

# WAIKATO ARTIFICIAL TURF STUDY | 2023



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SOLUTIONS



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# INFORMATION

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# EXECUTIVE SUMMARY

Demand for playing fields has been increasing across the region as the result of many factors. These include general participation growth, season extensions, and more variety in time options/delivery approaches.

In response, Local Authorities, Regional Sport Organisations and Schools are recognising the needs for enhanced sports field quantities and qualities. They are investigating both alternatives for future provision (such as sand carpet, hybrid, and artificial turf), and alternatives for optimising network collaborations to better use existing resources.

The Waikato Regional Active Spaces Plan highlights the exploration of investment and network opportunities as a key priority to facilitate sport participation outcomes. Sport Waikato commissioned Visitor Solutions to undertake a study to consider current field supply and demand and the need for artificial turfs. The study was designed to be completed in three distinct phases: phase 1: an existing data review, phase 2: exploring general network approaches and phase 3: determining a preferred artificial turf approach.

The scope of the study was confined to Hamilton City Council and Waipa District Council, with consideration given to the wider impacts across the full Waikato region.

Based on available data the report drew the following conclusions.

- Both Waipa District Council and Hamilton City Council have field networks that would benefit from further optimisation.
- Hamilton City Council's actual field demand is likely to be greater than modelled in 2020 due to supply side data anomalies, sports membership changes, field quality (potentially being below modelled hours of use) and population projections.
- Waipa District Council's field demand is likely to be greater based on localised assessments undertaken in 2023.
- Hamilton's field network is likely to require three artificial turfs (at Marist Park, Gower Park and Korikori Park) in the near term due to factors such as, demand exceeding supply, climatic conditions impacting field condition and utilisation, and water availability restricting further field irrigation.
- Artificial turfs alone cannot address Hamilton's network needs. Soil, sand dressed and sand carpeted fields together with new grass types, maintenance optimisations, and support infrastructure such as lighting and toilets will also be required.
- Waipa's field network does not require an artificial turf currently. An artificial turf should only be considered once wider field optimisations have been achieved (such as achieving more coordinated and well maintained fields).

- In the future the best location for an artificial turf in Waipa is likely to be at Tom Voyle Park ideally in partnership with Cambridge High school.

Based on the data available the following recommendations were made.

## HAMILTON CITY COUNCIL

1. Rerun the field supply and demand modelling undertaken in 2020 to take account of updated field supply data, sports membership data and population projections.
2. Undertake a field network development plan to reflect the updated supply and demand modelling, best practice approaches and potential for three artificial turfs.
3. Undertake feasibility analysis on the three identified artificial turf sites in the following order: Marist Park, Gower Park, and Korikori Park.
4. Note: sufficient data exists to support these projects being advanced ahead of updating the field supply and demand model and the field network development plan. Feasibility analysis should build upon data and insights from this report and should also address areas such as detailed site assessment, financial modelling, and governance and management models.
5. Where possible all artificial turfs should be circa 1.5 full fields in size.
6. Upon completion of the field supply and demand model and the field network development plan determine the need for additional artificial turfs in the central and/or western areas specifically for rugby. At the same time determine if and when any further football centric artificial turfs are required.
7. Undertake a sports field operational and maintenance management plan (ideally in parallel with the field network development plan).

## WAIPA DISTRICT COUNCIL

8. Do not develop an artificial turf at this time.
9. Rerun the field supply and demand modelling undertaken in 2020 to take account of updated field supply, sports membership data and population projections.
10. Undertake a field network upgrade / development plan to reflect the updated supply and demand modelling and best practice.
11. Investigate in partnership with the districts sports clubs how Council can optimise the field network and gain greater utilisation (ideally achieving more coordinated, centralised booking and field allocations).
12. Undertake master planning with prospective future provision for an artificial turf at Tom Voyle Park. Discussions with Cambridge High School are required for exploring future partnership opportunities (this still remains a long-term vision but can be acted upon when demand necessitates). Consideration should be given to insights from recommendations 8 and 9.



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# INTRODUCTION

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## 1.1 PURPOSE

Demand for playing fields has been increasing across the region as the result of many factors. These include, but not limited to:

- General participation growth,
- Season extensions,
- A wider range of sport and recreation users (e.g., wider age/gender participation opportunities),
- Increased modified-activity options,
- More variety in time options/delivery approaches,
- Wider community and representative level activity demands,
- Codes establishing 'off-season' activity modes and options (providing year-round offerings),
- Multisport options.

In response, Local Authorities, Regional Sport Organisations and Schools are recognising the needs for enhanced sports field quantities and qualities. They are investigating both alternatives for future provision (such as sand carpet, hybrid, and artificial turf), and alternatives for optimising network collaborations to better use existing resources. The Waikato Regional Active Spaces Plan highlights the exploration of investment and network opportunities as a key initiative priority to facilitate sport participation outcomes.

Sport Waikato commissioned Visitor Solutions to undertake a study to consider current supply and demand, explore how we can develop and maintain quality surfaces to meet current and future demand, to identify options for encouraging collaboration in facility use, provision, development, and networking, and take a wider contextual viewpoint for best leveraging investment. A specific focus was placed on identifying the demand drivers for artificial turf provision, and how this type of infrastructure could support the sports field network across the region.

## 1.2 SCOPE

The study was designed to be completed in three distinct phases:

- Phase 1: Existing Data Review – collation and analysis of all existing secondary data (i.e., previous supply and demand assessments; Council and sector strategies and plans, inventory tables, population and participation features and trends, survey results and case studies).
- Phase 2: Network Approaches – complete current state inventory and assessment, assess artificial turf demand drivers, identify provision options (both current facility optimisation and new facility provision), and test option scenarios.
- Phase 3: Preferred Approach – identification of a preferred approach which is then refined and explored in more detail.

The scope of the study was confined to Hamilton City Council and Waipa District Council, with consideration given to the wider impacts across the full Waikato region.

## 1.3 METHODOLOGY

The information contained in the study was collected using a mix of approaches including:

### SECONDARY DATA RESEARCH

The secondary data research component of the study included the following:

- Review of 2020 and 2023 Sports Field Supply & Demand Analysis,
- Review of Hamilton City Council & Waipa District Council strategic documents,
- Review of proposed sports field-related material across the region,

- Membership data review and analysis for Waikato Rugby Union and WaiBOP Football (including drive time analysis),
- Review of results from Sport Waikato's Club Survey,
- Review and analysis of existing sports field inventory across Hamilton City Council and Waipa District Council,
- Demographic data analysis,
- A range of TA and Sport New Zealand reports.

### **MEETINGS**

Various meetings were held both within and outside of the region to inform the study, including:

- Hamilton City Council – multiple departments,
- Waipa District Council – multiple departments,
- Waikato Rugby Union and WaiBOP Football,
- Sport Waikato,
- Hamilton Members of Parliament,
- Hamilton Boys High School,
- Xyst – Waipa Sports Field Lease Model Project,
- Polytan,
- Auckland Council,
- College Rifles, Auckland,
- Palmerston North City Council,
- Wellington City Council,
- Selwyn District Council,
- Dunedin City Council.

### **SITE VISITS**

A group of representatives comprising Visitor Solutions, New Zealand Sports Turf Institute, Sport Waikato, and Hamilton City Council completed 16 sports field site visits to cite quality and gain a full appreciation of the sports field network. These included:

- Memorial Park – Cambridge
- Tom Voyle Park – Cambridge
- John Kerkoff Park – Cambridge
- Albert Park – Te Awamutu
- Castleton Park – Te Awamutu
- Gower Park – Hamilton
- West Town Belt (Willoughby Park, Fred Jones Park, Beetham Park, Mill Street) – Hamilton
- Marist Park – Hamilton
- Porritt Stadium/Porritt Park – Hamilton
- Northern Parks (Korikori Park, Discovery Park, Flagstaff Park, Hare Puke Park) – Hamilton



# 2.0 CONTEXT – CURRENT STATE

## 2.1 DEMOGRAPHICS

### KEY DEMOGRAPHIC TRENDS

This section summarises some features of recent and projected population growth hotspots in and around Hamilton City and Waipa District. Because of boundary proximities, there is some reference to growth in nearby adjacent areas of Waikato District.

In summary, most projected growth in Hamilton is projected for its urban-fringe greenfield areas to the south and west, while the projected growth in Waikato and Waipa Districts is spread over far larger geographical areas. However, the highest growth areas in Waipa District are clustered around Cambridge and Te Awamutu, and in areas bordering the adjacent south-eastern high-growth areas of Hamilton City (e.g., Peacocke) and Waikato District (e.g., Tamahere).

### RECENT POPULATION CHANGE

Table 2.1 summarises the overall recent population growth in respective territorial authority areas, listing the specific wards<sup>1</sup> within each.

TABLE 2.1: RECENT POPULATION GROWTH

	2006	2018	Change 2006-18	% Change	%/yr
<b>Hamilton City</b>	<b>129,588</b>	<b>160,911</b>	<b>31,323</b>	<b>24</b>	<b>2.0</b>
West Ward	63,828	85,020	21,192	33	2.8
East Ward	65,760	75,891	10,131	15	1.3
<b>Waipa District</b>	<b>42,501</b>	<b>53,241</b>	<b>10,740</b>	<b>25</b>	<b>2.1</b>
Cambridge Ward	15,294	20,472	5,178	34	2.8

<sup>1</sup> Note that Ward boundaries and names have been revised since those used for Census 2018, but those are used in Table 2.1 to provide broad indicative geographical reference.

	2006	2018	Change 2006-18	% Change	%/yr
Te Awamutu Ward	13,191	15,891	2,700	20	1.7
Pirongia Ward	7,149	8,766	1,617	23	1.9
Maungatautari Ward	3,417	4,191	774	23	1.9
Kakepuku Ward	3,450	3,918	468	14	1.1
<b>Waikato District</b>	<b>57,588</b>	<b>75,618</b>	<b>18,030</b>	<b>31</b>	<b>2.6</b>
Awaroa ki Tuakau Ward	9,339	13,881	4,542	49	4.1
Tamahere Ward	4,029	6,126	2,097	52	4.3
Whangamarino Ward	4,206	6,303	2,097	50	4.2
Ngaruawahia Ward	8,505	10,554	2,049	24	2.0
Newcastle Ward	4,248	6,030	1,782	42	3.5
Eureka Ward	4,224	5,745	1,521	36	3.0
Raglan Ward	4,728	6,099	1,371	29	2.4
Huntly Ward	8,901	10,176	1,275	14	1.2
Hukanui-Waerenga Ward	4,704	5,427	723	15	1.3
Onewhero-Te Akau Ward	4,698	5,283	585	12	1.0
<b>All Waikato Region</b>	<b>380,823</b>	<b>458,202</b>	<b>77,379</b>	<b>20</b>	<b>1.7</b>

Over the last 10-15 years Hamilton City's overall population growth has been substantial and more prevalent in the areas west of the river.

While overall growth in the Waipa District population has been more dispersed over its wider geographical area, it has been strongest around Cambridge and to a lesser extent Te Awamutu.

Relative to Hamilton City and Waipa District, growth in the neighbouring Waikato District has also been largely dispersed. Most has occurred in the far north (e.g., Awaroa ki Tuakau Ward - in the Tuakau, Pokeno and Whangamarino areas). However there has been some growth in more relevant nearby areas:

- For Hamilton City there has been notable recent growth in areas around its north and west boundaries (e.g., Ngaruawahia and Newcastle Wards - around the Ngaruawahia, Te Kowhai and Whatawhata areas) and around the south and east boundaries (e.g., Tamahere Ward - around the Tamahere and Tauwhare areas).
- For Waipa District there has been notable recent growth around its northern boundaries near Cambridge (e.g., Tamahere Ward - around the Tamahere and Tauwhare areas).

### PROJECTED FUTURE POPULATION CHANGE

Over the next 25 years continued growth is projected for all areas, although at lower rates than in recent years (Table 2.2).

TABLE 2.2: PROJECTED TERRITORIAL AUTHORITY POPULATION GROWTH (IN DESCENDING ORDER)

	2023	2048	Change 2023-48	% Change	%/yr
<b>Hamilton City</b>	183,000	236,600	53,600	29	1.2
<b>Waikato District</b>	86,100	117,700	31,600	37	1.5
<b>Waipa District</b>	59,300	70,700	11,400	19	0.8

The following Tables summarise some projected core ‘hotspot’ growth areas in and around Hamilton City and across Waipa and Waikato Districts. These indicative ‘hotspot’ areas are based on the highest-growth Statistics NZ Statistical Area 2 units (SA2s)<sup>2</sup>. These are core SA2 unit areas projected to have the highest population increases between 2023-2048. Note that in many cases these primary hotspot areas are associated in clusters with other neighbouring SA2 units that also have notable but lower-level growth projections.

<sup>2</sup> Statistics NZ states that “The SA2 geography aims to reflect communities that interact together socially and economically. In populated areas, SA2s generally around the same population sizes.”

### HAMILTON CITY

Table 2.3 lists the highest projected growth hotspots for Hamilton City. Those listed have projected increases of over 500 new residents.

TABLE 2.3: HAMILTON CITY - PROJECTED CORE ‘HOTSPOT’ GROWTH AREAS (IN DESCENDING ORDER)

Hamilton City SA2 units	2023	2048	Change 2023-48	% Change	%/yr
<b>Peacockes</b>	470	1,4250	13,780	2,932	117.3
<b>Rotokauri-Waiwhakareke</b>	1,090	12,900	11,810	1,083	43.3
<b>Ruakura</b>	2,210	8,720	6,510	295	11.8
<b>Rototuna North</b>	2,200	4,210	2,010	91	3.7
<b>Te Rapa North</b>	250	2,120	1,870	748	29.9
<b>Flagstaff North</b>	4,730	5,890	1,160	25	1.0
<b>Greensboro</b>	4,630	5,660	1,030	22	0.9
<b>Flagstaff South</b>	4,060	4,880	820	20	0.8
<b>Whitiora</b>	2,990	3,700	710	24	0.9
<b>Forest Lake</b>	2,750	3,430	680	25	1.0
<b>Resthill</b>	2,750	3,370	620	23	0.9
<b>Fairfield</b>	4,910	5,430	520	11	0.4
<b>Hamilton Lake</b>	3,890	4,390	500	13	0.5

Summarising Table 2.3, the highest Hamilton City projected growth areas are located in urban fringe and related greenfield development areas, broadly located in:

- the southern (e.g., Peacocke) and south-eastern (e.g., Ruakura, Greensboro) parts of Hamilton City



- extending towards growth areas in Waikato District that are bordering the City to the south and south-east (e.g., around Tamahere – see Table 2.5) and south towards the nearby highest growth areas in Waipa District (e.g., mainly towards and around Cambridge and Te Awamutu – see Table 2.4)
- the western (e.g., Rotokauri-Waiwhakareke; Te Rapa North) parts of Hamilton City
  - extending towards growth areas in Waikato District that are bordering the City to the west (e.g., around Whatawhata and Te Kowhai – see Table 2.5); and
- to a lesser extent in the northern and northeastern (e.g., Rototuna North, Flagstaff North & South) parts of Hamilton City
  - extending out along the Hamilton end of the Hamilton-Auckland Corridor

## WAIPA DISTRICT

Table 2.4 lists the highest projected growth hotspots for Waipa District. Those listed have projected increases of over 400 new residents<sup>3</sup>, and their main town associations are indicated.

TABLE 2.4: WAIPA DISTRICT - PROJECTED CORE 'HOTSPOT' GROWTH AREAS (IN DESCENDING ORDER)

Waipa District SA2s (main town association)	2023	2048	Change 2023-48	% Change	%/yr
<b>Cambridge North</b> (Cambridge)	2,780	4,050	1,270	46	1.8
<b>Pekerau</b> (Te Awamutu)	2,810	3,790	980	35	1.4
<b>St Leger</b> (Te Awamutu)	550	1,290	740	135	5.4
<b>Karapiro</b> (Cambridge)	2,570	3,230	660	26	1.0
<b>Lake Cameron</b> (Hamilton - Te Awamutu)	1,650	2,270	620	38	1.5
<b>Pokuru</b> (Te Awamutu)	1,650	2,250	600	36	1.5
<b>Pukerimu</b> (Cambridge)	1,120	1,600	480	43	1.7

<sup>3</sup> The standard threshold of 500 used to highlight hotspot areas excluded too many Waipa areas, so was lowered to around 400.

Waipa District SA2s (main town association)	2023	2048	Change 2023-48	% Change	%/yr
<b>Sherwin Park</b> (Te Awamutu)	2,180	2,620	440	20	0.8
<b>Te Awamutu North</b> (Te Awamutu)	1,230	1,660	430	35	1.4
<b>Cambridge Park-River Garden</b> (Cambridge)	1,480	1,900	420	28	1.1
<b>Kaipaki</b> (Hamilton - Te Awamutu)	1,730	2,140	410	24	0.9
<b>Hautapu</b> (Cambridge)	680	1,070	390	57	2.3

Summarising Table 2.4, the highest Waipa District projected growth areas are broadly located in:

- urban fringes and adjacent catchments of Cambridge and Te Awamutu
- Hamilton southern boundary area (e.g., Lake Cameron (*Rukuhia*, Kaipaki) adjacent to Hamilton's highest growth area (e.g., Peacocke – see Table 2.3) and to Waikato District's high growth southern areas (e.g., Tamahere North & South – see Table 2.5).
  - Extending south towards Te Awamutu and Cambridge

## WAIKATO DISTRICT

Table 2.5 lists the highest projected growth hotspots for Waikato District. These are included because some of them (\*) may have growth that could be potentially associated in the future with nearby key growth areas in both Hamilton City and Waipa District. While some of these areas are highly rural and significant growth associations may not occur, other areas are adjacent to or in corridors between higher projected growth areas in Hamilton City and Waipa District. Those listed have projected increases of over 500 new residents, and their relevant TA associations are indicated (\*).

TABLE 2.5: WAIKATO DISTRICT - PROJECTED CORE 'HOTSPOT' GROWTH AREAS  
(IN DESCENDING ORDER)

Waikato District SA2s (main TA association)	2023	2048	Change 2023-48	% Change	%/yr
<b>Huntly Rural</b>	2,360	6,710	4,350	184	7.4
<b>Pokeno</b>	4,630	7,010	2,380	51	2.1
<b>Tamahere North*</b> (Hamilton, Waipa)	4,720	6,930	2,210	47	1.9
<b>Tuakau North</b>	3,590	5,190	1,600	45	1.8
<b>Tuakau South</b>	2,190	3,590	1,400	64	2.6
<b>Whatawhata East*</b> (Hamilton)	3,040	4,440	1,400	46	1.8
<b>Te Kowhai*</b> (Hamilton)	2,370	3,610	1,240	52	2.1
<b>Tamahere South*</b> (Hamilton, Waipa)	2,330	3,500	1,170	50	2.0
<b>Taupiri-Lake Kainui*</b> (Hamilton)	2,120	3,200	1,080	51	2.0
<b>Pokeno Rural</b>	1,730	2,800	1,070	62	2.5
<b>Pukemoremore*</b> (Hamilton)	2,670	3,670	1,000	37	1.5
<b>Tuakau Rural</b>	1,730	2,710	980	57	2.3
<b>Kainui-Gordonton*</b> (Hamilton)	1,880	2,830	950	51	2.0
<b>Aka Aka</b>	3,380	4,300	920	27	1.1
<b>Pukekawa</b>	1,680	2,480	800	48	1.9
<b>Te Kauwhata West</b>	820	1,500	680	83	3.3
<b>Te Kauwhata</b>	1,900	2,570	670	35	1.4
<b>Raglan</b>	3,680	4,340	660	18	0.7
<b>Whale Bay</b>	1,190	1,840	650	55	2.2
<b>Rangiriri</b>	1,500	2,110	610	41	1.6
<b>Te Uku</b>	1,900	2,470	570	30	1.2
<b>Hamilton Park*</b> (Hamilton)	1,730	2,280	550	32	1.3
<b>Eureka-Tauwhare*</b> (Hamilton)	2,300	2,810	510	22	0.9

<sup>4</sup> Defined for most participation in outdoor field sport sports as being those aged between 5 and 40 years – covering most junior through to masters-level participation.

Summarising Table 2.5, the highest Waikato District projected growth areas potentially related to either Hamilton City and/or Waipa District growth areas are broadly located in:

- adjacent areas outside the urban fringes of west Hamilton (e.g., Whatawhata East, Te Kowhai).
- more distant areas outside the urban fringes of north Hamilton (e.g., Taupiri-Lake Kainui, Kainui-Gordonton).
- adjacent and more distant areas outside the urban fringes of east Hamilton (e.g., Hamilton Park, Eureka-Tauwhare, Pukemoremore).
- corridor areas between south Hamilton and Cambridge (e.g., Tamahere North & South)

### 'PLAYING AGE' POPULATION PROJECTIONS

Refining these projections to focus more on active sport participants in the most relevant SA2 areas, Table 2.6 features many of the same areas as projected population growth 'hotspots' (>400 'playing age' residents) for the typical 'playing age' group<sup>4</sup>.

TABLE 2.6: PROJECTED 'PLAYING AGE' POPULATION GROWTH 'HOTSPOTS' (2023-48)  
(IN DESCENDING ORDER)

TA	SA2s	2023	2048	Change 2023-48	% Change	%/yr
<b>Hamilton</b>	Peacockes	180	6,030	5,850	3,250	130.0
<b>Hamilton</b>	Rotokauri-Waiwhakareke	505	5,050	4,545	900	36.0
<b>Hamilton</b>	Ruakura	1,500	4,810	3,310	221	8.8
<b>Hamilton</b>	Te Rapa North	115	920	805	700	28.0
<b>Hamilton</b>	Rototuna North	1,050	1,640	590	56	2.2
<b>Waikato</b>	Tamahere North	1,840	2,430	590	32	1.3
<b>Waikato</b>	Te Kowhai	1,030	1,480	450	44	1.7
<b>Waipa</b>	Cambridge North	1,200	1,630	430	36	1.4
<b>Waikato</b>	Whatawhata East	1,350	1,700	350	26	1.0

## 2.2 PAST DEMAND & SUPPLY REPORTS

Three past sports field reports were utilised in the development of this study. The three key reports were:

- Central Waikato Sub-Regional Winter Sports Field Study (prepared by GLG, September 2020),
- Hamilton City Council Sports Fields Needs and Options Assessment (prepared by SGL, October 2020),
- Castleton Park Land Acquisition Feasibility Study – Waipa District Council (prepared by GLG, 2023).

These documents were used as a starting point to understand the demand for sports fields and in turn the potential need for artificial turfs in both Waipa and Hamilton.

In the case of Hamilton, a range of shortfalls and surpluses were identified in terms of 'Weekly Full Field Equivalent Hours' (WFFEH) across rugby, football, and rugby league. These are shown by Council area by all codes and then individual codes for years 2019, 2028 and 2038 (Tables 2.7-2.14).

In summary across all codes, shortfalls were found in Rototuna, Claudelands, Hillcrest Park, Frankton, Melville and Peacocke, and to a lesser extent in Ruakura, and Rotokauri (Table 2.7).

TABLE 2.7: HAMILTON CITY COUNCIL – IDENTIFIED SHORTFALL/SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR ALL CODES 2019-2038

Area	2019	2028	2038
Rototuna	-24	-31	-18
Chartwell	12	15	16
Claudelands	-94	-80	-56
Hamilton East	19	20	28
Hillcrest Park	-38	-34	-26
Ruakura	-2	-4	-6
Te Rapa	37	38	42
Newton	48	48	48
Dinsdale	6	8	14
Frankton	-32	-30	-14
Hamilton Central	3	6	14

Area	2019	2028	2038
Melville and Peacocke	-38	-51	-71
Rotokauri	-5	-13	-13
Temple View	8	8	8

Source: GLG, September 2020.

The analysis indicated rugby had a shortfall of WFFEH across 2019, 2028 and 2038 in nine of Hamilton's fourteen areas (Table 2.8). The highest shortfalls were in Melville and Peacocke, Hamilton East, Hamilton Central and Claudelands.

TABLE 2.8: HAMILTON CITY COUNCIL – IDENTIFIED SHORTFALL/SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR RUGBY 2019-2038.

Area	2019	2028	2038
Rototuna	-8	-14	-9
Chartwell	0	0	0
Claudelands	-14	-13	-11
Hamilton East	-18	-19	-14
Hillcrest Park	2	3	6
Ruakura	0	0	0
Te Rapa	-6	-5	-1
Newton	40	40	40
Dinsdale	-4	-4	-3
Frankton	-10	-11	-5
Hamilton Central	-18	-18	-15
Melville and Peacocke	-26	-34	-40
Rotokauri	-1	-8	-8
Temple View	0	0	0

Source: GLG, September 2020.

Football had shortfall of WFFEH across 2019, 2028 and 2038 in six of Hamilton's fourteen areas (Table 2.9). The shortfalls tended to be more pronounced than for rugby. The highest shortfalls were in Claudelands, Hillcrest Park, and Frankton.

TABLE 2.9: HAMILTON CITY COUNCIL – IDENTIFIED SHORTFALL/SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR FOOTBALL 2019-2038.

Area	2019	2028	2038
Rototuna	-16	-17	-9
Chartwell	15	15	16
Claudelands	-80	-68	-49
Hamilton East	37	39	42
Hillcrest Park	-40	-37	-32
Ruakura	-1	-4	-6
Te Rapa	43	43	43
Newton	8	8	8
Dinsdale	2	4	9
Frankton	-28	-25	-15
Hamilton Central	23	24	29
Melville and Peacocke	32	30	29
Rotokauri	-2	-5	-5
Temple View	0	0	0

Source: GLG, September 2020.

Rugby League only had one area of shortfall in Melville and Peacocke. This shortfall was however pronounced starting at -34 WFFEh in 2019 and growing to -60 by 2038.

TABLE 2.10: HAMILTON CITY COUNCIL – IDENTIFIED SHORTFALL/SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR RUGBY LEAGUE 2019-2038.

Area	2019	2028	2038
Rototuna	0	0	0
Chartwell	0	0	0
Claudelands	0	1	4
Hamilton East	0	0	0
Hillcrest Park	0	0	0
Ruakura	0	0	0
Te Rapa	0	0	0
Newton	0	0	0
Dinsdale	8	8	8
Frankton	6	6	6
Hamilton Central	0	0	0

Area	2019	2028	2038
Melville and Peacocke	-34	-46	-60
Rotokauri	0	0	0
Temple View	8	8	8

Source: GLG, September 2020.

The original 2020 Waipa District Council sports field study by GLG indicated a shortfall in WFFEh across all codes only in Cambridge. A later targeted study focused on Te Awamutu in 2023 also undertaken by GLG indicates a shortfall now exists in Te Awamutu in 2023 (-35 WFFEh). This shortfall is projected to reach -51 WFFEh by 2035 (Table 2.11).

TABLE 2.11: WAIPA DISTRICT COUNCIL - IDENTIFIED SHORTFALL/SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR ALL CODES 2019-2038.

Area	2019	2023	2028	2035	2038
Pirongia	22	NA	20	NA	21
Te Awamutu	7	NA	9	NA	9
Te Awamutu (2023 update)	NA	-35	NA	-51	NA
Cambridge	-30	NA	-47	NA	-56
Kakepuku	0	NA	0	NA	0
Maungatautari	0	NA	0	NA	0

Source: This table uses data from the original 2020 GLG report and a 2023 update specifically focused on Te Awamutu also undertaken by GLG.

The 2020 GLG analysis examined rugby, football, and rugby league. This estimated very slight rugby WFFEh shortfalls in Te Awamutu in 2019, 2028 and 2038. The shortfalls in Cambridge were larger ranging between -17 WFFEh in 2019 and reaching -33 by 2038 (Table 2.12).

TABLE 2.12: WAIPA DISTRICT COUNCIL - IDENTIFIED SHORTFALL/SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR RUGBY 2019-2038.

Area	2019	2028	2038
Pirongia	8	7	8
Te Awamutu	-3	-3	-3
Cambridge	-17	-28	-33
Kakepuku	0	0	0
Maungatautari	0	0	0

Source: GLG, September 2020.

Football WFFEH shortfalls were only projected by GLG for Cambridge. These were modest at between -13 (in 2019) to -23 (in 2038) WFFEH (Table 2.13). By comparison no shortfalls were projected for rugby league (Table 2.14).

TABLE 2.13: WAIPA DISTRICT COUNCIL - IDENTIFIED SHORTFALL /SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR FOOTBALL 2019-2038.

Area	2019	2028	2038
Pirongia	13	13	13
Te Awamutu	0	2	2
Cambridge	-13	-19	-23
Kakepuku	0	0	0
Maungatautari	0	0	0

Source: GLG, September 2020.

TABLE 2.14: WAIPA DISTRICT COUNCIL - IDENTIFIED SHORTFALL /SURPLUS IN WEEKLY FULL FIELD EQUIVALENT HOURS FOR RUGBY LEAGUE 2019-2038

Area	2019	2028	2038
Pirongia	0	0	0
Te Awamutu	10	10	10
Cambridge	0	0	0
Kakepuku	0	0	0
Maungatautari	0	0	0

Source: GLG, September 2020.

## 2.3 INVENTORY

The inventory of existing parks and fields has been established based on a mix of secondary data, site visits and discussions with Hamilton City Council and Waipa District Council staff. The inventory data is important because it illustrates the level of field supply within each network. This supply was used in the 2020 demand modelling undertaken by GLG (see Section 2.2). The 2020 data used in the GLG modelling is set out in terms of soil and sand fields (Tables 2.15 – 2.16).

An adjusted inventory undertaken as part of this study is also set out in Tables 2.15-2.16. This data indicates that Waipa District Council field numbers and types remain largely the same, except for an additional two

upgraded sand carpeted fields at John Kerkoff Park and one soil field at Leamington Reserve. Both these fields are in Cambridge.

TABLE 2.15: WAIPA SPORTS PARKS AND FIELDS

Area	Park	2020 Data (used by GLG)		2023 Adjusted	
		Soil	Sand	Soil	Sand
Pirongia	Memorial Park (Ohaupo)	3		3	
	Pirongia Rugby & Sports Club	2		2	
	Stewart Reid Park	3		3	
Te Awamutu	Albert Park	5		5	
	Castelton Park	2		2	
	Kihikihi Domain	1		1	
	Te Awamutu Stadium	1		1	
	Anchor Park	1		1	
	Sherwin Park	1		1	
Cambridge	Memorial Park	3		3	
	Leamington Reserve	2		3	
	John Kerkoff Park	6		4	2
	Tom Voyle Park (Beside Cambridge HS)	2		2	
Kakepuku	NA	0		0	
Maungatautari	NA	0		0	
<b>Total Fields</b>		<b>32</b>		<b>31</b>	<b>2</b>

By comparison Hamilton City Council's field inventory is different from that identified in 2020. Some of this change is due to the addition of new fields and field types over the past three years, while the remaining difference is attributed to data anomalies such as an over count of fields. (Table 2.16).

The 2023 inventory data has been prepared at a more granular level splitting out fields into four categories. These are 'soil full size', 'soil junior size', 'sand cap full size' and 'sand carpet full size'. In general terms two

'soil junior size' fields equate to one full field equivalent (FFE). Sand cap (sand dressed) fields are closer to a soil field in terms of use hours (i.e. closer to 8 hours than 18 hours). In general terms Hamilton City Council has circa 11 less full field equivalent soil fields than were indicated in the 2020 demand modelling (Table 2.16).

TABLE 2.16: HAMILTON SPORTS PARKS AND FIELDS

Area	Park	2020 Data (used by GLG and referenced by SGL)		2023 Adjusted			
		Soil	Sand	Soil Full Size	Soil Jnr Size	Sand Cap Full Size	Sand Carpet Full Size
Rototuna	Discovery Park	3	0	3	0	0	0
	Flagstaff Park	3	0	3	0	0	0
	Grosvenor Park	2	0	2	0	0	0
	Hare Puke Park <sup>5</sup>	0	0	0	0	0	0
	Korikori Park	5	0	0	0	4	1
	Mangaiti Park	0	0	0	0	0	0
	Te Manatu Park	0	0	0	0	0	0
Chartwell	Chartwell Park	3	0	0	3	0	0
	Hillary Park	1	0	0	0	0	0
Claudelands	Enderly Park	1	0	1	0	0	0
	Fairfield Park	2	0	2	0	0	0
	Porritt Stadium	4	1	3	0	0	1
Hamilton East	Clyde Park	2	0	2	0	0	0
	Dawson Park	1	0	1	0	0	0
	Flynn Park	1	1	1	0	0	0
	Galloway Park	4.5	0	4	1	0	0
	Lugton Park	1	0	0	1	0	0
	Marist Park	3	0	3	0	0	0
	Steele Park	2	0	2	0	0	0

<sup>5</sup> Hare Puke Park has unformed flat grassed areas roughly equivalent to four full size fields. This open space is being used informally for ball sports but is not booked by

Area	Park	2020 Data (used by GLG and referenced by SGL)		2023 Adjusted			
		Soil	Sand	Soil Full Size	Soil Jnr Size	Sand Cap Full Size	Sand Carpet Full Size
Hillcrest Park	Hillcrest Park	3	0	2	0	0	0
	Hillcrest Stadium	1	0	1	0	0	0
	Jansen Park	5	0	2	4	0	0
Ruakura	Raymond Park	3	0	2	2	0	0
Te Rapa	Ashhurst Park	3	0	1	0	2	0
	St Andrews Park	3	0	3	0	0	0
	Vardon Park	2	0	1	1	0	0
	Vickery Park	1	0	1	0	0	0
Newton	Bremworth Park	3	0	2	2	0	0
	Dereck Heather Park	2	0	0	0	0	0
	Dominion Park	2	0	2	0	0	0
	Elliot Park	5	0	4	0	1	0
	Te Kooti Park	2	0	1	0	0	0
	Wake Park	0	0	1	0	0	0
Dinsdale	Railway Park	1	0	1	0	0	0
	Rhode Street Park	2	0	0	0	0	0
Frankton	Gower Park	4.5	1	5	1	1	1
	Kahikatea Park	2	0	3	0	0	0
	Innes Common Park	5	0	1	0	0	0
	Swarbrock Park	5	0	5	0	0	0
Hamilton Central	Beetham Park	1	0	1	0	0	0
	Fred Jones Park	1	0	1	0	0	0

codes at this stage. These spaces are not included in this inventory table but are factored into the response scenario models in Section 4.

Area	Park	2020 Data (used by GLG and referenced by SGL)		2023 Adjusted			
		Soil	Sand	Soil Full Size	Soil Jnr Size	Sand Cap Full Size	Sand Carpet Full Size
	Fraser Tech Park	1	0	1	0	0	0
	Minogue Park	0	0	0	0	0	0
	Willoughby Park	1	0	1	0	0	0
<b>Melville &amp; Peacocke</b>	Deanwell Park	2	0	1	1	0	0
	Fitzroy Park	2	0	2	0	0	0
	Glenview Park	4	0	4	0	0	0
	Mahoe Park	3	0	0	0	1	0
	Resthillis Park	3	0	1	0	2	0
	Stan Heather Park (Private)	0	0	0	0	0	0
	Te Anau Park	0	0	0	0	0	0
	New Park TBC	0	0	0	0	0	0
<b>Rotokauri</b>	NA	0	0	0	0	0	0
<b>Temple View</b>	NA	0	0	0	0	0	0
<b>Total Fields</b>		<b>111</b>	<b>3</b>	<b>81</b>	<b>16 Or Circa 8 FFE</b>	<b>11</b>	<b>3</b>
				<b>Circa 100 FFE</b>			

Notes:

- Yellow highlighted parks are outside Council booking systems.
- FFE = Full field equivalents (assumes two junior fields equals circa one full field).

## 2.4 RUGBY AND FOOTBALL MEMBERSHIP

Catchment and member analysis has been undertaken for Waikato Rugby and WaiBOP Football as the largest sports field users in the region and the main proponents for exploring artificial turf provision.

Regional and sub-regional catchment hotspots, territorial authority catchments and high-level membership figures are outlined on the following pages.

This dataset is important for understanding the size and nature of the catchments prospective artificial turf site options may service. While the overall membership sizes are relatively similar (around 7,500<sup>6</sup>), there is notable geographic distribution variances between the two codes. Most notably the higher concentration of football members located in the Waikato District (33%) compared to 15% of rugby members. And conversely, a higher proportion of rugby members in Waipa District (20%), compared to 12% of football members<sup>7</sup> (see figures on pages 15 and 16)

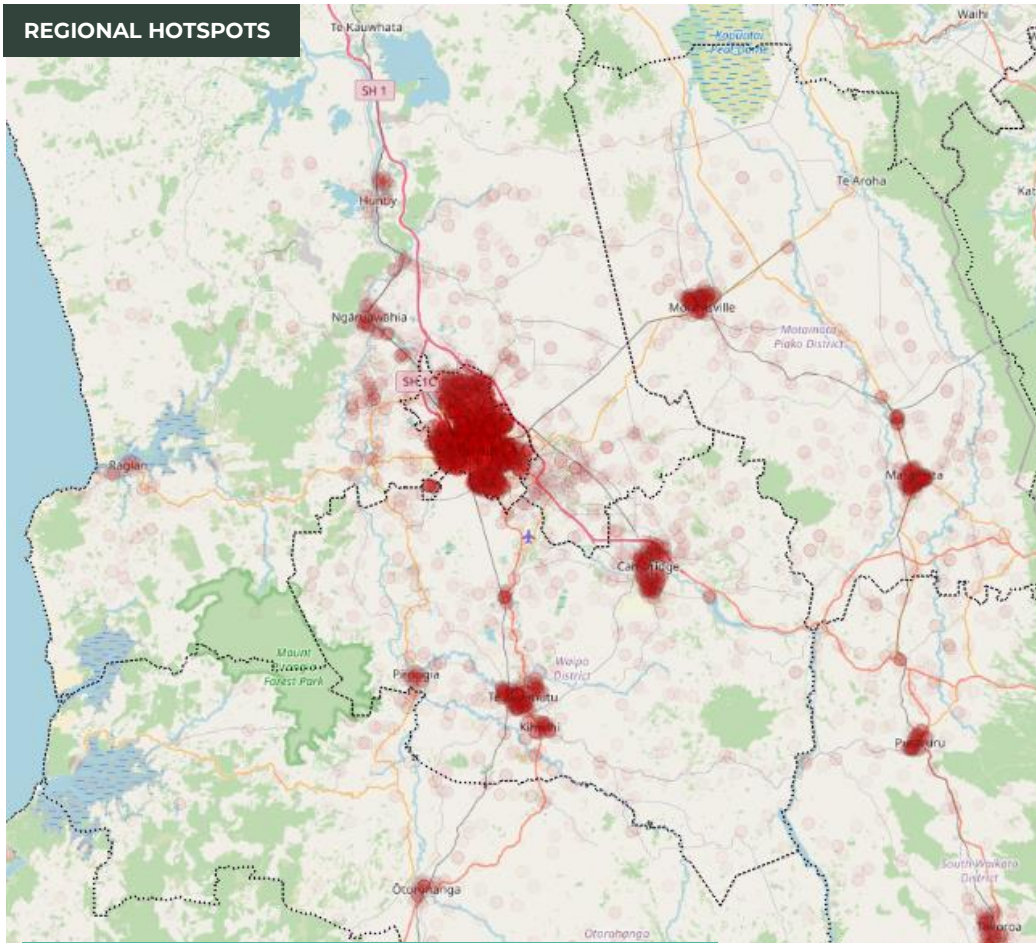
Post Covid-19 both football and rugby membership are trending upwards in Hamilton and Waipa. However, indications are that football is on a steeper recover trajectory than rugby.

<sup>6</sup> Note WaiBOP Football member registrations are preliminary records based on early season registrations. Both codes represent different geographic boundaries – as shown in the respective maps.

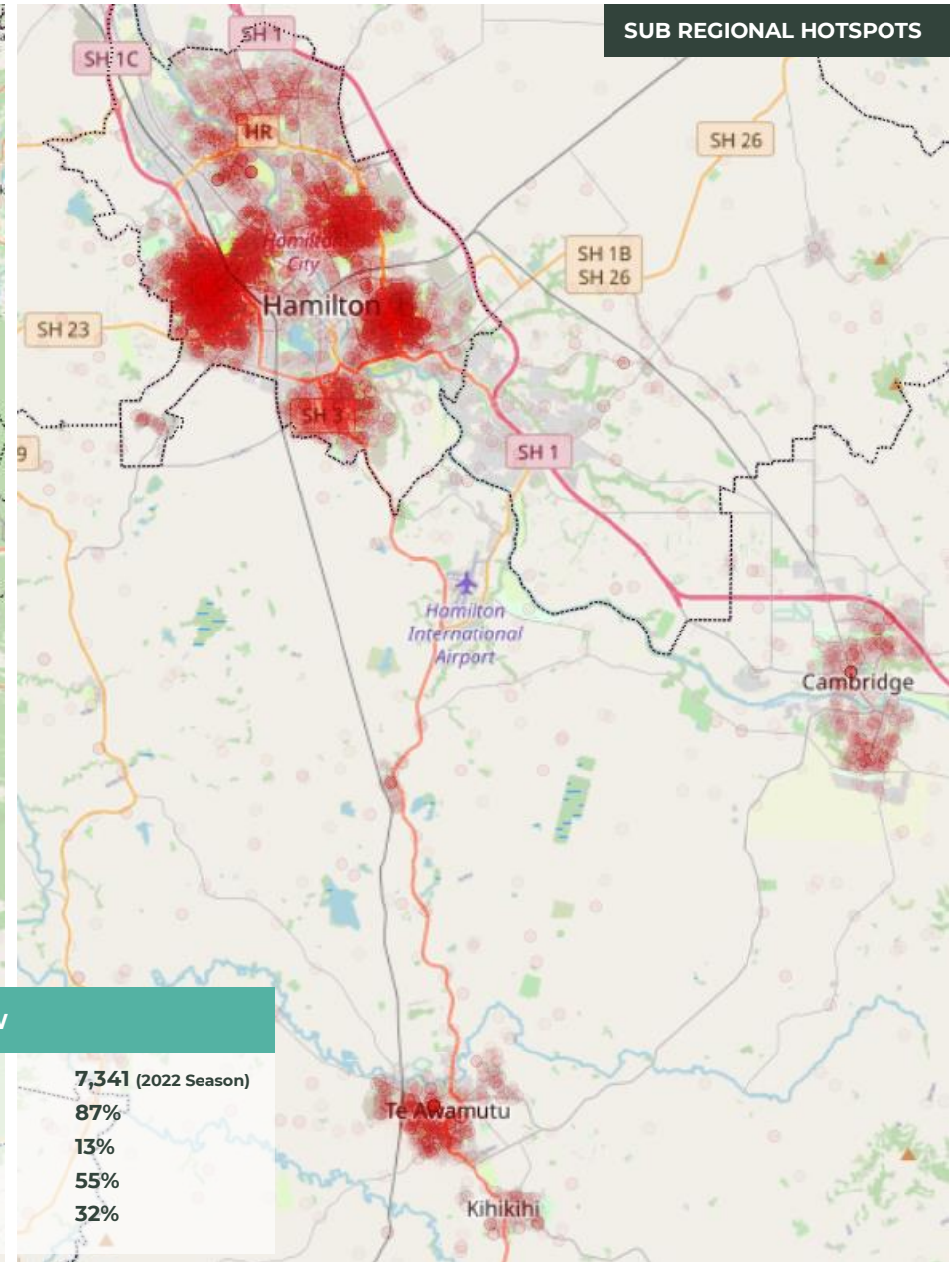
<sup>7</sup> Catchment analysis has been undertaken with datasets sourced from Waikato Rugby and WaiBOP Football. For clarity, following data cleansing, 88% of all WaiBOP Football members had usable data and 99.97% of Waikato Rugby members.

# WAIKATO RUGBY MEMBERSHIP OVERVIEW

## REGIONAL HOTSPOTS



## SUB REGIONAL HOTSPOTS



### TERRITORIAL AUTHORITY CATCHMENTS

<b>Hamilton City</b>	<b>36%</b>
<b>Waipa District</b>	<b>21%</b>
<small>(comprising 25% in the Te Awamutu Town Boundary and 24% in the Cambridge Town Boundary)</small>	
<b>Waikato District</b>	<b>15%</b>
<b>Matamata-Piako</b>	<b>15%</b>
<b>South Waikato</b>	<b>8%</b>
<b>Ōtorohanga District</b>	<b>3%</b>

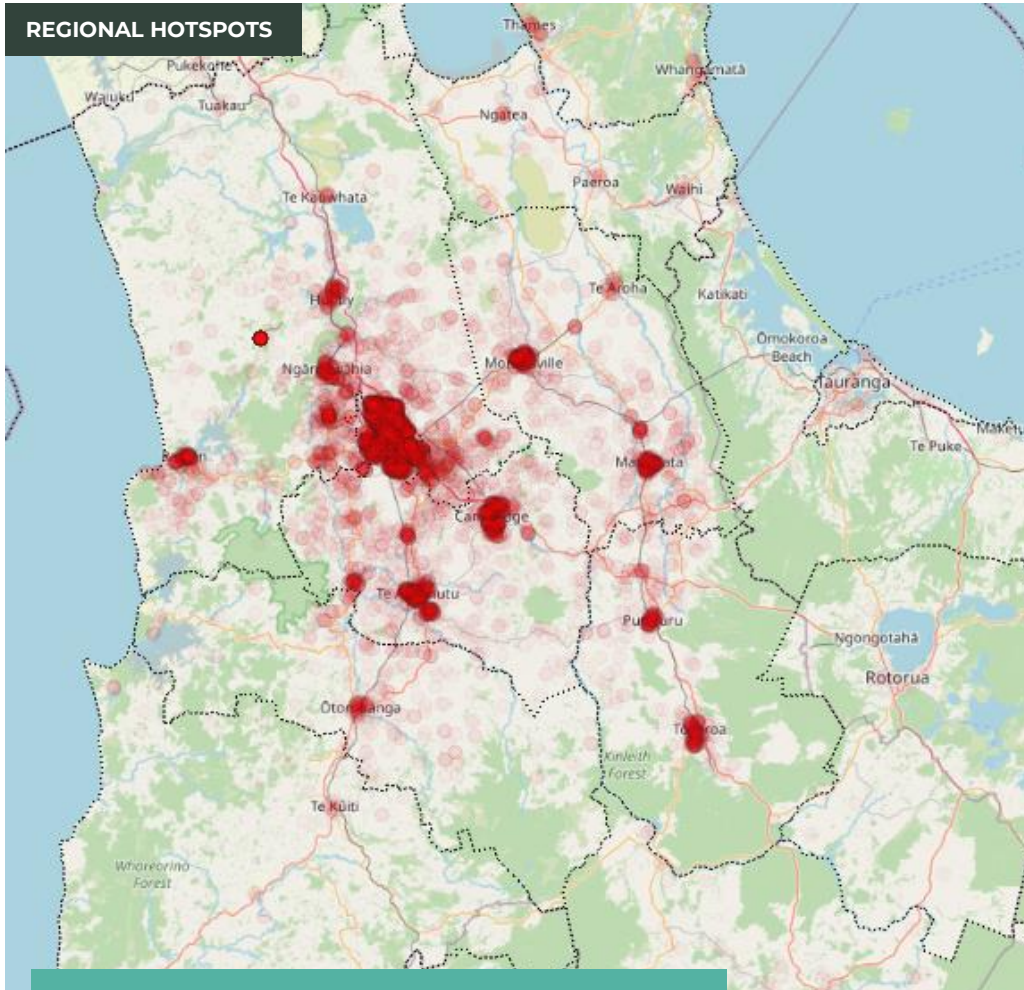
### MEMBER OVERVIEW

<b>Total Members</b>	<b>7,341</b> (2022 Season)
<b>Male</b>	<b>87%</b>
<b>Female</b>	<b>13%</b>
<b>NZ European</b>	<b>55%</b>
<b>Māori</b>	<b>32%</b>

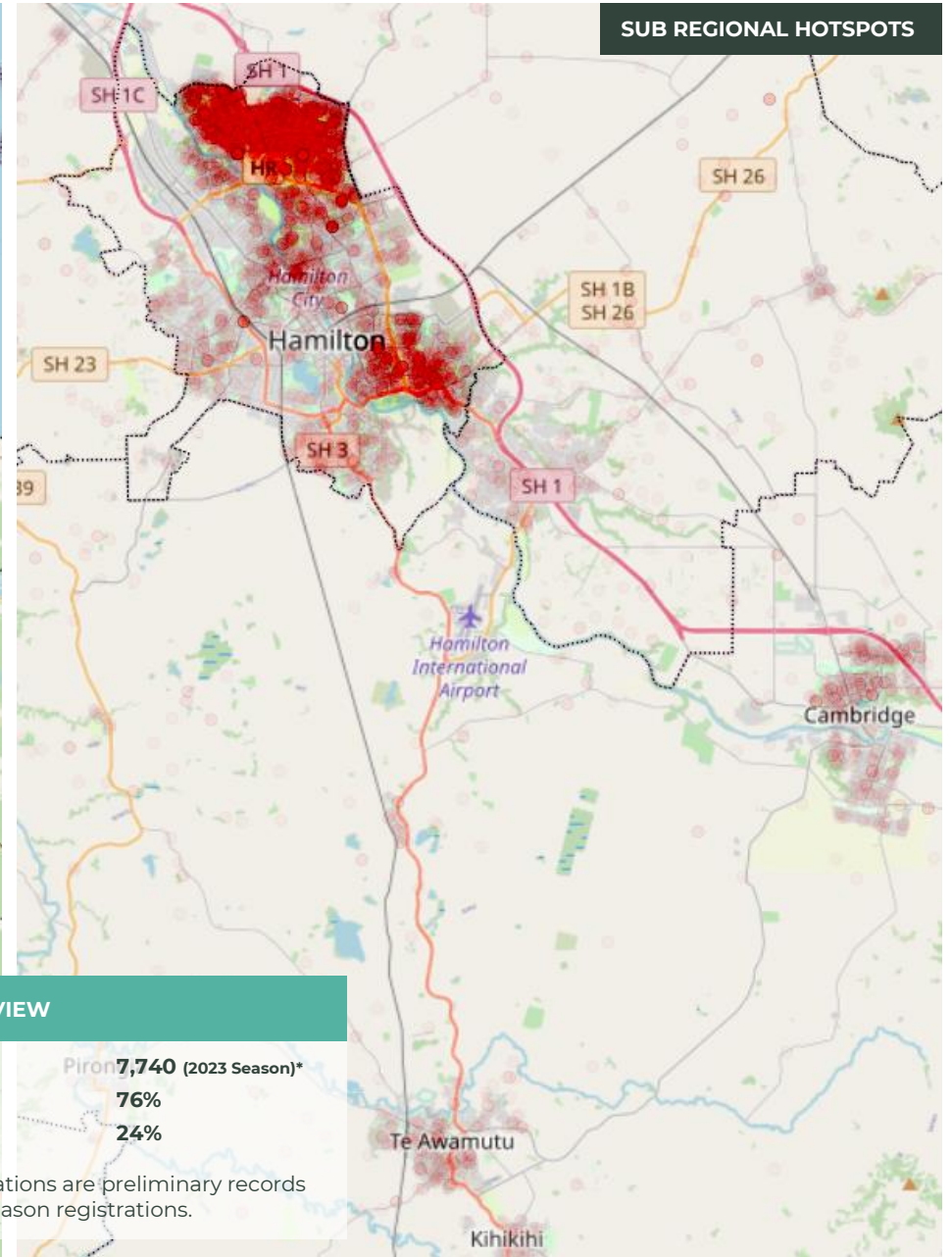


# WaibOP FOOTBALL MEMBERSHIP OVERVIEW – WAIKATO BASED PLAYERS ONLY

## REGIONAL HOTSPOTS



## SUB REGIONAL HOTSPOTS



### TERRITORIAL AUTHORITY CATCHMENTS

Hamilton City	35%
Waikato District	33%
Waipa District	12%
Matamata-Piako	6%
Taupō District	5%
Thames-Coromandel	3%

### MEMBER OVERVIEW

<b>Total Members</b>	<b>Piron 7,740 (2023 Season)*</b>
<b>Male</b>	<b>76%</b>
<b>Female</b>	<b>24%</b>

\*Member registrations are preliminary records based on early season registrations.

## 2.5 SPORTS PARKS - CLUB FEEDBACK

In 2022 Sport Waikato surveyed sports clubs around a range of topics including sports fields. Examining data from clubs in Hamilton and Waipa indicates that many clubs perceive they are experiencing a shortfall in field provision.

A total of 11 rugby clubs in Hamilton responded to the survey and all indicated they had current field shortfalls in some form. The majority (n=8) cited at least a medium level shortfall of 10-20 hours per week. Some clubs perceived the shortfall was higher at 20+ hours.

A smaller number of Hamilton football clubs perceived that they were experiencing field shortfalls (n=5) and that these were pronounced (with the majority being at or greater than 20 hours).

A recurring theme across both codes was the perceived need for field quality improvements and artificial surfaces.

Looking at Waipa, respondents perceived fewer shortfall issues. Rugby had five clubs indicating 'no' or 'low' shortfalls (out of a total sample of 7 clubs). However, two clubs perceived their shortfalls were in the order of 'medium' (10-20 hours) or 'high' (20+ hours). One of the three football clubs responding to the survey perceived they had 'medium' to 'high' shortfalls. Most clubs (across both codes) in Waipa perceived they had field quality issues. Some identified artificial surfaces as a solution.

## 2.6 SPORTS FIELD NETWORK MANAGEMENT

Both Councils have different approaches to their field networks which are outlined below.

### HAMILTON CITY COUNCIL

Hamilton City Council operates a general field booking system and, in some instances, direct field leases to schools and clubs. Council does not currently actively monitor or police either leases or bookings. It does however centrally control maintenance across the network (with some exceptions). This has tended to result in better maintenance outcomes when compared to Waipa although field type, climate conditions and demand levels have all combined to place stress on the network (especially over winter).

Historically Hamilton City Council has only put out a general advisory regarding field closures but not implemented closures. It was left to clubs

to manage the use of the individual fields that they had booked or leased. This approach is changing in the winter of 2023 with specific fields being closed. Council has not historically collected data on field closures because clubs were granted greater discretion.

### WAIPA DISTRICT COUNCIL

Waipa District Council does not operate a centralised field booking system. Waipa District Council also has a more limited hands off approach to field maintenance which has been devolved to the sports clubs domiciled on each sports park. Council does however provide some basic maintenance such as mowing and annual spraying (but no field renewals programme). This has tended to lead to a very piecemeal maintenance regime across the Waipa network. Individual clubs tend to undertake work when resources allow or when it is perceived to be necessary. This is reflected in the variability of field quality across the network and even within parks (as was demonstrated by site visits).

### SITE VISITS

A series of site visits were undertaken across key fields in each network. These visits demonstrated some of the challenges faced. The following section discusses some parks for illustrative purposes.

Memorial Park in Cambridge was maintained by the resident club which reported having "limited resources but trying their best" to maintain the grounds. The outcome was soil fields with no irrigation that showed increased field undulations, weeds, and some field areas without grass (Plate 2.1).

PLATE 2.1: MEMORIAL PARK CAMBRIDGE



John Kerkhoff Park in Cambridge was in a state of transition with some soil fields being very undulating, showing signs of grass loss and without standard run off areas. However, the park was receiving Waipa's first sand carpeted fields which were in development at the time of visiting (Plate 2.2).

PLATE 2.2: JOHN KERKHOFF PARK (WITH SOIL FIELDS IN THE FOREGROUND & NEW SAND CARPET FIELDS IN THE BACKGROUND).



The number one field at Albert Park in Te Awamutu was demonstrating signs of pressure (predominantly with variable grass cover and undulations). This field is soil based. The field condition was attributed primarily to use management and maintenance levels (Plate 2.3 and 2.4).

PLATE 2.3: ALBERT PARK (NUMBER ONE FIELD)



PLATE 2.4: ALBERT PARK WATER PONDING (NUMBER ONE FIELD)



Gower Park in Hamilton demonstrated fields of variable quality. The number one sand carpeted field was in good condition with maintenance being undertaken on the day of the site visit (Plate 2.5). By comparison the field beside it was in poor condition demonstrating grass loss, undulations, and weed species (Plate 2.6).

Gower Park has been developed on peat so is a particularly difficult park to maintain quality sports fields. The fields are prone to becoming water logged in winter and have poor drainage. In summer they dry out and areas sink creating undulations (Plate 2.6).

PLATE 2.5: GOWER PARK (SAND CARPET FIELD)



Marist Park in Hamilton is comprised of three fields that are soil based without drainage. These fields generally were better than those constructed on concentrations of peat. However, they still showed signs of grass loss, weed species and some undulations (Plate 2.7).

PLATE 2.6: GOWER PARK (PEAT BASED SOIL FIELD)



PLATE 2.7: MARIST PARK



Korikori Park is one of the newest sports parks in Hamilton and is comprised of a sand carpeted field and four sand capped soil fields. The park was demonstrating signs of overuse in areas (due more to management of sports use rather than field maintenance deficiencies). These signs included areas of grass loss (Plate 2.8).

PLATE 2.8: KORIKORI PARK (SAND CAPPED FIELDS)



## 2.7 FIELD CANCELLATIONS

Neither Hamilton City Council nor Waipa District Council have records of historic field cancellations although Hamilton City Council can identify periods of maintenance closures. These data gaps are primarily an outcome of the way in which each field network has been managed historically.

As discussed earlier, Waipa has a very devolved system which sees Clubs control both levels of field use and maintenance (within the structure of individual leases). While Hamilton has a general centralised booking system (with some leases) and centralised maintenance it has allowed clubs greater autonomy on deciding on individual field cancellations (historically Council only issued closure advisories not instructions).

The lack of field cancellation data is problematic on several fronts. Firstly, it hinders future field planning and secondly it can lead to the respective networks underperforming (because use of a field in poor weather can have a disproportionate impact on field quality and use over the rest of the season). In the case of Hamilton City, it also runs the risk of increasing network wide maintenance costs.

## 2.8 LIGHTING & FIELD SURFACES

Lighting is an essential component of unlocking the value of any winter sports field network. However, it is essential that lighting is aligned to the field network and in particular the quality of the fields being lit. This ensures that the spend on lighting (capex and opex) unlocks real use value and avoids damaging specific fields and the wider network.

Table 2.17 illustrates the importance of this lighting and field quality alignment. Each field type has a maximum number of use hours ranging from an average of 8 hours (soil fields) to 40 hours (artificial) per week. It is important to remember actual hours may be less than this, particularly with natural grass cover because of climatic and soil conditions. Lights are used most often to enable training during weekdays and to a lesser extent for games.

If one assumes a soil field can receive a maximum use level of 8 hours per week during winter (which is a general recommendation in good weather before the field is damaged) this use can be entirely achieved during daylight hours. For example, 5 hours of training weekdays 4-5 pm and

Saturday 9 am – 12 pm. This is a typical youth sports field use pattern. In this scenario lighting unlocks no additional use (Table 2.17).

Alternatively, the same field could be used for 2.5 hours over two nights from 6 pm -8.30 pm (a standard senior training time). However, this is not allowing the lights to be used to their capacity and is generally considered an underutilisation and a poor return on the capex invested in the lights (a maximum of 20 hours per month<sup>8</sup> before field damage occurs)<sup>9</sup>.

The benefits from lights are only really generated when they are placed on fields (or smaller training areas) that are of a sand carpet quality or above (Table 2.17).



<sup>8</sup> Assuming lights are used 5 hours past dusk per week and on a Saturday for 3 hours during daylight.

<sup>9</sup> Case examples illustrate that the lights will in fact lead to soil fields being overused (well above the 8 hour weekly guidance). This impacts on a degradation of the field

TABLE 2.17: INDICATIVE WINTER LOADING BY FIELD TYPES WITH LIGHTS (ASSUMES TRAINING FOCUS)

Field Hours Per Field Type By Week				
	Soil	Sand Carpet	Hybrid	Artificial
<b>Estimated Field Loading Hours</b>	8 hours max	18 hours max	25 hours max	40 hours (recommended)
<b>Assumed Weekday Use</b>	Mon-Fr 4-5 pm <b>= 5 hours</b>	Mon & Fri 4-5 pm & Tue, Wed, Thurs 4 – 8 pm <b>= 14 hours</b>	Mon & Fri 4-6 pm & Tue, Wed, Thurs 4 – 9 pm <b>= 19 hours</b>	Mon – Fri 4-9 pm & <b>= 25 hours</b>
<b>Assumed Weekend Use</b>	Saturday 9 am-12 pm <b>= 3 hours</b>	Saturday 9 am – 1 pm <b>= 4 hours</b>	Saturday 9 am – 3 pm <b>= 6 hours</b>	Saturday 9 am – 9 pm Sunday 10 am – 1 pm <b>= 15 hours</b>
<b>Potential Use Without Floodlighting</b>	<b>8 hours</b>	<b>9 hours</b>	<b>11 hours</b>	<b>15 hours</b>
<b>Lights unlock an additional</b>	<b>0 hours</b>	<b>9 hours</b>	<b>14 hours</b>	<b>25 hours</b>
<b>Total Weekly Hours</b>	<b>8</b>	<b>18</b>	<b>25</b>	<b>40</b>
<b>Comments</b>	Lights = No impact. Max weekly loading can be reached without lights. Only benefit is potential flexibility of loading certain weekdays for training. Risk is fields are overused.	Lights = Impact. Max weekly training loading only reached with lights.	Lights = Impact. Max weekly training loading only reached with lights.	Lights = Impact. Max weekly training loading only reached with lights.

network and additional maintenance costs. This has given rise to some Council such as Auckland Council only installing lighting on fields at sand carpet level or above.

## 2.9 DISCUSSION

### FIELD DEMAND AND SUPPLY

Based on available data Visitor Solutions believes that the actual demand for sports fields across both Waipa and Hamilton is greater than indicated in the 2020 GLG demand and supply modelling<sup>10</sup> (especially in Hamilton). Although we have no visibility of the workings of the GLG demand model we base this assumption on the following factors:

1. The 2020 demand and supply modelling for Hamilton had field supply data discrepancies. Even with the addition of new fields added since 2020, the overall field supply in terms of FFE is circa 11 soil fields fewer (or circa -88 WFFE<sup>11</sup> across the Hamilton network).
2. The unique nature of some Waikato soil fields, being built on peat, means that a certain proportion are unlikely to reach 8 WFFE<sup>11</sup> of use (which was the modelled use rate per soil field).
3. The continued recovery of player numbers post COVID-19 and overall population projection growth. In a localised sense this impact is evidenced in the 2023 GLG Te Awamutu study.

Given the three factors above, demand is almost certainly more, and potentially in some areas significantly more than has been modelled by GLG in 2020. We believe that it would be prudent to re-run the modelling taking the above factors into account.

### FIELD NETWORKS

Evidence exists to indicate that both the Waipa and the Hamilton field networks are under stress. This is supported by our findings on field demand and supply (discussed above), the Sport Waikato club survey feedback which indicates perceived levels of field shortfalls and site visits undertaken to fields within each network in 2023.

There are many things that can be considered to improve the overall field network of both Councils. These include things such as:

1. Moving to a more centralised managed network that enables Council to control field use more directly (for example, closing fields, monitoring field bookings, and policing use).

<sup>10</sup> It should be remembered that the GLG model (as per all models) is a guide to assist planning rather than a tool of high accuracy.

2. Implementing a range of field types across the network (for example different levels of drainage, field composition – sand dressing and carpeting, different types of grasses and grass mixes, and irrigation levels). Build a wider spectrum field network.
3. Aligning types of use (for example, junior training, junior games, social play, senior training, and senior games – at different grades) to the most appropriate field types and locations at the most appropriate times. In essence having greater control across the field network.
4. Aligning lighting with field quality so use can be maximised.
5. Developing when appropriate artificial turfs with a training and junior play focus.

These issues are explored further in the following sections with emphasis on artificial surfaces.

### LIGHTING

Care needs to be taken to align the delivering of network lighting with field quality. To maximise network outcomes, we would recommend that lighting should be developed on fields or training areas with sand carpeting. It should be noted Auckland Council now have a policy to only light sand carpeted fields to maximise use, achieve investment value, and protect the networks soil and sand dressed fields from overuse (which lighting inevitability brings).

#### Recommendations

- The 2020 field demand modelling should be rerun based on the updated supply data.
- Once the new supply data is available it should be used to inform a separate field network development plan.
- Sports lighting should only be developed on fields that are sand carpeted or are artificial.

<sup>11</sup> This assumes that a soil field equates to 8 WFFE<sup>11</sup> in the GLG 2020 modelling.

# 3.0

## ARTIFICIAL TURF LANDSCAPE

### 3.1 INTRODUCTION

Available secondary data and a series of interviews and site visits were undertaken to compile and understanding of the national turf landscape. The interviews were undertaken with Council, Clubs, RSO's and turf developers. The interviews covered areas such as best practice learnings, technical issues and trends, capital, and operational costs. To assist with full and frank exchange of information it was agreed that discussions would be largely kept anonymised (with some exceptions).

### 3.2 THE ARTIFICIAL TURF LANDSCAPE

The New Zealand artificial turf landscape is continuing to evolve. Table 3.1 presents a summary of some of the existing artificial turfs across the country and others that are being considered. The Councils with the highest number of artificial turfs nationally are Auckland (12) and Wellington (7). In terms of residents per turf Wellington is by far the highest with one turf per circa 28,000 residents – with numerous being partnerships with schools (Table 3.1).

PLATE 3.1: LOGAN PARK, DUNEDIN



TABLE 3.1: SAMPLE OF NEW ZEALAND'S ARTIFICIAL TURFS

Territorial Authority	Full Field Turf Equivalent	# of Turf Sites	Population Base (census 2018)	Residents to Turf	Being Explored
<b>Auckland Council</b>	19.5	12	1,571,718	80,601	TBC
<b><i>Auckland Council (Urban Area)</i></b>	<i>19.5</i>	<i>12</i>	<i>1,440,300</i>	<i>73,862</i>	
<b>Dunedin City Council</b>	2	1	126,255	63,128	1 (42,085 res / turf)
<b><i>Dunedin City (Urban Area)</i></b>	<i>2</i>	<i>1</i>	<i>102,400</i>	<i>51,200</i>	
<b>Palmerston North City Council</b>	1	1	84,639	84,639	1 (42,320 res / turf)
<b>Selwyn District Council</b>	1	1	60,561	60,561	-
<b><i>Rolleston (Urban Area)</i></b>	<i>1</i>	<i>1</i>	<i>28,000</i>	<i>28,000</i>	
<b>Wellington City Council</b>	7.25	7	202,737	27,964	TBC
<b>Hamilton City Council</b>	-	-	160,911	-	4.5 (35,758 res / turf)
<b>Tauranga City Council</b>	-	-	136,713	-	1.5 (91,142 res / turf)
<b>Waipa District</b>	-	-	53,241	-	1.5 (35,492 res / turf)
<b><i>Te Awamutu/ Cambridge (Urban Area)</i></b>	<i>-</i>	<i>-</i>	<i>35,500</i>	<i>-</i>	<i>1.5</i> <i>(23,667 res / turf)</i>

Note: In the case of Hamilton and Waipa every turf is considered 1.5 to account for a recommended training area associated with a full size turf.



### 3.3 WHEN TO DEVELOP AN ARTIFICIAL TURF?

Within New Zealand artificial turfs are generally being developed for one or more of the following reasons:

#### 1. When water restrictions impact grass field quality.

Case Example: Tauranga City Council is increasingly unable to supply sufficient water to irrigate fields over summer leading to grass die back and slower reinstatement through winter. This has resulted in fields delivering lower use hours. Council is now planning artificial turfs in key locations to address these issues.

#### 2. When topography and/or land parcel boundaries makes forming concentrations of grass fields difficult.

Case Example: Wellington City Council has limitations because of its topography and cannot supply the necessary number of soil / sand carpeted sports fields to meet demand. Council has used artificial turfs to address these supply shortfalls.

#### 3. When a 'back up' is required in a network during and after poor weather (especially for training).

Case Example: Auckland Councils sports field network was under pressure, especially during periods of poor weather over winter. Artificial turfs have been used to enable training to take place regardless of weather conditions. Artificial turfs have predominantly been developed for training (although on some sites they also facilitate games at different levels).

#### 4. When capital funding is available & it carries little opportunity cost downside - can result in a wider funding mix being established.

College Rifles Rugby Club in Auckland: College Rifles owns its own land and fields. The location of the fields (in a gully) and the clubs high membership numbers placed extreme pressure on the original soil fields. For the original development the club was able to develop two artificial turfs and a small artificial training area by leveraging funding from multiple stakeholders (the club, Auckland City Council, ASB Community Trust and local smaller grant funders). The more recent renewals project leveraged funding from the club, Auckland Council (\$700,000) and other charitable funders (Plate 3.2 and Plate 3.3).

#### 5. When centralised sports training hubs are being established.

Case Example: Links Avenue football training base in Tauranga is currently under development. This is an example of a planned initiative between various Tauranga football clubs, Tauranga Council and with the support of WaiBOP Football. The development builds on best practice with a premier sand carpeted field in front of the existing clubrooms, while establishing an artificial full-size turf and two joining junior / warm up turfs to the side (Plans 3.1 and 3.2).

Logan Park in Dunedin established a 'Home of Football' with development and access to two artificial turfs adjacent to one another.

#### 6. To take training pressure off soil / sand fields,

Case Example: Wellington City Council, Auckland Council, Dunedin City Council and Tauranga City Council (as above).

#### 7. When it's the only way demand can be met.

Case Example: Wellington City Council at a network level and College Rifles at a site level.

PLATE 3.2: COLLEGE RIFFLES ARTIFICIAL TURFS (POST RENEWAL)



PLATE 3.3: COLLEGE RIFFLES ARTIFICIAL TRAINING / WARM UP AREA



PLATE 3.4: CETA ARENA MANAWATU, PALMERSTON NORTH



PLAN 3.1: LINKS AVENUE FOOTBALL TRAINING FACILITY



SUMMARY

SITE

APPROX 40 600 SQM

- **NATURAL TURF PITCH**
  - FULL PITCH 102 x 64 1 (WAIBOP MAX SIZE PITCH)
  - FULL PITCH 95 x 58 1 (ABOVE WAIBOP MIN SIZE PITCH)
- **ARTIFICIAL TURF PITCH**
  - FULL PITCH 100 x 68 1
  - JUNIOR PITCH 40 x 30 2
- **PARKING/ ROAD**
  - EXISTING + EXPANSION
  - APPROX 6 000SQM
- CLUB HOUSE (EXISTING)**
  - EXISTING
  - APPROX 1 700 SQM

\*Lighting is required for all artificial and grass training turfs. Individual lighting plans are yet to be developed.

1:1000 @ A3



8

PLAN 3.2: LINKS AVENUE FOOTBALL TRAINING FACILITY



WARREN AND MAHONEY\*



### 3.4 THE IMPORTANCE OF THE NETWORK

It is important to see all artificial turfs within the context of the wider field network. Artificial turfs are a tool, “but not the only tool one in the toolbox”. An optimal field network should contain a mix of field types including:

- Soil,
- Sand dressed,
- Sand carpet,
- Hybrid (normally in stadia settings),
- Artificial.

Most artificial turfs are now code specific (but can still be used by other codes for social play and/or specific types of training).

To get the best return on investment artificial turfs are often better aimed at training and junior / social play where demand and field loading is the greatest. Used in this way an artificial turf takes the greatest pressure of the wider field network. For example, in a junior football training setting a single artificial turf may accommodate 80-100 active players (playing in quarters across the field) while a senior game accommodates 22 active players.

Although artificial turfs can be used for senior competitive play many senior players still favour playing on sand carpeted fields. This highlights the importance of having a mix of surface types across a network and if possible, within a specific site.

See Section 4.2 for discussion on Waikato specific issues and demand drivers.



### 3.5 PRICING STRUCTURES

Analysis found that pricing structures for artificial turfs around New Zealand are very variable (Table 3.2).

TABLE 3.2: EXAMPLE PRICING STRUCTURES (FOR HIRERS AT PEAK TIMES)

Council	Full Turf	Half Turf	Lights Full Turf	Lights Half Turf
<b>Waimakariri District Council</b>	\$85/h	\$42.50/h	\$30/h	\$15/h
<b>Selwyn District Council</b>	\$30/h	NA	NA	NA
<b>Auckland Council</b>	Free	Free	Free	Free
<b>Wellington City Council</b>	\$82.50/h	NA	NA	NA
<b>Dunedin City Council</b>	Block Lease & Free			
<b>Palmerston North City Council</b>	\$40/h \$25/h - schools			
<b>Hutt City Council</b>	\$90/h	NA	NA	NA
<b>Christchurch United Football Centre</b>	\$144/hr (\$225 full game 2 hrs)	\$79	\$40/h	\$20/h
<b>Albany Football Hub (specialist 5-a-side fields – not full turf)</b>	NA	\$50	NA	Free

Note:

- Prices vary for users outside of TA boundaries.
- Annual bookings for specific users such as sports clubs vary.
- Some Councils offer off peak rates which are lower.

### 3.6 OPEX BUDGETS

Opex budgets between Council and turf owners were highly variable across respondents (Table 3.3). When asked how these opex budgets were developed, detail proved difficult to come by. Reasons given for this were:

- Artificial turfs formed a small component part of much larger operational maintenance contracts with third party contractors. Therefore, artificial turfs formed part of wider bulk contracts making accurate breakdowns hard to achieve,
- Newer turfs (new generation) have different cost profiles to older (more worn) turfs, so in the case of a mixed artificial portfolio opex costs were likely averaged across all turfs.
- Opex budgets may not have been updated for several years and how they were originally established may not have been recorded centrally.
- The turf had not yet been operated for any entire year and actual opex costs remained unclear.
- A lack of clarity about what was specified within different opex budgets (internal staff costs, power, insurance etc).

TABLE 3.3: A SAMPLE OF COUNCIL OPEX BUDGETS

Turf Owner	Budget Per Turf PA
<b>Selwyn District Council</b>	Not available
<b>Auckland Council</b>	\$100,000
<b>Wellington City Council</b>	\$30,000
<b>Dunedin City Council</b>	Not available
<b>College Riffles</b>	\$40,000
<b>Palmerston North City Council</b>	\$12,000 + lighting & other ancillaries

### 3.7 CAPEX & OPEX FIELD TYPE COMPARISONS

Industry insights have been sought to understand costs associated with developing and maintaining a full range sports field surfaces. Costings have been supplied by New Zealand Sports Turf Institute, artificial turf suppliers, Councils, and sports field owners.

Maintenance costs for natural grass fields appear notably higher than previously published sports field guides. The costs outlined by New Zealand Sports Turf Institute present the required level of service to preserve quality and maximise use across the Waikato. In a constrained sports field network, this level of investment is paramount for servicing

fields to meet community demand. This should be an ongoing requirement and budgeted for accordingly (especially where ground conditions are susceptible to weather or ground movement).

The identified costs over a 30-year period for different sports field surfaces are outlined in Table 3.4. Key findings are:

- Artificial turf cost circa \$3 million more over 30-years than natural fields
- Soil-based and sand-dressed fields offer the lowest cost per hour. However, use is more limited, and fields are often subject to closure.
- If capital costs can be met both initially and at renewal stages, artificial turf can provide value when considering wider network impacts experienced (or forecast to experience) across the sub-region.

Item	Soil-Based	Sand-Dressed	Sand-Based	Hybrid	Artificial
<b>Earthworks</b>	50,000	50,000	150,000	150,000	150,000 – 400,000
<b>Construction</b>	120,000	164,000	350,000	900,000	2,500,000
	798,000	1,064,700	1,604,700	2,054,700	1,050,000
<b>Maintenance</b>	(\$26,600 per annum/30 years)	(\$35,490 per annum/30 years)	(\$53,490 per annum/30 years)	(\$68,490 per annum/30 years)	(Based on \$35,000 per annum/30 years)
<b>Water Costs<sup>12</sup></b>	-	9,060	9,060	9,060	-
	50,000	50,000	500,000	2,620,000	1,820,000
<b>Renewal &amp; Disposal</b>			(new sand layer, slits and turf grass establishment in Years 11 & 21 - \$250,000 per 10-year cycle)	(reinforcement, sand layer, turf grass establishment in Years 3,6,9,15,18,21,27,29) & new hybrid system in Years 12 & 24) + \$100,000 for disposal - \$50,000 per turf layer	(infill top up, worn turf renewal & infill in Years 11 & 21. Assumes shock pad renewal in Year 21). Based on full-sized rugby field.
<b>30-Year Cost Subtotal<sup>13</sup></b>	<b>1,018,000</b>	<b>1,328,700</b>	<b>2,604,700</b>	<b>5,724,700</b>	<b>5,520,000 – 5,820,000</b>
<b>Weekly Hours of Use</b>	8	10	15	25	40
<b>Winter Only Hours / 30 years</b>	6,000	7,500	11,250	18,750	30,000
<b>Life Cycle</b>	30	30	30	30	30
<b>Cost per Hour of Use (\$) – Winter Use Only</b>	<b>170</b>	<b>177</b>	<b>232</b>	<b>305</b>	<b>184-194</b>
<b>Annual Cost per Hour - Net Present Value of 0(\$)<sup>14</sup></b>	<b>107.52</b>	<b>-</b>	<b>160.22</b>	<b>-</b>	<b>140.61</b>

<sup>12</sup> Water costs have been included to consider prospective water charges as part of Affordable Waters Reform.

<sup>13</sup> 30-Year Cost Subtotal excludes water costs and earthworks.

<sup>14</sup> Calculated via Sport New Zealand's Whole of Life Calculator with updated values as outlined above (with 5% Real Discount Rate as per Treasury guideline and shock pad inclusion)

### 3.8 TURF TECHNOLOGY

Turf technology has advanced significantly over the past twenty years. Advancements have seen a greater emphasis placed on player experience and the need to reduce injuries. Internationally far more focus has also been placed on the environmental impact of artificial turfs both over the course of their operational life and then when artificial grass surfaces are being replaced. Both football and rugby international governing bodies have set artificial turf standards and undertake turf certifications.

Advancements include:

- New types of shock pads,
- New synthetic grass designs / lengths,
- New types of infill materials,
- Improved lighting technology.

The technology factors that are at the forefront of most development decisions currently are the type of surface and infill used. The main categories are:






- SBR -Styrene-Butadiene Rubber,
- EPDM - Ethylene Propylene Diene Monomer,
- TPE - Thermoplastic Elastomer,
- Cork,
- Wood.

Note sand or part sand infill are other alternate options, however, they have not yet achieved FIFA certification – therefore have been excluded as part of this analysis.

These technology types are summarised with pros and cons in the following table.





	<b>SBR</b> STYRENE-BUTADIENE RUBBER	<b>EPDM</b> ETHYLENE PROPYLENE DIENE MONOMER	<b>TPE</b> THERMOPLASTIC ELASTOMER	<b>CORK</b>	<b>WOOD</b>
<b>Outline</b>	Rubber crumb manufactured from recycled vehicle tyres.	High-density synthetic rubber – virgin material.	High-density synthetic rubber – virgin material.	Granulated natural cork.	Engineered wood particle.
<b>Pros</b>	<ul style="list-style-type: none"> <li>• Most economical shock absorbing rubberised infill.</li> <li>• Good drainage.</li> <li>• Best playing surface with good shock absorption.</li> </ul>	<ul style="list-style-type: none"> <li>• Good playing characteristics.</li> <li>• No smell.</li> </ul>	<ul style="list-style-type: none"> <li>• Very good playing characteristics.</li> <li>• No smell.</li> <li>• Can be recycled and reused.</li> </ul>	<ul style="list-style-type: none"> <li>• Good playing characteristics.</li> <li>• Contains heat reducing properties &amp; odourless.</li> <li>• Natural product – can be recycled.</li> </ul>	<ul style="list-style-type: none"> <li>• Good playing characteristics.</li> <li>• Contains heat reducing properties &amp; odourless.</li> <li>• Natural product – can be recycled.</li> <li>• Heavier than cork so less relative displacement.</li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>• Environmental concerns as it cannot be recycled.</li> <li>• Some bans on micro-plastics have occurred overseas which could be mirrored in New Zealand in the future.</li> <li>• Direct sunlight can increase temperature due to heat absorption of rubber.</li> <li>• Rubber smell in high temperatures.</li> </ul>	<ul style="list-style-type: none"> <li>• Notably higher cost than SBR.</li> <li>• Environmental concerns as it cannot be recycled.</li> <li>• Some bans on micro-plastics have occurred overseas which could be mirrored in New Zealand in the future.</li> <li>• Direct sunlight can increase temperature due to heat absorption of rubber.</li> </ul>	<ul style="list-style-type: none"> <li>• High cost.</li> <li>• Direct sunlight can increase temperature due to heat absorption of rubber.</li> </ul>	<ul style="list-style-type: none"> <li>• Displacement issues with large rainfall.</li> <li>• More top-up and maintenance are required.</li> <li>• Some reports of quality variance have been noted.</li> </ul>	<ul style="list-style-type: none"> <li>• Can be abrasive when first used.</li> <li>• Slightly higher cost</li> </ul>
<b>Overall</b>	Provides the best pitch performance and is the most cost-effective rubberised infill approach. However, there are environmental concerns and possible legislation changes in the future which might impact infill options.	EPDM offer a similar performance to SBR but do not have the same smell or human and environmental concerns. Although this comes at a higher cost.	Good performance and the infill can be melted down and recycled into new products. Like all rubber infill then can be a higher temperature with direct sunlight. The infill is notably higher than SBR.	Provides an alternate organic option to plastics, however, within Waikato's climate infill displacement will be problematic and more costly.	Provides a good alternate organic option which has less displacement than cork.
<b>Image</b>					

### 3.9 GOVERNANCE AND MANAGEMENT

There are numerous approaches to the governance and management of artificial turfs. These predominantly fit into five categories:

1. Council owned and managed,
2. Council owned and third party managed,
3. Trust owned and managed,
4. Federation owned and managed,
5. Club owned and managed.

The appropriateness of each approach in part depends on the operating environment the potential turf is being developed within. This operating environment can be influenced by factors such as:

- The ability for one or more entities to access capital and operational funding,
- The potential strategic fit between potential partner entities. Is the territorial authority adopting a soil and sand field network approach or a mixed approach which also potentially incorporates artificial turfs.
- The strategic approach adopted by National and Regional Sports Organisations (NSO's and RSO's). For example, are regional development hubs being pursued that may require higher intensity site use and therefore justify artificial turfs.
- The degree to which private sector money and resources are being used in a proposed development (private and development capital).
- The ability of an existing third party to manage and operate an artificial turf over its full life (30+ years). Such as facility operators, schools, RSO's, trusts.

All these types of factors will influence which development approach/s should be considered. The approaches are summarised below.

#### COUNCIL OWNED AND MANAGED

Council ownership and management has traditionally occurred in areas where a Council has determined that artificial turfs will perform a core role within the field network. Examples of this approach are evident in areas such as Wellington and Auckland (see Sections 3.2 and 3.3).

Auckland and Wellington City Councils both have pressures that necessitate artificial turfs being developed. In the case of Wellington City available flat land with good drainage characteristics is in short supply. In many instances fields are sleeved into areas where the topography allows. In Auckland established centrally located sports parks are experiencing significant field pressure due to population growth and in many cases intensification.

Both of these Councils have strategic and policy positions that cement artificial turfs as a core tool for meeting identified network demands. The turfs are therefore largely funded and maintained directly by each Council.

TABLE 3.4: DIRECT COUNCIL OWNERSHIP & OPERATION

DIRECT COUNCIL OWNERSHIP & OPERATION	
PROS	CONS
<ul style="list-style-type: none"> <li>• Council can centrally plan and develop the network based on needs / demands in a strategic fashion.</li> </ul>	<ul style="list-style-type: none"> <li>• Council is more likely to be the predominant capital and operational funding contributor*. This can potentially constrain turf development and maintenance.</li> </ul>
<ul style="list-style-type: none"> <li>• Council can retain control of bookings to strategically maximise use and equity across different users (via a centralised booking system). This prevents operational 'turf capture' by a single entity and turf underutilisation.</li> </ul>	<ul style="list-style-type: none"> <li>• The quality of the playing experience can be negatively impacted by the skill of Council staff and or contractors.</li> </ul>
<ul style="list-style-type: none"> <li>• Maintenance can be centrally coordinated across multiple turfs to deliver a better playing experience and asset quality.</li> </ul>	<ul style="list-style-type: none"> <li>• The maintenance specification set by Council can also be influential if based on reducing costs. Maintenance response times to issues can be slower.</li> </ul>

\* Note: Partnerships to leverage capital may still be possible in some instances, see Logan Park, Dunedin example. It is noted that Hamilton City Council policy dictates that it cannot receive Class 4 funding.

### Partnerships Example – Logan Park in Dunedin

Capital partnerships may still be possible even when a turf is owned by Council. This is demonstrated in the case of Logan Park in Dunedin.

In 2019, two artificial turfs were opened on the park following an extensive proposal by Football South in 2017. The major rationale for the turf development was poor quality fields impacted by lack of sun and wet winters. There was a need for secure quality playing fields to meet demand and support the growth of football. Funding was secured through FIFA, Dunedin City Council, Lotteries, Otago Community Trust, McMillan Trust, The Lion Foundation, New Zealand Football Foundation, and the Highlanders.

The artificial turf is owned and maintained by Council and is part of the Council’s field booking system. As Football South contributed to the development and funding of the turf, the Federation has access from 3pm-10pm 5 days/week and 9am-10pm Saturday. Outside these hours, the Federation must make bookings.

Within football allocated hours, the Federation manage all football access to clubs. Up to 6pm priority is provided to junior/youth training and after 6pm to seniors. Friday night, some Wednesday nights and Saturdays are allocated for games.

### COUNCIL OWNED AND THIRD PARTY MANAGED

Council may decide in some instances that it is happy having direct ownership of the asset but favours outsourcing management to a third party (potentially a Trust, a club or a federation / RSO).

An example of this approach can be seen with English Park artificial turf in Christchurch. The full-sized artificial turf is owned by Christchurch City Council and leased to Mainland Football, along with a small football space.

The lease arrangement with Christchurch City Council was previously a peppercorn rental but is due to be reviewed and is likely to increase.

This Council owned and third-party management approaches have a series of pros and cons which are outlined in Table 3.5.

TABLE 3.5: DIRECT COUNCIL OWNERSHIP & THIRD PARTY MANAGEMENT

DIRECT COUNCIL OWNERSHIP & THIRD PARTY OPERATION	
PROS	CONS
<ul style="list-style-type: none"> <li>• Council can centrally plan and develop the network based on needs / demands in a strategic fashion.</li> </ul>	<ul style="list-style-type: none"> <li>• Council is more likely to be the predominant capital and operational funding contributor. This can potentially constrain turf development and maintenance.</li> </ul>
<ul style="list-style-type: none"> <li>• Maintenance can be centrally coordinated across multiple turfs to deliver a better playing experience and asset quality.</li> </ul>	<ul style="list-style-type: none"> <li>• The quality of the playing experience can be negatively impacted by the skill of Council staff and/or contractors.</li> </ul>
<ul style="list-style-type: none"> <li>• Maintenance response times to issues can be faster as the third party is often better able to advocate for timely maintenance (rather than different individual hirers).</li> </ul>	<ul style="list-style-type: none"> <li>• A lower Council maintenance specification (based on reducing costs) can reduce turf quality.</li> </ul>
<ul style="list-style-type: none"> <li>• Council can retain some general oversight of bookings via lease agreements.</li> </ul>	<ul style="list-style-type: none"> <li>• Council has less control of bookings as these are run directly by the third party (not centralised through Council). This may lead to real or perceived operational ‘turf capture’.</li> </ul>

### TRUST OWNED AND MANAGED

In some instances, artificial turfs / surfaces can be owned and managed independently from Council via Trusts although a degree of Council influence can be introduced through the terms of a ground lease (in the case of a turf being located on Council land) or via operational grants (where a turf is on private land or on Council land).

Trust based models are more commonly associated with Hockey Turfs in New Zealand. The pros and cons of this approach are outlined in Table 3.6.

TABLE 3.6: TRUST OWNED AND MANAGED

TRUST OWNED & MANAGED	
PROS	CONS
<ul style="list-style-type: none"> <li>• Council can contribute capital towards an artificial turf if it is proven to be appropriate (in so doing Council benefit from leveraging capital from other funders).</li> </ul>	<ul style="list-style-type: none"> <li>• Council can end up entering into artificial turf agreements reactively rather than strategically. This often occurs where a proponent advocates with elected members (often without a Council having a strategic turf policy in place or an independent needs assessment or feasibility being completed).</li> </ul>
<ul style="list-style-type: none"> <li>• Projects can often be advanced more quickly than if being reliant totally on Council funding – ability to leverage funding sources which Council may not be able to.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance is less likely to be centrally coordinated across multiple turfs to deliver economies of scale.</li> </ul>
<ul style="list-style-type: none"> <li>• Councils' investment return (usually measured in community outcomes / community use hours) can be safeguarded via lease terms (if the turf is on a Council reserve), grant contracts, and /or operational grant conditions (if operational grants are considered appropriate).</li> </ul>	<ul style="list-style-type: none"> <li>• The quality of the playing experience can be very reliant on the skill of the Trust, its staff and/or contractors.</li> </ul>
<ul style="list-style-type: none"> <li>• When adequate opex funding is available a Trust is often able to be more responsive to repair and maintenance issues (does not need to work through Council process and Council contractors to the same degree).</li> </ul>	<ul style="list-style-type: none"> <li>• Trust maintenance specifications can be set lower (especially if cost reductions are required when opex grants are limited and /or turf revenue is lower). This can reduce turf quality and the user experience.</li> </ul>
<ul style="list-style-type: none"> <li>• Council can retain some general oversight of bookings via lease and / or grant agreements.</li> </ul>	<ul style="list-style-type: none"> <li>• Turf replacement can be deferred if capital grant funding is unavailable as a Trusts own reserves are normally insufficient for a turf replacement. This can reduce turf quality and the user experience when replacement is deferred.</li> </ul>
	<ul style="list-style-type: none"> <li>• Council has less control over bookings as these are normally run directly by the Trust (not centralised through Council). This may lead to real or perceived operational 'turf capture' or</li> </ul>

TRUST OWNED & MANAGED	
PROS	CONS
	<ul style="list-style-type: none"> <li>• underutilisation. Council agreements with a Trust can seek to mitigate these issues.</li> </ul>
	<ul style="list-style-type: none"> <li>• Should the Trust fold Council would inherit the turf (assuming it is on a Council reserve).</li> </ul>

### FEDERATION OWNED AND MANAGED

An example of this approach is Petone Memorial Park in Lower Hutt. Capital Football is based at Petone Memorial Park which is also the home ground for Petone Football Club.

In 2013 Capital Football developed a full-sized artificial turf and adjoining quarter turf which it owns. The turf was funded via contributions from Hutt City Council, Capital Football, and general fundraising. Petone FC also contributed \$50,000 which provides rights of access for training and as a home ground. The park also offers three grass fields managed by Hutt City Council.

A Memorandum of Understanding was established between Capital Football and Petone FC which outlines the Club's rights and access to the artificial turf and pitches for training and home ground games. Capital Football reports this arrangement is working well.

The artificial turf at Petone is one of 13 artificial turfs across the Wellington Region. Capital Football manage the bookings to the turf for training and game play. \$80 per hour is charged for the full turf and \$30 per hour for the quarter turf which is collected to fund maintenance and future renewals. Capital Football have a contract for maintenance of the turf.

Several clubs and schools in the Hutt Valley access the artificial turf for training purposes. Capital Football manage the allocations between Clubs to honour the MOU and strike a balance between users. The turf is heavily utilised after school on weekdays (up to 9/10pm), weekend games are allocated for junior, youth and senior games.

Capital Football also use the turf to deliver their own programmes and charge themselves for this time. The financial accounts for the turf are

kept separate from Capital Football's general accounts to provide transparency.

The potential pros and cons of this approach are outlined in Table 3.7

TABLE 3.7: FEDERATION OWNED AND MANAGED

FEDERATION OWNED & MANAGED	
PROS	CONS
<ul style="list-style-type: none"> <li>• Council can contribute capital towards an artificial turf if it is proven to be appropriate (in so doing Council benefit from leveraging capital from other funders).</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance is less likely to be centrally coordinated across multiple turfs to deliver economies of scale.</li> </ul>
<ul style="list-style-type: none"> <li>• Projects can often be advanced more quickly than if being reliant totally on Council funding – ability to leverage funding sources which Council may not be able to.</li> </ul>	<ul style="list-style-type: none"> <li>• The quality of the playing experience can be very reliant on the skill of the Federation, its staff and/or contractors.</li> </ul>
<ul style="list-style-type: none"> <li>• Councils' investment return (usually measured in community outcomes / community use hours) can be safeguarded via lease terms (if the turf is on a Council reserve), grant contracts, and /or operational grant conditions (if operational grants are considered appropriate).</li> </ul>	<ul style="list-style-type: none"> <li>• Federation maintenance specifications can be set lower (especially if cost reductions are required when opex grants are limited and /or turf revenue is lower). This can reduce turf quality and the user experience.</li> </ul>
<ul style="list-style-type: none"> <li>• Federations are generally considered neutral and are perceived to be capable of allocating use hours equitably between hirers.</li> </ul>	<ul style="list-style-type: none"> <li>• Turf replacement can be deferred if capital grant funding is unavailable as a Federation own reserves are normally insufficient to cover a turf replacement. This can reduce turf quality and the user experience when replacement is deferred.</li> </ul>
<ul style="list-style-type: none"> <li>• When adequate opex funding is available a Federations are often able to be more responsive to repair and maintenance issues (no need to work through Council process and Council contractors to the same degree).</li> </ul>	
<ul style="list-style-type: none"> <li>• Council can retain some general oversight of bookings via lease and / or grant agreements.</li> </ul>	

FEDERATION OWNED & MANAGED	
PROS	CONS
<ul style="list-style-type: none"> <li>• Federations are generally considered to be very reasonable partners as they are aware of planning and political processes (and resulting timeframe implications).</li> </ul>	
<ul style="list-style-type: none"> <li>• Federations are generally considered to be more likely to remain viable long term entities.</li> </ul>	

### CLUB OWNED AND MANAGED

One of the most prominent examples of club owned and managed artificial turfs is College Riffles in Auckland, which own two turfs. These turfs are on land owned by the Club. College Riffles was one of the first entities to develop a certified rugby turf in Auckland.

The pros and cons of this approach are outlined in Table 3.8.

TABLE 3.8: CLUB OWNED AND MANAGED

CLUB OWNED & MANAGED	
PROS	CONS
<ul style="list-style-type: none"> <li>• Council can contribute capital towards an artificial turf if it is proven to be appropriate (in so doing Council benefit from leveraging capital from other funders).</li> </ul>	<ul style="list-style-type: none"> <li>• Council can end up entering into artificial turf agreements reactively rather than strategically. This often occurs where a proponent advocates with elected members (often without a Council having a strategic turf policy in place or an independent needs assessment or feasibility being completed).</li> </ul>
<ul style="list-style-type: none"> <li>• Projects can often be advanced more quickly than if being reliant totally on Council funding – ability to leverage funding sources which Council may not be able to.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance is less likely to be centrally coordinated across multiple turfs to deliver economies of scale.</li> </ul>
<ul style="list-style-type: none"> <li>• Councils' investment return (usually measured in community outcomes / community use hours) can be</li> </ul>	<ul style="list-style-type: none"> <li>• Turf replacement can be deferred if capital grant funding is unavailable as a Clubs own reserves are normally</li> </ul>

CLUB OWNED & MANAGED	
PROS	CONS
safeguarded via lease terms (if the turf is on a Council reserve), grant contracts, and /or operational grant conditions (if operational grants are considered appropriate).	insufficient for a turf replacement. This can reduce turf quality and the user experience when replacement is deferred.
<ul style="list-style-type: none"> <li>When adequate opex funding is available a Club is often able to be more responsive to repair and maintenance issues (does not need to work through Council process and Council contractors to the same degree).</li> </ul>	<ul style="list-style-type: none"> <li>Club maintenance specifications can be set lower (especially if cost reductions are required when opex grants are limited and /or turf revenue is lower). This can reduce turf quality and the user experience.</li> </ul>
<ul style="list-style-type: none"> <li>Council can retain some general oversight of bookings via lease and / or grant agreements.</li> </ul>	<ul style="list-style-type: none"> <li>The quality of the playing experience can be very reliant on the skill of the Club, its staff and/or contractors.</li> </ul>
	<ul style="list-style-type: none"> <li>Council has less control over bookings as these are normally run directly by the Club (not centralised through Council). This may lead to real or perceived operational 'turf capture' or underutilisation. Council agreements with a Clubs can seek to mitigate these issues.</li> </ul>
	<ul style="list-style-type: none"> <li>Should the Club fold Council would inherit the turf (assuming it is on a Council reserve).</li> </ul>
	<ul style="list-style-type: none"> <li>Other clubs often perceive the turf owning and managing club is biased towards serving its own needs rather than the wider network.</li> </ul>
	<ul style="list-style-type: none"> <li>Operating a turf can be involved and place additional burden on volunteers if the asset owning club has no staff.</li> </ul>
	<ul style="list-style-type: none"> <li>Clubs can have variable governance and management qualities over time.</li> </ul>

**Council Key Learnings**

Discussions were undertaken with several territorial authorities involved in artificial turfs. These Councils included Wellington City Council, Dunedin City Council, Selwyn District Council, Palmerston North City Council and Auckland Council. The key learnings from these interviews are outlined below.

- Agreements with third parties should not be rushed and all MOU's, and legal contracts should be negotiated and signed prior to final design and construction.
- Any artificial turf on a Council reserve should be positioned in the most optimal way (learning from effective practice) as it is a long term asset that cannot be easily moved. This includes peripheral amenities i.e. surrounding fences and supporting assets.
- As most artificial turfs are developed on Council reserves, it remains possible they could transfer to Council should a Trust or Club fold. Council should consider how it will address ongoing capex and opex costs in advance and have contingency plans in place.
- If grants are made between parties, it should be clearly articulated what these grants are "buying" in terms of access and booking times. Use rights should be aligned proportionally to the scale of the grant made (in use hours and the term of the arrangement – in years).
- Every 8-12 years a turf will require re-surfacing and every circa 20 years the shock pad will need replacing. Agreements should clearly set out what if anything each party is required to contribute at this time. If a third party is required to set money aside for renewals this should be clearly articulated and monitored annually (where applicable).
- Consideration should be given to what supplementary assets third parties pay for. The purchase of infrastructure such as dugouts, shelters, lights, storage and contributions towards clubrooms and toilet / change rooms surrounding a turf should not preclude wider community use of the assets (or the turf itself).
- Councils obtain the optimal flexibility if a turf is treated as part of a field network and all bookings are centralised through a Council

booking system. Alternatively, where the turf is code specific a Regional Sports Organisation could be used as the booking agent to allocate equitable code / club use.

- Turfs managed by clubs and Trusts are likely to require a higher degree of monitoring to ensure use is equitable (or perceived as being equitable). Assuming public use is envisaged as part of any funding agreements.
- Articulate Councils non negotiables as early as possible in discussions with third parties (especially turf proponents).
- Although various turfs are multi-marked to service numerous codes (traditionally football and rugby where demand is the greatest), use is primarily attributed to a single code, with minimal use by others. It is often better therefore to make a turf code centric (if demand for that code is high).

### **Key Questions Councils Should Consider**

Before a Council considers investment in an artificial turf or agrees to a new or modified lease, it should consider the following key questions to help inform decision making.

1. Does an artificial turf align with Councils strategic approach to sports field provision?
2. Is an artificial turf supported by a codes NSO and RSO?
3. Can Council articulate why or why not an artificial turf should be part of Councils core field network?
4. What are Councils negotiables and non-negotiables if considering a capital or operational partnership (or when considering allowing a turf to be located on Council managed land)? Covering areas such as:
  - a. The minimum number of community hours Council is purchasing for its investment.
  - b. How important is it that the design and location of the turf follows best practice.
  - c. How much operational funding should each partner pay.
  - d. What obligations will each partner have for longer term renewals (how much will each contribute).
  - e. How will bookings be handled.
  - f. What will the term of any agreements be for.
5. What will happen if the entity owning or managing a turf ceases to operate and the turf is on Council managed land?

### **Recommendation**

- An assessment of each turf projects optimal governance and management model should be examined at the feasibility study stage. The best governance model will depend on many case specific variables.



## 4.0 RESPONSE SCENARIOS

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### 4.1 INTRODUCTION

The response scenarios outlined in this section are based on the 2020 GLG supply and demand analysis. As Section 2.3 has outlined Visitor Solutions believes this modelling is likely to underestimate actual demand. However, it is beyond the scope of this study to estimate what actual network demand is now or to plan the wider field network. **The following scenarios are designed to illustrate what impact artificial turfs could have and if they should be considered as part of each Council network.**

In terms of weekly full field equivalent hours (WFFEH) the scenarios assume a soil field achieves 8 hours, a sand carpet 18 hours, a hybrid 25 hours and an artificial 40 hours. Sand dressed fields are grouped with soil fields for the purposes of the scenarios<sup>15</sup>. Hybrid fields have not been considered in the scenario as they are more suitable for stadia field surfaces rather than community field networks.

The scenarios add different field types in different sports field locations within areas to illustrate the net gain in WFFEH with the objective being to erase identified shortfalls (as modelled by GLG in 2020). For illustrative purposes we have not presented data at an individual park level.

The section begins by outlining potential drivers that would help justify artificial turfs in a Waikato context and then focusses on the wider sports field network opportunities.

### 4.2 WAIKATO ARTIFICIAL TURF DRIVERS

The Waikato is facing several drivers that could justify the consideration of artificial turfs. These fall into two categories, environmental and demand based factors.

#### ENVIRONMENTAL BASED

- The Waikato has several sports park areas that are based on an underlying peat base. This makes it extremely difficult to establish and maintain good quality soil, sand dressed and sand carpeted surfaces without significant investment. This means that these surfaces are likely to deliver below average field hour use each week. Such fields are also less likely to appeal to players as their quality will vary through the year leading to less 'actual supply'.
- Rainfall is departing from historic norms and becoming more variable due to climate change. This places stress on the soil and sand based field network (again reducing supply at certain times).
- The use of reticulated town water supplies for field irrigation over summer in areas such as Hamilton has also likely reached capacity. This makes it increasingly difficult to maintain grass cover over the course of a year or increase the irrigation of current, upgraded, or new fields. The Affordable Water Reform may also add additional financial constraints on field irrigation.

#### DEMAND BASED

- Like many areas nationally, both Waipa, and to a greater extent Hamilton, have identified areas of field undersupply for the primary winter sports codes. These demands seem to be increasing on the back of participation rates and overall population growth.
- Pressure is also growing on field networks because of factors such as movement in winter and summer sports seasons (coming closer together and in some cases overlapping), the growth in informal social play (outside of structured code play) is also growing nationally and

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<sup>15</sup> This is because sand dressed fields are likely to return closer to just 8-10 WFFEH with most grass types in a Waikato environment (see Appendix)



this is likely to be mirrored in the Waikato placing pressure on the network.

- To illustrate this further, Waikato insights via the Future of Rugby Clubs found that 80% of clubs are experiencing some form of capacity issues, 70% use fields during the summer (with 43% indicating access was insufficient to meet needs) and there was strong desire for more floodlight coverage, surfaces upgrades and access to additional fields.

### 4.3 FIELD NETWORK OPTIMISATIONS

Both the Waipa and Hamilton field networks have room for optimisation. Although technically outside of the study scope it is important to touch on some of these opportunities (as artificial turfs should not be seen as operating in isolation from their wider field networks). The challenges with each network have been outlined in earlier sections, below are some opportunities (also see Appendix).

#### DESIGN AND MAINTENANCE OPPORTUNITIES

- Explore the viability of new grass types for certain level of play, particular junior training, and play (such as Kikuyu and Couch which require less / no irrigation).
- Align irrigation with field type and field use (and actively manage use). Actively manage expectations around irrigation.
- Undertake regular irrigation maintenance and monitoring (and set appropriate budgets to achieve this).
- Install quality moisture meters and establish realistic moisture targets for each irrigated site (Note: this has generated 30%-40% water savings in other Council areas).
- Maintain fields to agreed minimum standards.
- Align lighting to the appropriate quality fields to unlock usage hours, gain a return on the lighting investment, and prevent damage coming from field overuse.

#### MANAGEMENT OPPORTUNITIES

- Adopt a centralised management and booking system (to unlock the full potential of each network). This may involve ending or not renewing existing leases (or renegotiating leases).

- Monitor and enforce bookings (i.e. not allowing the free movement of teams training around different parks / fields without having specific bookings).
- Being prepared to actively close parks / fields within the network on an 'as required' basis.

### 4.4 HAMILTON SCENARIOS

The three scenarios presented for Hamilton are:

- No artificial turf development while implementing historically proposed supply changes (proposed in the 2021/31 LTP which was undertaken based on the GLG modelling) (Scenario A).
- Develop two artificial turfs targeted towards football in Frankton and Rototuna together with a series of field upgrades which in part support proposed network lighting upgrades (Scenario B).
- Develop three artificial turfs two targeted towards football and one towards rugby in Frankton, Rototuna and Hamilton East respectively together with a series of field upgrades which in part support proposed network lighting upgrades (Scenario C).

These scenarios are summarised in tables 4.1 – 4.3.

TABLE 4.1: NO HAMILTON ARTIFICIAL TURFS

Scenario A: No artificial turfs are developed	
<b>Involves</b>	<p>The following supply changes (which were historically outlined in the proposed 2021/31 LTP). Following the GLG supply and demand modelling.</p> <ul style="list-style-type: none"> <li>• Rototuna = 4 soil fields, 6 sand carpets = +92 WFFEh,</li> <li>• Claudelands = 6 sand carpets = +70 WFFEh,</li> <li>• Hamilton East = 7 sand carpets = +70 WFFEh,</li> <li>• Hilcrest = 2 sand carpets = +20 WFFEh,</li> <li>• Te Rapa = 3 sand carpets = +30 WFFEh,</li> <li>• Newton = 2 sand carpets = +20 WFFEh,</li> <li>• Frankton = 6 sand carpets = +60 WFFEh,</li> <li>• Hamilton Central = 1 sand carpet = +10 WFFEh,</li> </ul>

Scenario A: No artificial turfs are developed	
	<ul style="list-style-type: none"> <li>Melville and Peacocke = 2 soil fields, 2 sand carpets (including 3 fields on a new sports park) = +54 WFFEh.</li> <li><b>No artificial turfs are developed.</b></li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>All areas <u>except</u> Dinsdale, Rotokauri, Temple View improve supply.</li> <li>All areas <u>except</u> for Claudelands, Hilcrest, Hamilton Central, Melville &amp; Peacocke and Rotokauri go into surplus.</li> </ul>
<b>Key Point</b>	<ul style="list-style-type: none"> <li>Planned lighting upgrades not always linked to proposed field sand carpeting.</li> <li>Proposed sand carpeting exceeded GLG 2020 modelled shortfall.</li> </ul>

Note: Includes actual or hypothetical works post the 2020 GLG modelling.

TABLE 4.2: TWO ARTIFICIAL TURFS

Scenario B: Two artificial football turfs developed	
<b>Involves</b>	<p>The following supply changes are considered.</p> <ul style="list-style-type: none"> <li>Rototuna = 4 soil fields, 2 sand carpets, 1 artificial = +84 WFFEh,</li> <li>Claudelands = 5 sand carpets = +50 WFFEh,</li> <li>Hamilton East = 3 sand carpets = +30 WFFEh,</li> <li>Hilcrest = 4 sand carpets = +40 WFFEh,</li> <li>Te Rapa = 3 sand carpets = +30 WFFEh,</li> <li>Frankton = 3 sand carpets, 1 artificial = +62 WFFEh,</li> <li>Hamilton Central = 1 sand carpet = +10 WFFEh,</li> <li>Melville and Peacocke = 2 soil fields, 2 sand carpets (including 3 fields on a new sports park) = +54 WFFEh.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>All areas <u>except</u> Chartwell, Ruakura, Newton, Dinsdale, Rotokauri, Temple View improve supply (these areas are the low / no shortfall areas).</li> <li>All areas <u>except</u> for Claudelands, and Rotokauri go into surplus (based on all 'All codes' WFFEh).</li> </ul>
<b>Key Point</b>	<ul style="list-style-type: none"> <li>Planned lighting upgrades did influence scenario (with field type interventions based on proposed lighting).</li> </ul>

Note: Includes actual or hypothetical works post the 2020 GLG modelling.

TABLE 4.3: THREE ARTIFICIAL TURFS

Scenario C: Three artificial turfs (football x 2 and Rugby x 1)	
<b>Involves</b>	<p>The following supply changes are considered.</p> <ul style="list-style-type: none"> <li>Rototuna = 4 soil fields, 2 sand carpets, 1 artificial = +84 WFFEh,</li> <li>Claudelands = 5 sand carpets = +50 WFFEh,</li> <li>Hamilton East = 3 sand carpets, 1 artificial = +62 WFFEh,</li> <li>Hilcrest = 4 sand carpets = +40 WFFEh,</li> <li>Te Rapa = 3 sand carpets = +30 WFFEh,</li> <li>Frankton = 3 sand carpets, 1 artificial = +62 WFFEh,</li> <li>Hamilton Central = 1 sand carpet = +10 WFFEh,</li> <li>Melville and Peacocke = 2 soil fields, 2 sand carpets (including 3 fields on a new sports park) = +54 WFFEh.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>All areas <u>except</u> Chartwell, Ruakura, Newton, Dinsdale, Rotokauri, Temple View improve supply (the low / no demand areas).</li> <li>All areas <u>except</u> for Claudelands, Ruakura, Melville &amp; Peacocke (in 2038) and Rotokauri go into surplus (based on all 'All codes' WFFEh)..</li> <li>Rototuna, Frankton and Hamilton East run surpluses of between 53-66, 30-48, and 81-90 WFFEh respectively between 2019-2038 (based on 'All codes').</li> </ul>
<b>Key Point</b>	<ul style="list-style-type: none"> <li>Planned lighting upgrades did influence scenario.</li> <li>Claudelands (an area with a WFFEh deficit of between -44 to -30 between 2019 and 2028 even after supply improvements) is equidistant to the three proposed artificial turf receiving areas (Rototuna, Hamilton East and Frankton).</li> </ul>

Note: Includes actual or hypothetical works post the 2020 GLG modelling.

## 4.6 HAMILTON DISCUSSION

In theory it is possible to largely meet network shortfalls without using artificial turfs (as Scenario A illustrates). However, other factors such as water supply and climatic conditions need to be considered which may rule out some development approaches. There is also a strong indication identified WFFEH shortfalls are greater than current modelling indicates.

The scenarios also illustrate that artificial turfs alone will not address WFFEH shortfalls across the Hamilton network. A balanced holistic network wide approach will be required, one that is nuanced. Consideration of environmental factors, drainage, field types (soil, sand dressed, sand carpet, artificial), grass types / grass mixes, management controls and support infrastructure such as lighting and toilets / change facilities should all be considered at the same time.

Scenario C is likely to represent the best network approach based on available data. Especially given that using the 2020 supply and demand modelling is likely to underrepresent current WFFEH shortfalls.

Advancing Scenario C involves considering the best locations for the three potential artificial turfs within the general geographic areas identified. Finding these locations involved a combination of secondary data analysis examining player membership by code, travel time analysis, potential host park / site acceptability, wider network issues and turf best practice. This analysis considered education and sports parks.

### KEY BEST PRACTICE FACTORS CONSIDERED:

1. Ability to develop more than just a single turf on the site (including space for a warmup area) and in a prominent position i.e. not nestled at the back of the site with limited accessibility and visibility.
2. Ability to have artificial turf expansion capacity (ability to add another artificial turf).
3. Ability to retain or develop at least one collocated sand carpeted field (which is important for senior competition play).
4. Ability to accommodate parking.
5. Ability to have field lighting.
6. A good local travel time profile (capturing areas of higher membership within 15 minutes' drive time and not providing undue overlap of other proposed artificial turf catchment areas).
7. Ability to serve a wider and ideally subregional catchment (capturing areas of higher membership within a 30 minute drive time).
8. Ability to strategically support the Council field network (geographically dispersed sites within the city that can work as part of the wider network).
9. If located outside a Council Sports Park, the ability for the partners site to accommodate sufficient levels of community use.

Based on these factors three sites emerged as potential locations:

- Marist Park – for a rugby specific artificial turf,
- Gower Park – for a football specific artificial turf,
- Korikori Park – for a football specific artificial turf,

## WHY THESE SITES?

The following summaries underpin the rationale for identifying the respective sites for prospective artificial turf provision.

### Marist Park

- Local and Sub-Regional Catchment - the site captures circa 1,500 rugby players (or 21% of the Waikato Rugby Union members) within a 15 minute drive time. If this drive time is extended to 30 minutes the site captures circa 4,600 players (or 63% of the Waikato Rugby Union members) - reaching all identified sub-regional 'hotspots' (as shown on Page 45).
- A relatively central site which currently services a range of sport and recreation activity.
- Marist Park offers artificial turf expansion capacity (if required).
- Located in close proximity to Eastlink providing wider sport and active recreation precinct benefits.

Notes: the park will require its 'number one' field to be sand carpeted. And cricket will need to be moved off the park to accommodate a best practice artificial turf configuration (artificial turfs are better not located in front of clubrooms which is where a sand carpeted field should be accommodated)<sup>16</sup>.

### Gower Park

- Local and Sub-Regional Catchment - the site captures 17% of the WaiBOP Football membership within Sport Waikato's boundary (circa 1,180 members). When extended to a 30 minute drive time the catchment reaches circa 3,900 members (or 57% of total members) – as shown on Page 46.
- Its positioning provides good catchment south and central of the city, which complements other proposed artificial turf with football focus in the north of the city – see drive time catchments on Page 46.
- Gower Park is located on peat which makes creating soil or sand capped fields that deliver near to 8 WFFEH very difficult (without high

cost). An artificial surface is therefore a good way of relieving local field network pressure.

- Gower Park is near existing artificial hockey turfs which have been developed on peat. These existing turfs have proved resilient which suggests Gower Park could be a viable location for developing a turf (despite the peat base layer).
- Gower Park has an existing sand carpeted field and artificial turf expansion capacity (if required) – potentially enabling a full suite of field provision across its 8 fields.
- Can maximise value from the flood lighting project for Gower Park. Instead of gaining a maximum of 4-6 hours a week on a soil-based field, coupling lighting with an artificial turf could extract at least 20 hours a week.
- Proposed support infrastructure developments could fully unlock its potential for supporting all activity.
- Forecasted population growth in the wider area it services.

### Korikori Park

- Local and Sub-Regional Catchment - the site captures 17% of the WaiBOP Football membership within Sport Waikato's boundary (circa 1,180 members). When extended to a 30 minute drive time Korikori captures circa 3,500 members (or 52% of members) – as shown on Page 46.
- Korikori Park has an existing sand carpeted field and artificial turf expansion capacity (if required) – potentially enabling a full suite of field provision across its 5 fields.
- The site can comprise at least 1.5 artificial turf to support training and warm-up activity.
- Opportunities exist to partner with Rototuna High Schools.
- Current undeveloped sports field site exists on the park which has concept plans for future artificial turf provision.
- Forecasted population growth in the wider area it services.

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<sup>16</sup> Artificial turfs are better adopting a training and junior play focus and being located to the side of clubrooms. The premier pitch location in front of a clubroom is better retained as a sand carpeted field. Most senior players favour playing representative

games on sand carpet rather than artificial surfaces. This configuration also helps club revenue generation on game days as the favoured senior competitive surface is closer to the bar and hospitality areas (and has clear view shafts over the premier field).

- Future ancillary provision for Korikori Park is currently being explored to further service the park.
- There are currently no domiciled sports clubs based on the site which offers programming flexibility.

### Overall

Although each proposed turf is recommended to have a specific code focus this does not preclude cross code use, especially for some aspects of training. It is therefore beneficial to understand how the three turfs work together in terms of network coverage. Analysis indicates that applying a 15 minute drive time results in the majority of Hamilton City being covered – as illustrated on Page 47.

The composition of the three sites to service both football and rugby (as the core users) is deemed as the recommended approach to provide network coverage, meet current and forecast demand, and enable suitable provision to be developed in line with good practice, case examples and learnings across the country.

### Recommendations

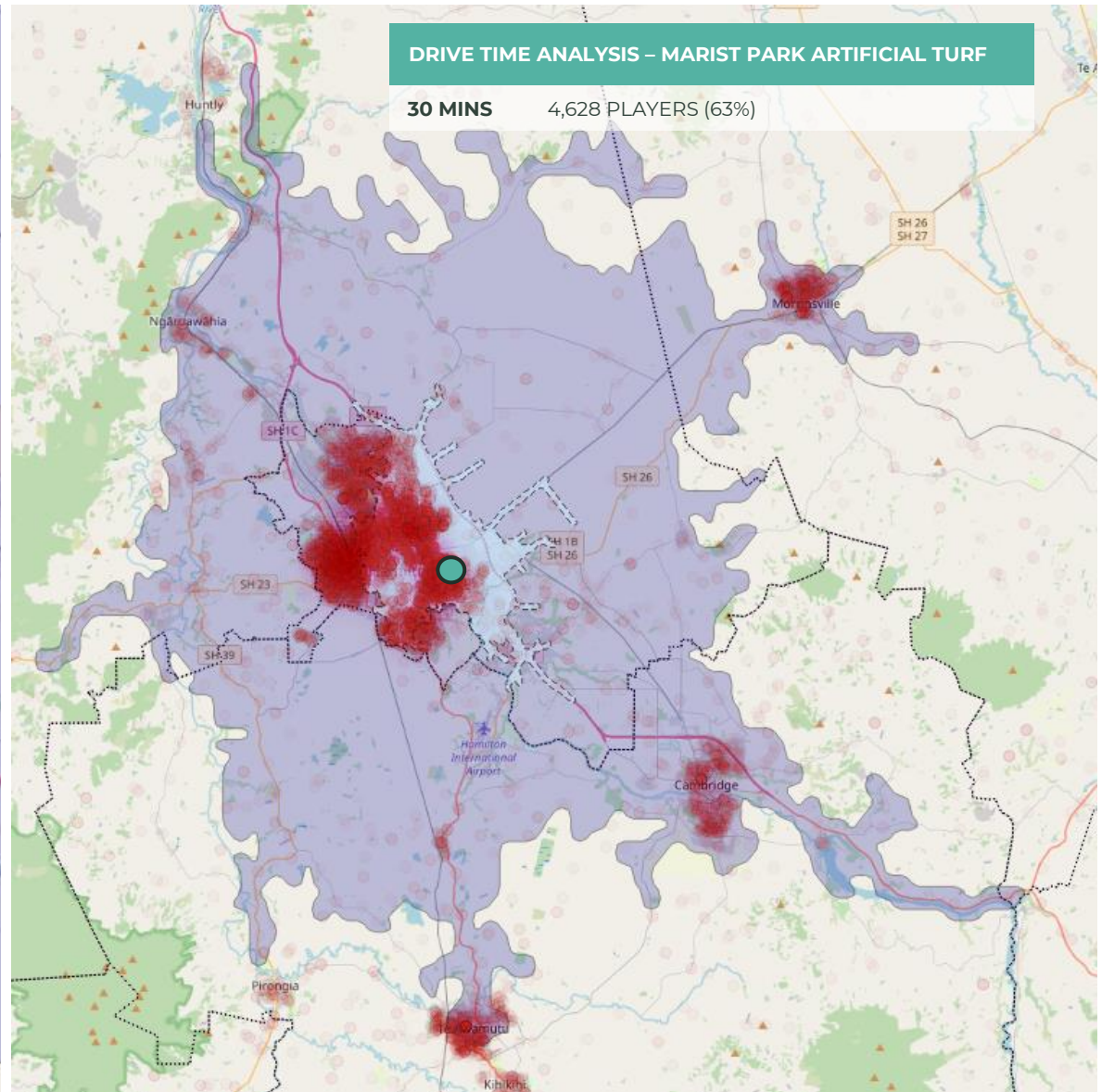
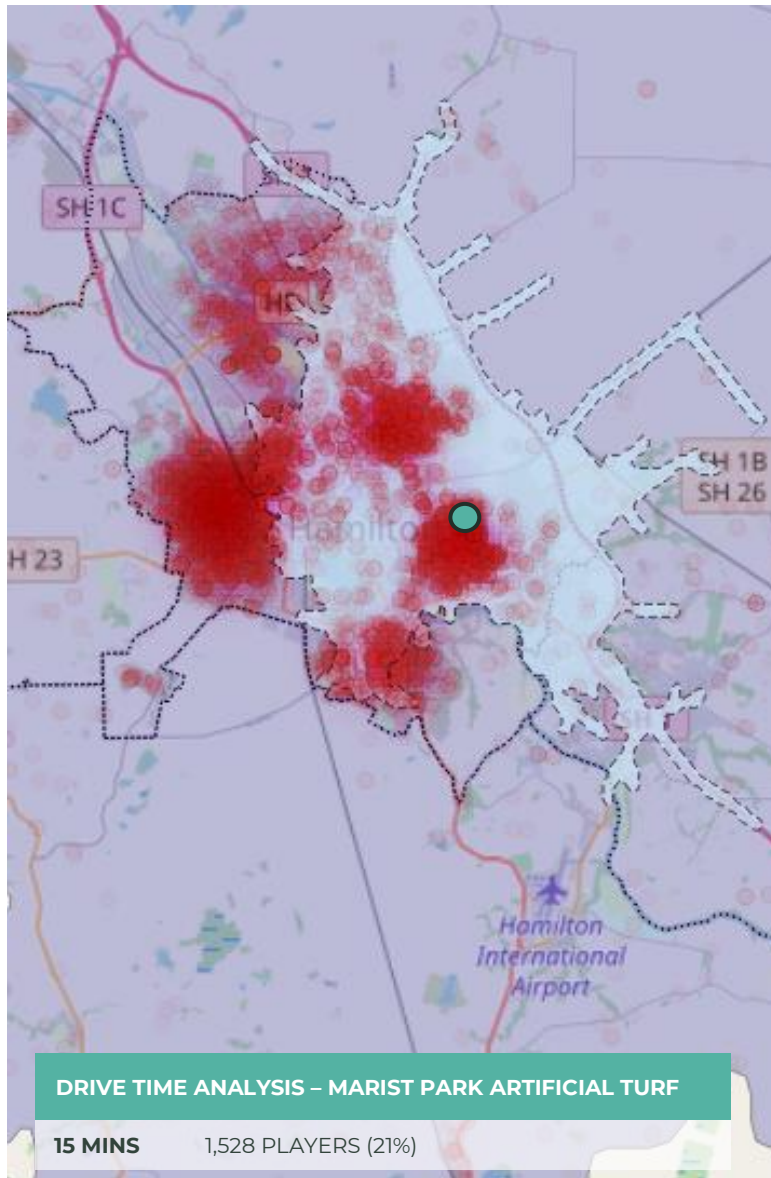
- Three code specific artificial turfs should be developed (subject to feasibility / business case assessment) on:
  - Marist Park – rugby specific,
  - Gower Park – football specific,
  - Korikori Park – football specific.

Note 1: sufficient data exist to support these projects being advanced ahead of updating the field supply and demand model and the field network development plan.

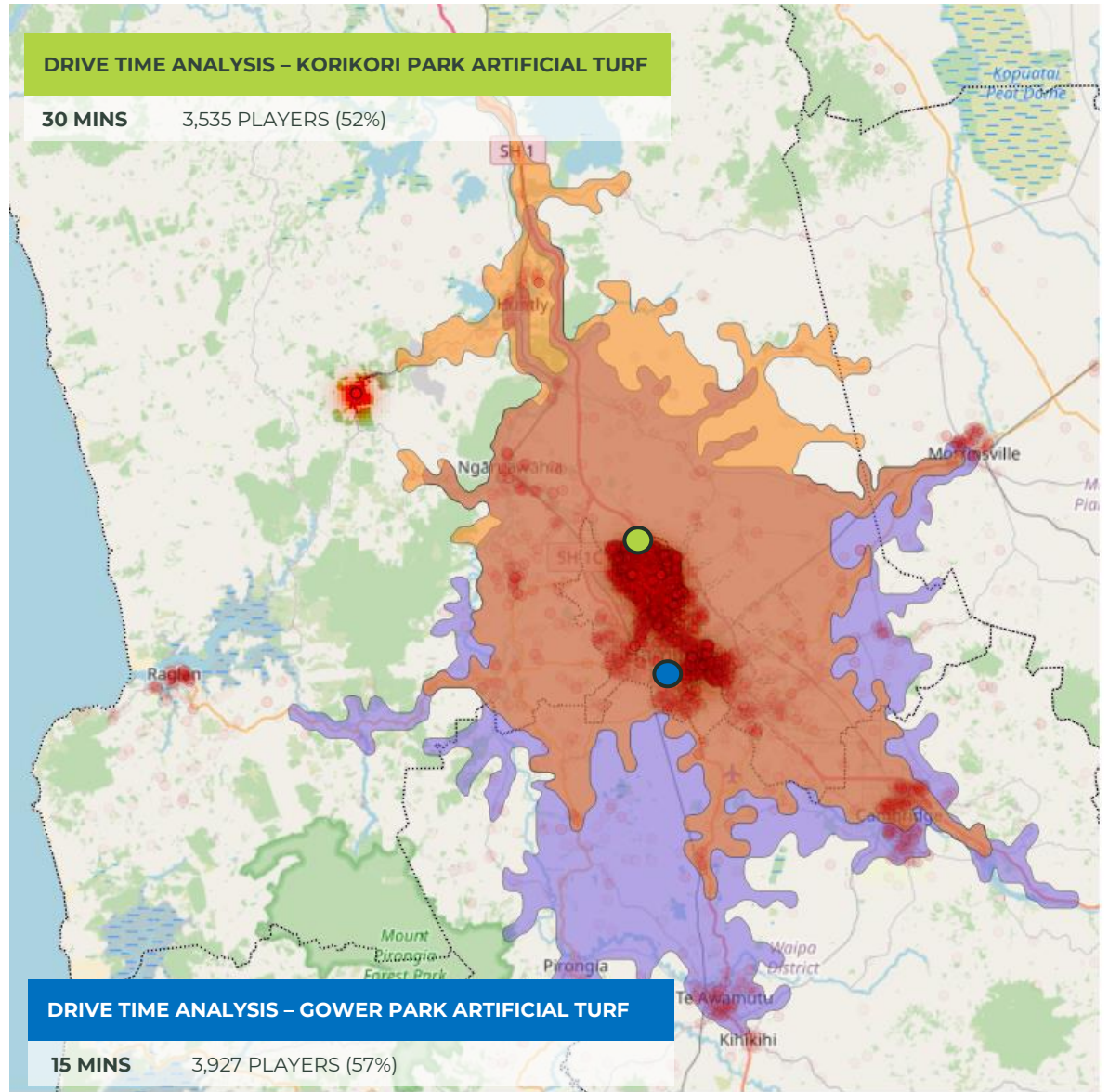
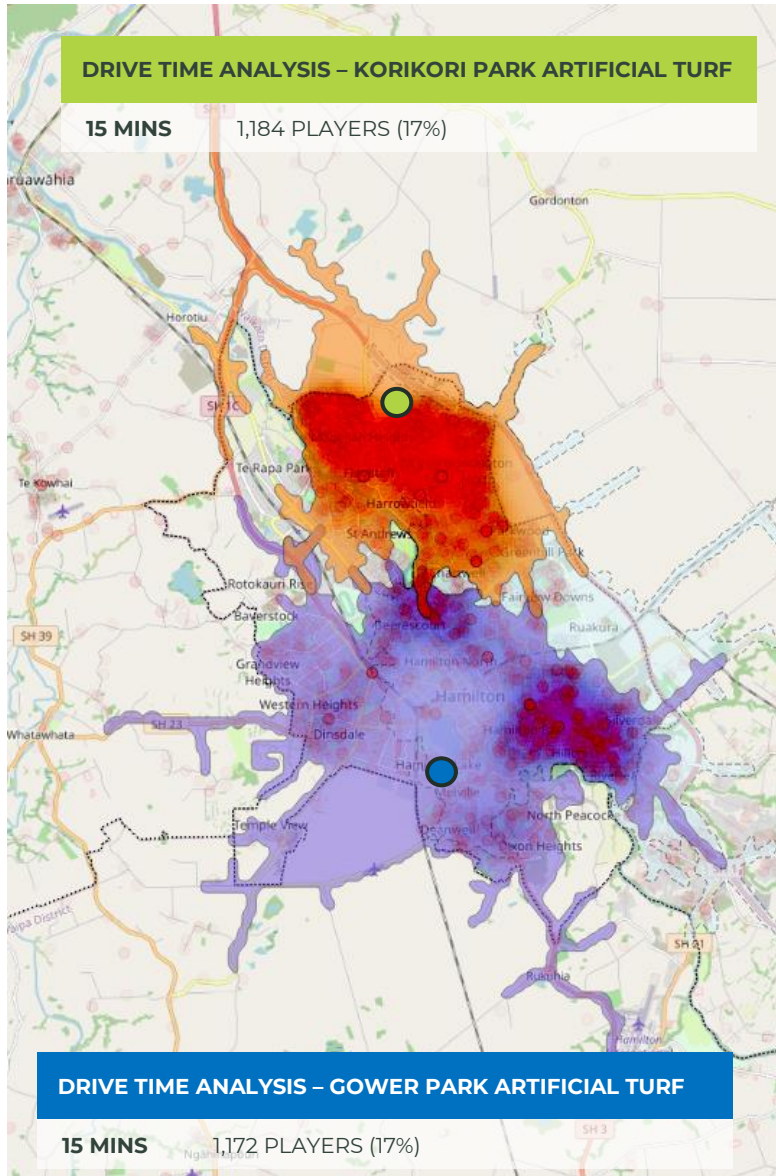
Note 2: The feasibility studies should include some master planning to determine what impact an optimal artificial turf location will have on other codes such as cricket. Visitor Solutions would strongly recommend that where necessary cricket wickets are displaced rather than compromising on the placement of artificial turfs (given the capital and operational outlay of an artificial turf is so much greater and poor turf placement can have lasting impacts on revenue and functionality).

- Upon completion of the field supply and demand model and the field network development plan determine the need for additional artificial turfs in the central and/or western areas specifically for rugby. These documents should also determine if and when any further football centric artificial turfs are required.
- Where possible all artificial turfs should be circa 1.5 full fields in size.

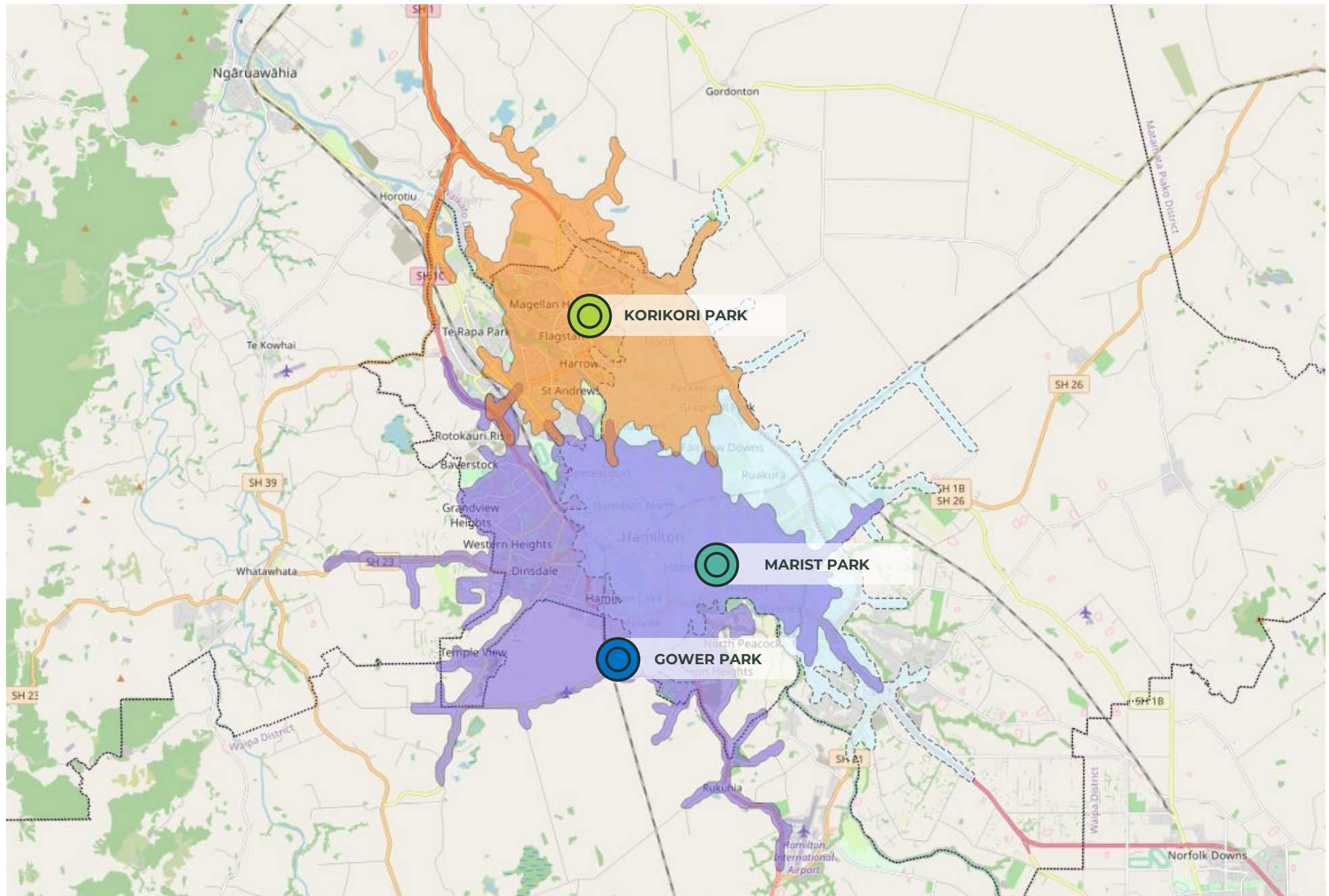
## RUGBY CATCHMENT – ARTIFICIAL TURF PROVISION (1 SITE – MARIST PARK)



**FOOTBALL CATCHMENT – ARTIFICIAL TURF PROVISION (2 SITES – KORIKORI & GOWER PARKS)**



# PROSPECTIVE ARTIFICIAL TURF NETWORK – 15 MIN DRIVE TIME





## 4.7 WAIPA SCENARIOS

The two scenarios presented for Waipa; these are:

- No artificial turf while adjusting key fields in Te Awamutu and Cambridge (no changes in Pirongia, Kakepuku, and Maungatautari). Note: The new 2023 supply and demand modelling data has been used for Te Awamutu<sup>17</sup> while the original 2020 modelling data is used for other areas (Table 4.4: Scenario A).
- One artificial turf in Cambridge while adjusting key fields in Te Awamutu and Cambridge (no changes in Pirongia, Kakepuku, and Maungatautari). Note: The new 2023 supply and demand modelling data has been used for Te Awamutu while the original 2020 modelling data is used for other areas (Table 4.5: Scenario B).

TABLE 4.4: NO WAIPA ARTIFICIAL TURFS

Scenario A: No Artificial Turfs Developed	
<b>Involves</b>	<p>The following supply changes are considered:</p> <ul style="list-style-type: none"> <li>• Te Awamutu = 1 new soil and 1 new sand carpet (on potential new land acquisition), 3 existing fields upgraded to sand carpet (Albert Park) = 56 WFFEh.</li> <li>• Cambridge = 4 fields upgraded to sand carpet (John Kerkoff Park x 1, Leamington Reserve x 1 and Tom Voyle Park x 2) and one soil at Leamington Reserve = 64 WFFEh.</li> <li>• Pirongia, Kakepuku, and Maungatautari no change.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Te Awamutu has no shortfall (runs a small surplus based on 'all codes').</li> <li>• Cambridge has no shortfall (runs a small surplus based on 'all codes').</li> </ul>
<b>Key Points</b>	<ul style="list-style-type: none"> <li>• No artificial turf is required.</li> <li>• Requires development of Tom Voyle Park.</li> <li>• Requires network optimisations (balancing codes across park/fields).</li> </ul>

Note: Includes actual and hypothetical works post the 2020 GLG modelling.

<sup>17</sup> This modelling indicates Te Awamutu will go from a projected surplus (GLG 2020 modelling) to a current projected shortfall of 35 WFFEh increasing to a projected

TABLE 4.5: ONE WAIPA ARTIFICIAL TURF

Scenario B: Artificial Turf Developed	
<b>Involves</b>	<p>The following supply changes are considered:</p> <ul style="list-style-type: none"> <li>• Te Awamutu = 1 new soil and 1 new sand carpet (on potential new land acquisition), 3 existing fields upgraded to sand carpet (Albert Park) = 56 WFFEh.</li> <li>• Cambridge = 2 fields upgraded to sand carpet (at John Kerkoff Park), one new artificial at Tom Voyle Park (a potential school partnership) and one soil at Leamington Reserve = 68 WFFEh.</li> <li>• Pirongia, Kakepuku, and Maungatautari no change.</li> </ul>
<b>Outcome</b>	<ul style="list-style-type: none"> <li>• Te Awamutu has no shortfall (runs a small surplus based on 'all codes').</li> <li>• Cambridge has no shortfall (and runs a surplus out past 2038 based on 'all codes').</li> </ul>
<b>Key Points</b>	<ul style="list-style-type: none"> <li>• An artificial turf is developed (in partnership with the Cambridge Highschool).</li> <li>• Requires development of Tom Voyle Park (in partnership with Cambridge Highschool).</li> <li>• Requires network optimisations (balancing codes across park/fields).</li> </ul>

Note: Includes actual and hypothetical works post the 2020 GLG modelling.

Based on available data, Scenario A indicates adequate Waipa field supply can be provided without needing an artificial turf. If a single artificial turf was developed in Cambridge (in partnership with the high school) fewer soil fields would need to be created or upgraded to sand carpet standard (Scenario B).

shortfall of 51 WFFEh in 2035 (Source GLG, Wider Te Awamutu Sports Field Demand Assessment).

## 4.8 WAIPA DISCUSSION

The scenario one illustrates that an undersupply of WFFEH can be covered without the need to develop and artificial turf. If an artificial turf was to be established in the future it is best positioned at a redeveloped Tom Voyle Park in partnership with Cambridge High School. This approach is likely to enable an opex and capex cost share model (assuming the School is interested in a partnership). Current 2020 demand modelling also indicates an artificial turf would not be over capacity if a partnership with a school was considered (school use of the turf would absorb some capacity).

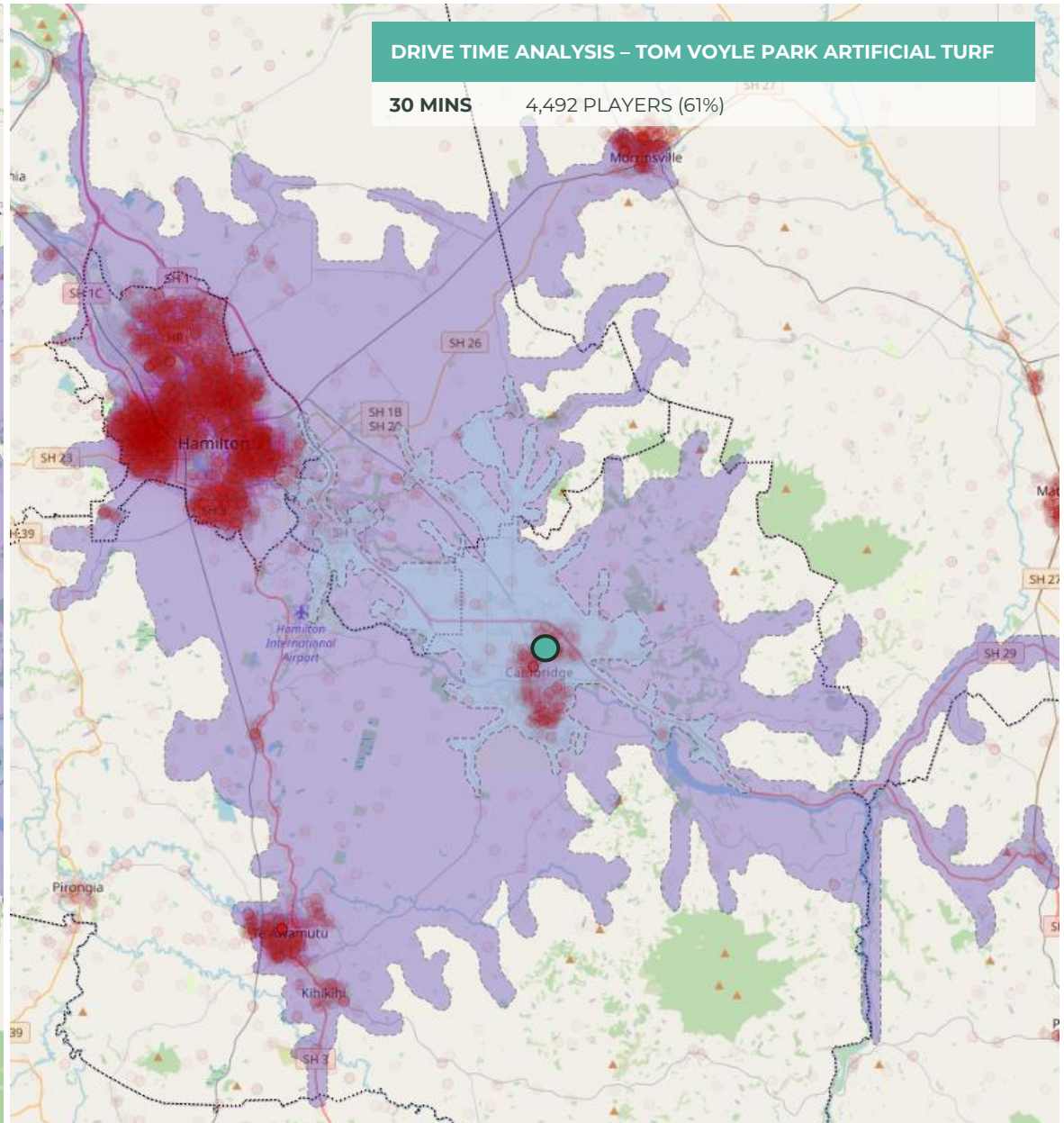
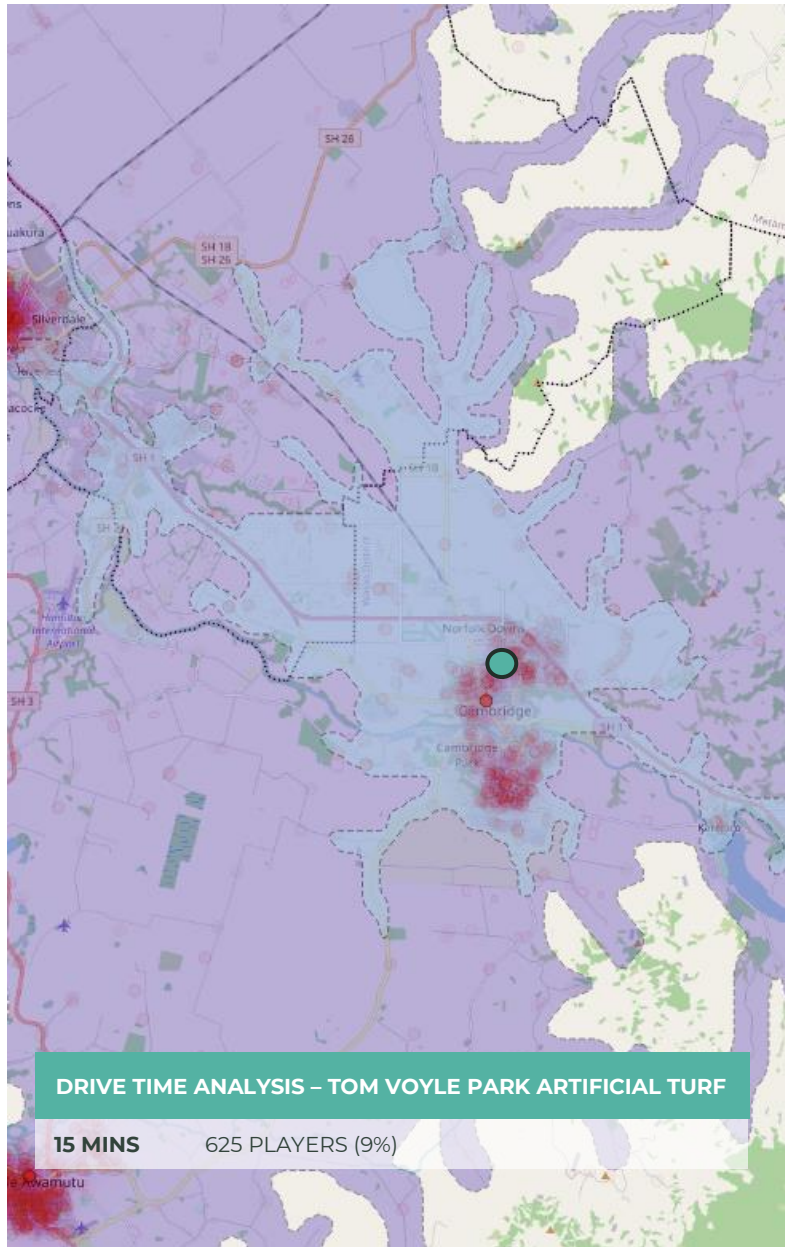
The catchments for a potential Tom Voyle Park artificial turf are shown in the following maps indicating both 15 minute (light blue) and 30 minute (purple) drive times. Both rugby and football memberships are shown. The 30 minute drive time catchment extends to cover Te Awamutu.

### Recommendations

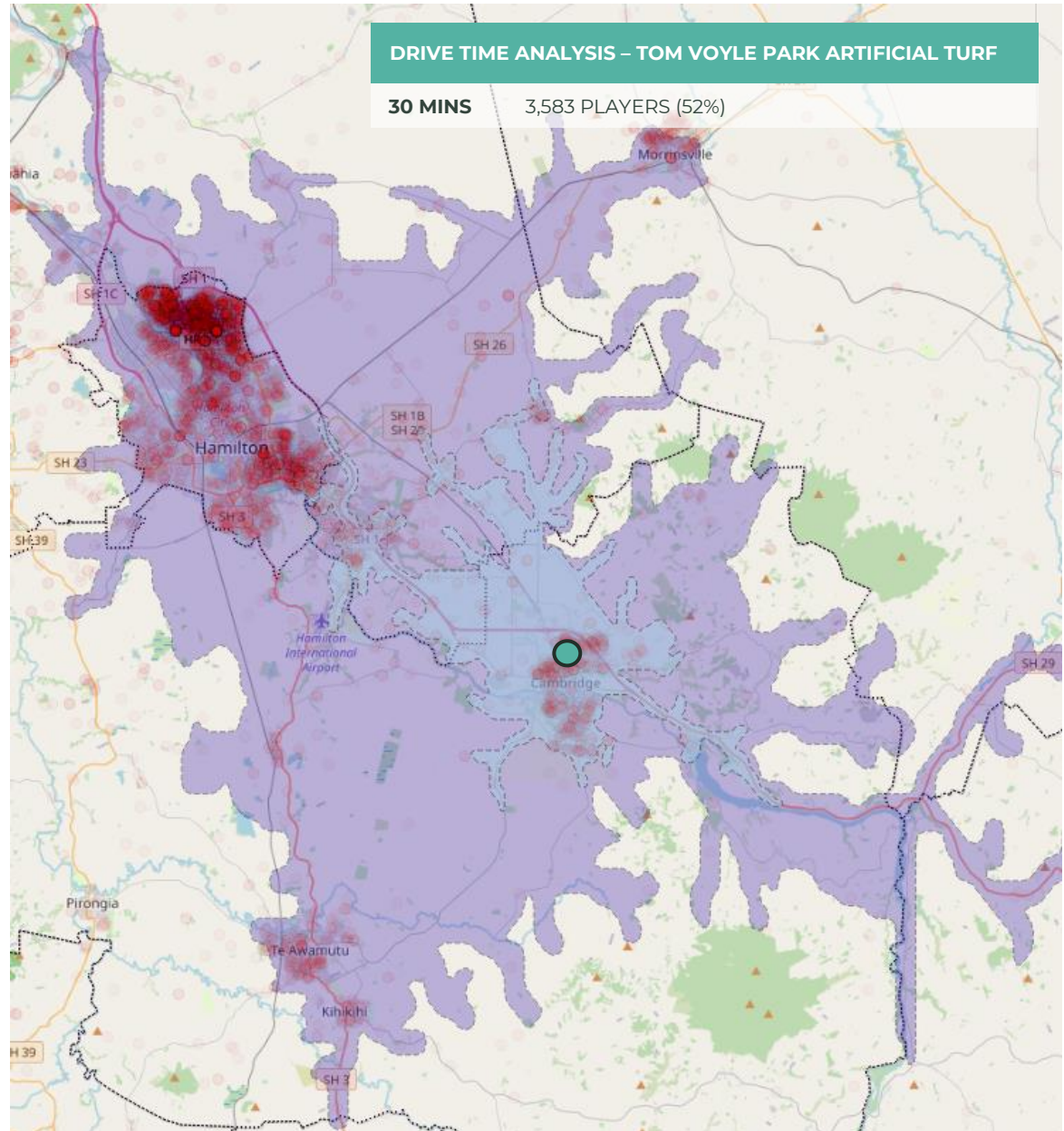
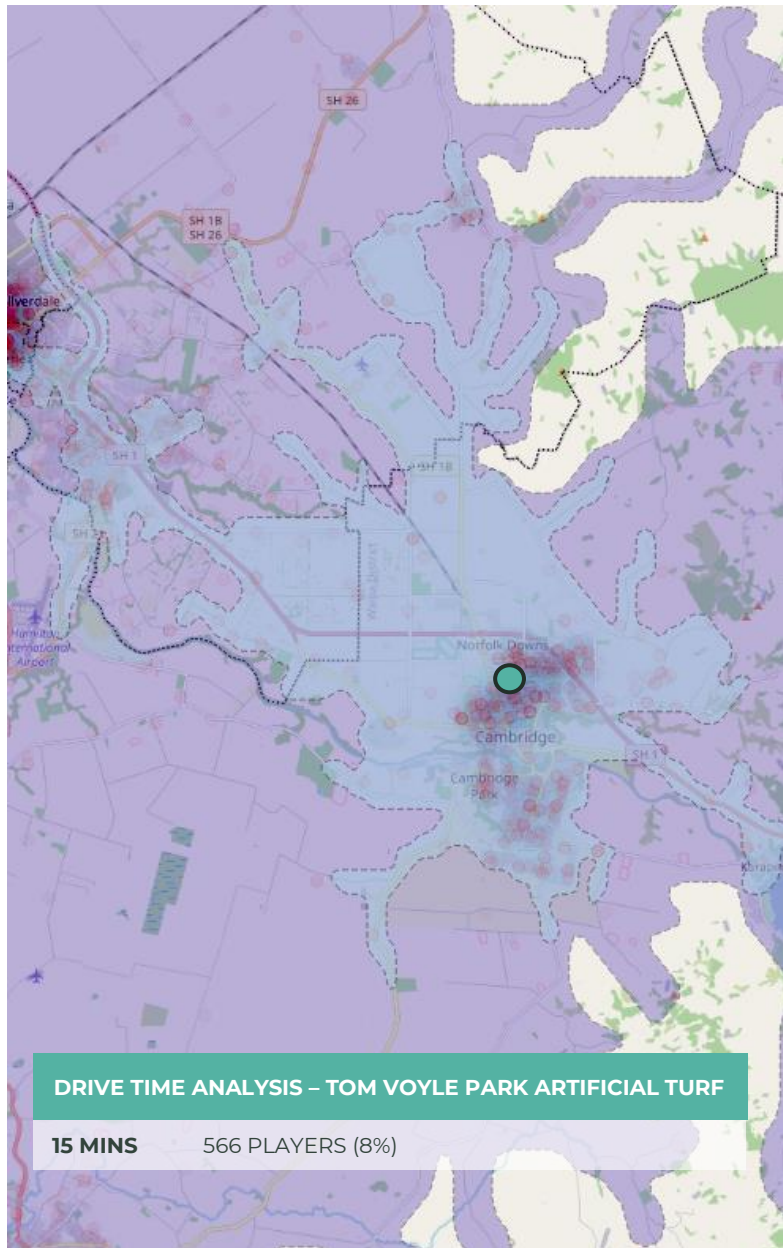
- Do not develop an artificial turf at this time.
- Update the field supply and demand model and develop a field network development plan.
- Undertake master planning with prospective future provision for an artificial turf at Tom Voyle Park. Discussions with Cambridge High School are required for exploring future partnership opportunities (this remains a long-term vision but can be acted upon when demand necessitates). Consideration should be given to insights from the field supply and demand model and field network development plan.



## RUGBY CATCHMENT - WAIPA ARTIFICIAL TURF PROVISION (1 SITE - TOM VOYLE PARK)



**FOOTBALL CATCHMENT - WAIPATA ARTIFICIAL TURF PROVISION (1 SITE - TOM VOYLE PARK)**





# 5.0 CONCLUSIONS & RECOMMENDATIONS

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## 5.1 CONCLUSIONS

Based on available data the report has drawn the following conclusions.

1. Both Waipa District Council and Hamilton City Council have field networks that would benefit from further optimisation.
2. Hamilton City Council's actual field demand is likely to be greater than modelled in 2020 due to supply side data anomalies, sports membership changes, field quality (potentially being below modelled hours of use) and population projections.
3. Waipa District Councils field demand is likely to be greater based on localised assessments undertaken in 2023.
4. Hamilton's field network is likely to require three artificial turfs (at Marist Park, Gower Park and Korikori Park) in the near term due to factors such as, demand exceeding supply, climatic conditions impacting field condition and utilisation, and water availability restricting further field irrigation.
5. Artificial turfs alone cannot address Hamilton's network needs. Soil, sand dressed and sand carpeted fields together with new grass types, maintenance optimisations, and support infrastructure such as lighting and toilets will also be required.
6. Waipa's field network does not require an artificial turf currently. An artificial turf should only be considered once wider field optimisations have been achieved (such as achieving more coordinated and well maintained fields).
7. In the future the best location for an artificial turf in Waipa is likely to be at Tom Voyle Park ideally in partnership with Cambridge High school.

## 5.2 RECOMMENDATIONS

Based on available data we make the following recommendations.

### HAMILTON CITY COUNCIL

1. Rerun the field supply and demand modelling undertaken in 2020 to take account of updated field supply data, sports membership data and population projections.
2. Undertake a field network development plan to reflect the updated supply and demand modelling, best practice approaches and potential for three artificial turfs.
3. Undertake feasibility analysis on the three identified artificial turf sites in the following order:
  - a. Marist Park,
  - b. Gower Park,
  - c. Korikori Park.

Note: sufficient data exist to support these projects being advanced ahead of updating the field supply and demand model and the field network development plan. Feasibility analysis should build upon data and insights from this report and should also address areas such as detailed site assessment, financial modelling, and governance and management models.

4. Where possible all artificial turfs should be circa 1.5 full fields in size.
5. Upon completion of the field supply and demand model and the field network development plan determine the need for additional artificial turfs in the central and/or western areas specifically for rugby. At the same time determine if and when any further football centric artificial turfs are required.
6. Undertake a sports field operational and maintenance management plan (ideally in parallel with the field network development plan).

## WAIPA DISTRICT COUNCIL

7. Do not develop an artificial turf at this time.
8. Rerun the field supply and demand modelling undertaken in 2020 to take account of updated field supply, sports membership data and population projections.
9. Undertake a field network upgrade / development plan to reflect the updated supply and demand modelling and best practice.
10. Investigate in partnership with the districts sports clubs how Council can optimise the field network and gain greater utilisation (ideally achieving more coordinated, centralised booking and field allocations).
11. Undertake master planning with prospective future provision for an artificial turf at Tom Voyle Park. Discussions with Cambridge High School are required for exploring future partnership opportunities (this still remains a long-term vision but can be acted upon when demand necessitates). Consideration should be given to insights from recommendations 8 and 9.





# APPENDIX

# APPENDIX A – DEMOGRAPHICS

Looking at projections of these ‘playing age’ group numbers in closer proximity to the four potential sites for new facility development (Figure A.1 overleaf), Table A.1 summarises the combined ‘playing age’ group populations resident in SA2 units within around 5km indicative catchment areas of the respective parks<sup>18</sup>.

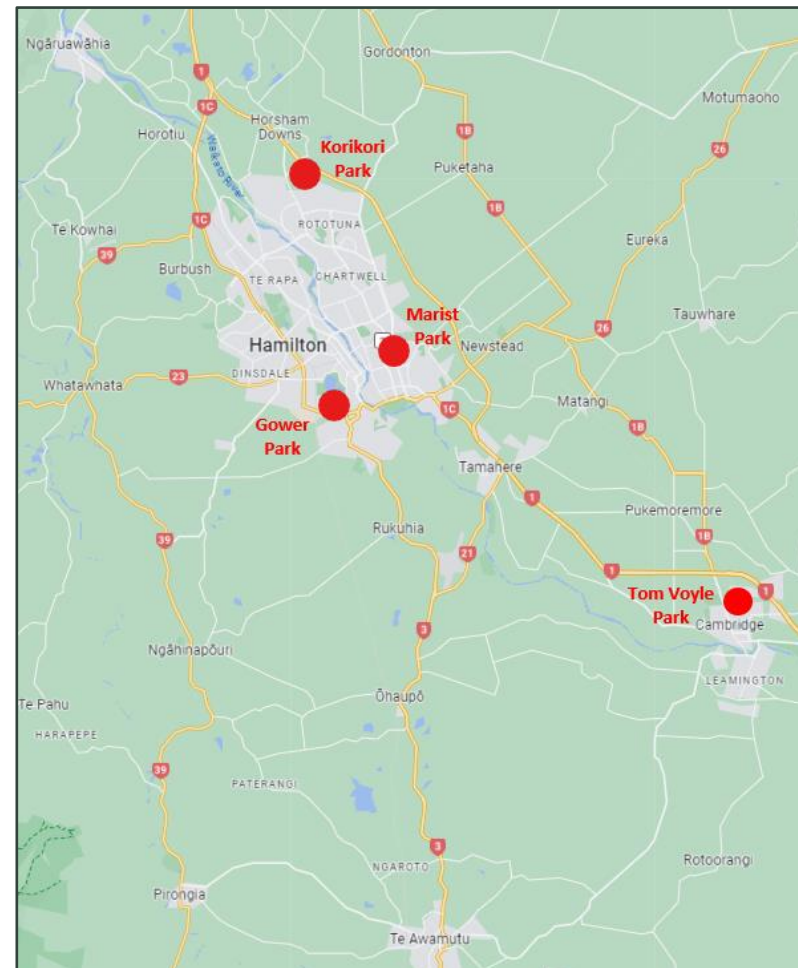
TABLE A.1: PLAYING AGE POPULATION PROJECTS AROUND SELECTED PARKS. (APPROX 5KM CATCHMENTS)

	2023	2048	Change 2023-48	% Change	%/yr
<b>Marist Park (Hamilton)</b>	31,000	39,545	8,545	27.6	1.1
<b>Gower Park (Hamilton)</b>	20,515	25,340	4,825	23.5	0.9
<b>Korikori Park (Hamilton)</b>	20,495	21,635	1,140	5.6	0.2
<b>Tom Voyle Park (Waipa)</b>	9,130	9,555	425	4.7	0.2

While only broad approximations, Table A.1 figures show that:

- In Hamilton City the largest base populations and growth areas were around Marist Park, followed by areas around Gower Park (many of which overlapped with those for Marist Park). Relatively low playing age population growth was projected for the indicative 5km catchment area around Korikori Park, although this cannot take account of any potential new residential development proposals that may emerge nearby.
- In Waipa District with the lower base population in Cambridge the projected growth gains in playing age group numbers in the indicative 5km catchment area were more modest.

FIGURE A.1: POTENTIAL NEW TURF FACILITY SITES



<sup>18</sup> Allowing for some current and/or anticipated bridge access across the Waikato River and noting that some 5km catchment overlaps occurred between some of the parks.



# APPENDIX B – FIELD TYPE OPPORTUNITIES