Guidance for Sports Field Development

June 2026

SPORT NEW ZEALAND IHI AOTEAROA

VISITOR SOLUTIONS

In association with

NZSTI NEW ZEALAND SPORTS TURF INSTITUTE

New Zealand Government
Te Kāwanatanga o Aotearoa

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Whole-of-Life Costs Model for Sports Fields

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Revised to consider developments in sports field technology and environmental impacts relating to sports field development.

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Full resource update and expansion to include user fees, field optimisation, environmental considerations and outcomes, good practice approaches, and ownership and management structures.

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June 2026 version

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Executive summary

This Guidance for Sports Field Development document is now in its third edition since 2012. While the main purpose of the resource – to guide and inform fit-for-purpose, feasible and sustainable sports fields - remains the same, the sector has undergone significant impacts and transformation which it must adapt to and address.

These include rapid technological advances, a greater focus on environmental outcomes and sustainability, changing participation trends, rising demand pressures (especially in urban areas), increasing performance standards for sports fields, major weather events and tighter funding constraints – all of which are reshaping how we must respond and operate.

To effectively develop fit-for-purpose, viable, and sustainable sports fields within the current environment, the guidance document outlines a 5-stage decision-making process for sports field development.

The document aims to:

- provide comprehensive information with links to supporting resources to enhance knowledge and understanding across the sector
- offer guidance on sports field optimisation and partnership approaches
- outline various field surfaces, including new and emerging technologies
- provide insights into site and design considerations, environmental outcomes and wider good practice approaches
- highlight typical construction, maintenance and whole-of-life costs, and hours of use with downloadable calculators for use on any sports field project
- outline various governance and management structures for consideration.

Taking a considered approach to sports field development, along with the information provided in this resource, will promote better-informed decision-making and support the delivery of high-quality community outcomes.

Stage 1: Needs analysis	**Why** What is driving the need for sports field development	**What it covers** Supply and demand, condition, regulatory and compliance, field purpose and vision
Stage 2: Direction and guidance	**How** Determining the way forward and seeking specialist direction and advice	**What it covers** Strategic network alignment and specialist agronomy expertise to help inform the identification of options and the way forward
Stage 3: Options identification	**How** Ways to respond to field needs (options toolbox) - optimise, upgrade or new	**What it covers** • Optimisation approaches • Partnerships • Grass type • Overview of soil, sand, hybrid and artificial field types (features, characteristics, when to consider their use, pros and cons)
Stage 4: Options assessment and feasibility	**What, when and how** What needs to be considered for determining the suitability, viability and sustainability of the field	**What it covers** • Site considerations • Construction, maintenance and whole-of-life costs (by field type) • User fees • Governance and management • Good practice considerations (level and type of provision, floodlighting, field renovations, site design considerations) • Environmental outcomes
Stage 5: Preferrred option identified	**What** Determining the preferred option and advancing the project	**What it covers** Checklist of considerations for assessment and the process for moving forward

Introduction

Background

Since the release of the latest iteration of the Guidance Document for Sports Field Development in 2019, the sector has experienced significant impacts and transformation. These include rapid technological advancements, an increased focus on environmental outcomes and sustainability, evolving participation trends, increasing demand pressures (particularly in urban areas), rising performance expectations for sports fields, significant weather events, and intensified funding constraints, all of which are reshaping how we need to respond and operate.

The 2019 document and supporting resources have been updated and expanded to support decision-making about sports field development in our current context.

To help achieve this, a 5-stage decision-making process is used to inform and guide sports field development planning. These stages are detailed within this resource.

Who is this guidance document for?

This guidance document has been prepared to assist a wide range of providers, including local authorities, schools and sports clubs, in assessing their sports field needs and making appropriate sports field development decisions.

This document is not intended to provide technical specifications or a detailed methodology for designing and constructing a sports field. It is recommended that a qualified, experienced expert be engaged to provide this level of detail. Where possible, and for completeness, relevant sources have been referenced within this resource.

How to use the resources

The guidance document refers to a variety of linked resources and supplementary materials that support its content. Construction, maintenance and whole-of-life cost calculators are available for download from Sport New Zealand's website. These tools can be used independently and customised to suit the specific conditions of each project, such as cost estimates, usage hours, and seasonal activity, while being informed by key considerations outlined in the document.

Sport New Zealand's strategic direction

Sport New Zealand Strategy 2024-2028

Our Vision: **Every Body Active**

Long-term outcomes

Increased frequency, intensity, time and type of participation in physical activity and sport	Enhanced experience of participants, supporters, volunteers and workforces	Increase variety of culturally distinct pathways for tangata whenua and all New Zealanders

Strategic focus areas

Maintaining physical activity levels of tamariki	Reducing the decline in physical activity levels for rangatahi	Improving equity for tamariki and rangatahi who are less active

New Zealand Spaces and Places Framework 2024

Principles:

Te Tiriti o Waitangi-informed approach, meeting an identified need
inclusive, accessible, co-design, environmental sustainability
partnering and collaboration, connected, financial sustainability, future-proofed

Access to good quality sports fields is a critical enabler of the overall vision and long-term outcomes of Sport New Zealand, delivering meaningful benefits to communities across Aotearoa. Well-planned and maintained sports fields provide essential infrastructure that supports participation, wellbeing, and community connection.

Sports fields are inherently multifunctional assets. Beyond supporting organised and structured sport, they accommodate informal recreation, community events, active play, and unstructured physical activity. When not used for formal sport, these spaces largely remain open for broader community use, fostering social cohesion, boosting physical activity and enhancing the liveability of neighbourhoods.

Accordingly, it is vital that sports field development is underpinned by considered planning and robust options assessment to ensure the most appropriate, sustainable and future-focused solution is delivered. As such, this resource embeds the principles highlighted in the New Zealand Spaces and Places Framework (2024).

Cultural outcomes

Aligned with the Sport New Zealand Spaces and Places Framework 2024, a Te Tiriti o Waitangi–informed approach is a core principle that underpins the planning and provision of spaces and places. This principle emphasises the importance of working in genuine partnership with tangata whenua, recognising and protecting mātauranga Māori, and enabling meaningful participation in decision-making processes.

The following approaches outline practical ways this principle can be embedded across sports field development projects.

Partnership approach

- Engage early and maintain ongoing relationships with mana whenua and local communities throughout all project stages.
- Incorporate mātauranga Māori (including local knowledge and values) into planning, design and decision-making.
- Give effect to Te Tiriti o Waitangi principles (partnership, participation and protection) – through governance, engagement and delivery processes.
- Embed te ao Māori values, perspectives and principles to achieve outcomes that reflect cultural identity, support mana whenua aspirations, and enhance environmental, social and cultural wellbeing.

Cultural identity

- Reflect local narratives, history and identity in the design.
- Integrate cultural markers and storytelling elements, such as carvings, artwork, pou, naming and wayfinding, across built and landscape features (eg, paving, seating, fencing, buildings, light towers, safety pads and barriers).
- Consider spatial orientation of spaces in relation to rā (sun) and significant landmarks i.e. maunga or moana.
- Design to reflect the unique whakapapa of place, creating a strong and authentic sense of identity.

Cultural landscape and design elements should be integrated throughout the site to reflect local identity, acknowledge cultural narratives and create a strong sense of place that connects people, community and whenua.

Site sensitivity and values

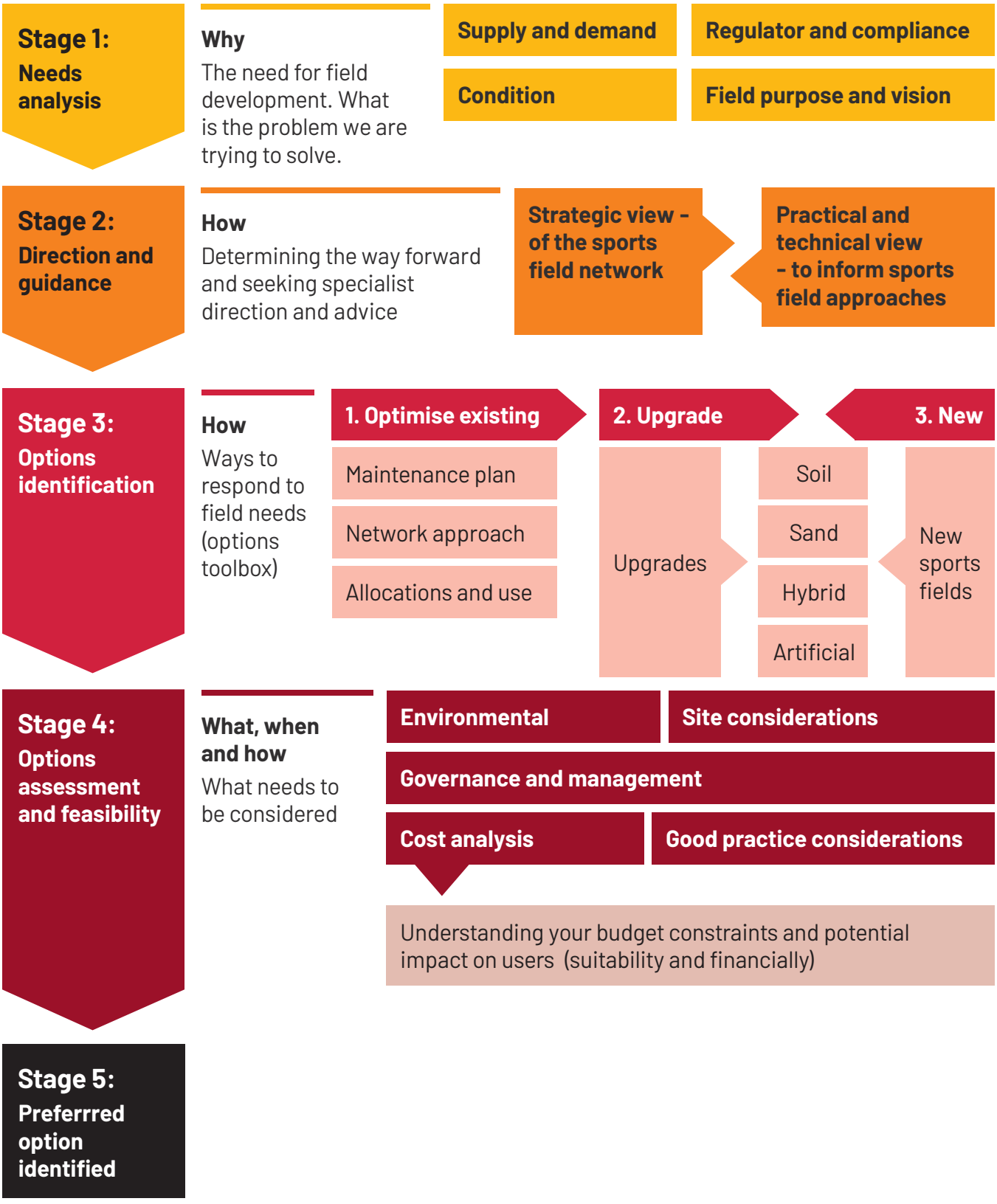
- Identify and respect wāhi tapu (sacred sites), archaeological sites, culturally significant landscapes or features.
- Avoid, minimise or mitigate impacts on culturally important areas through appropriate site planning and design responses.

Environmental

- Kaitiakitanga (respect the land) ensures that what is developed is sustainable and resilient. A healthy and connected natural environment will restore, maintain and protect mana whenua whakapapa connection to kaitiaki (people), whenua (place) and atua (primal ancestors).
- See the Environmental outcomes section for more information.

Sports field decision-making process

The sports field decision-making process comprises 5 key stages, summarised below and detailed further in the following sections.



Stage 1:
Needs analysis

Stage 1: Needs analysis | Stage 2: Direction and guidance | Stage 3: Options identification | Stage 4: Options assessment and feasibility | Stage 5: Preferrred option identified

Sports field developments are initiated by a range of key drivers or problems we are trying to address. These drivers have been broadly grouped and summarised below.

Clearly defining the type and scale of need will guide the selection of appropriate options and approaches in Stages 3 and 4, and inform priority assessment for further exploration and investment.

Supply and demand

Where proposed developments are driven by an identified shortfall in sports fields provision, a supply and demand analysis informs decision-making.

Supply and demand analysis has become increasingly common across territorial authorities. This analysis has been critical to determining whether the quantity and distribution of fields are sufficient to meet community participation needs. Key components of this analysis include:

Supply

What is the capacity of the sports field network (calculate how many hours per field per week the fields can accommodate – for weekday and weekend activity), where are they located, what is their catchment and level of hierarchy, and what codes are they allocated to? Consider summer and winter variations.

Current demand

What are the regular field demand requirements for each code? Consider weekly hours for training and games/competition by grade (length and frequency), the required field size, the number of teams, and where they train or play.

Current surpluses and shortfalls

Demand is matched against supply to identify surpluses and shortfalls (by code and geographic area). This data can then be combined to form a broader network picture to inform decision-making.

Future surpluses and shortfalls: future demand takes into account changes in population and code participation. This is then applied to current participation and code requirements to understand the forecast impacts on sports field provision.

Note: fields should be calculated as a Full Field Equivalent – around 9,000m^2 (i.e. a half-sized field is considered a 0.5 FFE).

This approach is important because it:

- provides a clear picture of what we have, the demand profile of users, and a future outlook
- takes a network approach to help inform the scale of demand, where to explore increasing future capacity, and/or identify opportunities for reallocating fields (to best meet overall demand)
- takes a strategic, longer-term view of where demand pressures may be greatest moving forward
- provides transparency and clear evidence to justify prioritisation and subsequent investment
- enables resources to be aligned with need and can be used to improve access and service outcomes.

Relevant links/resources:

Sport NZ – Sports field demand model and toolkit

Sport NZ – Insights tool (play, active recreation and sport)

Statistics NZ – Population data and insights

Sports field supply and demand analysis and planning (where available)

Condition

When poor condition is a driver for development, it is generally a result of one or more of the following factors.

- **Overuse** – the field cannot accommodate the level of demand.
- **Grass species** – the grass species is not responding to the natural climate (i.e. drought, frosts, high winds, periods of sun or rain) and the type/level of use it has been allocated for.
- **Flood prone** – insufficient drainage to meet typical rain levels – recurring issue with irregular use (training or playing).
- **Poor soil** (i.e. clay soils) – resulting in poor drainage and an inability to meet playing use requirements.
- **Slope/grading** – impacted by factors such as natural topography and natural ground movement (i.e. being constructed on an old landfill site).
- **Shade** – shade caused by vegetation, buildings or the natural landscape may affect grass growth and coverage on natural fields (particularly during the winter months).
- **Surrounding vegetation** – tree roots may impact or damage drainage and irrigation systems. Playing surfaces may be impacted by shade and/or leaf litter/plant matter.

Regulatory and compliance requirements

Some of these include:

- **stormwater** – the need for green spaces to accommodate stormwater detention or run-off control areas
- **water-use restrictions** – water volume caps may restrict or impact current or proposed sports field types
- **land use** – consolidation of sports fields (i.e. sale of underused or redundant fields), provision of new sports fields as part of sub-developments – driven through growth (i.e. through development contributions)
- **infrastructure developments** – loss of sports fields as a result of national roading or housing developments.

Note: these requirements will vary across territorial authorities.

Field purpose and vision

The vision and intent for a sports field may drive the need for development. This could include:

- **higher specification fields** – ability to host higher-tier games and/or tournaments (in line with national or international code specifications)
- **sports hub** - establishing a centralised sports hub to achieve possible capital and operational efficiencies
- **certainty of play** – reduce or negate impacts from event hosting (need for large open space), weather disruptions, etc.

When the need(s) have been identified and validated, direction and guidance should be sought to explore how to move forward – see Stage 2.

Stage 2:
Direction and guidance

Stage 1: Needs analysis

Stage 2: Direction and guidance

Stage 3: Options identification

Stage 4: Options assessment and feasibility

Stage 5: Preferrred option identified

Once the need for a sports field response has been identified, early identification and engagement with key stakeholders and potential partners is one of the most important risk-reduction steps that can be taken. At this initial stage, a solution should not be predetermined. Instead, the focus should be on building a shared understanding of the need, the site context, the broader network and the range of potential responses available.

Early engagement helps ensure each project is well informed, strategically aligned, and able to progress through the decision-making process without unnecessary assumptions or sunk costs. A collaborative approach should involve relevant stakeholders and partners, which may include landowners, council departments, Regional Sports Trusts, mana whenua, agronomy and technical specialists, asset managers and potential users (where relevant on a case-by-case basis). Who is involved may differ by project depending on the level of complexity.

Early engagement is particularly important for 2 key reasons:

Strategic network alignment

Early engagement helps ensure the project aligns with, and supports, a broader sports field network approach.

This approach is important because it:

- helps determine whether optimisation approaches could address the need before committing to new or upgraded sports field platforms
- draws on knowledge of club networks, leases, buildings, field provision, supporting infrastructure, asset management, and current or planned investment
- ensures focus is placed on priority areas of need, helping to avoid investment being diverted from higher-priority projects or geographic gaps in provision
- reduces the risk of duplication, which may undermine other sites or create an imbalance between supply and demand across the network
- identifies potential partnership opportunities and strengthens strategic alignment, which can improve the overall investment proposition
- provides early guidance on land ownership, land classification, zoning, floodplain constraints, consenting considerations, long-term plan projects, and broader work programmes
- enables mana whenua values, aspirations, and cultural outcomes to be considered from the outset, helping inform project direction and site-specific opportunities
- helps identify potential funding pathways, delivery models and project partners
- assists with navigating and progressing through the process outlined in this resource.

Technical feasibility and direction

Early technical engagement reduces assumptions by grounding project decisions in the site's physical, cultural, environmental, operational, and financial context.

This approach is important because it:

- identifies possible optimisation alternatives and/or key constraints before design work begins
- reduces the likelihood of costly redesign caused by late discovery of cultural significance, drainage, soil, geotechnical, servicing, or access-related constraints
- improves budget accuracy through realistic, site-specific construction and maintenance assumptions
- supports long-term field performance by aligning the field type, grass species, drainage response, and maintenance model with expected usage levels, seasonal demand, climatic conditions, and available resources
- ensures the most appropriate specification is identified for the need, rather than defaulting to a higher-cost or unsuitable solution
- enables field design and performance expectations to be aligned with available maintenance budgets, operational capability, and delivery models
- provides direction and guidance relating to Stages 3-5 of this resource.

This integrated approach enables the efficient use of available resources and funding, while promoting long-term sustainable outcomes across field performance, network planning, financial viability, cultural responsiveness, environmental stewardship and community benefit.

Contact your local council Regional Sports Trust – Spaces and Places

Stage 3:
Options identification
(Field toolbox)

It is important to recognise that there is a toolbox of sports field responses that should be fully considered during the initial planning stages. All sports field projects are different, and the response should consider the wider sports field network, the setting and the field platforms' attributes.

It is important not to jump to a solution without exploring all options, as this may result in unintended impacts, for example lower hours of use, lower participation rates, increased maintenance costs, more downtime, as the field(s) may need extensive renovation or reconstruction works, and more pressure being placed on fields across the network (to absorb displaced demand).

It is advised that the following optioneering process is followed when exploring and planning for sports field developments.

1

Optimise fields

Can we best use what we have to meet our needs?

No

- maintenance schedule
- other fields in the network
- partnership opportunities, i.e. schools

2

Upgrade fields

Will upgrading our fields to another field type address our needs?

No

- soil
- sand
- hybrid
- artificial

3

New fields

Is new field provision required to meet our demand and geographic needs? What type and level of provision is needed? And is there land availability for future sports fields?

These options and specific field types are outlined in this section, with other key considerations for decision-making detailed in Stage 4: Options assessment and feasibility.

Optimise fields

By default, optimising our existing fields should be the first step. We need to make the best use of what we already have (where practical and feasible) to ensure our resources and investment are used in the most impactful way.

There are several optimisation approaches at both the network and specific field levels that warrant further investigation.

Possible optimisation approaches

Field maintenance

Fields are maintained to the agreed minimum standards. Or enhanced for certain fields to meet specific needs. Some key considerations for this include:

- **renovation windows** - Scheduling allows for sufficient field renovation windows to take place during autumn and spring (allowing for recovery and growth)
- **in-season** - optimise in-season maintenance (nitrogen fertilisation, aeration) to maintain recovery and a complete turf cover
- **investment** - applying the appropriate level of investment based on field type to optimise surface condition, hours of use, and performance outcomes – see maintenance costs. Failing to allocate enough budget to meet field requirements can cause significant deterioration, reduce lifespan, and limit hours of use.

Field allocations

Monitor and review field allocations, bookings and field type to ensure there is suitable access to fields for different codes, while effectively meeting demand pressures.

Exploring whether existing fields can be reallocated to other codes or groups should be considered to address field shortfalls before upgrading or developing new field platforms.

Ideally, a centralised booking and maintenance system, combined with thorough supply and demand analysis, will offer a comprehensive view of field use and condition to identify potential optimisation opportunities.

Field management

Proactive field management by user groups is essential for maintaining surface condition and maximising the overall use of sports fields. As key partners, users share responsibility for preserving field quality within agreed parameters (general responsibilities).

Effective field management techniques include monitoring usage levels to avoid overloading, distributing use through different schedules (eg, weekday games), rotating training areas to reduce concentrated wear, utilising satellite fields, and supporting timely field closures when necessary.

Field options

a. **Satellite fields** are sports fields where no clubs are domiciled, providing additional playing or training space away from primary home parks. These fields help spread demand across multiple sites, reducing pressure on main venues and supporting equitable access for different user groups. Consider optimising the use of satellite fields alongside primary venues.

b. **Dedicated training areas (DTAs)** are increasingly common in Aotearoa New Zealand, providing specific spaces set aside exclusively for training rather than general match or game play. DTAs can take many forms, including full-sized fields, partial-sized fields, or irregularly shaped areas that maximise the use of available land. These areas often feature more durable surfaces to withstand concentrated activity or are designated as lower-priority areas compared to primary game fields. By directing training to DTAs, field owners and users can help preserve main playing surfaces, optimise land use, and increase capacity across the sports field network.

Grass type

Consider the selection and use of grass types across the network to align with climate conditions, performance expectations and usage demands. Optimising grass species can significantly influence surface quality, durability and recovery, improve playability and increase hours of use. Changing the grass type can be a more cost-effective alternative to more complex and capital-intensive upgrades. (see overview of grass species typically used in New Zealand).

Multiuse

Fields and facilities are planned, designed, maintained, and allocated to support year-round use and accommodate multiple users or sporting codes. By enabling flexible scheduling, adaptable field layouts, appropriate fixtures (i.e. dual football and rugby posts, fixtures located so they do not impede the playing area for other codes), and robust surfaces, multiuse approaches maximise participation opportunities, optimise field performance, and increase the return on investment across the sports field network.

Floodlighting

Floodlighting is aligned with fields of appropriate quality and priority to extend usable hours, support evening training and games (where required), and maximise overall participation. Suitably designed and installed lighting can enhance safety, playability, and schedule flexibility across the sports field network (see Floodlighting section).

Partnerships

Expanding the network of accessible sports fields through partnerships with schools, universities, marae, military bases, and other non-council sites can increase overall field supply and provide additional opportunities for community participation. These collaborations help optimise the use of existing facilities, reduce pressure on council-owned fields, and support a more resilient and flexible sports field network. More information on partnerships is provided in the following section.

Partnerships

With financial and capacity constraints for sports fields becoming more evident across New Zealand, the use of formal and informal partnerships with non-council providers is critical.

Formal partnerships have been established with a range of entities, including with schools, universities, A&P showgrounds, marae and military bases – all used to increase capacity, community connection and/or geographic reach where needed. More informal use typically occurs between clubs and local community sites (based on close community connections, goodwill and reciprocal arrangements).

The value-add of this approach includes:

- adding more capacity to the community sports field network
- providing support in any areas of geographic shortfall
- localised provision with increased access
- meeting multiple outcomes (i.e. school and community use, club/school partnerships, wider facility opportunities, shared programming)
- providing flexibility across the network to accommodate weather disruptions, capacity pressures, field maintenance windows and event displacement
- supporting participation growth opportunities.

Possible financial efficiencies:

- avoid or limit major capital investment,
- possibility for shared operating costs or new revenue.

Key considerations and risks that need to be managed include:

- what use model is being adopted (i.e. lease, hire, shared-development considerations)?
- when are the sports field(s) accessible? (i.e. specific months, time periods during the week, implications of other ad-hoc activities, events). What use is being expected?
- service levels/sports field standards (clear expectations of what is being provided)
- length of tenure – how long is the partnership for?
- insurance and liability requirements
- clear governance and management for maintaining and operating the sports field(s)
- clarity on the financial responsibilities between all parties (relating to renewals, depreciation, maintenance, insurance and user fees as applicable).

More information on partnerships can be found under Governance and management.

Relevant links/resources:

Aktive – Increasing Community Access to Schools Toolkit

Field types

A general overview of different sports field types is highlighted on the following pages.

Soil

Features/characteristics

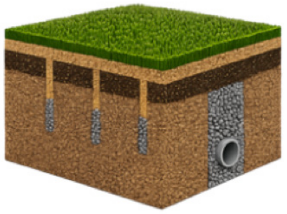
- uses the traditional soil base with no or limited intervention
- unpredictable use during wet weather conditions
- lower levels of use, long life span and lower maintenance costs
- general traditional soil field types include:
  - undrained (with varying levels of soil quality)
  - sand top-dressed
  - drained (various installation options available).

Typically used when: (individually or a mix of these)

- low capital or maintenance budget
- good soils already exist
- high number of sports fields are available across the network, and/or low playing hour demand exists
- where there are water restrictions.

Lighting	Irrigation	Hours (p/w)
Where Required (see Lighting Section)	Only on well-draining fields, dry climates, cool-season grasses and where heavy summer use occurs	Winter: 6-10 Summer: 8-15

Sand-carpet



Features/characteristics

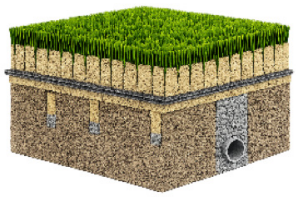
- a sand-carpet is a natural turf field constructed with a layer of sand (the carpet) placed over the existing soil profile into which drainage and irrigation are installed
- typically comprises primary drains (lateral drains connecting to a main drain) with secondary drainage (narrow slit drains)
- improves water drainage - providing more consistency of use
- can accommodate more demand than a soil field
- typically paired with floodlighting to utilise the hours the field platform can take during winter (maximise investment)
- irrigation is required due to high drainage qualities.

Typically used when: (individually or a mix of these)

- higher demand hours
- required for higher certainty of field access
- higher capital and maintenance budgets exist
- higher maintenance skillset exists
- irrigation can be accommodated.

Lighting	Irrigation	Hours (p/w)
Optimally (unlocks the hours of field use to maximise the value of investment)	Yes	Winter: 15-20 Summer: 15-20

Hybrid



Features/characteristics

- includes a blend of natural sports turf (with a sand profile) and artificial fibres (installed into the sand rootzone)
- carpet and stitched options exist, which stabilise the surface when the grass cover is worn away
- can accommodate higher levels of use and more consistent use
- highly skilled maintenance required
- resurfacing every 2-4 years is required to retain hybrid turf fibres close to the surface.

Typically used when: (individually or a mix of these)

- high demand hours
- high standard of play expected (i.e. stadiums)
- large capital and maintenance budgets exist
- skilled contractors are available to maintain the surface to the required level.

Lighting	Irrigation	Hours (p/w)
Optimally (unlocks the hours of field use to maximise the value of investment)	Yes	Winter: 22-30 Summer: 22-30

Artificial

Features/characteristics

- artificial turf overlying a shock pad and engineered bases
- varying fibre types and infill options (with different performance and environmental attributes) – see Artificial Turf section
- the surface typically needs replacing every 10 years (depending on the level of use and setting) and the shock-pad every 20 years
- can accommodate high levels of demand (year-round).

Typically used when: (individually or a mix of these)

- very high demand hours
- need for certainty of play
- resource pressure on natural fields
- centralised sports training hub
- potential partnership and funding opportunities exist
- large renewal costs can be met
- water restrictions exist.

Lighting	Irrigation	Hours (p/w)
Yes	No (only on water-based hockey turf)	Winter: 40-50 Summer: 40-50

Note: this resource is not a technical construction guide on sports fields. More supporting information can be found in the following sections, in Appendix A, in Sport England's Natural Turf for Sport design guide, and through engagement with sports turf experts.

Soil-based fields

Simply defined, soil-based field use the traditional soil base with no or limited intervention. The attributes of these field platforms naturally vary from site-to-site and across the country.

When to consider

Where there are constrained capital and maintenance budgets, good existing soils, high capacity across the sports field network and/or low playing hour demand/intensity, and in areas with water restrictions.

Sandy soils

Traditional soil fields, which are built on local sand deposits and typically located within 1km of the coast. Some irrigation may be required to improve recovery in autumn. Good natural drainage qualities and can perform better than other soil-based fields.

Good quality soils

Traditional soil fields constructed on good quality soil (i.e. volcanic) – typically with good drainage qualities. These soils can be further enhanced with sand top-dressing (and potentially irrigation depending on climatic conditions).

Poor soils

These soils have very poor inherent drainage. To improve usability, drains need to be installed, along with additional drainage treatments (such as mole ploughing) that help move water to the drains.

Pros	Cons
Low comparative complexity and cost (construction and maintenance)	Unpredictable use during wet weather conditions – typically have poor drainage (can vary based on soil quality)
Low or no irrigation required (depending on soil composition and climate)	Lower comparative level of use (varying levels based on soil attributes)
Optimises existing soils, and the fields have a long-life span	Potential for inconsistent performance in different conditions and seasons
Works well where demand and intensity are lower	Prone to compaction – leading to hard surfaces, reduced turf growth and uneven playing conditions
Sand topping, drainage and irrigation can be installed to improve quality without needing to upgrade to a sand-carpet (where needed)	

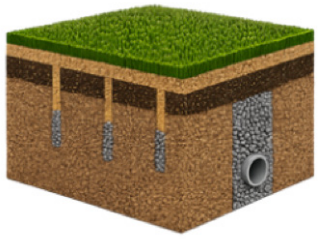
Sand-based fields

In New Zealand, a sand carpet system is the most common sand-based field. This comprises a layer of sand (the carpet) placed over the existing soil profile, with primary drains (lateral drains connecting to a main drain) and secondary drainage (narrow slit drains).

When to consider?

Where there is high demand and intensity of use, greater certainty of usability is required, higher capital and maintenance budgets exist, and irrigation levels can be accommodated.

Sand-carpet



Pipe drains are normally installed at 10.0m centres and slit drains at 1-2m centres. Slit drains are 50mm-wide trenches excavated to depth of 300mm and backfilled with approved sand and drainage metal.

Pros	Cons
Improved drainage allows water to move quickly through the surface.	Higher maintenance requirements than soil-based and artificial fields.
Notably higher levels of use compared to soil-based fields – and typically paired with floodlighting to utilise its carrying capacity.	Requires irrigation – sand drains quickly and hold less moisture.
Notably cheaper than a full sand profile (see below for description).	Requires specialised expertise to maintain the fields.
Can be constructed over existing fields (condition pending) – allowing for upgrades without needing new field platforms.	Notably more expensive to construct compared to soil-based fields.
	Large renewal requirements circa every 10-years.

Full sand profile fields

Full sand profile fields are less commonly used in community fields across New Zealand and are primarily reserved for high-performance and elite-level sport. These fields are typically built from scratch, with a thick layer of sand over a gravel base (independent of native soil). The sand profile field has significant drainage qualities but is extremely expensive to construct compared with sand carpet fields.

Grass types for natural fields

In addition to field types, various grass species can be considered for specific local settings. These are generally categorised as cool- or warm-season grasses. These are briefly outlined below.

Regardless of the options considered, a clear maintenance programme needs to be devised and followed to meet the desired level and type of use for the field(s).

View where cool- and warm-season grasses are best suited.

It is important that a sports field expert is consulted to explore and advise which field and grass types are suitable to meet identified needs within a localised setting (on a field-by-field basis).

Cool-season grass types

Sports fields are traditionally established with a combination of ryegrass, browntop and *Poa annua* (cool-season grasses). They grow actively from autumn to spring and will become dormant during summer if irrigation is not provided. Ryegrass is the main species used across the country. It is a non-spreading grass type and requires regular undersowing to maintain density.

Key characteristics

- grow fastest from autumn to spring
- handle cool, wet conditions
- generally need more mowing and fertiliser.

Pros	Cons
Good winter performance	Requires irrigation
Quick establishment from seed	Higher maintenance inputs
Recovers well from damage	May wear faster under high use during summer
Often provides a softer, denser playing surface	

Warm-season grass types

The most common grasses grown successfully in New Zealand in areas of warm climate are Kikuyu and couch. They grow from mid/late spring until autumn. Couch will become dormant during winter (turns brown) and Kikuyu growth will slow. As couch will become dormant across most of the country, fields may be oversown with ryegrass (but this needs to be removed around August as the couch starts to green).

These grasses are most responsive in coastal areas around the North Island and inland Hamilton, north.

Key characteristics

- grow fastest in summer
- become dormant in winter
- heat and drought tolerant
- low fertiliser needed
- durable under heavy use
- most commonly used in northern and warmer coastal areas.

Pros	Cons
High wear tolerance	Couch turns brown in winter (poor appearance)
Strong drought resistance (with 30-50% less water required than cool-season grasses)	Kikuyu will yellow during periods of frost, and growth rate will be slow (but rarely becomes dormant)
Lower summer maintenance	Slower growth or dormant in cooler climates
Creeping growth habit	Can feel firmer underfoot (couch), softer (Kikuyu) or more abrasive (can be less desirable by some codes)

Note: some playing surfaces may consider or use a dual grass type (i.e. couch with ryegrass), although this increases the cost and management complexity.

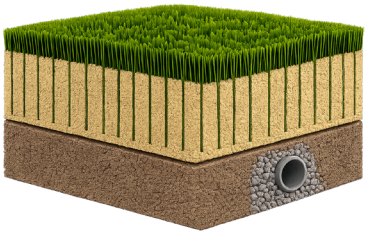
Hybrid fields

In simplest terms, hybrid turf systems involve incorporating artificial grass fibres within the natural grass canopy. Although there are numerous patented turf systems, for simplicity, they can be described as either stitched or carpet-backed hybrid turf systems.

When to consider

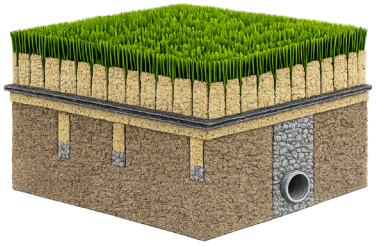
Hybrid systems are best used in stadiums (with a full sand profile), sand-based areas that are not required for summer sport and for higher winter-use, sand-based fields that are unable to accommodate winter demand.

Stitched



Involves stitching individual strands of artificial fibre into the sand rootzone. Once the turf cover is damaged, recovery involves resowing natural grass and waiting for this to re-establish (typically 12-16 weeks).

Carpet



Consists of an open-weave carpet of artificial turf that is backfilled with sand and then sown with natural turf. Where the turf is damaged by play or other use, the damaged turf area can either be resown, or removed and replaced with a new section of the hybrid/natural turf combination.

Pros	Cons
The presence of a hybrid system stabilises the surface so that it is still safe and playable, long after the grass cover has been worn away	Both approaches are expensive
Can tolerate significantly more use than a natural field	Artificial fibres need to remain present to provide stability (over time they can become buried beneath the surface)
Provides stability for play and protects young natural plants whilst they mature	For this to occur, the surface needs to be skimmed off and natural turf resown once every 2-4 years (which requires 12-16 weeks to re-establish) unless the field is heavily worn each season (i.e. 85%+ of grass cover is worn away) and it can be scarified and reseeded
Maintains a 'green tinge'	Need to consider the disposal of the artificial carpet at the end of its lifecycle

Artificial turf

Artificial turf consists of synthetic fibres designed to replicate the appearance and performance of natural grass. Over the past decade, the technology has advanced significantly in response to evolving societal and user expectations (both internationally and in New Zealand). Emerging technologies currently under testing are expected to further enhance turf development, supporting cost, performance and environmental outcomes.

When to consider

More artificial turfs are being explored and installed in New Zealand, typically in response to one or more of the following reasons:

- when topography and/or land parcel boundaries make it difficult to form concentrations of grass fields
- when potential water restrictions apply (impacting field quality)
- when a 'back-up' is required in a network during and after poor weather (especially for training purposes), providing certainty of play
- when capital funding or partnership opportunities exist with little downside in terms of opportunity cost – i.e. a broad funding mix is possible
- when centralised sports training hubs are being established
- where demand is year-round, to optimise use and maximise return on investment
- when training demand cannot be met in any other way (including reallocation of fields from other codes)
- to take the training pressure off the soil and sand fields.

Pros	Cons
High carrying capacity (high number of weekly hours)	High capital costs
Highly durable to withstand high demand/intensity	Large renewal costs every 10-12 years
Can be used year-round without needing large renovation windows	Often less preferred by players than a good quality natural field (cited reasons include heat retention and surface abrasions)
Provides certainty of play (limited or no closures)	Less stormwater absorption than natural fields
Consistent playing surface (reliable, even performance)	Environmental considerations, including end-of-life disposal, microplastic infill (see next section) and lower biodiversity
Low maintenance requirements (compared to natural fields)	Can impact site configuration and flexibility of use

There are various artificial types that can be generally categorised as:

2G (second generation)

Typical features:

Short artificial fibres and usually sand-filled.

Uses:

Often used for hockey, tennis or multiuse courts. Often used as a training space for traditional sports field uses, but not as an alternate surface to playing fields.

Water-based hockey

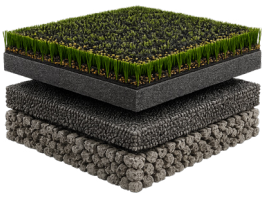
Typical features:

Short dense fibres with no infill material (irrigation provides a water 'infill' layer).
Note: non-filled hockey turfs are now emerging.

Uses:

Top specification surface for hockey. This technology is certified by the International Hockey Federation (see next page).

3G (third generation)



Typical features:

Longer fibres with rubber or organic infill (options are shown on the following pages).

Uses:

Common for football and rugby, this technology is currently certified by FIFA and World Rugby (see next page).

4G (fourth generation)

Typical features:

New technology with dense fibres, typically without infill.

Uses:

As the technology is new, it is not currently certified by FIFA, World Rugby or other international sporting federations.

3G artificial turf is currently the most widely installed alternative to natural grass fields across New Zealand. As technology continues to advance, new fibre types, innovative infill materials for 3G turf and potential future 4G solutions will be developed, tested and certified. It is important that all available options are carefully evaluated and their respective technologies fully understood before any development begins.

An outline of international regulations and current 3G infill options is provided on the following pages.

International federation regulations on turf

Various international sports federations have set specific artificial turf standards. These standards aim to guide consistent performance (predictable behaviour for the ball and players, turf durability, long-lasting performance), support health and safety outcomes, set a benchmark for compliance (alleviate/mitigate/reduce) and, in some cases, consider environmental outcomes.

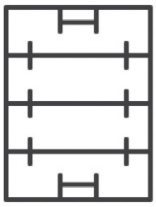
Football

Regulations and specifications	Install and test	Retesting
FIFA has 2 certified standards: FIFA Quality Pro: Standard for professional-level football FIFA Quality: Standard for community/ amateur fields	Install approved product Field test (by accredited test institute) Field approval	FIFA Quality – every 3 years FIFA Quality Pro – annually FIFA Basic – no specific period
Note: FIFA also offers a FIFA Basic standard which certifies the installation (not the durability of a non-certified system) and recognises the very minimum performance requirements for use (all turf is eligible to receive this standard). If used for competition, the turf must meet the regulations of relevant local authorities or competition organiser. Although there are no specific retesting requirements, it is recommended as it sets standards and expectations for how the turf should perform, while mitigating safety, insurance and liability risks.		

Relevant links/resources:

FIFA Quality Programme for Football Turf
Test Manual
Installation and testing must be carried out by FIFA accredited providers and test institutes

Rugby

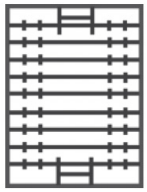


Regulations and specifications	Install and test	Retesting
World Rugby Regulation 22 states that all unions, clubs or organisations seeking to install/use artificial rugby turf must comply with the Rugby Turf Performance Specification. Does not apply to hybrid fields, which are considered natural fields.	Install approved product Field test (by accredited test institute) Field approval	Retest every 2 years
World Rugby states that all rugby activity on artificial turf (inclusive of training and games) needs to be on certified turf.		

Relevant links/resources:

World Rugby (Regulation 22)
World Rugby – Approval and Performance Specification

Rugby League

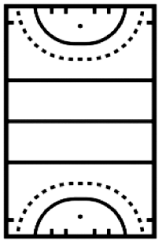


Regulations and specifications	Install and test	Re-testing
There are no international standards, however, the National Rugby League (alongside the UK's Rugby Football League) has developed standards for Australia, which can help guide New Zealand's use. These standards have been aligned with FIFA and World Rugby (as above). There are 2 standards: Stadium and community.	Install approved product Field test (by accredited test institute) Field Approval	Not defined, but states that periodic testing is required to verify performance and safety. When aligning with FIFA and World Rugby standards, this will be between 1-3 years.

Relevant links/resources:

National Rugby League – Guide to the use of Synthetic Turf Fields for Rugby League in Australia.

Hockey



Regulations and specifications	Install and test	Retesting
The International Hockey Federation classifies turf as: **Category 1** **International Tier 1 (televised hockey)** Non-filled wet turf **Category 2** **National and Tier 2 international competitions** and training **Category 3** **National and local competitions, and training** Sand-dressed synthetic turf Non-filled wet turf **Category 4** **Community and education sector competitions, and training** Hockey Plus – sand-filled synthetic turf or textile sports surface Gen 2 – sand-dressed synthetic turf or textile sports surface **Category 5** **Multisport fields primarily designed for large ball sports, with hockey as a secondary sport** 3G Multisport – long pile synthetic turf	Install Approved Product Field Test (accredited test institute) Field Approval	<12 months old = 3-year certification Category 1 – every 2 years Category 2-5 – every 2 years

Relevant links/resources:

International Hockey Federation – Performance and Quality Requirements
International Hockey Federation – Construction and Performance Requirements
FIFA and FIH – Dualsport Pitches for Football and Hockey
Gen 2 Multisport Turf
Hockey New Zealand – Hockey National Spaces and Places Strategy

Other codes

Cricket / Kilikiti

There are no international or national standards for artificial outfields in cricket or kilikiti. However, considerations for natural outfields regarding ball roll, gradients and drainage still apply – in addition to aspects such as abrasion and heat. These attributes are all covered in testing for other codes (as above). During testing of the turf to meet winter code specifications, consideration should be given to its suitability for cricket or kilikiti (where these codes are identified as potential users).

Note: cricket and kilikiti require 2 adjacent artificial turf, with an artificial turf to be located adjacent to one another, with an artificial pitch along the lateral run-offs between the fields. Examples of this approach in New Zealand include Ashley Reserve in Auckland and Logan Park in Dunedin.

Softball/Baseball

There are no international standards set by the World Baseball Softball Confederation (WBSC), although artificial or a mix of natural and artificial surfaces can be used for play.

Touch

There are no set standards; however, most artificial turf fields in New Zealand are certified by World Rugby.

Athletics

World Athletics has set certification standards for Class 1, Class 2 and Indoor athletics facilities.

As specifications and user preferences vary across and within the respective codes, a considered approach to scoping the project is required. This is vitally important if the turf is intended to support multiple codes, either now or in the future.

Infill technology

It is important to pay particular attention to infill as various systems are available, each with different attributes and qualities (eg, performance, environmental impact, and cost). Currently, FIFA and World Rugby certified artificial turf systems require the use of infill.

While there is a wide range of infill types, polymer and vegetal/organic infills are the most commonly used in New Zealand. A general overview of their respective attributes is outlined below. Banded colour ratings illustrate the range of characteristics within each infill category, reflecting variability between infill options. Given the evolving nature of turf technology, it is advised each project seeks expert input when evaluating turf and infill options.

Qualities

There are various infill options available. As technology advances and more focus is placed on environmental outcomes, more options are becoming available.

Various infill technologies are available and certified for use by international federations. As technology continues to evolve – particularly around performance and health and safety, and with a greater focus on supporting environmental outcomes - more options will become available.

Polymer (inorganic)

SBR: rubber crumb, typically manufactured from recycled vehicle tyres

EPDM: high-density synthetic rubber – virgin material

TPE: high-density synthetic rubber or engineered thermoplastic compound

Rubber infills provide a well-established and reliable solution, offering consistent sporting performance, durability, and stability across a range of climatic conditions (when high-quality infill is used). However, considerations around heat retention and environmental impacts, including microplastic concerns, are increasingly influencing their use.

Vegetal (organic)

Cork, wood, corn husk, walnut shell, husk, olive pits

Organic infills offer advantages such as reduced surface temperatures and alignment with environmental objectives, making them an increasingly attractive alternative to rubber. However, they typically have reduced durability and greater sensitivity to climatic conditions, leading to more variable performance and increased maintenance requirements.

It should be noted that organic infill options are relatively new compared to rubber infills and, therefore, have less history of use. Ongoing product development and technological advancements continue to improve performance outcomes.

Qualities	Polymer (inorganic)	Vegetal (organic)
Sport performance Based on player/surface and ball/surface interactions. Includes testing of shock absorption (how much force is absorbed by the surface), vertical deformation (how much the surfaces compresses under load) and ball rebound (how high the ball bounces off the surface).	 Consistent, high performing	 Good, but can have some friction and compaction, and more variable over time
Durability Based on lab tests and periodic testing of fields. For long-term durability the infill lasts the life of the turf. Short-term durability occurs when the field needs to be periodically refilled to compensate for infill wear/ degradation.	 Long-term durability	 Shorter lifespan – although this type of infill has limited historical use data
Environmental Potential impacts across the lifecycle, including material sourcing, microplastic or contaminant release, and end-of-life disposal or recyclability.	 Variables, as some are recycled or engineered; there are microplastic considerations	 More environmentally sustainable, however, there are some potential lifecycle trade-offs
Climatic behaviour/density How infill materials respond to local climatic conditions (eg, heat, UV exposure, rainfall and moisture), including their tendency to retain heat, absorb or shed water, and dry out. Density influences how well the infill remains in place, resists migration, and maintains consistent surface performance under varying environmental and usage conditions.	 Stable and consistent when good quality, but higher heat retention	 Cooler, but more variable and moisture sensitive
Cost Initial capital cost of infill and ongoing maintenance requirements, including periodic top-ups.	 High variability across all infill types – for both construction and top-ups – and based on where they are sourced from. Various options and quotes should be sourced for comparative costings	

Key:


Negative infill attributes


Wide ranging attributes across infill types


Positive infill attributes

Note 1: comparative assessment has been used from testing and insights from Labosport and infill costings from examples across New Zealand.

Note 2: new and improved infill options are regularly being developed and tested. This information is likely to outdate.

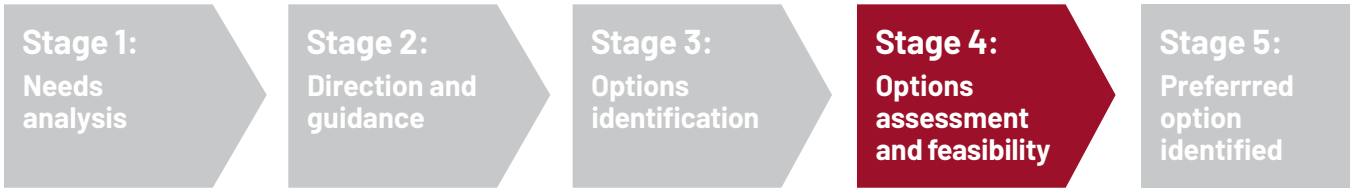
Determining infill type

When considering the development of an artificial turf, a variety of infill options should be explored, with particular focus on performance, local climate conditions, and available budgets (both capital and ongoing maintenance).

Global trends and technological advancements may also affect the type of infill.

1. Some countries (particularly throughout Europe, including all European Union countries) have banned intentionally added microplastics, with the ban taking effect in 2031. New Zealand may follow in the future.
2. New and improved infill options are being developed and tested. Consider what options are available on the market and which ones are certified by international sports federations.
3. New 4G turf options (non-infill systems) will emerge and may receive international certification without the need for infill. Some 4G turf is already being installed in New Zealand.

Stage 4:
Options assessment and feasibility



When determining which sports field development solution is best suited to meet both activity and site needs, several variables should be considered and assessed.

These include, but are not limited to:

- suitability when compared against identified needs – the right specification to meet the need (see previous stage)
- hours of use – capacity to meet demand
- site suitability – how suitable the setting and environment are
- cost analysis (construction, maintenance, whole-of-life costs and user fees) – ability to meet costs
- ownership and management considerations – an appropriate structure to oversee the asset and optimise use
- environmental outcomes – considers, supports and/or enhances the environment
- supporting infrastructure (i.e. changing rooms, toilets, car parking) – whether other infrastructure is required to activate or support field activity (does it already exist or is it needed?).

To help with the options assessment and feasibility stages of a sports field project, these components are further outlined within this section.

Site considerations

Site conditions and associated features are key determinants in selecting the most appropriate sports field solution and pose the greatest risk of cost escalation through construction and lifecycle maintenance.

Key features that need to be investigated further at a site level include (noting most are codependent):

Topography

Directly influences design feasibility, construction complexity, drainage performance, usability (i.e., compliance with code requirements – crossfalls), and ongoing maintenance costs.

Topography shapes the engineering response, influences construction costs, dictates drainage strategy, and affects long-term field performance and maintenance liability. Even modest variations in site levels can materially affect the viability and whole-of-life cost of a sports field solution.

Climate

Climate directly affects surface selection, drainage design, irrigation demand, durability, and lifecycle cost. Examples include:

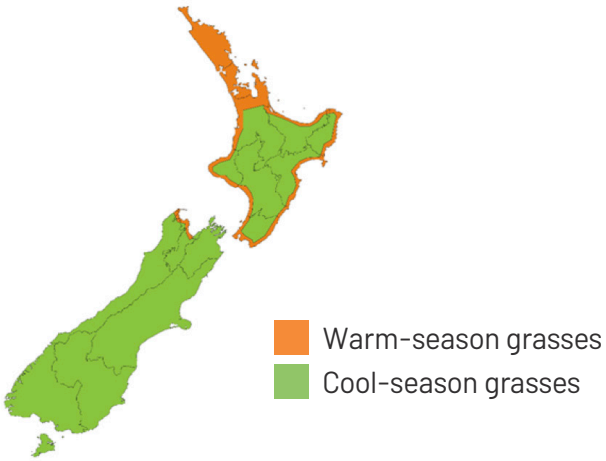
- high-rainfall zones place stress on natural fields and may require enhanced drainage systems
- hot, dry climates increase turf stress and irrigation demand. For artificial turf, this may lead to the surface retaining heat
- cold regions with frost or snow have shorter growing seasons, which affects resilience.

Not effectively addressing climate considerations during the options assessment and design phases can lead to use issues/closures and cost implications for managing or rectifying problems.

Grass species/type

Directly influences playability, durability, maintenance intensity, water demand, and lifecycle cost. The wrong species can significantly compromise field performance and increase ongoing operational expenditure.

Warm- and cool-season grasses are climate-dependent. More information on climate for grasses. The following map highlights where warm- and cool-season grasses are best grown, based on climate.



Source: New Zealand Sports Turf Institute Training Resources

The right grass type is critical to shaping field performance (including suitability for different codes), resilience under use, irrigation demand, and maintenance intensity. Selection must respond to climate, usage levels, seasonal activity, and budget capacity to ensure the field remains playable, sustainable, and cost-effective over its lifecycle.

Soil type

Directly influences drainage behaviour, structural performance, turf health (for natural fields), and the scale of required engineering intervention. In many cases, subsurface conditions represent one of the greatest risks to both construction cost escalation and long-term field performance.

Landfill sites have a significant impact on sports field development because they introduce geotechnical uncertainty, long-term settlement risk, gas management requirements, drainage constraints and regulatory compliance.

Water availability

Directly influences surface selection, grass type, irrigation design, operational costs, play reliability, and long-term sustainability. In some regions, it can be the deciding factor between different natural field options and artificial turf (particularly where water use has been capped or restricted during drought periods, there is an unreliable water supply and/or there are budget constraints). See the Field Types section for more information.

Trees/vegetation

Directly influences field layout, turf performance, construction complexity, drainage behaviour, and ongoing maintenance burden. Shade from tree canopies can reduce sunlight, limiting grass growth and recovery, while debris can affect drainage and contribute to thatch and surface softening. For artificial turf, this can result in increased maintenance costs, and possibly lead to mould, mildew and algae growth, while tree roots may grow into the drainage system and/or create uneven surfaces.

Trees can provide shade and wind breaks, which are valuable to the overall setting, but their wider impacts on the playing surface need to be assessed. Consider the field's placement and the suitability of surrounding tree species.

Service infrastructure

Directly influences construction feasibility, capital cost, operational functionality, and future scalability. The availability, capacity, and location of essential services will inform the options being explored and can materially affect both project viability and whole-of-life costs.

- **water supply** – limited supply capacity may restrict field performance standards. Upgrades to mains, meters, or backflow systems can increase capital costs, and recycled water connections may require additional treatment or storage infrastructure
- **power supply** – insufficient capacity may require transformer upgrades, new connections, or trenching works, which can impact the cost (i.e. for floodlighting, irrigation pumps and/or new supporting infrastructure)
- **stormwater and drainage connections** – distant or undersized connections can require major civil works. Detention or on-site retention systems may be required where downstream capacity is limited
- **wastewater connections** – if the field is new and improvements to the facilities may drive more use to a site, new or increased changing room or toilet provision may be needed. Wastewater network capacity and proximity are critical considerations i.e. pump stations may be required where gravity connections are not feasible.

Some of these components will trigger approval requirements from relevant authorities, and in some cases, development contributions are required.

Early assessment of service availability and capacity is essential to understand and consider possible upgrades or new infrastructure requirements, determine whether authority approvals are required, and assess any cost implications.

Collectively, these factors will strongly influence the identification of the most appropriate sports field solution. They require input from sports turf experts and supporting investigations, including surveying and geotechnical and civil engineering assessments, to guide the options assessment and feasibility stages.

Insights gained at this stage of the project are critical for understanding possible construction and maintenance costs for the site.

Cost analysis

For any infrastructure project to be successful long term, whole-of-life costs (including initial construction, ongoing maintenance and future renewals) must be understood, managed and budgeted for. It is essential that the budget aligns with performance expectations.

Sports field developers should consider the following (as further detailed in this section):

Construction costs

Budget for appropriate design and construction (including site works).

Maintenance costs

Budget for high-quality, regular and consistent maintenance to optimise performance and lifespan.

Replacement costs

Consider and allow for renewals throughout the field's 30-year lifecycle (including disposal costs for removed material).

Whole-of-life costs

Consider the total cost of the project over its lifespan, including if the capital works are debt funded.

Hours of use

Expected number of hours that the field can accommodate, given a good maintenance budget and programme.

Cost per hour of use

Considers the total cost of providing a sports field over a 30-year lifespan relative to the hours of use the field type can accommodate.

Funding mix

Consider the financial implications on both the asset owner and end users.

Construction costs

The following costs should be used only as a guide to typical construction costs across different field types. Each site and field project in New Zealand is unique and requires a bespoke response, each with its own cost breakdown.

As costings can be volatile, a sports field construction calculator has been developed to provide a full breakdown of cost inputs, which can be updated to reflect the specific project and local costings.

Ground conditions and service infrastructure are the biggest risks to cost escalation of a sports field project.

- It is important to undertake geotechnical assessment and surveying to determine the suitability of the site.
- Consider what the previous uses of the land were (i.e. landfill). This may result in contamination testing and trigger other requirements.
- Investigate site access and the availability of services (i.e. water, electricity, wastewater and stormwater).

Understand the level of service that is needed and being provided.

- Determine the level of service and type of construction needed (this directly impacts cost).
- Will upgraded or new amenities be required as a result of the field development? Understand the full capital and operational impact.
- Consider whether development contributions are required as a result of the proposed development.

Table 4.1 - Overview of capital costs

Item	Drained soil field	Drained and irrigated soil field	Sand carpet field	Hybrid field	Artificial field
Earthworks	80,000	80,000	85,000	85,000	85,000
Sports field construction	106,000	196,000	423,000	873,000	2,608,000
Floodlights[6]	(optional)	(optional)	280,000	280,000	280,000
Accessories (i.e. fencing, surrounds)	-	-	-	-	531,000
Subtotal	**186,000**	**276,000**	**788,000**	**1,238,000**	**3,504,000**
Preliminary and general	40,000	40,000	80,000	80,000	170,000
Professional fees and consents	27,000	38,000	87,000	132,000	
Total ($)	**253,000**	**354,000**	**955,000**	**1,450,000**	**3,674,000**

Notes:

1. Cost estimates are based on a typical field and have been sourced from suppliers and contractors across the country. Each site is unique and will require bespoke design with variable construction costs.
2. Costs are based on an area size of 9,000m^2 which is comparable to a typical sports field size.
3. Preliminary and general costs are less on the soil-based field options to reflect the reduced construction time and amount of soil waste produced compared to the more complex sand, hybrid and artificial field options.
4. Earthworks will be site specific. The estimate assumes 150mm of topsoil will be removed and relaid over a levelled base in which 1,000 cum of material must be shaped to form the subgrade. Where fields are being upgraded as opposed to new constructions, earthworks are unlikely to be required.
5. When installing irrigation or increasing capacity of the field network, development contributions may be required under some council policies.
6. Floodlights may be necessary on soil-based fields to prepare the field for evening activities, such as training, provided this doesn't lead to additional use beyond its capacity.

Field of play maintenance costs and hours of use

Fields need regular and continuous maintenance to optimise performance and longevity. Proper construction, a suitable maintenance plan and budget, along with good field management practices, are essential to achieving the desired hours of use for each field type.

Varying budgets and maintenance programmes are adopted across the country. To reflect this, 3 maintenance standards have been applied for community-level fields:

- **minimum level** – lowest level of maintenance for the field to perform
- **optimal level** – optimises both the amount of use and longevity of the asset
- **premier level** – requirements for a premier-level community field (non-stadium based) where playing quality and presentation are to be optimised.

The bandings for costings and hours of use should be used as a guide only, as each field project will require bespoke design and face variable costs. The sports field maintenance calculator can be used to update and reflect specific project and local costings.

Table 4.2 - Field of play maintenance costs and usage hours

Field of play maintenance costs[4]	Soil field			Sand carpet field			Hybrid field			Artificial field
	Minimum	Optimal	Premier	Minimum	Optimal	Premier	Minimum	Optimal	Premier	
Mowing/Line Marking	12,000	16,000	33,000	16,000	33,000	40,000	16,000	33,000	40,000	
Irrigation (water, monitoring, maintenance)			25,000	24,000	25,000	25,000	24,000	25,000	25,000	
General (fertiliser, weed, pest, disease control, topdressing, aeration)	350	4,000	18,000	13,000	32,000	48,000	13,000	32,000	48,000	
Weekly grooming										26,000
Quarterly professional grooming										8,000
Algae/weed Control										1,000
Patching										4,000
Compliance retesting (/yr)[6]										3,000
Total ($)	**12,350**	**20,000**	**76,000**	**53,000**	**90,000**	**113,000**	**53,000**	**90,000**	**113,000**	**42,000**
Average Hours Per Week - Winter			6-10			15-20			22-30	40-50
Annual Winter Hours			132-220			330-440			484-660	1,000-1,250
Average Hours Per Week - Summer			8-15			15-20			22-30	40-50
Annual Summer Hours			176-330			330-440			484-660	1,000-1,250

Notes:

1. Cost estimates are based on a typical field and have been sourced from suppliers and contractors across the country. The costings above are presented based on cool-season grasses and rounded to the closest $1,000. A more in-depth breakdown on maintenance costs is outlined in the maintenance calculator.
2. Costs are based on an area size of 9,000m^2 which is comparable to a typical sports field size.
3. Includes water as a specific cost item for irrigated fields. The full cost assumes metered water. This cost can be reduced by using other water sources, i.e. bore water, water retention and reuse, and use of warm-season grasses (where suitable).
4. Excludes ancillary maintenance costs such as power for floodlights, fencing, insurance, machinery-related costs, goals/netting. These ancillary costs can be accounted for in the whole-of-life cost model.
5. Season hours have been averaged as 22 weeks for natural fields which accommodates 8-weeks for sports field renovation in autumn and spring (assumes summer and winter use of the sports field) and 25 weeks per season.
6. Artificial turf surface retesting/compliance is required every 2-3 years – cost has been averaged per year.
7. It is important to note that areas with large sports field networks will benefit from economies of scale, meaning the cost per field will be notably lower. The costings presented in the table are based on unit costs for a standalone field.

Whole-of-life costs

When assessing field types, it is important to understand the lifecycle costs of each. Applying a whole-of-life model over a 30-year period will assist with understanding all relevant costs and potential cost recovery (cost per hour of play). An example application of this model is shown below, based on figures from previous sections.

A whole-of-life cost model is available to reflect your specific project needs. Key inputs that can be updated include costs, asset renewals, hours of use (by season and weekday/weekend activity) and cost recovery targets (as applicable).

Table 4.3 – 30-year lifecycle field comparison (example)

Item	Drained soil field	Sand carpet field	Hybrid field	Artificial field
Construction	253,000	960,000	1,455,000	3,674,000
Maintenance (over 30 years with inflation)	814,000	3,663,000	3,663,000	1,994,000
Renewals and disposal (over 30 years with inflation)	-	(new sand layer, slits and turf grass establishment after Years 10, 20 and 30 - $250,000 per 10-year cycle)	(reinforcement, sand layer, turf grass establishment in Years 3, 6, 9, 15, 18, 24, 27, 29) and new hybrid system after Year 20) + $100,000 for disposal - $50,000 per turf layer	(infill top up, worn turf renewal and infill after Years 10, 20 & 30. Assumes shock pad renewal in Year 20) + $100,000 for disposal - $50,000 per turf layer
30-year cost ($)	**1,067,000**	**5,729,000**	**8,361,000**	**10,456,000**
Winter - weekly hours of use	8	18	26	45
Winter hours (@ 30 years)	5,280	11,880	17,160	33,750
Summer - weekly hours of use	11	18	26	45
Summer hours (@ 30 years)	7,260	11,880	17,160	33,750
Lifecycle (years)	30	30	30	30
Cost per hour of use ($) GST Incl. (based on a breakeven result)[1]	**95**	**242**	**240**	**180**

This model is based on the theoretical capacity of a sports field and is not based on actual demand. The calculator should be used to input known or forecast hours of use and site-specific costings for determining the cost per hour of use.

Notes:

1. The net present value (NPV) has been set to 0 – where costs are met by revenue (a breakeven result). The cost recovery/contribution percentage can be amended in the model to reflect how the field is intended to be funded (i.e. subsidised, user pays to breakeven or user pays to generate a profit – see user fees section for more insights).
2. The model uses a real discounted rate (as provided by Treasury) to account for factors such as compound interest and inflation over the next 30 years.
3. Weekly hours (average of the bandings provided for summer and winter seasons) and season lengths have been applied as set out on the previous page.
4. The above example considers the full annual capacity of the sports field (this can be amended as required to meet specific settings – explained below).
5. The inputs of the model can be amended to meet individual project settings i.e. if the field is only used for winter activity, season lengths and field hours vary (based on demand) and/or updated and relevant costings are known.

User fees

For many areas of the country, user fees play an important role in supporting sports field provision. Although they generally operate on a public good model, this reflects the wide-ranging benefits they provide to a community.

User fees for sports fields are applied for a range of reasons, including:

1. Demand management and allocation

- signals the sports fields have value
- discourages speculative or unnecessary bookings
- helps manage peak demand.

When supply constraints exist, fees are often used to promote responsible use rather than to generate revenue.

2. Equity and fairness

Fees can be used to help address fairness between:

- sports field users and ratepayers
- high-volume users and infrequent users
- organised sport and informal recreation.

Fees help demonstrate that those who directly benefit are making a contribution.

3. Financial insights and awareness

- encourages better asset tracking and cost understanding
- adds more focus on delivering service standards.

4. Levels of service

- helps align expectations around service standards and field quality.

5. Sustainability and future investment

- may contribute to administration (i.e. bookings), renewal funding and/or other future investment
- can support co-investment conversations
- reinforces that users have a shared responsibility and contribution to make towards cost.

6. Governance optics

- the presence of a fee shows that cost and public benefit have both been considered.

In some cases, **user fees are not applied**. Some of the key reasons for not applying fees include:

1. Sport as a public good – wide-reaching benefits

- health and wellbeing outcomes
- youth development
- social and community connectivity
- crime prevention
- volunteer engagement
- space supports urban form and environmental outcomes.

2. Participation and affordability

User fees can have possible flow-on effects:

- club membership costs
- barriers for low-income individuals/families
- reduced participation.

3. Administration efficiency

- the required administration resource may outweigh revenue gained.

4. Other delivery models

- users may maintain fields themselves and/or fund improvements
- owner contribution is modest (aside from land provision).

All of the above reasons for applying or not applying user fees should be carefully considered.

User fees for access to sports fields vary widely across New Zealand, reflecting differences in local context, policy choices, and service delivery models.

Consequently, benchmarking user fees across New Zealand is currently problematic. Key reasons underscoring this include the following.

Funding philosophy

This should be the guiding approach to deciding who should pay for sports fields and to what extent, balancing the benefit with the cost and other investment decisions. This is often met with differing perspectives.

Legacy decisions

Historical pricing or lease arrangements can result in embedded precedents or expectations.

Cost breakdown

Costs are not clearly identified or accurately measured. Unreliable cost information can lead to historical practices or assumptions rather than the actual cost of delivering the service.

Benchmarking can also be affected by inconsistencies in what is included in the costings, i.e. regular maintenance, renewals, and/or depreciation.

Local setting

The geographic setting relating to climate, soil type and weather conditions can impact the maintenance programme (positively or negatively).

Demand profile

High-demand or intensive-use fields may require higher operating costs (eg, heavy seasonal use, population growth, overlapping and back-to-back seasons). This varies by sporting code, geographic setting and site by site.

Specifications

Variability across field specifications, i.e. irrigation, drainage, floodlighting, natural vs. artificial. Some fees also include access to changing rooms and toilets. This creates layers of provision options and costings.

Process for setting user fees

Setting user fees should be guided by a mix of factors. It is essential that a clear and consistent approach is taken for setting and benchmarking user fees and for undertaking regular reviews.

To help guide this process, the following questions should be asked.

- Who are we providing sports fields for?
- What are we providing users?
- How much does it cost us to own and operate our field(s)?
- How should we meet our costs?
- How do we compare with other sports field owners and facility types?

The overall process and the level of complexity involved in setting fees will differ based on the owner and the organisation's size. The key components recommended for inclusion in the process are outlined on the following page.

Figure 4.1 - Indicative process for setting user fees

Who are we providing for?

Stage 1: Segment users

- Juniors/ youth
- Seniors
- Community clubs
- Schools
- Casual users
- Different sporting codes
- Commercial users/ events

What are we providing?

Stage 2: Define service levels

Field standard		Field activation	Other facilities provided
Level of play: community or elite-level training/games	**Required service levels:** i.e. length of grass, number of cuts	**What is needed?** i.e. lighting, line marking, goal posts, cricket pitch, backstop netting	**What is needed?** i.e. access to changing rooms and toilets

Apply the service levels against each user group from Stage 1 (as applicable)

How much does it cost us?

Stage 3: Calculate field cost

Determine the cost of providing and maintaining each field for community sport access.

Be clear and transparent on what costs are being included/excluded.

Use the construction, maintenance and whole-of-life cost model calculators to assist.

How should we meet our costs?

Stage 4: Funding philosophy

Determine how the ongoing maintenance and renewal costs for sports field(s) will be covered. Possible models include:

Public good model	Heavily subsidised	Primarily funded by the rate payer, field owner or reliant on third party funding. **Typically, fees are 0-10% of sports field annual maintenance or whole-of-life costs.**

This is the main model used across New Zealand which reflects the value which sports fields can have on participation outcomes (leisure, recreation and sport), health and wellbeing, social/community connectivity, urban form, vegetation and environmental outcomes.

User pays model	Demand/use based	Users pay the majority with the rest covered by alternate sources (as required)
Hybrid model	Mixed approach	Relatively even contribution across users, rate payers, field owner and/or other funders.

Note 1: As is evident across the country, considerations are made for subsidising some activities more than others (i.e. junior activity) or higher commercial/event/tournament rates than standard community use.

Note 2: for councils, the Revenue and Financing Policy will guide the principles and funding philosophy for sports fields. Information prepared through this process should help inform decision-making on user fees and assess the potential impact these may have (for users & rate payers).

Compare, set and review

Stage 5: Set user fees

Make it transparent	Consistent application	Comparable benchmarking
Clear and logical rationale	Review regularly	Consider other facility types

Good practice considerations

Type and level of provision

When determining which sports fields and ancillary facilities are required, it is important to understand who will use them, the types and levels of use, and the frequency and intensity of use.

The table below provides a general guide to good practice levels of provision for community sports parks and sports fields, with further supporting insights on the following page.

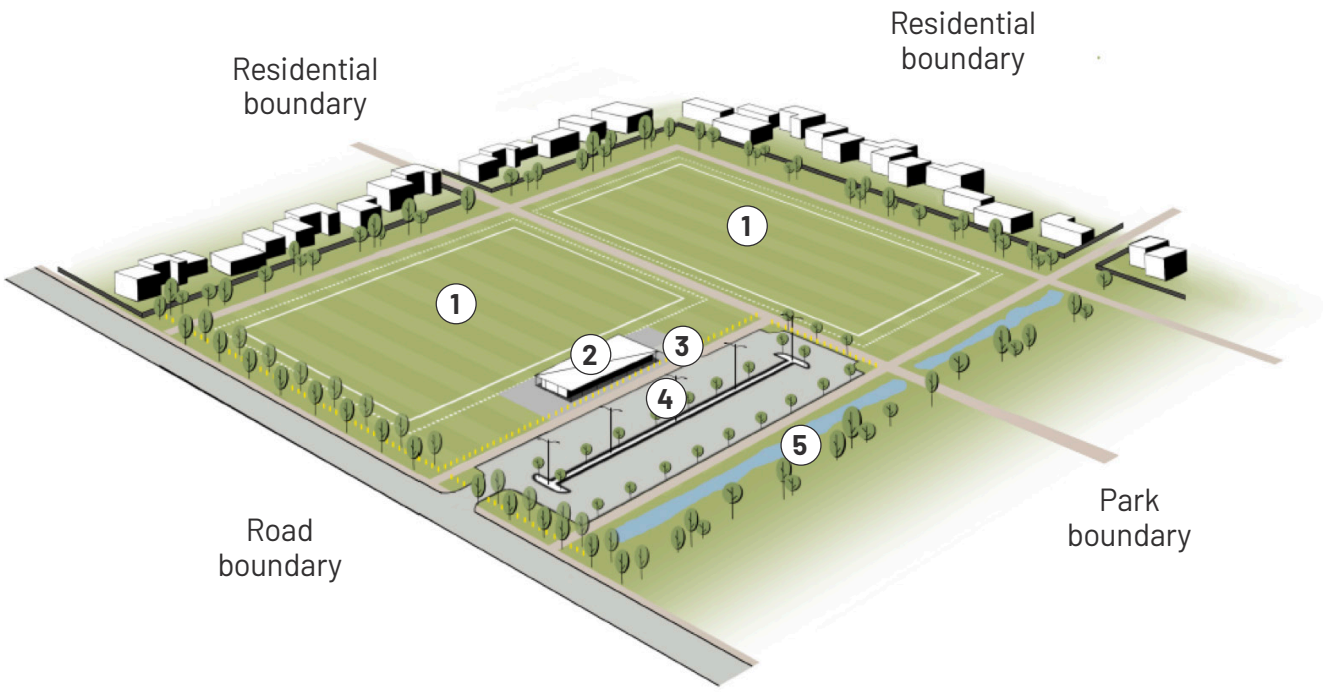
Tier	Typical use	Site capacity (Hours & team #)	Core provision	Ancillary provision	Good practice approaches
Local sports park	Wider overflow for training and junior games, and used for informal sport and recreation	Low	**Primary:** 1-2 natural fields **Secondary:** floodlit (depending on type and volume of use)	**Primary:** toilets (can be public toilets) **Secondary:** basic changing rooms – typically 2 (depending on level of use and game allocations)	• Used as satellite and overflow fields • Low capital and maintenance costs • Gender neutral ancillaries • Typically booked rather than permanently allocated
District or sub-regional sports park	Hub Venue - where a club is based for hosting training and games. Ability to host smaller tournaments	Moderate – High	**Primary:** 3-5 fields (potentially a mix of natural and artificial). Dedicated training areas – floodlit in line with demand. Typically includes a #1 field/oval **OR** 1-2 artificial turf with floodlights (smaller site but with high capacity).	**Primary:** 4-6 changing rooms, referee changing area, pavilion/ clubroom and public toilets **Secondary:** food and beverage offerings	• Pavilion/clubroom is located to effectively service multiple fields • All facilities support multiple users, with year-round activity • Use of dedicated training areas to help preserve fields for games
	Satellite Venue - for overflow training, junior and/or senior games (no domiciled club facilities)			**Primary:** 4-6 changing rooms (depending on level of use and game allocations), referee changing area and public toilets	• Alleviates demand pressures on hub venue sports fields • Core ancillaries only
Premier/ regional sports park	Supports local club use (training and games) – typically where a club or regional organisation is based, tournament hosting and in some cases may host high-level matches/games	High	**Primary:** 6+ fields – with a mix of field types. Dedicated training areas – floodlit in line with demand. Includes a #1 field/oval 1-2 fields are floodlit to support night games (higher lux)	**Primary:** multiple changing room/ toilet blocks may be required, pavilion/clubroom, food and beverage offerings, and public toilets. **Secondary:** medical services (based there or can be accommodated).	• Pavilion/clubroom is located to effectively service multiple fields. • All facilities support multiple users, with year-round activity. • Multiple changing room/toilet blocks maybe required to service the park (consider passive surveillance, distance, lighting and available space). • Mix of field types (i.e. natural and artificial) are used to meet demand and user preferences.

Note: this is for guidance purposes only. Provision levels will vary from site to site based on previous investment and construction, participation/use levels, changing code, user and societal preferences and expectations, land and building ownership and site-specific features (i.e. location, configuration and ground conditions).

Local sports park

Indicative land area

Up to 5 hectares
(based on this concept)



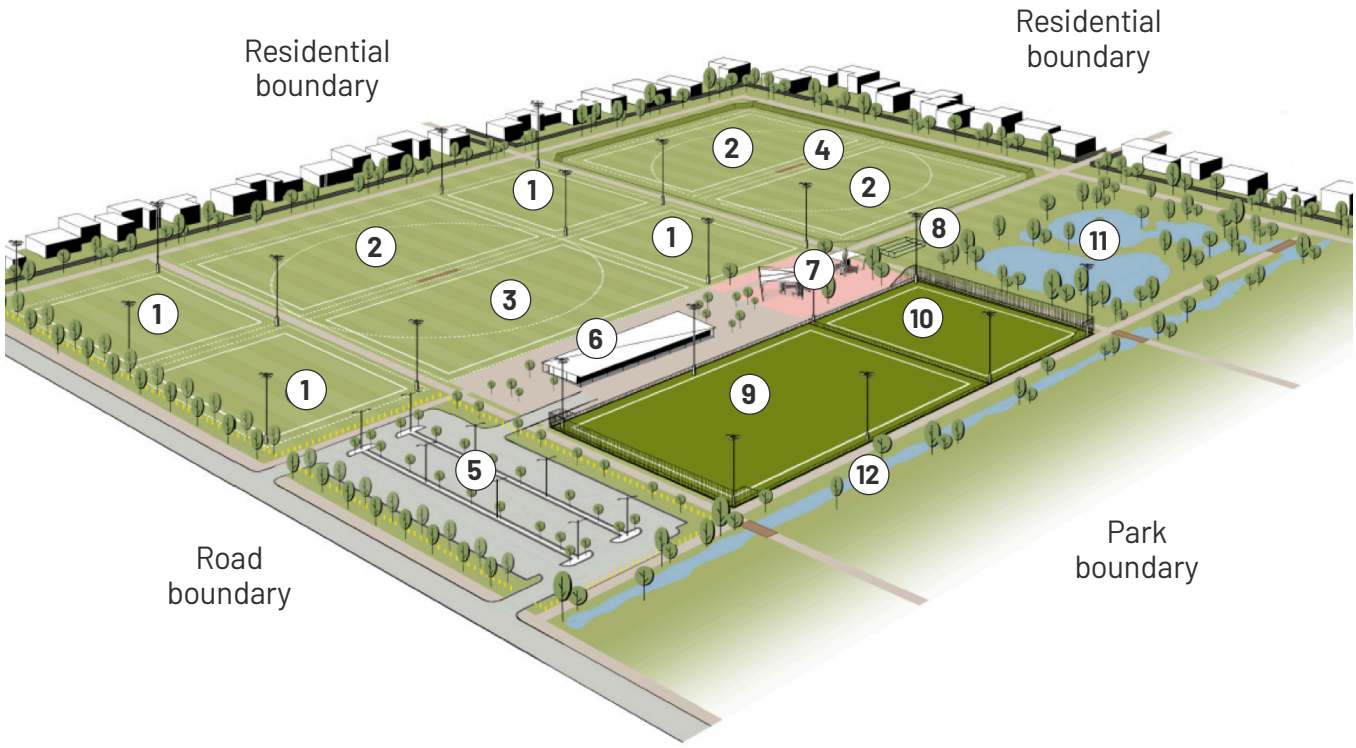
Key

1. Sports field
2. Pavilion/changing rooms/toilets
3. Service vehicle entrance
4. Car park
5. Stormwater management: Swales

District/sub-regional sports park

Indicative land area

15 hectares
(based on this concept)



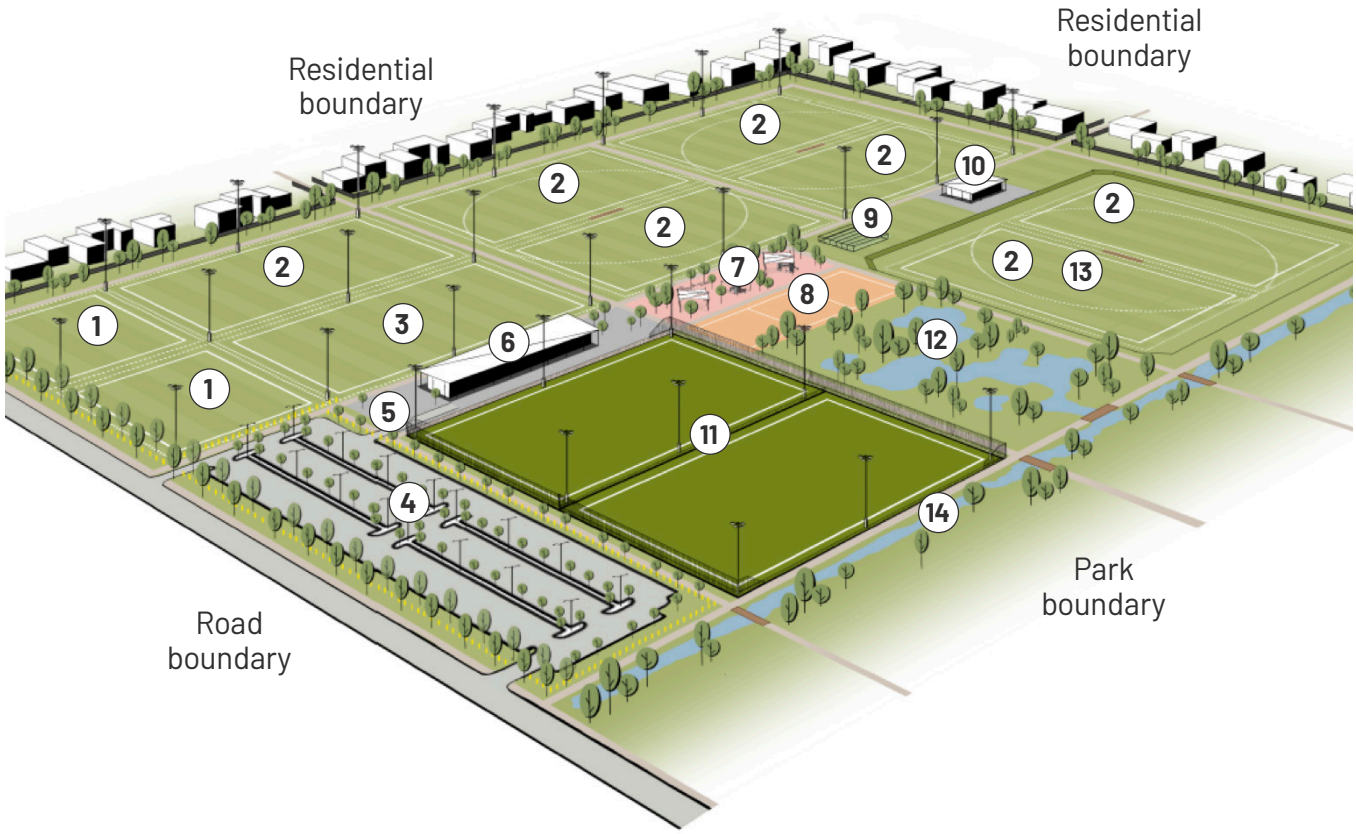
Key

1. Junior grades/training area
2. Sports field
3. Number 1 field
4. Stormwater detention field
5. Car park
6. Pavilion/changing rooms/toilets
7. Playground
8. Cricket nets
9. Artificial turf field
10. Artificial turf warm-up field
11. Stormwater management: Ecological area/open space
12. Stormwater management: Swales

Premier-regional sports park

Indicative land area

25 hectares
(based on this concept)



Key

1. Junior grades/training area
2. Sports field
3. Number 1 field
4. Car park
5. Service vehicle entrance
6. Pavilion/changing rooms
7. Playground
8. Multi-purpose hard courts
9. Cricket nets
10. Changing rooms/toilets
11. Artificial turf fields
12. Stormwater management: Ecological area/open space
13. Stormwater detention field
14. Stormwater management: Swales

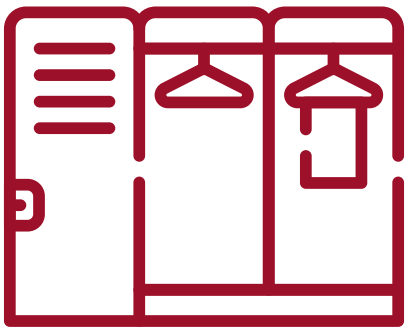
Changing room provision

The provision of changing rooms (i.e. number and type) is not fixed and should be determined in response to a range of key considerations that influence demand, capacity, and functional requirements.

Key considerations:

- which sporting codes are being accommodated (i.e. differing team sizes and spatial requirements, catering for officials)
- level of play (i.e. junior or senior, community, regional or national)
- type of activity (i.e. training, competition, tournaments and events – linked with the strategic role of the site)
- participation mix (i.e. different age, gender, cultural requirements and user preferences)
- number of games typically played at the same time
- scheduling requirements (i.e. number of back-to-back games or training sessions with overlapping changeover times)
- the number and capacity of sports fields
- accessibility, inclusiveness and universal design requirements.

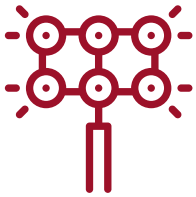
Assess changing room provision on a site/venue level (factoring in the above considerations), rather than on a per-field basis.



Relevant links/resources:

More information on gender-neutral and accessible design principles, outcomes and considerations can be found through the following sources:

- Recreation Aotearoa (2025). Outdoors Accessibility Design Guidelines.
- Sport England (2024). Accessible and Inclusive Sports Facilities (AISF). Part D: Changing and Toilet Provision.
- Sport New Zealand (2023). Gender Neutral Design Principles and Desired Legacy Outcomes.



Floodlighting

- Primarily used for weekday winter training to meet demand (high hours of use and peak times are outside daylight hours).
- They optimise the usable capacity of a sports field (typically sand-based, hybrid and artificial fields – see Field types section) – they unlock available hours (best return on investment).
- They may be used on soil-based fields where demand constraints are less, use can be distributed across fields, field condition is not impacted and/or cost-benefit indicates this mix is a more suitable approach than field upgrades.
- Where hosting night games on the field/diamond is critical within the network (delivery strategy of the sport, hosting tournaments and/or higher-level games).
- For winter codes, the #1 field is not typically recommended for floodlighting (aside from hosting games as above). This protects surface quality, maintains presentation standards and supports recovery time for game day.

Lux levels should be commensurate with the level and type of activity the sports field(s) are intended to support (both now and into the future). The following table provides indicative average lux levels for different codes and activity levels (based on international lighting standards and common practices in New Zealand).

Table 4.4 – Indicative average lux levels by code

	Level 1: Training and match practice	Level 2: Competition games	Level 3: High-level games
Cricket	200	300	>500
Football	100	180-200	>500
Hockey	250	350-500	>500
Rugby	100	200	>500
Rugby League	100	200	>500
Softball/Baseball	150-250	250-300	>500

Note that high-definition broadcasting standards will likely exceed Level 3 standards – venue and broadcasting standards should be reviewed.

Relevant links/resources:

More detailed information on lighting standards that are regularly applied within the New Zealand setting can be found from Standards Australia:

- Standards Australia (2021). Sports Lighting, Part 2: Specific Applications. AS 2560.2:2021

Field renovations

While consistent in-season maintenance and effective field management are essential for safety, quality performance, and adequate load capacity, strategically scheduled renovation windows are vital for sustaining these standards over time.

Planned, periodic renovations help preserve the field's condition, ensure its readiness for the upcoming sporting season and climatic change, extend its overall lifespan, and minimise the need for major capital investments in the future.

Renovation requirements differ across field types, grass species, and specific site settings (i.e. level and type of use, climate). These considerations should be factored into decision-making for each field – what is needed and who is it serving? A general overview of the renovation and recovery periods is shown in Figure 4.2.

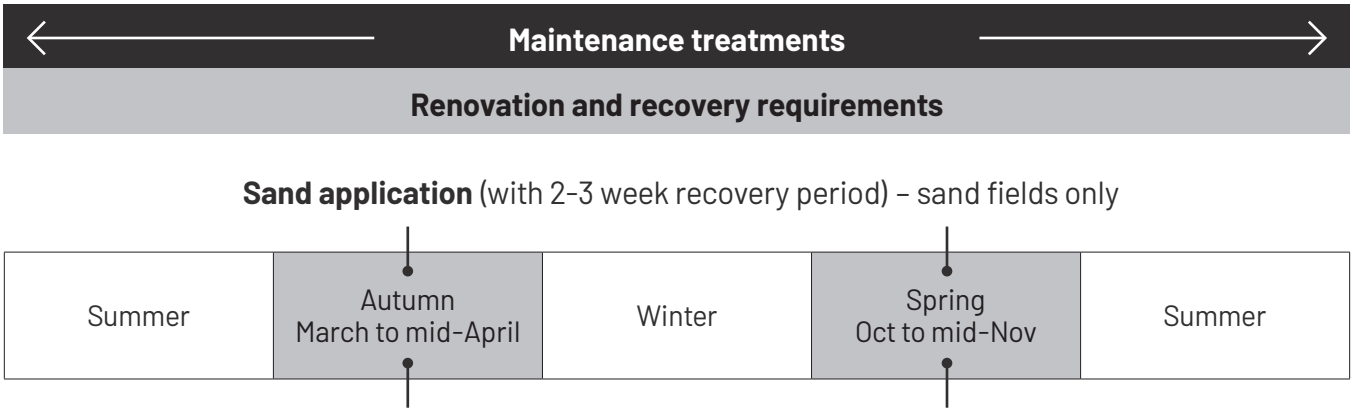
It is important to recognise that sporting seasons are expanding, participation demand is increasing, and new sports are emerging. Rather than compromising the critical renovation windows required for natural turf fields to recover and perform optimally, the sports field network should be planned to carry excess capacity. This can be achieved by:

- using overflow fields that receive less demand during the regular season
- investigate partnerships with other field providers in the network (i.e. schools, Universities, racecourse and A&P Showgrounds)
- reallocate trainings and/or off-season activities to fields with more durable surfaces
- have a sports field mix which includes hybrid or artificial turf (which can carry additional loading over an extended period).

Alternatively, owners may enforce the closure and downtime of the sports fields during the off-season.

Figure 4.2 – Overview of typical field renovation and recovery

Cool-season grasses (ryegrass)



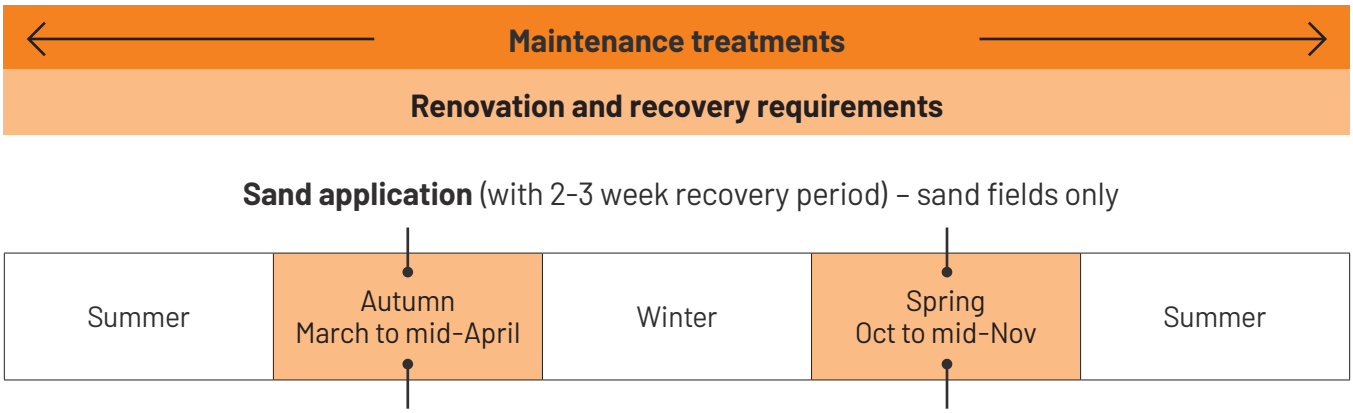
Optimise conditions for cool grass species growth

- Push growth to prepare grass coverage and density for winter season

Reseeding (applies to ryegrass fields only)

- Reseed irrigated fields by mid-Nov (avoid warmer temperatures for young grass).

Warm-season grasses (couch and Kikuyu)



Overseeding with ryegrass for winter season

- Transition back to full cover of warm-season species in spring and early summer

Transition

- Transition back to full cover of warm-season species

Replant (min. 8 weeks for grass to establish)

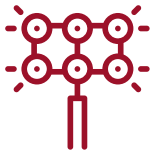
- If necessary, replant warm-season grass in areas where complete loss has occurred
- Prior to Christmas (Nov-Dec)

Site design considerations

While this document is not a technical design guide, there are some key design considerations that should be factored into the decision-making process.

Field orientation

- Most sporting codes desire a north/south orientation to minimise low sun glare for players.
- Consider the type of activities being accommodated and when they typically take place (seasonally and time of day).
- Take into account shading from existing trees or structures, which may affect turf growth or player visibility.



Floodlighting

- Evaluate whether towers will be within the field of play for other codes.
- Consider removable or telescopic towers to maintain flexibility.
- Assess capital and operational costs, glare, light spill, and compliance with local regulations.

Multi-code implications

- Where viable, incorporate the largest-sized field dimensions (i.e. rugby for winter codes) to allow flexibility of use.
- Cricket – ensure the pitch does not conflict with high-use winter fields.
- Diamond sports (baseball and softball) - design the layout to avoid interference with other codes.
  - Permanent fixtures: skinned diamond infield, bases, pitcher's mound, backstop netting.
  - Removable fittings: perimeter fencing and field markers.

Placement of ancillary facilities

- Supporting buildings should be close to the playing fields and optimally located to service multiple fields, while adopting universal design principles to ensure facilities are equitable, safe and accessible for all users.

Safety

- Avoid overlapping fields where possible.
- Provide sufficient run-offs, buffer zones, and safety areas around playing surfaces (including consideration for spectator areas).
- CPTED (Crime Prevention Through Environmental Design):
  - Ensure safe access routes from car parks and ancillary buildings to fields.
  - Avoid hidden corners or poorly lit areas along pathways.
  - Maintain clear sightlines for supervision and security.

Storage

- Allow for adequate storage of portable goals, bases, nets and maintenance equipment that is close to the fields to encourage appropriate use.

Desire lines and use management

- Identify common walking paths to reduce unnecessary use or loading of the field(s).
- Provide formalised footpaths or tracks where heavy foot traffic occurs.
- Consider player and spectator circulation patterns for safety and surface longevity, including a clear separation between players and spectators.

Spectator areas

- Consider suitable viewing areas (aligning with safety and desire line features), clear sightlines and potential shade/shelter opportunities.

Relevant links/resources:
– Code field layouts and dimensions

New Zealand Football (2026). Junior and Youth Field Requirements.

New Zealand Rugby (2021). Junior and Youth Field Requirements (pages 26, 29, 30 and 33).

Sport England (2025). Playing Area Layouts.

Sport England (2025). Natural Turf Design by Code.

Government of Western Australia (2016). Sports Dimensions Guide for Playing Areas.

Considerations when developing an artificial turf

Use

- Ideally located at 'neutral' sites (not a club's home ground) to facilitate effective demand management and support a network approach. However, this should be balanced with well-established club-based sites, which may be more appropriate in areas with concentrated activity and demand, where operational benefits (such as passive surveillance), partnership funding, and maintenance efficiencies can be achieved.
- Located to maximise access / reach across a wide catchment area.
- Suitability of the surface type and pile length for potential users (for those users the turf is intended to accommodate).
- Potential impact a turf may have on other users (i.e. ability to accommodate summer codes and informal recreation).

Site features

- Provide sufficient parking to meet anticipated demand, with clearly defined pedestrian pathways and appropriate lighting in accordance with CPTED principles (particularly given extended hours of use and high user volumes).
- Consider potential planning and consent implications (i.e. traffic, light and noise).
- A suitable number of changing rooms and toilets to activate the site.
- Appropriate storage located in close proximity to the playing field.
- Ability to retain or develop a natural field co-located at the site to provide a mix of surface types to meet user preferences.
- Potential for future turf expansion opportunities (i.e. to add another turf in time).

Design features

- Ability to accommodate a turfed warm-up area adjacent to the artificial field (reduces contamination from natural to turf fields, reduces demand on natural fields, provides preparation on the field surface that will be used and can also be potentially used for junior or modified game formats).
- Provision of floodlighting is paramount to unlock maximum hours of use.
- New evolving technologies (i.e. turf fibres, infill and no infill) are improving in performance and supporting environmental outcomes. Determine the suitability of the technology under local climate and weather conditions.
- Perimeter fencing is recommended to limit surface contamination and damage, support ball retrieval (including higher-end fencing). Consider providing clear view lines for spectators while also providing access for maintenance and emergency vehicles.

Governance and management

There are many sports field governance and management structures and approaches used across the country. These mainly fall into the following categories.

Council owned land	
1	Managed by council
2	Managed and leased by a third party/community organisation (eg, a council-owned land which is leased to a club)

Non-council owned land (i.e. trust, club, iwi, school, regional sports organisation)	
3	Leased and managed by council (eg, showgrounds leased to council for sports field use)
4	Owned and managed by a community organisation (eg, club-owned and operated sports field)
5	Owned by a school or Ministry of Education (MoE) and managed by the school
6	Leased and managed by a third party/community organisation (eg, school-owned land with the field managed by a trust)

The appropriateness of each approach depends on a number of factors, including the operating environment in which the field is being developed. Some key factors include:

- the ability of one or more entities to access capital and operating funds to develop and sustain the sports field platform
- service level and/or policy requirements of an entity or entities
- the capacity of entities to manage and operate sports fields
- the strategic fit between potential partner entities (i.e. what is its network importance?)
- the strategic approach sporting codes adopt to deliver their services (i.e. hub developments, satellite venues, dispersed/localised sites).

It is important to examine a range of ownership, governance, and management models during the project's feasibility stage. The optimal model will depend on various project-specific factors.

A high-level overview of the key considerations for each governance and management approach is outlined below.

Table 4.5 – Council-owned and managed

This ownership and management model is the most common across New Zealand, where a council owns and operates the sports field(s).

Pros	Cons
Central view of the network for meeting supply and demand requirements	Less leverage from other funding sources (capital and operational)
Council can oversee booking allocations to optimise use	Can result in slower decision-making (processes and competing priorities)
Maintenance can be coordinated as part of a centralised system	Maintenance levels are bound by service-level agreements with contractors
Typically, long-term security for sports use and wider public access	Can be inflexible in responding to changing needs
Primary investor in sports fields	High cost for council (capital and operating costs)
Strong compliance oversight (i.e. health & safety, procurement, insurance coverage)	

This structure works best when:

- there is an extensive network of sports fields
- the sports field is important within the network
- council has strong expertise, capability and capacity
- council budgets can meet field costs
- wider oversight is needed to provide suitable access to fields for the community
- the assets are high value and high risk.

Table 4.6 – Council-owned land, leased and managed by a third party

Example: Council leases the land to a community club or Trust. Varying levels of responsibilities can be bestowed on each entity as part of the lease agreement. For simplicity, it is assumed that all operating requirements are shifted to the club. This could be for use on an existing field platform or for the development of an artificial turf.

Pros	Cons
Public ownership is maintained	Accountability can become blurred – requires clear direction and responsibilities
Can best utilise skillsets and resources within the community	Less oversight of the wider network which can lead to real or perceived favouritism or field capture
In some cases, it can result in leveraging capital funds due to partnerships being formed	Can lead to a loss of flexibility to meet changing needs and community demand
Potential for closer relationships between a third party and contractors	Variable management quality
On-the-ground/sport-led management can be engaged to drive use	Potential financial burden is shifted to a community organisation which will have a potential flow-on impact for members/users
Reduced operational burden for council	Financial sustainability may rely on revenue outside of council
Enables flexibility of use and decision-making	Potential variability of condition and service levels across the wider sports field network
Can strengthen community identity and connection	Potential compliance risks

This structure works best when:

- there is strong club governance
- there are clearly defined responsibilities and service levels in the lease agreement
- there is a transparent community access policy
- council maintains strategic oversight
- capital renewal responsibilities are clearly allocated
- an asset management plan/schedule is developed and aligns with budgets.

Table 4.7 – Non-council owned land, leased and managed by council

Example: Council leases the land from another landowner (i.e. a racecourse or A&P society) and manages access as part of council's field network.

Pros	Cons
Central view of the network for meeting supply and demand requirements	Potential for tenure to not be as secure
Council can oversee booking allocations to optimise use	The landowner may have certain usage rights that may restrict or limit some use
Maintenance can be coordinated as part of a centralised system	Capital investment from council may not be as forthcoming due to lease periods and/or overriding use arrangements
Utilises existing green-space platforms to increase capacity	Condition may vary compared to the rest of the sports field network – may not meet user expectations
Strong compliance oversight (i.e. health & safety, procurement, insurance coverage)	Can result in relatively complex governance arrangements
Potential capital partnerships exist, as well as access to grant funders	Perceived expectation that the council will underwrite costs if they are not explicitly outlined and agreed upon
	Potential for strategic misalignment on community objectives

This structure works best when:

- long-term tenure is secure
- capital investment protections are included
- it offers extra capacity and/or addresses a geographic gap without significant financial impact
- council has autonomy for field allocations and bookings
- strong renewal responsibilities are embedded in the lease agreement
- an asset management plan/schedule is developed and aligns with budgets
- landowner and council strategic objectives are aligned.

Table 4.8 – Owned and managed by a community organisation

Example: A club or trust-owned and managed sports field.

Pros	Cons
Enables flexibility of use and decision-making	Financial risk for meeting required maintenance and renewal costs
Provides 'home ground' identity and culture – strong member loyalty	Reliance on governance and volunteer skillsets and involvement
Can potentially support commercial opportunities (i.e. hosting events and tournaments, naming rights, and sponsorship opportunities)	Potential for reduced broader community access (prioritised access)
Potential to leverage capital funds (potentially without needing to balance broader funding priorities) including possible philanthropic investment	Potential compliance risks (these need to be carefully managed)
Potential for closer relationships between a third party and contractors	Can potentially lead to less flexibility to meet changing needs and community demand
On-the-ground/sport-led management can be engaged to drive use	Variable management quality
If privately owned on freehold land, it may improve borrowing capacity	Potential variability of condition and service levels across the wider sports field network
Options for developing other ancillary facilities to support activity (i.e. function spaces, hospitality and gym spaces)	
Land value opportunities	

This model works best when:

- where membership and revenue are stable or growing
- strong governance and financial controls are established
- demand and commercial viability are high
- an asset management plan or schedule is developed and aligns with budgets.

Table 4.9 – Owned and managed by a school

Example: Owned by a private school or Ministry of Education and managed by the school (within the context of wider community access).

Pros	Cons
Can add to the wider network if secured for community use (i.e. adding more capacity and/or geographic coverage)	Student and school activity is prioritised over wider community use. And some access may be restricted, i.e. during school holidays
School and community use can typically be complementary (depending on field capacity and the level of school demand)	Competing pressures (including sport use) within the school environment may lead to extra wear and tear
Best utilises existing sports field platforms	User fees may be prohibitive for community access
Shared-use agreements can provide clarity on use/access, fees and standards	Access to some supporting infrastructure can be restricted for community use
Potential for shared investment (with community use) and, in some cases, alumni investment	Schools and/or the MoE may have competing investment priorities
Property and sport staff are commonly associated with schools to provide oversight and drive use	Potential variability of condition and service levels across the wider sports field network
Schools operate with risk management, safety and safeguarding frameworks	Floodlighting on school grounds is typically limited. Weekday floodlit conditions during winter is when demand is greatest
School grounds typically offer required ancillary infrastructure	If on MoE land, some developments may need to be signed off by MOE
Reciprocal arrangements can be presented to benefit the school and community access (i.e. coaching)	Perceived expectation that the school will underwrite costs if they are not explicitly outlined and agreed upon

This model works best when:

- formal agreements are in place
- access hours, fees and cancellation protocols are clearly defined
- reciprocal arrangements and/or cost sharing are in place
- there is joint governance (where applicable)
- the sports field has suitable capacity to meet school and community demand.

This content also largely applies to other education institutions i.e. universities.

Table 4.10 – Land leased and managed by a third party

Example: Most commonly used when a trust leases school land for the development and management of an artificial turf.

Pros	Cons
When located on an education-based site, it can lead to high utilisation across the week	Warranty hours may be surpassed with use levels (specifically relating to artificial turf)
School and community use can typically be complementary (depending on field capacity and the level of school demand)	Competing pressures (including sport use) within the school environment may lead to extra wear and tear
Structured scheduling for community access	Full clarity is needed on asset ownership and/or disposal at the end of the lease
Can often take a wider regional focus to allocations (particularly if located on a neutral site)	Access to some supporting infrastructure can be restricted for community use
Dedicated facility operator to manage bookings, optimise scheduling and drive use	Potential competing investment priorities and land use (now or in the future)
The third party typically holds a long-term development focus	Levels of sign-off may be required before the project can be realised
Schools operate with risk management, safety and safeguarding frameworks	Clarity is required on how maintenance, renewal and disposal costs will be covered
School grounds typically offer required ancillary infrastructure	The structure can be more complex, ensuring the interests of respective parties are included, while also comprising the required skillsets
A trust structure may assist with recruiting skilled expertise to support overseeing the asset and its use	

This model works best when:

- long-term tenure remains secure
- the third party demonstrates strong governance and financial capacity
- access rights are explicitly defined
- a transparent pricing policy is established
- responsibilities for maintenance, renewal, depreciation, and disposal costs are clearly outlined and agreed upon, aligned with the operating model and budget
- strategic alignment among all parties is established, laying a foundation for a partnership.

School sports fields

Providing sports fields at schools is essential not only for delivering physical education and organised school sport, but also as general open spaces for students, such as for use during lunch breaks. Beyond their use by schools, well-designed and strategically managed fields can serve as valuable community infrastructure, which can be realised through thoughtful partnerships.

Ministry of Education requirements for sports field developments

1. **When is approval required?** Developments on sports fields, including any ancillary infrastructure, trigger approval processes when using Ministry of Education funds. This typically involves property maintenance grants for maintenance work or inclusion in a school's property plan - such as a 5-year Agreement for capital funds (when the property is owned by the Crown). Approval is also needed if ground works are involved (i.e. when consents are required), if the proposed works involves a land lease (i.e. for assets not owned by the school) or community funding is being sought (requirement from funders).
2. **Who is involved with approvals?** Approval is required from the board of trustees (with staff consultation), the Ministry of Education, and, in some instances, another third party (eg, some sites are on iwi land).
3. **What is considered?** When assessing whether to approve funds and/or use of land, the following key factors are considered.
    - What are the impacts on the big picture? Consideration is given to the alignment and fit with the school's master plan (factors can include future roll growth and strategic land use).
    - What are the school's priorities? Need to balance all other property uses. What are the priorities and trade-offs? What benefit does the development provide the school?
    - What are the financial obligations of the school, partner and/or lessee? i.e. capital investment levels, maintenance, renewal, depreciation and disposal responsibilities and implications.
    - What is the governance structure? Ensuring there are clear roles, responsibilities, decision-making processes, and skillsets to deliver the intended outcomes.
    - Is there evidence of stakeholder engagement? Ensuring the proposed development reflects community needs and benefits, accounts for wider impacts (eg, parking, extended hours of use, noise and lighting), and identifies and mitigates risks.

It is advised that the MoE is engaged early in the process to gain clear direction and guidance for advancing any sports field project.

Roles and responsibilities

Sports field owners and users hold complementary roles and responsibilities in providing safe, high-quality, and sustainable sporting environments. Although responsibilities may differ between sites, they are outlined in general in Table 4.11.

Sports field owners should have the overall responsibility for:

1. **Activating the field(s)** - providing what is needed to enable activity.

   This includes, but is not limited to, line marking, floodlighting, goal posts, cricket pitches and backstop nets.

   This also includes reviewing field allocations and use to ensure the utilisation of field assets is optimised and aligned with community needs, participation trends, and network demand.

2. **Health and safety** – providing a safe environment for all to participate. Key components include:
   - field preparation (i.e. machinery and chemicals applied to the field)
   - goal post pads, in-ground sockets, field and perimeter barriers
   - field levels and general condition
   - safety zones/run-off areas, considered orientation of the field (relative to the sun, other potential barriers, etc.).

3. **Service levels** – providing standards.
   - sports field quality (i.e. surface levels, grass length)
   - frequency of cuts and line marking
   - grass coverage targets
   - lighting levels for training and games (lux)
   - provision of support ancillaries (i.e. toilets and changing rooms)
   - general repairs and maintenance and renewals.

4. **Overview of long-term financial and lifecycle planning**

5. **Environmental outcomes** – supporting the environment through considered water use, soil health and chemical management, biodiversity and habitat protection, energy efficiency, climate resilience outcomes, waste and resource management and land use.

Allocating responsibilities

While specific operational duties may be assigned to user groups through leases, licences, or hire agreements, the sports field or landowner generally maintains an overarching duty of care as the occupier or controlling authority of the site. This means that even when maintenance, setup, or game or event management tasks are contractually delegated to users, the owner still has to take reasonable steps to ensure the site is safe, risks are properly managed, and agreed standards are upheld.

Other factors to consider when allocating responsibilities include:

- asset protection and lifecycle risks (i.e. long-term asset deterioration, deferred maintenance, inconsistent standards) – the asset in time may revert back to the owner
- financial risk (i.e. who funds maintenance or future renewals?)
- insurance and indemnity
- compliance and regularity exposure (i.e. compliance, accessibility, environmental, planning/zoning requirements, noise and lighting controls)
- potential precedent it sets with other user groups and/or facility types
- operational control and decision-making authority
- potential inconsistencies in field standards across the network
- reputation and perception
- if a user group defaults on obligations or breaches their agreement,
- Ensuring skillset and capacity exist to undertake responsibilities.

Table 4.11 – General sports field responsibilities ✓ Responsibility for the provision of field infrastructure or services

	Sports field owner responsibilities	User responsibilities
Access and use		
Land and field control	Own / lease and manage the land, control access, set conditions of use	Use the facility in accordance with agreed conditions and undertake good field management practices to preserve quality (avoid overloading). This includes removing litter and rubbish from the sports fields after use.
Access and security	Control gates, vehicle access, emergency access, manage keys/locks	Comply with access rules, secure facilities after use if required
Bookings and scheduling	Allocate field time, manage overuse, close field when unsafe	Adhere to booking times, vacate when required, accept closures
Field requirements		
Playing surface	Field preparation and maintenance in line with service levels and sporting code requirements ✓	Report damage, avoid use when closed, minimise unnecessary wear (apply good field management practices (i.e. rotating fields or areas of fields for training).
Line marking	Provide correct dimensions, ensure visibility and accuracy, manage multi-sport conflicts ✓	Request correct layout (if seasonal), avoid altering lines without approval
Goals and fixed sports infrastructure	Supply or approve goals/posts, ensure anchoring, stability and compliance, maintain sockets, provision and quality of cricket pitches, diamond mounds and bases, compliant floodlighting (lux-level aligned to activity). ✓	Inspect before use, do not modify, report defects. If training lights are not automatic, ensure they are not left on beyond the booking time (while ensuring sufficient time for users leaving the site).
Safety equipment (eg, pads)	Provide or approve required safety padding and safety zones (including field and perimeter barriers) ✓	Ensure pads and perimeter barriers are installed before play, report missing/damaged items ✓
Compliance with governing body standards	Ensure facilities meet required standards for approved level of play	Ensure competition rules, officials, and team requirements are met
Portable/matchday equipment	Define what must be provided and approve items where necessary	Supply agreed portable items (eg, corner flags, benches) ✓
Core ancillary requirements		
Amenities (toilets)	Provide facilities proportionate to level and type of use, maintain cleaning and compliance ✓	Use responsibly, report issues, manage event-specific needs if large crowds
Changing rooms	Provide where required by level of play or competition, maintain privacy, safety and hygiene ✓	Respect allocation, manage team behaviour, leave in reasonable condition (note the user can also provide changing rooms, typically part of clubrooms). ✓
Training infrastructure (eg, cricket nets)	Provide baseline infrastructure where sport is regularly programmed, maintain condition and structural integrity ✓	Supervise use, prevent misuse, report wear or vandalism
Risk management		
Risk management and inspections	Conduct routine inspections, maintain records, decide go/no-go for play	Conduct pre-training and game visual checks, notify owner of hazards or where service levels are not being met.

Environmental outcomes

Sports fields are increasingly being recognised as more than just recreational spaces - they can serve as multifunctional green spaces that provide important environmental outcomes, particularly in stormwater management, flood mitigation, and ecological benefits.

1. **Stormwater retention and infiltration (small to moderate volume)**

   Natural absorption: grass fields naturally absorb rainwater, reducing surface run-off. Well-maintained fields can infiltrate larger volumes of water.

   Engineered designs: fields that have been engineered with layered soil profiles, sand-based subsoils and/or drainage systems have increased infiltration capacity.

   Retention basins: some fields have been specifically designed to temporarily store stormwater before it filters into the ground.

2. **Flood mitigation (high volume)**

   Buffering peak flows: during intense or high rainfall periods, sports fields can act as temporary water storage areas, absorbing water that would otherwise contribute to flooding.

   Flexible land use: some multifunctional sports fields are designed to act as detention reservoirs, specifically to serve as floodable areas during extreme weather events.

   See the Greenslade Reserve (Auckland) Case Study.

   Delay and dispersion: by retaining water and slowly releasing its movement into drainage systems, the field reduces peak flow rates in stormwater networks, lowering flood risks downstream.

3. **Biodiversity and ecosystem benefits**

   Habitat Provision: natural sports fields can support small-scale biodiversity, including pollinators and soil microorganisms.

   Connectivity: sports fields often serve as green spaces within urban areas, connecting larger green corridors and supporting ecological networks.

   These attributes should be recognised and considered, in partnership with mana whenua, as part of any sports field development project. It is important to recognise the wider benefits that sports fields can provide for local communities, mana whenua, and the wider ecosystem.

Flood mitigation in action

Greenslade Reserve (27 January, 2023 at 6pm)
Source: Kate Johnson

Greenslade Reserve (28 January, 2023 at 11am)
Source: Northcote Development

While the open green space provided through sports field development can support positive environmental outcomes (as outlined above), the development and operation of sports fields inherently generate environmental impacts, as with any form of land development. These impacts may include vegetation removal, soil disturbance and compaction, altered stormwater run-off patterns, irrigation demands, fertiliser and chemical use, energy consumption (particularly for floodlighting), use of inorganic materials, and ongoing maintenance-related emissions. Even modest field upgrades can lead to cumulative environmental effects over time.

Historically, sustainability initiatives have often been seen as trade-offs to manage alongside capital costs, performance needs, and capacity limits. However, there is now a growing focus on environmental outcomes through laws, local bylaws, and the strategic aims of funding organisations. As a result, sports field owners and managers need to stay proactive in meeting changing compliance requirements and aligning projects with new funding and policy priorities.

Approaches to improving environmental outcomes

Sport NZ sustainability theme	Examples
Energy	Use of energy-efficient LED floodlighting with smart controls Lighting design that reduces spill and unnecessary energy Energy-efficient pumps for irrigation systems
Material	Minimising soil disturbance Reusing topsoil and material on-site (where possible) Use of durable, low-maintenance materials Utilising existing infrastructure (where possible and applicable) Source local materials (where possible) Considering organic fibres or infill for artificial turf Considering new 4G artificial turf options as technology evolves and becomes certified Rehome artificial turf and infill for other purposes once it has reached its end-of-life Regular maintenance is carried out to reduce the need for larger renovation or replacement works (extend or preserve life expectancy) Material stripped from a surface can be used to top-dress other fields
Water	Designed to meet stormwater retention and flood mitigation outcomes (see above) Use of smart controllers and soil moisture sensors for irrigation systems Reduce reliance on drinking water by harvesting and reusing water, or sourcing alternative water sources (eg, bore water) for irrigation Selection of grass species suitable for the local climate conditions to reduce irrigation demand Minimising nutrient run-off to protect adjacent waterways

Relevant links/resources

Sport New Zealand (2024). Environmental Sustainability Guidelines for Spaces and Places.

Stage 5:
Preferred option identified

Stage 1: Needs analysis → **Stage 2:** Direction and guidance → **Stage 3:** Options identification → **Stage 4:** Options assessment and feasibility → **Stage 5:** Preferrred option identified

Assessing the options

In response to the needs identified in Stage 1, the sports field options from Stage 3 should be assessed against the key factors and considerations outlined in Stages 3 and 4. This assessment will then establish the preferred development option for further detailed investigation.

The following tables serve as a basic checklist to ensure all key sports field development components have been considered, and to help identify potential variables for the options assessment (note this should be tailored to suit the specific context and setting of the project).

Initial considerations	Checklist	Notes and comments
Identified needs		
Sports field needs have been identified and validated		
Optimising what we have		
Optimisation of existing sports fields has been explored		
Alternate options across the wider sports field network have been considered		
Alternate partnership options or access to other fields have been explored		
Mana whenua have been approached about potential sports field responses and identifying any site-specific cultural considerations		

Field assessment considerations (where applicable)	Status Quo[1]	Development Option A	Development Option B	Development Option C	Notes and Comments
Surface performance and capacity					
Meets projected usage demand in summer					
Meets projected usage demand in winter					
Meets anticipated recovery rate between high-use periods (based on forecast and type of demand)					
Achieves required performance consistency in wet conditions					
Has the ability to accommodate multiple codes and activities (year-round – including potential displacement of existing activities)					
The specification aligns with the intended use and need					
Site compatibility					
The site is suitable for the development (i.e. topography, soil attributes)					
Drainage feasibility and effectiveness					
Irrigation needs/water availability requirements align					
Required level of service infrastructure available to support the development (i.e. water and power supply, water connections)					
Required level of ancillary facilities available to meet demand (i.e. changing rooms, toilets, social spaces, storage or an upgrade or new facility is needed)					
Planning constraint implications addressed (i.e. resource or building consents)					
Maintenance and operations					
Are maintenance levels/intensity affordable?					
Can we afford the required specialist skills and machinery?					
Are performance outcomes and renewal periods at risk if maintenance budgets are lowered?					
Are operational uncertainty risk levels, such as risks of closure, acceptable?					
Whole-of-life costs					
The construction cost is viable					
Whole-of-life cost profile (over 30 years) aligns with budgets and funding plan					
Potential financial impact on ratepayers, field owner and/or users is acceptable					
Environmental impacts					
Protects/enhances the natural environment (i.e. stormwater retention and flood mitigation).					
Sustainability practices are incorporated (energy, material or water considerations).					
Ability to minimise or mitigate environmental impacts					

1 Note: Status quo may include an enhancement of the existing field platform to increase performance.

Other considerations

Cultural outcomes have been considered and factored into the project
Governance and management
Suitable structure identified to oversee and optimise asset management

Moving forward

Once the preferred option has been identified, approvals will be required to advance through the next stages. While there are various forms of approval steps required based on ownership and governance structures, a general process is followed.

Feasibility study or business case

A case for investment (in the form of a feasibility study or business case – or both depending on project scale) will typically be required regardless of the sports field owner. Funding will need to be considered by elected members or other governance authorities against all other investment decisions). In many instances funders require a feasibility study or business case – typically for large projects over $250,000. Approval to proceed also provides guidance on the strategic intent and interest of decision-makers.

The information gained during Stages 1 to 5 should fulfill the key requirements to present the case for investment. Note this information can also be used to gain landowner approval (if different processes are required).

Investment

If approved, funds should be used to undertake design, technical assessment and consent works, before construction funds are applied for and/or allocated.

A staged process is recommended, as it allows more investigative work to be undertaken, providing greater certainty about the scope of works and associated construction costs (know what you are dealing with before seeking capital investment).

Design and technical requirements

This stage includes engaging consultants to undertake concept designs, technical assessments (i.e. surveying, geotechnical and civil engineering), consent requirements and cost refinement.

Capital investment

Application for capital funds is based on refined cost estimates and quotes – informed by technical assessments and more detailed concept designs.

Procurement

When funds are fully secured, determine the procurement strategy to be used, evaluate proposals, select and award the contract.

Construction

Undertake construction as defined in the contract and/or any variations agreed upon.

Inspect, hand over and use

Complete performance testing, defect correction, confirm maintenance requirements and use the field in line with recommended usage profiles.

Appendix

Overview of field options and case studies

Appendix A: Summary of field options

Field category	Field type	Subcategory	Description	Key limitation(s)	Requirement for compliance testing	Construction costs ($/9,000sqm)	Required maintenance expertise	Estimated annual maintenance cost for medium quality fields ($/9000sqm/yr) Note 1		Estimated lifespan (years)	Anticipated use (adult hrs/week) Note 2				Predictability of use/risk of closure during winter	Irrigation requirement Note 3
											Cool-season grasses		Warm-season grasses			
								Cool season	Warm season		Winter	Summer	Winter	Summer		
Traditional soil-based fields	Undrained soil	Sand	Traditional 'soil fields' that are built on local sand deposits and which are usually found within 1km of the coast	Summer drought and slow recovery during autumn unless irrigated		$161,000	Medium	$20,450	$21,477	Unlimited	8-10	10-15	10-15	10-15	Unlikely to be closed due to rain	Yes
		Good quality soils	Traditional soil fields constructed on typically volcanic or peat soils as occurs around Northland, Waikato, Bay of Plenty, Taranaki	Surface sealing during winter can lead to ponding and muddy conditions		$161,000	Low	$20,450	$21,477	Unlimited	8-10	10-15	10-15	10-15	Unpredictable but closure unlikely except during exceptional rainfall events or rain occurring over 3 or more days	Unlikely
		Constructed profiles/poor draining soils	Constructed profiles refers to fields whereby the topsoil is removed, the subgrade reshaped and topsoil is re-laid. As a consequence the soil structure and hence drainage is destroyed or severely compromised. OR Soils constructed of silt, loess and clay soils	Poor drainage during winter, high risk of closure following even light rain, which can last for several days even where rain doesn't reoccur, often poor (muddy) winter playing conditions		$161,000	Low	$20,450	$21,477	Unlimited	6-10	8-15	6-10	8-15	Unpredictable - high risk of closure and closure for many days following the rain stopping	Unlikely
	Sand topdressed		Soil fields constructed of good quality soils, can be improved by sand topdressing during autumn with 2-5mm of sand (depending on budget). Irrigation is not usually required unless it is required due to climatic limitations for a traditional soil field (<1000mm average rainfall/year).	Still a soil field so use is unpredictable		$161,000	Low	$27,762	$28,789	Unlimited	8-10	10-15	10-15	10-15	Unpredictable but closure unlikely except during exceptional rainfall events or rain occurring over 3 or more days	Unlikely

Field category	Field type	Subcategory	Description	Key limitation(s)	Requirement for compliance testing	Construction costs ($/9,000sqm)	Required maintenance expertise	Estimated annual maintenance cost for medium quality fields ($/9000sqm/yr) Note 1		Estimated lifespan (years)	Anticipated use (adult hrs/week) Note 2				Predictability of use/risk of closure during winter	Irrigation requirement Note 3
								Cool season	Warm season		Cool-season grasses		Warm-season grasses			
											Winter	Summer	Winter	Summer		
Traditional soil-based fields	Pipe drained and mole ploughing		Depending on future intentions for the field and/or site considerations, pipe drains are installed at 5 or 10.0m centres. Other spacings are possible.	Excluding high water table situations, pipe drains act as collectors and drain very limited distances either side of the pipe. Secondary treatments are required to encourage water movement from the surface and soil profile to the installed drains.		$226,000	Low	$22,417	$21,477	30-40 years	8-10	10-15	10-15	10-15	Unpredictable. (Pipe drains can reduce the interval that the field must be closed after rain stops and before play can recommence).	Unlikely
	Pipe drainage and secondary drainage (sand or gravel banding)		10-25mm wide bands, installed 400mm (approx..) apart and to a depth of up to 250mm are backfilled with approved sand (sand banding) or gravel and maybe sand combinations (gravel banding). The 'bands' are usually installed by disc-like coulters, prying soil surface open and injecting the approved aggregate. These options are usually coupled with a shallow (typically <25mm deep) layer of approved sand.	These secondary treatments that encourage water movement to the drains are short lived (unless covered with a reasonable sand depth as 'bands' rapidly seal off.		$305,520	Low	$27,762	$28,789	30 to 40 years Note 4	8-10	10-15	10-15	10-15	Unpredictable. (Pipe drains and gravel/sand banding can reduce the interval that the field must be closed after rain stops and before play can recommence).	Unlikely
Sand-based fields	Sand carpet		Pipe drains are normally installed at 10.0m centres and slit drains at 1 - 2m centres. Slit drains are 50mm wide trenches excavated to depth of 300mm and backfilled with approved sand and drainage metal.	*Poa annua* dominance on ryegrass fields, over-watering and excessive organic matter accumulation.		$955,000 (incl. flood-lighting)	High	$92,500	$83,500	10 to 17 years (subject to laboratory testing)	15-20	15-20	15-20	15-20	Play should be possible once rain stops. Risk of closure, negligible.	Yes

Field category	Field type	Subcategory	Description	Key limitation(s)	Requirement for compliance testing	Construction costs ($/9,000sqm)	Required maintenance expertise	Estimated annual maintenance cost for medium quality fields ($/9000sqm/yr) Note 1		Estimated lifespan (years)	Anticipated use (adult hrs/week) Note 2				Predictability of use/risk of closure during winter	Irrigation requirement Note 3
								Cool season	Warm season		Cool-season grasses		Warm-season grasses			
											Winter	Summer	Winter	Summer		
Natural and artificial grass (hybrid turf) on sand	Sand carpet and hybrid turf		Various carpet and stitched options exist that stabilise the surface when the grass cover is worn away.	*Poa annua* dominance on ryegrass fields, over watering and excessive organic matter accumulation. Requirement to resurface the field every 2-4 years to retain hybrid turf fibres, close to the surface and the subsequent closure of field for 16 weeks to re-establish a turf cover.		$1,450,000 (stitched) $2,350,000 (carpet) (incl. flood-lighting)	High	$92,500	$83,500	2-4 years Note 5	22-30	22-30	22-30	22-30	Play should be possible once rain stops. Risk of closure, negligible.	Yes
Artificial	Artificial		Artificial carpet filled with various amendments, overlying a shock pad and engineered bases	Infill, specifically crumb rubber, (SBR) can be an issue for some councils given potential contaminants. Micro-plastics as a result of wear are increasingly an international issue and are expected to be a NZ issue in the future.	World Rugby 2yrs FIFA Quality Pro 1yr FIFA Quality 3yr FIH 2yr	$3.6 million (incl. flood-lighting)	Low (specialised machinery required)	$42,000		10 years for carpet (2 to 3 changes of carpet before replacing the shock pad	40 to 50				Play should be possible once rain stops. Risk of closure, negligible.	Maybe

Note 1: Maintenance costs are based on 'optimal level' - optimises both the amount of use and longevity of the asset.

Note 2: The estimated hours of use (excluding fields with hybrid systems installed and known wear areas eg, lights, goal mouths) is based on having 95% ground cover at the end of the season to support rapid change-over between the summer/winter codes. Hours of use will depend on location within NZ, but have been banded based on insights from councils and contractors. The further south the field is located, the less growth and hence recovery over winter that will occur, which limits the amount of use possible.

Note 3: Drier parts of NZ (less than 1,000mm of rain per year) will likely require irrigation installed on those fields with the highest playing expectations and/or where summer playing levels are greater than 10 adult hours/week. This is to ensure adequate turf density during summer and for the start of the winter playing season.

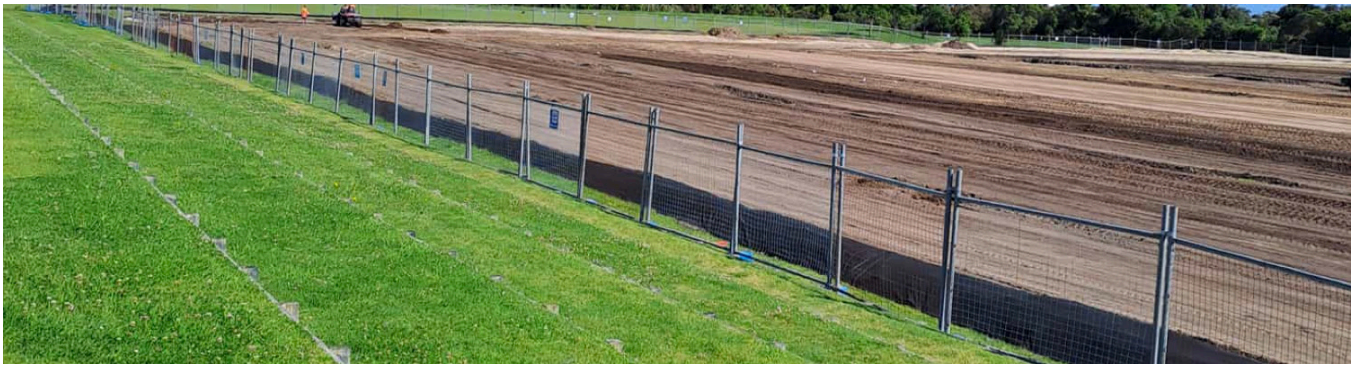
Note 4: The effectiveness of gravel banding/sand banding relies on a 'clean' link with the soil surface. Very quickly, typically within 2 years of installation the surface of the 'bands' becomes 'sealed off' from clippings, worm castings and soil from play severely compromising their effectiveness.

Note 5: The basis of hybrid turf systems is that the fibres must remain at the surface to provide the playing benefits offered. Over time the effects of growth will bury the artificial fibres of the hybrid system.

Note 6: More detailed insights and assumptions of costs are outlined in the Cost analysis section and detailed in the construction and maintenance calculators.

Appendix B: Case studies

Gordon Spratt Reserve
Optimising existing platforms



Optimisation	Grass type conversion	Water constraints

Setting

Tauranga City Council was experiencing significant capacity constraints across the sports field network and needed to increase available hours of use, while improving resilience to climatic conditions and high-intensity use. Gordon Spratt Reserve, as the primary sports precinct serving the rapidly growing Pāpāmoa catchment, was identified as a priority site for field works to effectively meet current and future demand.

Original site setting of Gordon Spratt Reserve

- Sandy loam fields which are free draining but with low nutrient/water retention.
- Reliance on town water supply which was capped and couldn't be used most summers for irrigation.
- Various field platform levels (3 rectangular field platforms with drainage swales between them).
- Use of cool-season grasses (ryegrass and *Poa annua*).
- High field demand – increasing and sustained demand for sports fields arising from growth in community, club, and social sport participation across both winter and summer seasons, creating significant competition between user groups.

2023/24 response

1. **Reshaping:** the field platforms were merged to create a single flexible platform.
2. **Bore installation:** a new bore was installed to reduce reliance on the municipal water supply.
3. **Irrigation:** a new automated irrigation system was installed.
4. **Optimise sand subgrade:** gravel banding was installed to link the surface with the underlying sand subgrade, optimising the site's naturally free-draining coastal soils.
5. **Grass type conversion:** Couch turf (a warm-season grass) was established to improve tolerance to the warm climate and intensity of use.
6. **Field configuration:** fields were reoriented on the single platform, increasing capacity from 3 to 4 full-sized fields. This also enabled the inclusion of a clay cricket block between fields.
7. **Increasing demand:** High usage and limited seasonal down periods meant approaching delivery with a 'do it once' methodology, strategically phasing the upgrade of various fields in such a way that 'business as usual' disruptions was the necessary appraoch.
8. **Cost:** $660,000.

Lessons learnt

- Increased capacity can be achieved by optimising existing field platforms, without necessarily upgrading to alternative field types. This can include reshaping and reorienting platforms, and selecting grass species suited to the local climate and intensity of use.
- A range of options should be explored to reduce or remove reliance on municipal water supply.

Impact

- Capacity increased through the provision of an additional full-sized field and a natural cricket block.
- Transitioning to a warm-season grass and introducing a non-potable irrigation source has improved field performance and enabled more consistent year-round use.
- This approach has been rolled out more widely across Tauranga, with additional warm-season grass conversions undertaken. In many cases, this has been a relatively straightforward process involving removal of existing cool-season grasses, laser levelling, and re-establishment of couch. This approach was also applied to 2 additional fields at Gordon Spratt Reserve in 2024/25.

Sister Rene Shadbolt Park

Sand carpet pitch renewal

Optimisation	Sand carpet	Increase capacity	Network

Setting

Auckland Council has a large network of soil and sand carpet sports fields across the city. Sand carpet fields are critical for maintaining winter sports capacity across Auckland because they can sustain higher levels of use and recover more effectively during wet weather conditions.

However, the performance of sand carpet systems declines as drainage efficiency reduces and turf quality deteriorates. This necessitates periodic renewal, typically every 10 to 15 years, while providing an opportunity to upgrade basic field components.

By 2023, the No.1 sand carpet field at Tiakina/Sister Rene Shadbolt Park was not coping with normal use levels because of a reduced drainage rate and poor-quality turf cover.

2023/24 State of play and response

1. **Drainage:** Investigation revealed that the existing lateral and slit drains needed to be replaced but the main collector drains were able to be reused.
2. **Sand carpet:** The poorly drained top 25mm of the sand carpet had to be removed to link with the better draining sand carpet layers beneath.
3. **Irrigation:** The existing irrigation system was upgraded through replacement of the ageing sprinklers and installation of a booster pump, significantly improving irrigation uniformity and overall water application efficiency.

4. **Grass type:** The original sand carpet was planted with couch but over time that had naturally declined and been replaced by a mixture of Kikuyu and cool-season grasses like ryegrass and *Poa annua*. As part of this renewal, the field was re-established in Kikuyu which has become Auckland Council's preferred warm-season grass species (superseding couch). Couch has been widely on Auckland Council sports fields, but it has proven to be difficult to retain as the dominant species. Reasons for this include marginal adaptation to the climate and limited options for controlling invasive species especially Kikuyu. Kikuyu has become Auckland Council's preferred warm-season grass species for sand carpets because it is significantly better suited to the Auckland climate than couch, it is already naturally present on many sports fields (and difficult to eliminate) and is not reliant on annual overseeding with ryegrass.
5. **Spoil disposal:** Disposal of excavated sand carpet material can represent a significant project cost, particularly where contamination testing requires disposal to managed landfill facilities. In this project, testing confirmed the spoil material could be classified as clean fill. Rather than sending the material to landfill, it was repurposed at 3 local golf courses where it was used for fairway topdressing and mound construction. This approach delivered substantial cost savings while also enabling beneficial reuse of quality soil material.
6. **Cost:** Total cost of the sports field renewal was around $290,000.

Lessons learnt

- Renewal projects provide valuable opportunities to upgrade core components of sand carpet systems, including drainage, irrigation infrastructure, and turf species selection.
- Improved irrigation uniformity and establishment of a complete Kikuyu turf cover are expected to reduce long-term irrigation demand and improve water use efficiency.
- Significant savings in the cost of spoil disposal may be possible if alternatives to landfill are sought.
- Renewing ageing sand carpet systems can substantially improve both surface quality and field carrying capacity.

Impact

- The renewal significantly improved both the quality of the playing surface and the overall carrying capacity of the field.
- Maintaining and renewing ageing sand carpet fields is critical to sustaining the overall use capacity of Auckland Council's wider sports field network.
- Establishment of a uniform Kikuyu turf cover is expected to simplify ongoing maintenance operations and reduce long-term maintenance costs.

Levin Domain
Maximising a natural field

Optimisation	Asset management	Field management

Setting

Levin Domain has most recently been used extensively for rugby, serving as the home ground for the Horowhenua-Kāpiti Rugby Football Union and 2 local rugby clubs. The field regularly accommodates 3 club rugby matches each Saturday, often with no recovery period.

Horowhenua District Council and key Domain stakeholders identified an opportunity to increase use of the site by broadening the range of sporting codes accommodated, while also enabling more non-sport community activity. This strategic vision needed to be balanced against constrained capital and maintenance budgets.

Original site setting of Levin Domain

- The turf composition was approximately 95% *Poa annua* and 5% weeds.
- Moisture was restricted to the top 20mm of the turf profile caused by the *Poa Annua* thatch levels.
- The underlying profile had excellent drainage characteristics, supported by sandy loam soil and a riverstone foundation.
- Budget constraints meant full subsoil drainage or sand carpet redevelopment options were not financially feasible or sustainable.

Response

A pragmatic, lower-cost turf renewal approach was implemented:

1. **Surface preparation:** the existing grass species and thatch build-up were removed through herbicide application and heavy scarification to remove dead organic matter.
2. **Surface establishment:** 20mm of turf sand was applied and laser-levelled. The field was then undersown with sports-type ryegrass, supported by fertiliser to encourage seed establishment.
3. **Duration:** the process included approximately 2 months of preparation works (including 6 weeks for spraying and 2 weeks for scarification, sand application, levelling and undersowing), followed by an 8-week field closure period to allow for grass establishment.
4. **Cost:** the works were completed in 2015 within an allocated budget of approximately $40,000 (like-for-like works would cost around $55,000 in 2026).

Lessons learnt

Consider alternate options: not all improvements require major capital investment. Investigating practical, lower-cost solutions can help optimise existing assets. Align with realistic capital and maintenance budgets.

Establish a clear vision: early engagement with park stakeholders is essential to understand site needs and aspirations. This helps shape both strategic direction and operational responses.

Focus on the basics: core turf management practices, delivered to a high standard, can achieve significant outcomes, particularly where budgets are constrained. This can be further optimised by an engaged workforce which is passionate about the desired outcomes.

Think of the field as a public asset: improving turf quality can help deliver wider community outcomes by enabling more diverse use, reducing barriers to access, and supporting sport, recreation, and community events.

Impact

The project delivered several positive outcomes:

Drainage performance: moisture infiltration rates improved notably.

Aesthetic: the field developed a strong, dark green ryegrass surface.

Surface stability: user feedback indicated improved turf stability, supported by the deeper rooting characteristics of ryegrass.

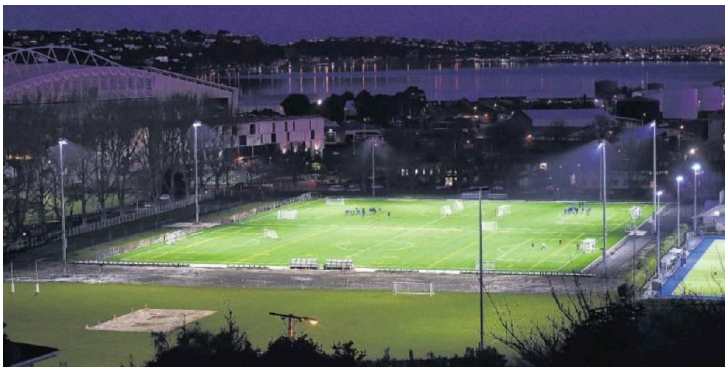
Increased carrying capacity (more hours of use): the improved surface enabled a broader range of use, including college football under lights, transformation into a baseball diamond for the Mid-Summer Blast National Baseball Tournament, and community events such as the Christmas Carnival.

Level of play: the improved surface supported hosting higher-level fixtures in Levin, including Super Rugby, Super Rugby Aupiki, Heartland Championship, and NPC provincial rugby matches.

Wider benefits: the ability to host higher-level fixtures, major events, tournaments and festivals aligned with broader outcomes sought by Horowhenua District Council, including:

- Providing opportunities for the community to experience high-level sport locally, creating aspirational pathways and inspiration for youth participation.
- Increasing visitation to the region, generating associated economic benefits for local businesses and the wider district economy.

Logan Park
Artificial turf development



Turf development | **Funding approach** | **Design partnerships**

Ownership and management structure

Setting

The artificial turf project at Logan Park in Dunedin was initiated after the city had the role of host venue for matches during the 2015 FIFA U-20 World Cup. A key objective for the city was to secure a lasting legacy from the event, and an opportunity emerged to obtain funding from FIFA to support the development of a new artificial turf facility. This initiative also responded to challenges experienced across the sports field network, including the deterioration of natural grass fields in poor weather and a shortage of floodlit playing capacity across the city.

Response

1. **Scope:** 2 adjacent full-sized artificial turf fields with a cricket pitch in between. One field has dedicated football markings, and the second has dual football and rugby markings.
2. **Certifications:** FIFA Quality standard; World Rugby
3. **Cost:** $4m
4. **Funding mix:** initial **seed funding from FIFA** (FIFA Forward Programme) leveraged investment from **Dunedin City Council, grant funders** (including Lotteries - Community Facility and Significant Projects Funds, Otago Community Trust, The Lion Foundation, Alexander McMillan Trust, Aotearoa Gaming Trust, New Zealand Football Foundation), **philanthropy** (Edgar Family Foundation) and through **partnerships** (the Highlanders).
5. **Opened:** 2019
6. **Ownership and management:** Southern Football (formerly Football South) initiated the project and was the lead for securing funding. Once secured, Dunedin City Council oversaw project delivery, and when completed, the turf was transferred to Dunedin City Council ownership (asset ownership and maintenance). Although the turf is part of Council's field booking system, peak periods have been identified and Southern Football has an exclusive usage timetable that allows them to determine how to best utilise the turfs for local football.

Lessons learnt

- Base the turf on a neutral, centrally located site to increase accessibility and remove perceptions that it primarily benefits one club.
- Fully explore options and engage the community and prospective partners. The initial concept was for one turf but based on investigations and engagement this expanded to 2.
- Provision of an additional warm-up area would be advantageous to support scheduling/use and reduce contamination of the artificial turf.
- Ensure there is a sufficient number of changing rooms and toilets provided to meet use generated by the turf(s).
- Consider the potential impact on clubs and their clubrooms when activity is centralised.
- Provide suitable and well-located storage, including roll-off spaces for portable goals.
- A strong project lead and early seed funding are critical to generate project momentum.
- Allow flexibility to alter field sizes to accommodate different grade and format requirements.
- Direct field allocations to Southern Football enable more effective scheduling than a general booking system, as they understand seasonal requirements, training needs, competition formats, and can balance the needs of different clubs.

Impact

- Reduced damage and renovation works have increased quality across the field network.
- Provides certainty of play across the city when other grounds are unavailable.
- Economic return through tournament hosting – boosted by having 2 adjacent fields to use.
- Ability to host National League games.
- Supports fitness, rehabilitation and set move training for the Highlanders, football programming throughout the year, holiday programmes, cricket (some Friday evening games) and Volts training.

Links Avenue

Artificial turf development, Tauranga

Turf development	Environmental	Design considerations

Setting

Supply and demand analysis undertaken across Tauranga City identified a current deficit in winter field hours, with this shortfall expected to increase with population growth. This shortfall was mainly driven by football demand. At the same time, Council land acquisition decisions needed to balance future sports field provision with competing demands, including housing, while also considering land prices and availability across the city.

To enhance capacity within the existing network while supporting citywide football outcomes, the development of an artificial turf at Links Avenue was identified as the most suitable option.

Response

1. **Scope:** 1.5 full-sized artificial turf platform (dedicated to football), floodlights, car park developments (including the purchase of adjacent property), dugouts, fencing, a hardstand area for marquees and bike stands, and landscaping. A reinforced wall was required at one end, with mana whenua design incorporated.
2. **Certifications:** FIFA Quality standard
3. **Environmental considerations:** environmental outcomes were a key consideration, guided by learnings from other councils, iwi engagement, resource consent requirements, and strategic goals. This approach led to the selection of sugar cane fibres and BrockFILL infill (wood-based particles as an alternative to rubber).

4. **Cost:** artificial turf cost of $4.5 million (inclusive of earthworks, turf, pavement, fencing, lighting, importance of collaborating with p&g and margins), with a total project cost of $8.2m.
5. **Funding mix:** fully funded by Tauranga City Council (TCC).
6. **Opened:** 2025
7. **Ownership and management:** the turf is owned by TCC, which also manages bookings for club and user group training to support citywide access. Competition times are allocated in blocks to WaiBOP Football, allowing them to schedule games as needed.
8. **Location:** links Avenue was chosen as the preferred site because of its central location and access to major arterial routes. The land was large enough to fit 1.5 turfs, had supporting infrastructure in place, and caused minimal disruption to other sports and users. It was a popular football venue with an active, well-established club, and was used by FC Tauranga Moana as part of the city's football development pathway. The site also presented fewer constraints and development challenges.

Lessons learnt

- As the first artificial turf (excluding water-based hockey), it offers an opportunity to assess broader impacts across the network. This includes supply and demand dynamics, the ability to fit in suitable renovation periods, maintenance cost effects, and participation outcomes.
- The relative advantages of a club-domiciled site versus a neutral venue should be carefully evaluated to achieve desired outcomes, including participation and use, accessibility, potential displacement of or impact on other users and related infrastructure costs.
- Providing a dedicated warm-up area helps reduce wear and tear in high-use zones, especially the penalty box, and minimises contamination of organic material on the turf surface.
- Maintaining a mix of natural and artificial fields on-site supports player preferences and offers greater flexibility.
- Supporting infrastructure and ancillary facilities is an essential consideration in planning. This includes the location of the primary natural field relative to clubrooms, connectivity and access to the turf, parking capacity, and service infrastructure to meet demand. It also includes safe and efficient site access, such as vehicle entry and circulation, pedestrian crossings, and cycleway connections.
- It is important to collaborate with other council departments around ageing services and taking the opportunity to renew or upgrade these services prior to turf construction. This ensures the turf will not be compromised when service renewals are required and better aligns the lifecyle of both assets for future renewals and replacement.
- Actively engaging with and learning from other organisations that have developed artificial turf facilities across the country can provide valuable insights.
- Addressing environmental factors during the design process was crucial in enabling the project to move forward.
- Keeping a centralised overview of bookings allows the council to offer access to a broader range of clubs and users, including those not based at the site, supporting a network-wide approach to allocation.

Greenslade Reserve
Flood mitigation

Flood mitigation | **Sand carpet development** | **Partnerships**

Setting

Northcote in Auckland has experienced recurring stormwater flooding, driven in part by historic and ongoing urban development that has modified the natural alignment and function of the Awataha Stream. Sections of the stream have been diverted and piped, reducing natural floodplain capacity and altering flow dynamics across the catchment.

The stream corridor passes through Greenslade Reserve, where a single soil-based sports field occupied a low-lying area. This location is inherently prone to water accumulation, and the field presented poor drainage performance, with frequent periods of waterlogging following rainfall events. During significant storm events, limited storage capacity and constrained flow paths contributed to downstream flooding impacts within the Northcote town centre and surrounding residential areas.

Response

A multifaceted transformation of Greenslade Reserve was undertaken to:

- improve water quality and drainage
- reduce flooding within the Northcote town centre
- enhance the playing surface (increasing playing capacity) and associated amenities for community use
- reconnect the community with the natural environment through a native planted wetland.

These works formed part of the wider Awataha Greenway Project and the regeneration of Northcote's town centre.

1. **Scope:** lower the playing field by 1 metre (establishing a basin), daylighting and redirecting stormwater infrastructure and constructing a sand carpet sports field with integrated drainage and irrigation, established in couch grass (warm-season grass).
2. **Partnership:** a collaborative approach involving Auckland Council, Kaipātiki Local Board, Auckland Urban Development Office (formerly Eke Panuku Development Auckland), Northcote Development (Kāinga Ora), mana whenua, and local stakeholders
3. **Completed:** late 2022/early 2023

Impact and lessons learnt

Integrated design: The project demonstrates how stormwater management, recreation, and ecological restoration can be successfully combined – working with natural systems rather than against them.

Flood mitigation performance: The Reserve now functions as a detention basin storing approximately 12 million litres of stormwater before controlled release downstream. It played a critical role in reducing flood impacts within the town centre during the 2023 Auckland storm events, shortly after project completion.

Limits flood duration and recovery impacts: the integrated drainage system accommodates high volumes of water during storm events, but drains quickly once rainfall subsides. This minimises downtime for sport and recreation. As the reserve is designed for the flooding, there is limited or no cost to remediate the field after the flooding event.

Climate resilience: With increasing frequency and intensity of short-duration storm events, integrated and adaptive stormwater systems are essential to improving urban resilience.

Multi-benefit outcomes: The project delivers broad co-benefits, including ecological enhancement, flood mitigation, cultural value, and improved recreational provision.

Enhanced sports field performance: The upgraded field platform significantly improves drainage and usability, increasing capacity on a previously underutilised asset within an area experiencing sports field provision shortfalls.

Information acknowledgements: Isthmus, Auckland Council and Northcote Development.

Massey University
Sports field provision

Optimisation	Partnerships	New developments

Setting

Massey University's Palmerston North campus continues to play a key role in the region's sports network, providing facilities that support both university and community sports, and serving as a venue for larger events.

Physical attributes of the site

- The campus contains one of the largest single sports field sites in Palmerston North and the wider district, including 11 sports fields, a synthetic athletics track, and a water-based hockey turf.
- The fields are supported by good quality soils and irrigation systems, helping maintain quality playing surfaces.
- The site includes supporting infrastructure such as a large car park, changing rooms, toilets, and nearby accommodation that support sports activities and events.
- The large land area and existing facilities provide opportunities for future sports facility development.
- As a major centre for employment and education in the region, the university benefits from good transport links to the city, making the campus well-positioned to serve citywide and inter-district sporting activities.

Partnership attributes

- Palmerston North City Council recognises the important role that Massey University's sports facilities play in enabling community sport participation - helping accommodate demand that council-owned fields alone cannot support
- Massey University aims to optimise the use of its sports assets. When fields are not required for university activities, they can be made available to the community
- the council's interests extend beyond sports fields, encompassing formal and informal partnerships and investments in the hockey turf, athletics track, and outdoor netball and tennis courts. This highlights the strategic importance of the site and the value of partnerships to access land, optimise facility use, and share costs to achieve mutual benefits.
- collaboration occurs between Massey University and regional sports organisations to manage field allocation, access, and scheduling.

Lessons learnt

- Clear roles and responsibilities must be established for the maintenance and long-term renewal of facilities.
- Ongoing coordination and collaboration between all partners are essential to ensure effective management and shared use of the site.
- It is important to recognise sports field opportunities beyond council-owned facilities and consider how these sites can complement the wider sports field network. This includes identifying mutual benefits, coordinating use, and managing costs collaboratively.

Impact

- The campus provides 11 full-sized sports fields, helping meet demand for community sport. During a typical winter month, community bookings (including university club activity) total around 190–200 hours (circa 50 hours per week), of which approximately 30 hours per week is non-university community use.
- The site is the preferred location for an artificial football turf, supporting a regional 'Home of Football' to address a shortfall in floodlit training across the city. The project is a partnership between Massey University, Palmerston North City Council, and Central Football Federation. Capital funding will be jointly raised, with Massey University leading construction and owning the asset, while a shared management group oversees its use, maintenance, and long-term renewals.
- The facilities create exposure for the university, promote sport as a key part of the university experience, and support health and physical activity benefits for students and the wider community.
- The campus functions as a central North Island sports hub, facilitating citywide and interdistrict activities.
- Hosting multi-sport and multi-day events generates economic benefits for the region by attracting visitors to Palmerston North.

Auckland Cricket
Development foundation

Photo credit: Auckland Cricket.

Optimisation	School partnerships	Funding approaches

Setting

Auckland Cricket was experiencing access constraints to pitches located on council land and sought to reduce its reliance on these existing sites to meet their growing needs. Strategically, the organisation also aimed to connect with schools to increase junior participation and to activate school grounds. However, the cost of constructing and maintaining cricket pitches, outfields and practice nets was identified as a barrier for some schools in providing cricket facilities on their grounds.

Response

The Auckland Cricket Development Foundation (ACDF) was formed as an independent charitable trust to create and grow a capital fund in perpetuity, with the income used to support the development and nurturing of junior cricket. It is used to:

1. Provide a link to education - advocating the benefits of sport and physical education for kids and young adults (with resourcing to support participation).
2. Provide facilities where there is a gap or undersupply across the network.
3. Where certain groups are under-represented in cricket participation (increase activation opportunities).
4. Improve the quality of cricket facilities.
5. Introduce different forms of cricket to meet changing preferences and demands.

How it works (example)

In a school environment, investment in an artificial pitch enables Auckland Cricket to use the ground when it is not required for school purposes. When the ground is allocated for Auckland Cricket use, an agreed fee is credited to the school. These accrued fees are held by Auckland Cricket, and schools can draw down on them for pitch or outfield maintenance. Schools may also apply for additional grants to support cricket facility development. The details of each arrangement are formalised in a memorandum of understanding.

Impact and lessons learnt

- Since 2001, 60+ pitches have been installed across Auckland.
- Actively maintained relationships with each school are crucial to ensure a positive playing environment (eg, mowing, toilet access).

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