plans, such as Construction Environmental Management Plan, Erosion and Sediment Control Management Plan, Riparian Planting Plan, and Weed and Pest Management Plan; and
 - Works in and adjacent to waterways (e.g. bank excavation and dredging) may also require fish salvage and inanga spawning habitat assessments in advance of works, depending on the timing and location of activities.
- Overall, the assessment is high-level and ecological assessments will be required during concept and detailed design.

6.4 Transport

Document and reference	Report description
Draft Ōtākaro Avon River Corridor Regeneration Plan Integrated Transport Assessment (QTP, 26 October 2018)	<p>This report identifies and collates available information about the existing transport environment, and includes an Integrated Transport Assessment based on the draft spatial plans of the preferred land uses, including recommendations and/or mitigation measures to assist in the development and refinement of the Regeneration Plan.</p>
<p>Key findings</p> <ul style="list-style-type: none"> • Trip demand: Based on the preferred land uses in the Regeneration Plan, the Regeneration Area trip demand has been estimated at up to 9,000-person trips per day. Most of these trips (more than 90%) are anticipated to involve travel by private vehicle, resulting in around 8000 vehicle trips per day. • Carparking: Parking will mostly be accommodated at the three Reaches and eight Landings. These areas are relatively free of constraints and easily accessed via the existing road network, and there is sufficient space to supply an appropriate number of motor vehicle (and cycle) parking spaces. • Road network: A level of flexibility needs to be retained with respect to the local road network to enable more or fewer road connections both in the short term for interim uses (including construction associated with the Regeneration Plan) and in the long term to respond to the specific land use activities that eventuate. Furthermore, access to existing residential properties within and bordering the Regeneration Area needs to be maintained. 	

- **Transport services and infrastructure:** Providing and maintaining transport services and infrastructure in the vicinity of the Regeneration Area has been a challenge due to geography, local population decline (by approximately 7000 households) and the low-density nature of the area, and the costs of managing the area's high vulnerability to natural hazards.
 - **Public transport:** The Regeneration Area is currently relatively inaccessible by public transport; however, in areas immediately outside of the Regeneration Area, coverage by the public transport system and access to bus stops are comparable with other areas of the city. The Regeneration Area is reasonably accessible by public transport to and from the central city and it is possible that tourist operators could take advantage of this and provide suitable services to meet any demand.
 - **Major Cycle Route:** A programmed new transport infrastructure project is the Avon - Ōtākaro Major Cycle Route (MCR), which is part of the Christchurch City Council's Long-Term Plan. The MCR will provide a high-quality connection for pedestrians and cyclists between the Regeneration Area and the central city sections of the river, and the Regeneration Plan will make implementation of the MCR much easier and more efficient (relative to other MCRs provided adjacent to roads).
 - **East–West Bridge:** A new bridge between New Brighton Road and Breezes Road will further improve connections between the eastern suburbs and the rest of the city. This bridge would become a 'lifeline' to New Brighton, increasing resilience against hazards and providing better access between suburbs and also to the Regeneration Area for emergency services and potentially public transport.
 - **Potential replacement of ANZAC Drive Bridge (SH74):** Replacement of this bridge is not currently programmed by the New Zealand Transport Agency (NZTA), as the road controlling authority, and it will ultimately be NZTA's decision on when the bridge is replaced and what alignment is used. The Regeneration Plan allows for flexibility for various alignment options, ensuring the required space is effectively reserved for future use and is clear of any activities that may be sensitive to the State Highway.
 - **Footbridges:** The Ōtākaro/Avon River and the lack of bridges (especially in the Dallington/Avondale area) divide the area in two, which reduces walking connections. The four new (or replacement) footbridges proposed in the Regeneration Plan will reconnect the surrounding communities that were severed as a result of the earthquakes. They will also connect the new City to Sea Path and MCR with other pathways that connect adjacent communities to the Landings placed along the Green Spine, allowing access from either side of the river.
- **Road network:** The road network in the vicinity of the Regeneration Area has no significant congestion or safety issues compared with other parts of the transport network in Christchurch, mainly because traffic volumes in the eastern part of Christchurch are much lower than in other areas due to the near-static population size. The local and wider network effects associated with the Regeneration Plan's preferred land uses and road network have been assessed using traffic modelling, with the following results.
 - The change in traffic flows resulting from the Regeneration Plan is likely to be relatively low (fewer than 1000 vehicles per day), but to apply widely throughout the network. This reflects the dispersed nature of the activities (and associated carparking) along the entire

- corridor, which minimises large impacts in any particular area.
- The new East–West Bridge is anticipated to be used by up to 3000 vehicles per day and provide additional benefits, including improved resilience and opportunity for better public transport and cycle connections.
 - Daily traffic flows in the vicinity of the Regeneration Area for all future-year scenarios (i.e. with and without the Regeneration Plan and with and without the East–West Bridge) remain similar to present-day values, and in many cases are significantly lower than pre-earthquake flows.
 - Only very minor changes in delays (at intersections and on road links) are indicated as a result of the Regeneration Plan relative to present-day values. Where any changes in delay do occur, these are generally indicated to be less than 10 seconds per vehicle and a high Level of Service (in the range of A to D) is generally maintained.
 - No links in the study area are indicated to be near capacity (no modelled degrees of saturation are greater than 80%).
 - Accessibility by private vehicles: The Regeneration Area is considered to be highly accessible by private vehicle, with around 180,000 households within a 30-minute drive time of it (and average access time of 14 minutes).
 - Accessibility by bicycle: The Regeneration Area is accessible by bicycle, with 107,000 households within a 30-minute ride time of it and having a 37-minute average access time. While the Regeneration Area will attract recreational cyclists, it will also accommodate cycle trips passing through the area via the MCR linking the central city to New Brighton.
 - Accessibility by pedestrians: The Regeneration Area will attract recreational walkers directly from adjacent areas, meaning a likely reduction in car trips to alternative locations for recreational walks (approximately 4000 households within a five-minute walk).
 - District Plan transport provisions: The existing Christchurch District Plan transport provisions were considered in relation to the Regeneration Plan and some relatively minor amendments are proposed, as detailed below.
 - The figures in Appendix 7.5.12 are proposed to be updated to the extent that the part of the Specific Purpose (Flat Land Recovery) Zone is replaced with the proposed land use zoning of Specific Purpose (Ōtākaro Avon River Corridor) Zone.
 - A change to Appendix 8.10.3 (New Road Standards) in Chapter 8 (Subdivision, Development and Earthworks Chapter) is recommended to provide for specific narrower roadway widths of 6–9m (excluding carparking) in relation to local roads serving Edge Housing in the Specific Purpose (Ōtākaro Avon River Corridor) Zone as a controlled activity.
 - It is recommended that the wording for proposed Rule 13.14.4.1.1 (Permitted Activities) P14 is changed from “*Shall be limited to 20 at grade carparks*” to “*Shall be limited to 20 at grade car parking spaces*”, noting that a ‘carpark’ usually consists of a number of ‘parking spaces’ and ‘parking space’ is already defined in the District Plan.
 - It is recommended that managing traffic (and parking) associated with large-scale events that are not on public land could be addressed through Traffic Management Plans. Events on public land are already managed by a Council bylaw and Traffic Management Plan process.
 - A change to the High Trip Generator rule to enable reliance on this Integrated Transport

Assessment for projects within its scope was considered; however, overall it was concluded that the existing High Trip Generator rule is adequately enabling and no change is needed.

6.5 Retail distribution

Document and reference	Report description
<p>Ōtākaro Avon River Corridor Proposed Retail Planning Limits Memo (ME Consulting, 1 November 2018)</p>	<p>The Specific Purpose (Ōtākaro Avon River Corridor) Zone seeks to provide for retail activity in the Landing Areas and Activity Areas, food and beverage outlets within a Reach or Landing Area, and retail activity ancillary to a permitted activity as permitted activities subject to Gross Floor Area (GFA) restrictions. The purpose of the memo is to assess the appropriateness of the retail floorspace planning limits proposed for the Regeneration Area.</p> <p>In order to be able to set practical and effective permitted GFA limits, a high-level evaluation of the sustainable retail floorspace within the Regeneration Area was undertaken based on visitor number estimations and the Draft Development Plan. A high-level indicative assessment of the nature of the effect of such retail within the Regeneration Area on Christchurch City’s existing and planned surrounding urban centre structure was also undertaken. It is considered important that the network of existing (and planned) centres is not undermined as retail is a key driver for the viability of centres and such centres form important focal points for surrounding residential communities.</p>
<p>Key findings</p> <p><i>Sustainable retail floorspace</i></p> <ul style="list-style-type: none"> • By 2030, it is estimated there will be between 1800m² and 3000m² of sustainable food and beverage GFA, and a further 2100 to 3500m² of other sustainable retail GFA within the Regeneration Area in total (the range is due to two scenarios of estimated visitor numbers). <p><i>Effects on Christchurch City’s existing and planned urban centres structure</i></p> <ul style="list-style-type: none"> • Retail within the Landings: The effect of retail activity within the Landings is anticipated to be spatially limited to smaller centres only in close proximity to the Landings, and food and beverage retail is expected to have the main effect as food and beverage retail plays a larger relative role within smaller centres. Limiting the GFA in the Landings to the maximums recommended would limit the effect on surrounding smaller centres. 	

- Retail within the Activity Areas: The other retail component of the Activity Area adjacent to Horseshoe Lake Reach is likely to have limited effects on the surrounding centres, but the effect depends on the scale of food and beverage enabled. Other retail activity within the Ōtākaro Loop Reach and that close to Wainoni Road could potentially have larger effects on surrounding centres.
- Retail within the Reaches: The draft limits for food and beverage retail within the Reaches are likely to have the greatest effect on surrounding centres and the draft proposed limits are large compared with the surrounding areas, which would undermine these areas and therefore the limits need to be reduced.

Recommended limits of sustainable retail floorspace

- The report is based on the Regeneration Plan as at September 2018, and recommends changes to the permitted retail limits contained in the first draft of the planning provisions to achieve sustainable limits and address the potential effects on surrounding centres as follows.
 - Landings: An appropriate limit is approximately 70m² food and beverage GFA (i.e. one cafe) and 70m² GFA other retail (excluding food and beverage and second-hand goods). The types of retail activity enabled could potentially be limited to those associated with the Regeneration Area activities. This limit would enable development better aligned with the anticipated scale of the Landings and would help limit the effect on surrounding smaller centres compared with the limit of up to 300m² GFA contained in the first draft (September 2018).
 - Activity Areas: These areas would comprise retail (excluding food and beverage and second-hand goods) up to 250–350m² GFA in the Horseshoe Lake Reach Activity Area; and retail up to 150m² GFA in the other Activity Areas. The types of retail activity enabled could potentially be limited to those associated with the Regeneration Area activities. The analysis has shown that these areas could potentially sustain a higher level of retail than the Landings given their location within or adjacent to the Reaches, which draw larger visitor numbers.
 - Horseshoe Lake Reach: 800m²–1200m² GFA of food and beverage retail would be concentrated on the north-western side of the river adjacent to the Activity Area.
 - Ōtākaro Loop and Eastern Reaches: 400–500m² GFA of food and beverage retail would be within each Reach. Avoid concentration of retail within the Eastern Reach that is in close proximity to Cossar Street local centre.
- The report recommends that any retail activity that exceeds the limits outlined above should be included within the Plan with a full discretionary activity status (not non-complying) to allow further retail to establish within the Regeneration Area or concentrate at particular locations that become commercially feasible depending on the level of activity that establishes over time in the Regeneration Area. This will also enable the effects on other centres to be considered (including any effects from a concentration of additional visitors at a particular location from any activity that emerges).

6.6 Social impact

Document and reference	Report description
<p>Ōtākaro Avon River Corridor Regeneration Plan: Social Impact Assessment – Summary of Findings (Taylor Baines & Associates, October 2018)</p>	<p>This report has two principal functions: to identify and collate existing baseline information that describes the existing state of the environment; and to provide a social impact assessment based on the Regeneration Plan.</p>
<p>Key findings</p> <p><i>Positive contributions to social wellbeing</i></p> <ul style="list-style-type: none"> • Some positive wellbeing contributions are already being experienced in communities adjacent to the Green Spine. • When considered collectively, the suite of preferred land uses and activities in the Regeneration Plan could be expected to generate significant positive contributions to social wellbeing, particularly in east Christchurch. • The outcomes of constructing the major physical infrastructure (the stopbanks) are generally enabling of socially beneficial developments of interest both to local neighbourhoods (community gardens, community facilities, local networks of cycleways and pathways, playground areas) and to many city residents (reduced risks of flooding and associated property damage during extreme events, the City to Sea Path, community spaces). • Suburbs closest to the river have the greatest opportunities. In contrast, the suburban communities of Bexley and Bromley have very few opportunities because of their distance from the accessible parts of the river and also because the barrier effect of SH74 makes access to the river a challenge. • Residents and special interest groups living in other parts of the city also stand to gain from many of the preferred land uses and activities that would provide facilities free to use, but particularly from the suite of potentially privately funded, commercially oriented, preferred land uses and activities involving pay-to-play. <p><i>Issues requiring mitigation or management in the Regeneration Plan</i></p> <ul style="list-style-type: none"> • The introduction of stormwater treatment facilities in a limited number of areas, while resulting in water quality improvements that address the impacts on surface water quality that occur across a wide catchment area and result in less contaminated water entering the river channel itself, has the potential to disadvantage certain local neighbourhoods in the immediate proximity if not carefully sited (competing with other potential local priorities for the land) and carefully designed and managed (the risk of insect pests). 	

- Opportunities for enhancing the environmental amenity and recreational opportunities associated with the Green Spine for residents in the eastern suburbs of Aranui and Bexley are significantly constrained by the existence of the SH74, which, with the exception of Wainoni Road and Pages Road access points, forms a major barrier between the residential areas and the river. While the continued presence of SH74 is unavoidable, consideration could be given in future to possibilities for enabling more extensive, safe access to the Green Spine for residents in these suburbs.
- Achieving some of the identified potential opportunities for social activation may require facilitation. Making the most of each neighbouring community's opportunities to respond to developments in the Regeneration Area will likely be assisted by active initiatives to engage these communities (e.g. the suburban structure planning initiatives that occurred in Lyttelton, Sumner and Woolston post-earthquakes).
- All the projects associated with the Regeneration Plan are situated in east Christchurch, a part of the city with relatively high unemployment. Many of the larger potential commercial leisure- and recreation-related land uses could well generate significant numbers of job opportunities. Ensuring that the communities of east Christchurch benefit significantly from such opportunities may well require proactive recruitment and training initiatives.

Other opportunities to consider

- More pedestrian bridges would further reduce the 'barrier effect' of the river, particularly in stretches of the river where the current or proposed gaps between bridges remain relatively long, such as around the loop of the Ōtākaro Loop Reach and along Kerrs Reach. Increasing the number of river crossings increases the attractiveness of the Green Spine for walking to a greater range of fitness levels and abilities. More route options in the network can also give an enhanced sense of safety, particularly for people who are there alone. Additional bridges should also complement the locations of community spaces.
- Recognising the fact that most of the Regeneration Plan's preferred land uses and activities are not able to enhance the levels of social wellbeing in the communities of Bexley and Bromley due to their distance from the residents' communities, it may be worth considering a future complementary route to the proposed City to Sea Path that (indicatively) passes through Linwood, connecting to the Haeata Campus, the National Marae, then to Cuthberts Road, Breezes Road and on to New Brighton via Bridge Street, connecting into lower reaches of the river. For consistency with the existing Plan, this could also be complemented with an additional Landing near Bridge Street bridge, thereby creating a 'circuit' rather than the 'out-and-back' path currently envisaged.

6.7 Cost–benefit

Document and reference	Report description
<p>Ōtākaro Avon River Corridor Regeneration Area: Cost-benefit assessment of Refined Shortlist (November 2018)</p>	<p>This report assesses the costs and benefits of a series of private and public projects (the Refined Shortlist) throughout the Regeneration Area, and draws on a wide range of data and information sources.</p> <p>The assessment takes a staged approach, which is broadly consistent with the New Zealand Treasury’s Guide to Social Cost Benefit Analysis. A series of assumptions was used to reflect the anticipated scale and scope of the individual projects and to refine the available information.</p> <p>The assessment considers the relationship between the private and public projects, and the costs and anticipated benefits arising from them, including cover market and non-market values – all with a Christchurch-centric lens.</p>
<p>Key findings</p> <ul style="list-style-type: none"> • Approximately 50 Refined Shortlist projects were grouped into three main categories: infrastructure-related projects; public sector projects; and private sector projects. • The projects will require capital outlay. It is estimated that the publicly funded projects will account for approximately 18% of the total capital expenditure, infrastructure approximately 42–49% of total expenditure, and the balance related to private projects. The projects will also have ongoing operational costs such as maintenance costs, which, along with key variables, were considered in the assessment. • The standard discount rates of 4%, 6% and 8% were used in the assessment (6% is the default rate suggested by Treasury). A separate, lower ‘environmental discount rate’ was also applied to some projects to put a greater emphasis on the long-term value of environmental assets. • The assessment concludes that overall, the Refined Shortlist of projects will deliver a positive outcome with the benefits outweighing the costs; overall the cost–benefit ratio (CBR) is estimated to fall between 1.39 and 1.7 under the base case. Adding the factor of property uplift (where the previous property owner is provided a share in the future development value, when realisable) increases the CBR significantly to between 2.00 and 2.24. • As a base case, the Refined Shortlist projects are expected to return approximately \$1.6 billion in benefits, at a cost of \$1.1 billion. This returns a CBR of 1.5, with costs ranging from \$0.9 million to \$1.46 billion, and benefits ranging from \$1.2 billion to \$2.3 billion. • The Refined Shortlist projects are distributed across the private and public sectors. The investment in the projects will generate a return and some of this return is felt by the actor/agency making the investment and some of the benefits will be felt by the wider 	

community (as a public good). Most of the investment will deliver wider economic effects that are public benefits.

- The private investment stream is expected to deliver between \$1.20 and \$2.15 for every dollar invested. The returns delivered by public investment is lower, at \$1.79 to \$2.31 for every \$1 invested. For the Refined Shortlist as a whole, the return on investment is between \$1.63 and \$2.27 for every \$1 invested. If the property uplift benefits are included, then the return increases to between \$2.76 and \$3.50 for every \$1 invested
- The benefits are delivered across a range of areas and are distributed relatively evenly, with about a third of the effects coming from visitor spending (26%), activity-based effects, such as health (33%), and non-market values such as ecosystem services contributing 41% of benefits. This is consistent with the feedback received during Regenerate Christchurch’s engagement process, where ecological and environmental attributes were given high priority by Christchurch residents.
- There are substantial property uplift benefits, and including these in the assessment has a large impact on the CBR in that they make the overall assessment more ‘positive’, but even excluding them the assessment returns a positive result.

6.8 Value impact

Document and reference	Report description
<p>Value impact of the proposed Ōtākaro Avon River Corridor Regeneration (June2018)</p>	<p>This report considers how the regeneration of the Regeneration Area could affect the property values of surrounding residential addresses.</p> <p>The report undertakes a literature review to determine whether any relevant insights can be gleaned from existing studies that could be applied to Christchurch and the regeneration of the river corridor.</p> <p>The report also investigates case studies from similar or analogous projects undertaken overseas, to identify any relevant findings on how these projects impacted on surrounding property values.</p> <p>The report then takes a ‘bottom-up’ approach by analysing local pricing trends to determine where surrounding suburbs fit into the broader market landscape, and investigate how prices in suburbs most affected by the former residential red zone have changed relative to the rest of the Christchurch market.</p>
<p>Key findings</p>	

- The literature review of a range of national and international studies found that properties within up to 400–600m of open spaces and parks are likely to see increased property values.
- A 2005 paper notes that the effect of increased property values is likely to occur in later years as a new park matures.
- The report assessed how two significant international regeneration projects – the Atlanta BeltLine and the Bloomingdale Line in Chicago – impacted the values of properties near the areas. Findings from this research suggested that areas with a lower socio-economic profile and lower house prices showed larger house price premiums than areas of higher house prices and incomes.
- Larger regeneration projects had a more significant impact on surrounding property values, with properties up to 1km from the area experiencing an increase in value.
- There are 20,938 residential properties within a 1km radius of the Regeneration Area.
- The median home value is below \$400,000 in suburbs immediately surrounding the Regeneration Area. Following the major earthquakes, price growth in these areas has underperformed relative to the Christchurch average.
- The report estimates that house prices in the zones around the Regeneration Area would currently be 13–16% higher if the earthquakes had not occurred.
- Estimations of the total indicative value uplift were divided into three scenarios – remediation and infrastructure upgrades (scenario 1); all publicly funded projects (scenario 2); and total regeneration (scenario 3) – each with low, medium and high estimates.
 - The report finds that scenario 1, remediation and infrastructure upgrades to the Regeneration Area, is estimated to increase the values of the 20,938 properties by between \$50 million and \$350 million (with a \$200 million midpoint).
 - Completing scenario 2, all publicly funded projects (including the Green Spine, cycleways and footpaths, ecological restoration and open spaces) in the Regeneration Area, is estimated to increase the values of the 20,938 properties by between \$500 million and \$1.45 billion (with a \$975 million midpoint).
 - Total regeneration of the river corridor (scenario 3), including tourism and visitor attractions, is estimated to increase the property values by between \$1.1 billion and \$1.85 billion (with a \$1.475 billion midpoint).
 - The average property within a 1km radius of the river corridor would experience an estimated 2.6% midpoint value uplift under scenario 1, a \$12.9% midpoint increase under scenario 2, and a 19.5% midpoint value uplift under scenario 3.

6.9 Visitor projections

Document and reference	Report description
<p>Christchurch Ōtākaro Avon River Corridor visitor projections (15 August 2017)</p>	<p>This report projects indicative visitor estimates for the Regeneration Area between 2017 and 2030, based on Regenerate Christchurch’s 10 combinations of land uses plan.</p> <p>It breaks down estimates based on a mix of international, domestic and local visitors, estimated penetration rates and numbers of visitors to activities and attractions in the Regeneration Area.</p> <p>The report also estimates how the Regeneration Area will affect the length of stay of domestic and international visitors, incremental stay-day equivalents, and visitor spending in the city.</p> <p>The projections considered a range of free and ticketed visitor attractions as possible future developments, and places these attractions on an indicative timeline.</p>
<p>Key findings</p> <ul style="list-style-type: none"> • By 2030 it is estimated there will be between 0.84 million (low scenario) and 1.23 million (high scenario) unique visits to the Regeneration Area. The base case scenario estimates 1.04 million unique visits. The term ‘unique visit’ represents a Christchurch resident who visits the Regeneration Area at least once a year. • It is estimated there will be a total of 1.68 million visits to the Regeneration Area in 2030. This is estimated to break down as local (0.72 million), domestic (0.5 million) and international (0.47 million) visitations. • By 2030 it is estimated there will be between 3.39 million (low scenario) and 4.67 million (high scenario) visits to attractions in the Regeneration Area. The base case scenario estimates 4.07 million visitations. • It is estimated that the 4.07 million visitations to attractions in 2030 will be broken down as local (1.48 million), domestic (1.21 million) and international (1.38 million) visitations. • Free attractions are expected to be the most popular, drawing in 1.94 million visitations by 2030. Ticketed attractions are estimated to attract 1.48 million visitations, while events and accommodation will account for an estimated 0.65 million visitations. 	

6.10 Illustrative plan

Document and reference	Report description
<p>Draft Ōtākaro Avon River Corridor Illustrative Plan Estimate (1 November 2018)</p>	<p>This report projects indicative visitor estimates for the Regeneration Area between 2017 and 2030, based on Regenerate Christchurch’s 10 combinations of land uses plan.</p> <p>It breaks down estimates based on a mix of international, domestic and local visitors, estimated penetration rates and numbers of visitors to activities and attractions in the Regeneration Area.</p> <p>The report also estimates how the Regeneration Area will affect the length of stay of domestic and international visitors, incremental stay-day equivalents, and visitor spending in the city.</p> <p>The projections considered a range of free and ticketed visitor attractions as possible future developments, and places these attractions on an indicative timeline.</p>
<p>Key Findings:</p> <ul style="list-style-type: none"> • It is estimated that the base case will cost between \$445,967,000 (low estimate) and \$560,910,000 (high estimate), with a midpoint of \$503,553,000. • The base case includes site clearance and demolition (estimated to cost between \$58 million and \$113 million), and public infrastructure upgrades (estimated between \$369 million and \$470 million). Most of this cost is associated with stopbanks and associated stormwater upgrades to the Ōtākaro / Avon River. • The publicly-funded aspects of the Green Spine, comprising of ecological restoration, cultural trail, parks, reserves and gathering places is estimated to cost between \$139,288,000 (low estimate) and \$171,068,000 (high estimate), with a midpoint of \$153,971,000. • Privately or alternatively-funded aspects of the Green Spine are estimated to cost between \$59,540,000 and \$108,484,000, with a midpoint of \$75,940,000. • The total regeneration of the Regeneration Area is estimated to cost between \$1.026 billion and \$1.187 billion, with a midpoint estimate of \$1.104 billion. • The annual operating costs of a totally regenerated Regeneration Area is estimated at \$8.9 million. 	

6.11 Land contamination

Land contamination is an issue when hazardous substances are at a concentration and/or are located where they have, or are reasonably likely to have, a significant adverse effect on human health and the environment.

The [Ōtākaro Avon River Corridor Regeneration Area Development Feasibility Study](#) (October 2017) notes that all potential development sites within the Regeneration Area carry the risk of encountering some form of contamination during site preparation and development works. The main risk is considered to relate to asbestos resulting from previous demolition works in the area. There are also a number of recognised contaminated sites throughout the study area.

The Christchurch District Plan relies on the National Environmental Standard for Assessing and Managing Contaminants in the Soil to Protect Human Health (NES) to regulate activities (subdivision, land-use change, soil disturbance, soil sampling, and removing fuel storage systems) that disturb the soil and change the use of a piece of land that has previously been used for a hazardous activity or industry.² Furthermore, the Canterbury Land and Water Regional Plan regulates the discharge of contaminants to groundwater and surface water from contaminated land.

The type of development envisaged by the Regeneration Plan will require soil disturbance beyond the permitted thresholds of the NES³ and therefore resource consent is expected to be required from the Christchurch City Council and possibly Environment Canterbury.

The NES is not able to be altered by the Regeneration Plan; nor would it be appropriate to alter as it is vital that land disturbance activities are appropriately regulated to continue to protect human health. It is also proposed not to amend the relevant Christchurch District Plan policy framework or Canterbury Land and Water Regional Plan rules as it is considered necessary that these provisions remain in place to manage the effects of land contamination on human and ecosystem health.

Christchurch City Council and Environment Canterbury officials have confirmed that global resource consent application(s) could be made to both authorities with respect to the Regeneration Area (where in common ownership) to address land contamination issues. Such resource consent(s) could be dealt with ahead of detailed design and both the Council and Environment Canterbury have issued comparable global resource consents. For example, resource consent was granted by the Council to undertake earthworks and disturb potentially contaminated land as a result of the construction of the network of 13 Major Cycle Routes across the City, including the Ōtākaro – Avon Major Cycle Way Route, which traverses the Regeneration Area (RMA/2016/1697).

In summary, a comprehensive area-wide or global approach to resource consenting can be taken in relation to land disturbance of potentially contaminated land, comparable to the approach taken in relation to the comprehensive resource consent for the Ōtākaro – Avon Major Cycle Way Route. Such an approach would avoid ad-hoc resource consents and enable land disturbance works of potentially contaminated sites to be addressed comprehensively and completed in stages. This

² The Ministry for the Environment has compiled a list of activities and industries commonly associated with contaminated land, known as the Hazardous Activities and Industries List (HAIL). Environment Canterbury maintains a Listed Land Use Register (LLUR), which contains information about HAIL land and includes the contamination status of land where detailed information from site investigations is available. The LLUR is not an absolute record of HAIL land within the city and properties not included on the LLUR may potentially be contaminated.

³ The NES permits small volumes of earthworks (soil disturbance of less than 25m³ per 500 square metres and soil removal of less than 5m³ per 500 square metres) on potentially contaminated land, but larger amounts require resource consent.

approach is considered practical and feasible based on recent practice and advice from both the Christchurch City Council and Environment Canterbury, and will continue to ensure the risks of land contamination are appropriately and efficiently managed, while also enabling regeneration.

[A detailed assessment can be accessed here.](#)

6.12 Horizontal infrastructure

Horizontal infrastructure includes water, sewer and stormwater pipes, with associated assets such as pump stations and power and telecommunication cables, including overhead lines. Roads and bridges are addressed separately in the Integrated Transport Assessment.

Horizontal infrastructure in the Regeneration Area includes:

- 'In service' – temporary or permanent assets that are functioning; and
- 'Out of service' – assets that no longer function.

Key utility providers have been consulted on the current use and condition of their assets. The Christchurch City Council and Orion are the only utility providers that have significant assets in the Regeneration Area. Telecommunication providers have cabling that remains throughout the area either underground or overhead on Orion's pole network.

In terms of the Council's horizontal infrastructure, some functioning horizontal infrastructure continues to service a limited number of remaining occupied properties, but most 'in service' horizontal infrastructure (typically consisting of major pipes (and roads)) is there to provide essential services to areas outside of the Regeneration Area. Damaged infrastructure that is no longer required has been disconnected.

Some existing 'in service' infrastructure could service potential future development, which may make some future land development options more feasible and cost-effective. However, in some instances, horizontal infrastructure will need to be replaced or realigned (which is required to follow a Council process with cost and time implications) should development be proposed over or in close proximity to such infrastructure; alternatively, where it cannot be moved (i.e. because the process is too expensive or ground conditions will not allow it), detailed development design may need to be amended.

Orion's network in the former residential red zone is currently electrically safe. All underground cables and overhead lines are 'alive' with a key 66kV cable along Gayhurst Road (Bromley to Dallington). This network connects to over 100 customers, including homeowners, council streetlights and pump stations, along with assets belonging to telecommunications companies. Orion has no programme to remove any network in the Regeneration Area at this time.

Overall, it is considered that the implementation of the Regeneration Plan will not be unduly constrained by the existing horizontal infrastructure network within the Regeneration Area. Any development will be subject to the rules of the District Plan (which are considered duly permissive in recognition of the need for essential infrastructure), council engineering standards and utility requirements. New assets and any relocation of an existing assets will be borne by the developer. With respect to Orion infrastructure, any proposals to provide new connections or impact on the existing infrastructure network would require liaison with Orion and any necessary approvals to be obtained.

[A detailed assessment can be accessed here.](#)

6.13 Archaeology

An archaeological site is defined in [section 6 of the Heritage New Zealand Pouhere Taonga Act 2014](#) (HNZPT Act) as any place in New Zealand (including buildings and structures) that was associated with pre-1900 human activity where there is evidence relating to the history of New Zealand that can be investigated using archaeological methods.

The HNZPT Act makes it unlawful for any person to modify or destroy, or cause to be modified or destroyed, the whole or any part of an archaeological site unless an archaeological authority is obtained from Heritage New Zealand Pouhere Taonga (HNZPT) before works commence. This is the case regardless of whether the land on which the site is located is designated, or the activity is permitted under the District or Regional Plans, or a resource or building consent has been granted.

In May 2015, HNZPT carried out assessments of built heritage, Māori heritage and archaeology within eight geographic areas in the former residential red zone.⁴ The assessments were commissioned by the Canterbury Earthquake Recovery Authority (CERA) for the purposes of Crown land disposal and to inform CERA's planning process for the residential red zone at that time. Further to the 2015 assessments, in August 2018 HNZPT provided a general overview of the Regeneration Area's archaeology and Māori heritage.

As the Regeneration Area is rich in archaeology and Māori heritage, it is expected that land development and building within the Regeneration Area will affect archaeological sites and require archaeological authorities from HNZPT. It is of particular note that archaeological authorities are a mandatory statutory requirement and process under the HNZPT Act, separate from the Resource Management Act 1991 and resource consent process, which is not able to be altered by the Regeneration Plan.

Under the Canterbury Earthquake (Historic Places Act) Order 2011 (SR 2011/231), which has been extended until 30 June 2021,⁵ a simplified and streamlined archaeological process is in place to quickly consider work that affects archaeological sites in relation to buildings or sites affected by the Canterbury earthquakes. Under this process, HNZPT is required to process emergency archaeological authorities within three working days after receiving an application, or five working days where the application relates to a site of interest to Māori; however, any emergency archaeological authority expires on 30 June 2021 with the Order. As the life of the Regeneration Plan and associated development will post-date 30 June 2021,⁶ HNZPT recommends that the general archaeological authority process is followed with respect to the Regeneration Area.

To avoid significant time and cost implications and uncertainty associated with numerous separate general archaeology authority applications, HNZPT have advised that a single archaeological authority application for the entire Regeneration Area could be sought. Alternatively, applications could be made on a staged basis as detailed design is developed for large areas. These approaches avoid numerous ad-hoc general archaeological authorities being required and any significant uncertainty and delays.

⁴ <https://engage.regeneratechristchurch.nz/cultural-archaeology-and-heritage>

⁵ [Section 147 of the Greater Christchurch Regeneration Act 2016](#) specifies that the Canterbury Earthquake (Historic Places Act) Order 2011 continues in force and is amended as specified in Schedule 7, which includes an extension of the Order until 30 June 2021 and continuation of the *emergency authority process in relation to any archaeological site*.

⁶ The Greater Christchurch Regeneration Act 2016 is repealed on 30 June 2021.

In summary, it is expected that archaeological authorities will be required for land disturbance works within the Regeneration Area. HNZPT suggests the pragmatic solution of either a single general archaeological authority application for the entire Regeneration Area, or staged applications to avoid ad-hoc archaeological authority applications and undue delays, uncertainty and costs. This approach will also ensure the archaeology of the Regeneration Area is duly considered and works are appropriately managed.

[A detailed assessment can be accessed here.](#)

6.14 Historic heritage

Both HNZPT and the Christchurch City Council are responsible for the protection and management of historic heritage.

HNZPT maintains the New Zealand Heritage List/Rārangī Kōrero, which informs and notifies owners, the public, community organisations, government agencies and local authorities about significant heritage places, and is a source of information about historic places, historic areas, wāhi tūpuna wāhi tapu and wāhi tapu areas. The List does not equal automatic protection and does not directly create regulatory consequences or legal obligations on property owners. District Plans are the key regulatory mechanism with respect to managing historic heritage.

HNZPT has advised there are currently no items on the New Zealand Heritage List/Rārangī Kōrero within the Regeneration Area. Chapter 9.3 of the Christchurch District Plan contains the historic heritage provisions. The three significant historic heritage items and/or settings⁷ in the Regeneration Area that are listed in the District Plan Schedule of Significant Historic Heritage⁸ are:

- Bangor Street No. 3 Pumphouse and Setting in the 'Avon Loop' area;
- Holy Trinity Avonside Graveyard Setting in Linwood; and
- MED Substation in Avonside.

A range of rules in the District Plan applies to these heritage items and settings. Minor works such as the maintenance and repairs of heritage items are permitted; however, more substantial proposals such as new building developments within a heritage setting or alteration of heritage items require resource consent. Demolition of a highly significant heritage item is a non-complying activity and therefore strongly discouraged.

The Christchurch District Plan's listed heritage items and settings have been taken into account as part of the process of developing the Regeneration Plan. All heritage features are proposed to be retained. There may be works within the setting of the Bangor Pumphouse and MED Substation such as earthworks for the development of accessways and revegetation as part of the riverside enhancement of this area. The draft Development Plan shows indicative stormwater treatment areas either side of the Holy Trinity Graveyard to avoid this heritage setting.

The Development Plan design has also been mindful of William Sutton House at 20 Templar Street, should it be listed in the District Plan in the future. William Sutton was a renowned New Zealand artist and the building is notable for its mid-20th century architectural design by Tom Taylor and its

⁷ Heritage item and setting are defined in the Christchurch District Plan. In brief, a heritage setting 'is the area around and adjacent to a heritage item that is integral to its function, meaning and relationships ...'.

⁸ The details of the heritage items/settings are contained in Appendix 9.3.7.2, Schedule of Significant Historic Heritage of the Christchurch District Plan.

garden. The indicative stopbank alignment is clear of the site, and vehicle access and indicative pedestrian and cycle linkages are shown in the vicinity, as an approach that seeks to maintain and enhance accessibility should the house become a listed heritage feature within the corridor that is accessible to the general public.

Overall, while resource consent is not anticipated to be required with respect to any of the listed heritage items in order to deliver the Regeneration Plan, resource consent may be required for works within the associated heritage settings of these items. Amendments to the District Plan heritage rules are not considered necessary or appropriate given the impacts are expected to be minor and the protection of historic heritage from inappropriate subdivision, use and development is a matter of national importance under [section 6\(f\) of the Resource Management Act 1991](#), which is upheld under a resource consent process.

[A detailed assessment can be accessed here.](#)

6.15 Landscape

The Ōtākaro Avon River is recognised as the central and defining landscape feature of the Regeneration Area. The river and its tributaries make a fundamental contribution to the city's natural and cultural history and are a significant influence on the character of the river corridor. The Landscape assessment uses landscape characterisation to carry out a landscape assessment of the Regeneration Area. Landscape characterisation is a process of interpreting the composite and cumulative character of a landscape – how these attributes come together to create a landscape that can be distinguished from other landscapes.

The assessment contains two sections; the first assesses the OARC, by grouping the area into seven character areas (Richmond, Avonside, Dallington, Avondale, Horseshoe Lake, Burwood and Bexley). These character areas were assessed on the existing patterns of natural and cultural features, processes and influences (e.g. the form and orientation of the surrounding neighbourhoods) and their geographical delineation, based on site visits and desktop reviews of landscape reports carried out by landscape architects at Regenerate Christchurch.

The second section contains a high-level review of the spatial plan outlined in the draft Regeneration Plan, using the landscape character values of the seven areas as a baseline. It concludes by describing how these changes might impact the existing landscape character and how any potential adverse effects can be addressed as part of the draft Regeneration Plan, the Christchurch District Plan provisions and any subsequent Implementation Plan.

Proposed changes to the existing landscape character are described relative to four areas outlined in the draft Regeneration Plan (The Green Spine, Ōtākaro Loop Reach, Horseshoe Lake Reach, Eastern Reaches). In many parts of the OARC, the landscape has changed from its previous suburban character pre-earthquakes to an open space, park-like setting. The Green Spine is proposed as a response to land affected by significant lateral spread, land subsidence, liquefaction and flooding, and is anticipated to be developed as an extensive, natural area of ecological restoration with a range of native habitats. A network of stopbanks, terraced into the landscape are to provide flood protection and stormwater treatment for surrounding residential areas and a network of shared paths and new bridges provide connections along and across the river. Opportunity for a new road bridge offers improved connection between eastern suburbs and the rest of the city. The Green Spine will contain eight landings located at regular intervals, providing places of recreation and complementary structures such as public toilets, car parks and small cafes.

The focus of the Ōtākaro Loop Reach is on leisure and recreation. An Activity Area in which a concentration of buildings are expected to be clustered will contain more development than within the balance of the Reach. Buildings are expected to be set within what will be on balance, a park-like

setting, influenced by its existing picturesque English park-like aesthetic of existing specimen trees and vegetation.

There are three distinct areas in the Horseshoe Lake reach. The spatial character of the northern end will change from the current open space lawn areas and planting of previous residential areas to the recovery and renewal of natural ecosystems including wetlands and stormwater ponds. Adjoining this area to the south, the draft Plan proposes an Activity Area which is likely to contain visitor attractions including event spaces and a concentration of larger scale buildings which will be set within and relate to the predominantly natural, ecologically restored landscape of the Green Spine. Adjacent to the proposed Activity Area further south and over the river to the east, there are opportunities for land to be used for areas of food production. This landscape character is anticipated to be fine grained and agricultural, transitioning between the wider ecological framework of the Regeneration Area as a whole and the adjoining urban edges.

The natural environment will be the defining feature of the Eastern Reaches with any built structures focused on supporting ecologically focused initiatives and visitor attractions connecting Travis Wetland and the Estuary.

Small areas of edge housing in places are intended at the edge of the OARC, to improve accessibility and passive surveillance of a new City-to-Sea path.

The potential landscape effects of the draft Regeneration Plan include the impact of new development on neighbouring residential properties and the removal of existing vegetation as part of large scale-infrastructure projects. The effects also include the potential scale, number and dominance of buildings and car parking possible in proposed Activity Areas relative to the anticipated natural character expected of the Green Spine and Reaches.

The proposed changes to the Christchurch District Plan, including policies, rules and assessment matters provide guidance on how the anticipated impacts are or should be addressed in the Green Spine and the Ōtākaro, Horseshoe Lake and Eastern Reaches. It is also recommended that the Implementation Plan informs design quality and coherence of built form and landscape in Activity Areas with a view to ensuring coherent, integrated and attractive outcomes.

[A more detailed assessment can be accessed here.](#)

6.16 Private property

In developing the Regeneration Plan, including the draft planning framework and accompanying Development Plan, specific consideration has been given to reducing or, where possible, avoiding any adverse impacts of the land uses and activities on private properties in the Regeneration Area. As part of that consideration, a number of principles were developed to inform how the draft Plan would respond to the intersection between land uses and activities and the private properties.

Based on the extent of the impact of the Development Plan on a property, the private properties have been divided into five categories:

- Likely to be impacted;
- May limit design;
- May limit design and may require new access arrangements;
- Unlikely to be impacted but may require new access arrangements; and
- Unlikely to be impacted.

Further details regarding the categories and the number of properties assigned to each is provided in the abovementioned document. This appendix also identifies the status of the privately-owned properties relative to the proposed planning provisions (Christchurch District Plan).

[The principles used to consider whether the Development Plan impacts a private property can be accessed here.](#)

7. Explanation of proposed amendments to RMA documents

To aid interpretation and an understanding of the proposed changes to the Christchurch District Plan and the Canterbury Land and Water Regional Plan that are contained in Appendix One to the Draft Ōtākaro Avon River Corridor Regeneration Plan (November 2018), an ‘Explanation of proposed amendments to Resource Management Act documents’ document has been developed.

The overall approach to the Christchurch District Plan is that the proposed planning provisions generally enable the preferred land uses while addressing the potential effects of these land uses on the environment. This includes a range of permitted activities, as well as a consent pathway for those which may have greater effects that require specific management. Furthermore, a consenting pathway is also provided for land uses that are not identified as preferred, allowing them to be considered against the assessment matters and policy and objective framework. Activities that are not generally anticipated, or not expected to achieve the policy and objective framework, are expressly listed as non-complying activities. Justification is also provided for why a new zone called the Specific Purpose (Ōtākaro Avon River Corridor) Zone is proposed to apply to the majority of the Regeneration Area.

A minimalist overall approach to the Canterbury Land and Water Regional Plan has been taken to that extent that only a few changes at the objective, policy and rule level have been proposed for the purpose of further guiding and supporting regeneration. Whilst it is acknowledged that many activities proposed in the Regeneration Area will trigger regional resource consent requirements for activities such as works in waterways, dewatering, and discharges such as dust no changes to the rules (with the exception of 9.5.14A) are proposed because:

- The majority of the resource consents required will be for restricted discretionary activities, which is appropriate for these activities;
- The relevant regional plans clearly already support regeneration activities given the recovery / regeneration related resource consents issued to date by Environment Canterbury; and
- Seeking global resource consents for some activities is a feasible approach and there are existing global consents that could be used as examples and even relied upon.

At a more granular level, the ‘Explanation of proposed amendments to Resource Management Act documents’ document provides a summary of specific proposed Christchurch District Plan and Canterbury Land and Water Regional Plan provisions (contained in Appendix One) and the rationale for said provisions.

[The ‘Explanation of proposed amendments to Resource Management Act documents’ document can be accessed here.](#)