

September 2016

Traffic Impact Assessment and Proposal Report



Prepared for Te Ara Hou Social Services Village

Waikato Institute of Technology

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1. Introduction

This report examines and describes the traffic and parking effects of the proposal to increase the parking space of the Te Ara Hou Christian Social Service Village (TAH Village) located at 100-104 Morrinsville Road in Hamilton. The TAH Village is a medium-sized village on the outskirts of Hamilton city that provides a range of services for the community to improve it, within this village there is a wide range of facilities for all sections of the community such as an Elderly care and Child care facility, church, cafe and a Food bank. The village comprises of thirteen community groups. It provides *“multi-purpose and inter-denominational deeds or services in Hamilton city and Waikato regional areas”*.

Statistics New Zealand (2015) revealed that the demand for social services in New Zealand has gone up by 19.6% from 2006 and 2013. The demand for services provided by these organisation is expected to continuously increase in the next years. Over 15 years, TAH village have grown on the site resulting to significant change in the traffic and parking demand. The higher traffic flow through the village has led to issues of lack of parking space, over speeding and dangerous driving behaviour which raises concern for safety within the village.

This report outlines key issues regarding the parking situation of the Te Ara Hou Village utilising information gathered from traffic data. In this report, there will first be an overview of the current car park and the measures within this car park that have created either hazard or been a positive effect on the users of this village. There will also be two detailed plans created of both a short-term plan for a low-cost option the village can deploy immediately and a long-term plan for further parking options when the village continues to grow.

2. Existing Traffic Environment

2.1 Existing Facilities

The Current layout of TAH Village has 13 organisations spread across their section. With this there is about 6,870m² currently used for roading and parking in the village (seen below in red). The buildings near the entrance outside Family works occupies land belonging to Waikato Christian Social Services Village Trust (WCSSVT) on Lot1, Waikato Anglican Diocesan on Lot 2 and .

Te Ara Hou Village Organisations

Organisations on property governed by HCC and provisionally operated by WCSSVT (Lot 1):

- Catholic Family Support Services
- Enliven Waikato Day Program
- Youth Horizons | Kia Puawai
- Poverty Action Waikato
- Anglican Action The Mission
- Cross Rose
- Family Works Waikato
- Just Food Café

Organisations on property owned by Waikato Diocesan Trust Board (Lot 2):

- Anglican Diocese of Waiakto
- Hilcrest Homes
- Society of St Francis The Friary
- Angilican Diocesan Office

Organisations on property owned by Abbyfield Waikato (Lot 3: Not considered):

- Abbyfield House

2.2 Existing Access

The only access to the village is off Cokebrooke Lane which connects to State Highway 26 (Morrinsville Road). Upon entering the village the road access is split going along the south side of the village into Lot 2 and the north side in Lot 1.

2.3 Existing Parking Spaces

Table 1 shows the existing parking spaces for Te Ara Hou Village.

Table 1 Current Parking Space

Property	Parking Spaces	Disabled Spaces
Lot 1	87	1
Lot 2	28	4
Total	115	5

The layout of parking is quite disjointed with many spaces being reserved for various organisations in the village. The un-organised nature of the layout can bring confusion to new visitors and which in turn creates complications in traffic for the area during peak hours. The current site layout of Te Ara Hou village is shown in Figure 1. The detailed is shown in *Appendix B*.



Figure 1 Te Ara Hou Village

3. Revealed Preference Survey on current parking situation

There have been complaints from the visitors and various organisations within the village regarding the current parking situation. To identify and outline the key issues regarding the parking lot, a detailed Revealed Preference (RP) survey was undertaken to assess the personal preferences of staff and visitors. A sample size of 77 was collected which included staff and visitors. However, residents denied to be a part of this survey and hence are not included in this analysis.

3.1 Demographic of Survey Sample

This section gives an insight into different categories of people that voluntarily participated in this survey research. Figure 2 illustrated the respondent of survey:

1. Staff members: 45 staff members (forming 57%)
2. Visitors: 33 visitors to Te Ara Hou village (forming 43%)

In terms of the condition of employment, a total of 45 staffs expressed their views, out of which 31 were full-time and 14 were part-time staffs.

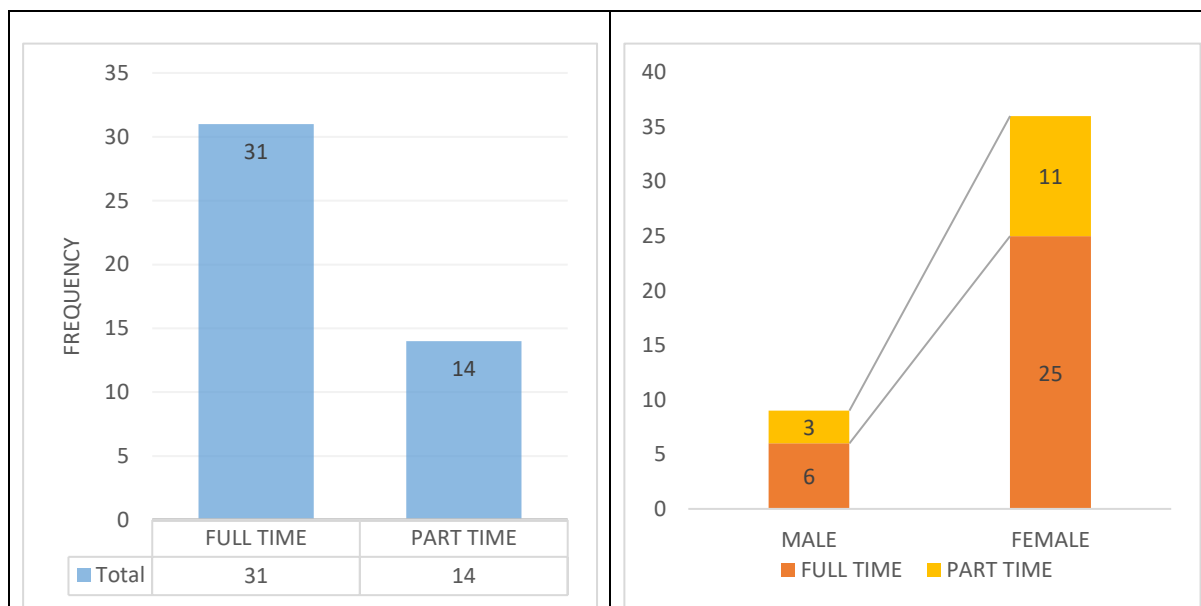


Figure 2 Revealed Preference Survey Respondents

Participants were categorized according to the age and gender group. Figure 3 shows that there were 4 people under age 20 and 34 between 21-35-year-old, 19 between 36-50 year and 17 between age group 50-77-year-old. Female participant was majority in the between all age group. In total there were 29 males and 45 females.

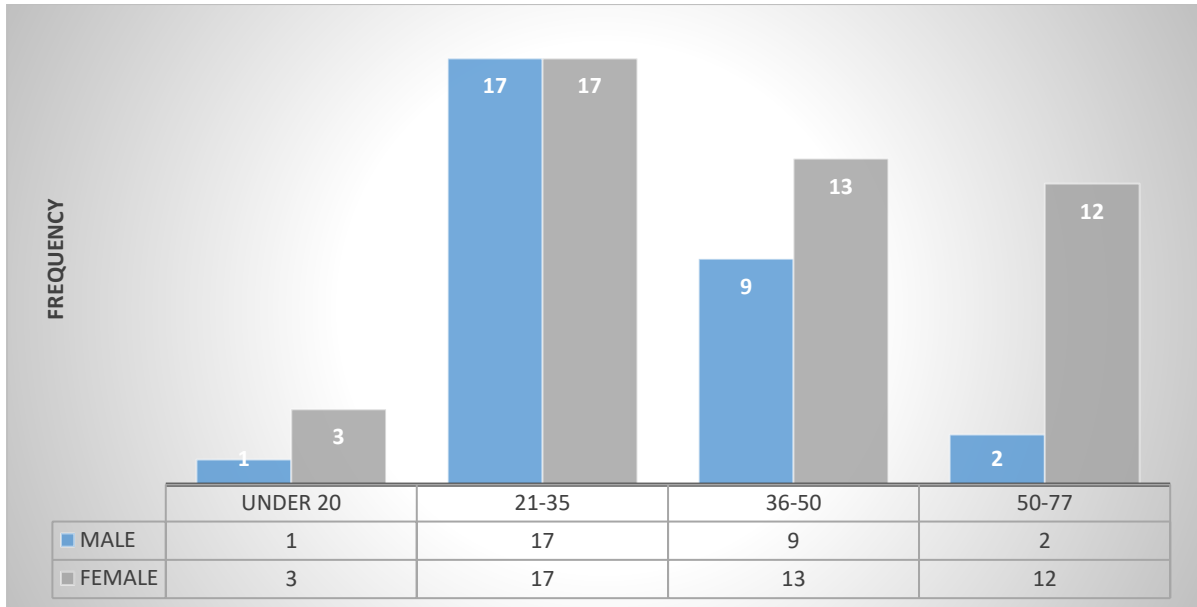


Figure 3 Survey Respondent by Age and Gender Group

3.2 Travel Pattern

Participants were asked regarding their option of mode of transport. Figure 4 shows how the respondents made a trip to TAH village. It is evident most people choose car their mode of transport a first choice. Total 63 respondents chose car for the mode of transport followed by 3 respondents choose car sharing, 5 uses public transport, 3 by walk.

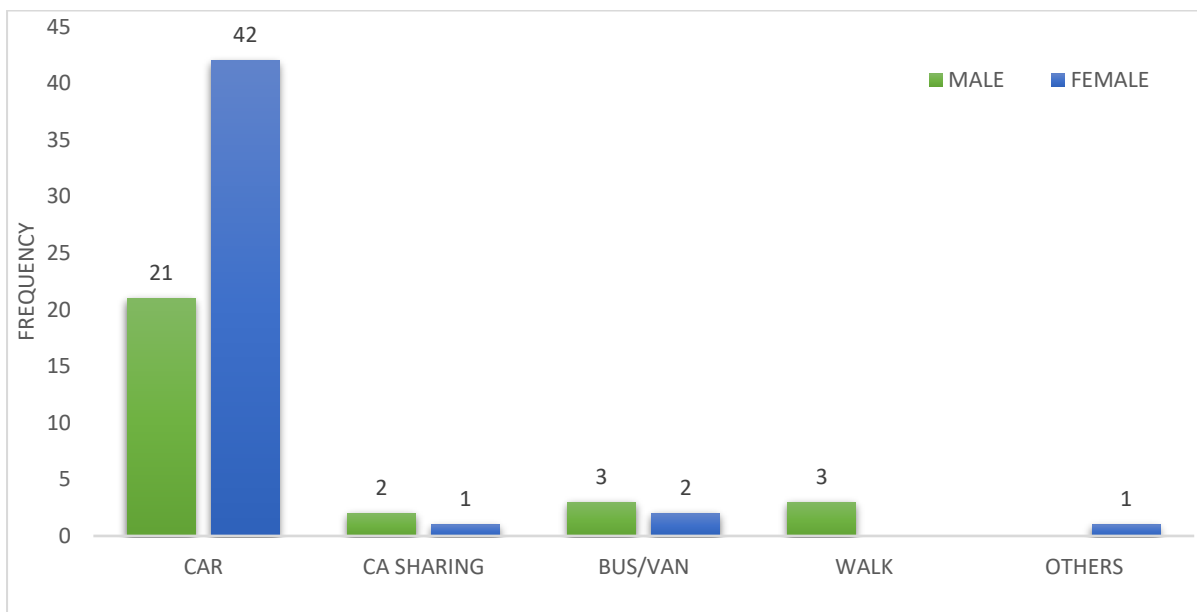


Figure 4 Modal Share by Gender

In terms of the commuting patterns of employees in TAH Village, Figure 5 show that most of the employees were using car. In total 42 staff used car out of which 30 were full time and 12

were part time. 1 chose bus and walk and other respectively. It is apparent most of the car park pace are full due to pace occupied by staff vehicle

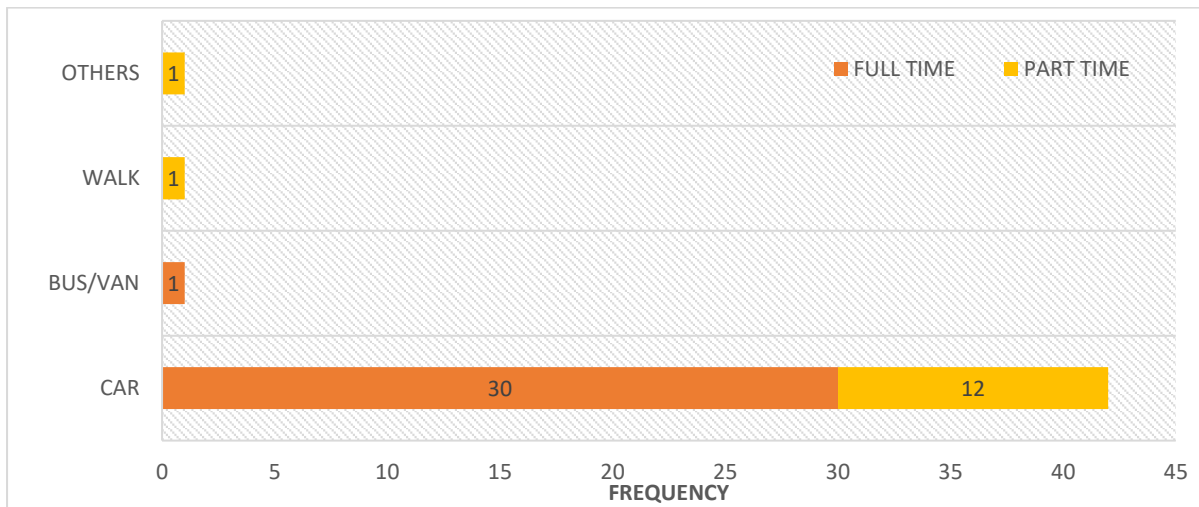


Figure 5 Modal Share by Employment Type

Figure 6 illustrates the survey results which revealed the several indications of current traffic management problems:

- Majority of survey participants have encountered parking problem and believed the parking spaces were not adequate
- 9 – 11am was considered to be the most crowded period

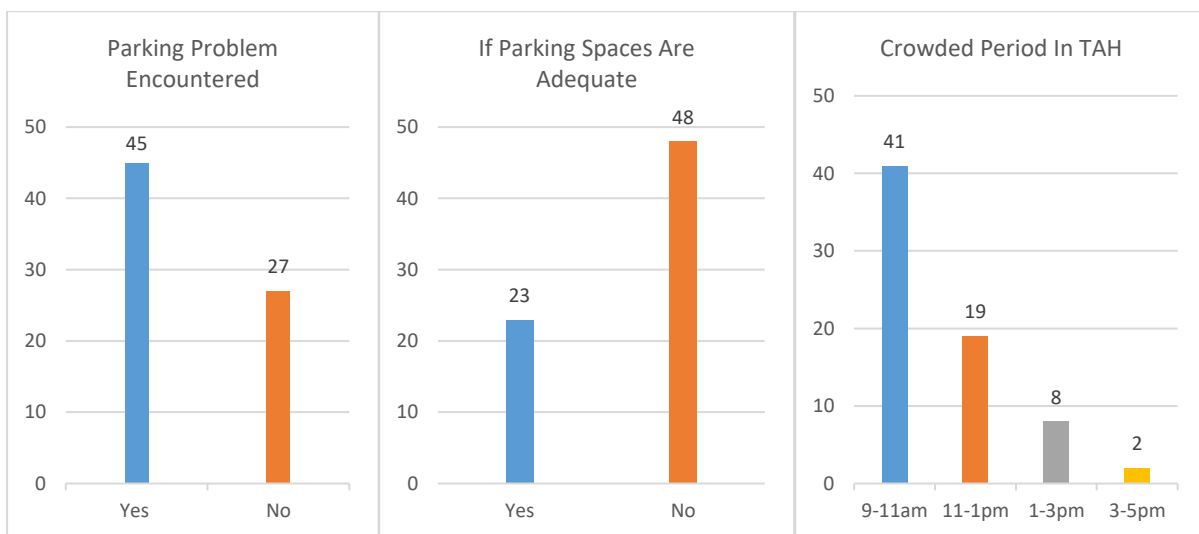


Figure 6 Traffic and Parking Problems in Te Ara Hou Village

From the survey results (see Figure 7), it was apparent that the main issues with Te Ara Hou parking is:

- Difficulties finding car parks for a certain amount of users
- More parking spaces is desired
- Poor separation between staff and visitors

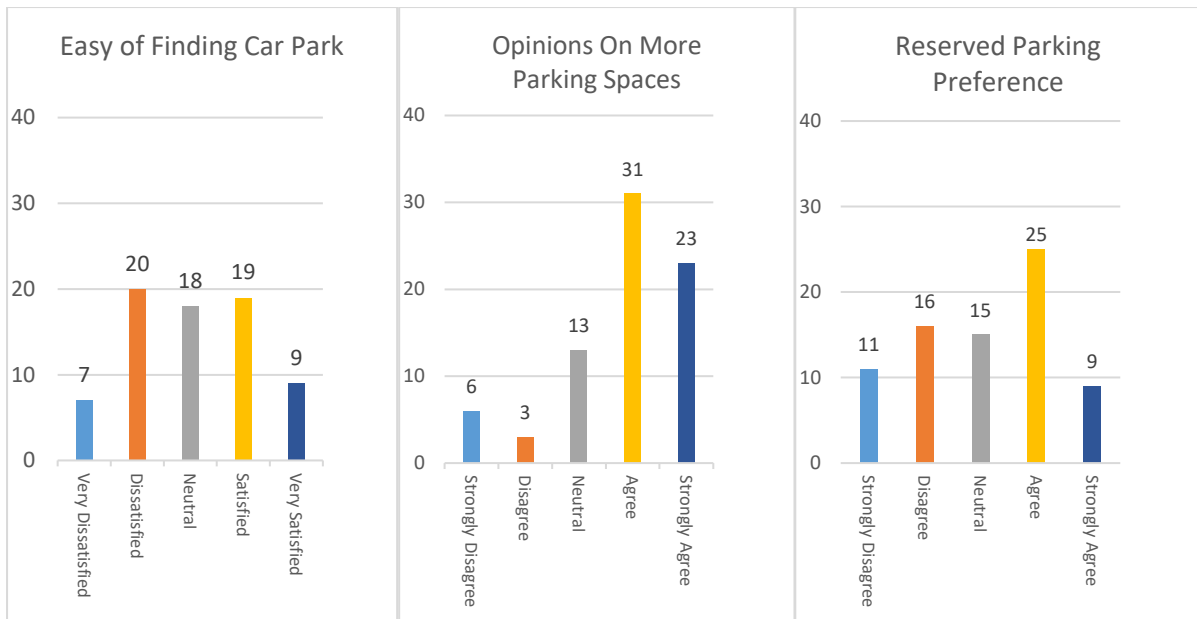


Figure 7 Perception of Parking Problem in Te Ara Hou Village

In addition, the following traffic management issues and plans are suggested by survey respondents:

- Area outside of Auditorium was considered the most crowded
- Parking separation was desired
- Speeding was a concern

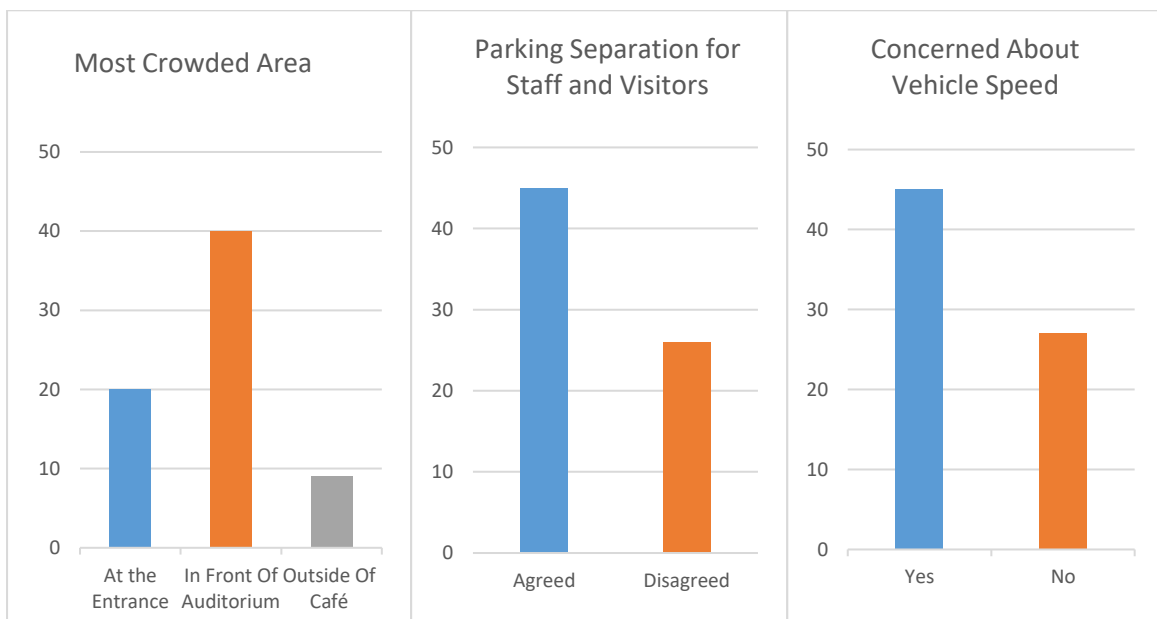


Figure 8 Traffic Safety in Te Ara Hou Village

In conclusion, a Revealed Preference survey provided several key traffic issues including,

- Facing parking problem is the consequence of inadequate parking
- Lack of parking spaces is the primary cause of creating difficulty in locating parking

- 9 – 11am is considered the most crowded period while area outside of Auditorium is the most crowded
- Concern of speeding is not rare

The detailed results of Revealed survey are summarized in *Appendix B*.

4. Existing Traffic Flows

Hamilton City Council has published an Annual Average Daily Traffic (AADT) on Morrinsville Road in 2015. The traffic count report has shown that the Morrinsville Road, between Cambridge Road and Silverdale Road, is carrying 12,800 vehicles per day on an average daily basis (Hamilton City Council, 2016).

To determine the traffic volume generated by the existing facility, the following four traffic surveys have been taken in September 2015, while extended two-days survey conducted in March 2016. Figure 9 shows the results of parking survey.

- Survey 1 and 2: from 7:00am to 5:00pm, Tuesday and Thursday in September 2015
- Survey 3 and 4: from 6:30am to 6:30pm, Tuesday and Thursday in March 2016

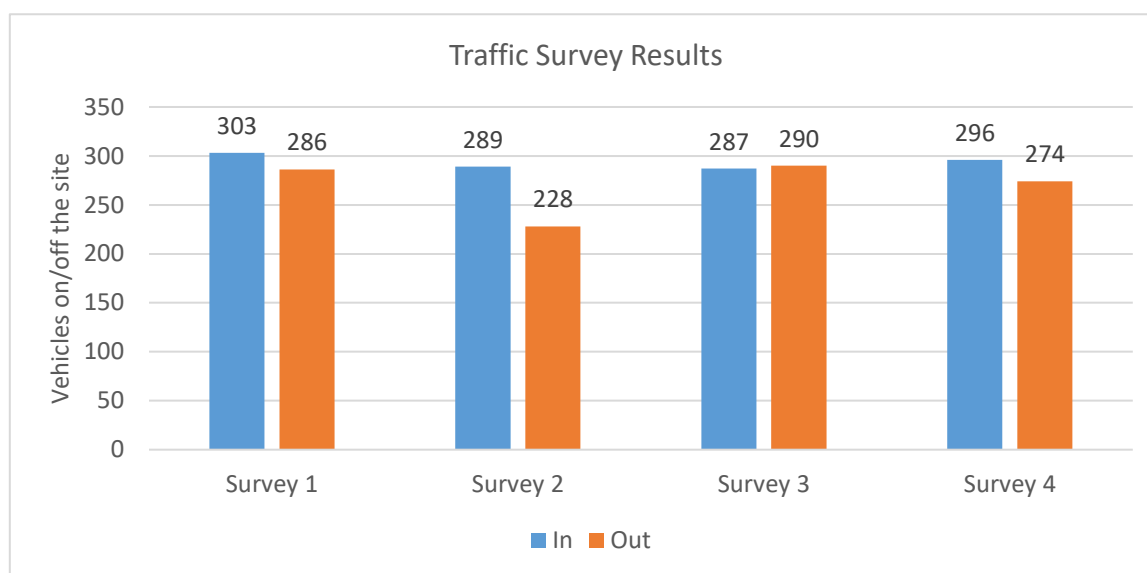


Figure 9 Traffic and Parking Survey

The results of parking survey show:

- Highest daily trips recorded was 303
- Daily trips generated by the village ranged from 287 – 303
- In/Out was not balanced/Discrepancy occurred due to human error

Four survey sheets have shown similar patterns. Therefore, this report uses the result of Survey 1 as it consists of highest traffic flow with only 5.6% in discrepancy.

4.1 Parking Survey Result

4.1.1 Traffic Turnover

The peak hour for inbound traffic was found to start from 8:00am to 9:00am while the outbound traffic was found to be from 3:00pm and 4:00pm (Figure 10). Additionally, there was a slight increase of traffic flows/in and out between 11:00am to 1:00pm. The most likely

cause of this increase can be attributed to the clients/customers visiting the café as it coincides with lunch time period.

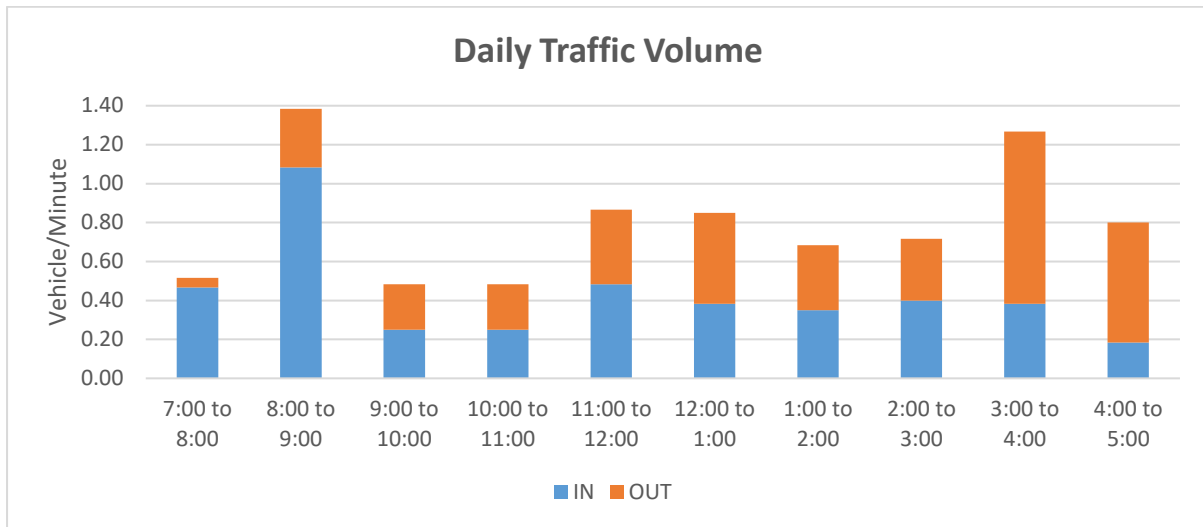


Figure 10 Traffic Volume

- Peak hour for inbound traffic: 8 – 9 am
- Peak hour for outbound traffic: 3 – 4pm
- Traffic In/Out turnover ratio was close between 9 – 3pm

Table 2 show that 60-88% of car park spaces are utilized during the work hour while 93-106% of spaces are occupied during the peak hours.

Table 2 Peak-time and Parking Occupancy Ratio

Survey	Date	Daily Average Lot Occupancy	Peak Hour Occupancy	Peak Time
1	08/09/2015	88.4%	106%	2 – 3pm
2	10/09/2015	75.0%	93%	12 – 1pm
3	15/03/2016	60.4%	90.4%	1 – 2pm
4	17/03/2016	68.3%	100%	11 – 12pm

4.1.2 Utilisation Ratio

Figure 11 shows the parking utilisation ratio. The parking utilisation is expressed as a rate, such as occupied vehicle in each hour over total parking spaces in TAH village. The most outstanding finding from the parking survey was that even the extended period of the day, e.g. 8-9am, the utilisation rate was either close to or exceeded over 100 per cent, meaning that parking spaces are heavily saturated during the most of working hours. The drivers could not find parking spaces tended to park on green areas, loading zone/no parking zone and unmarked spaces. The utilisation ratio proof that the actual results from parking survey is highly consistent with the finding from revealed preference survey.

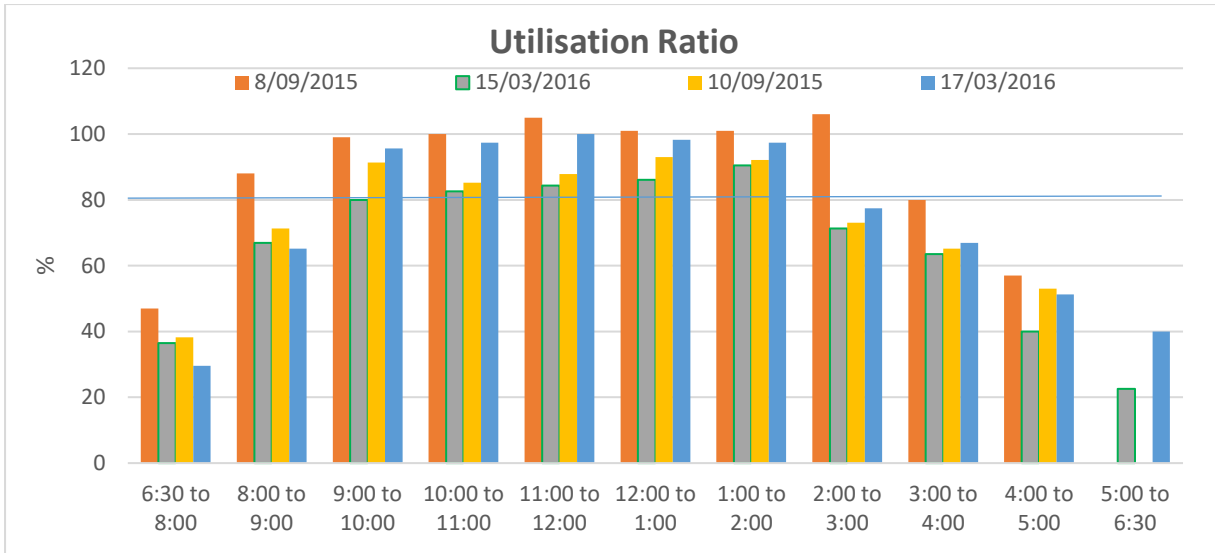


Figure 11 Car Park Space Utilisation Ratio

The following photos were taken during site investigation and well reflecting inadequate parking spaces in TAH village (Figure 12).



Figure 12 Cars on grass and NP spaces

4.1.3 Parking Duration

The parking duration is measured by the time of vehicle occupied in parking space from entry to exit.

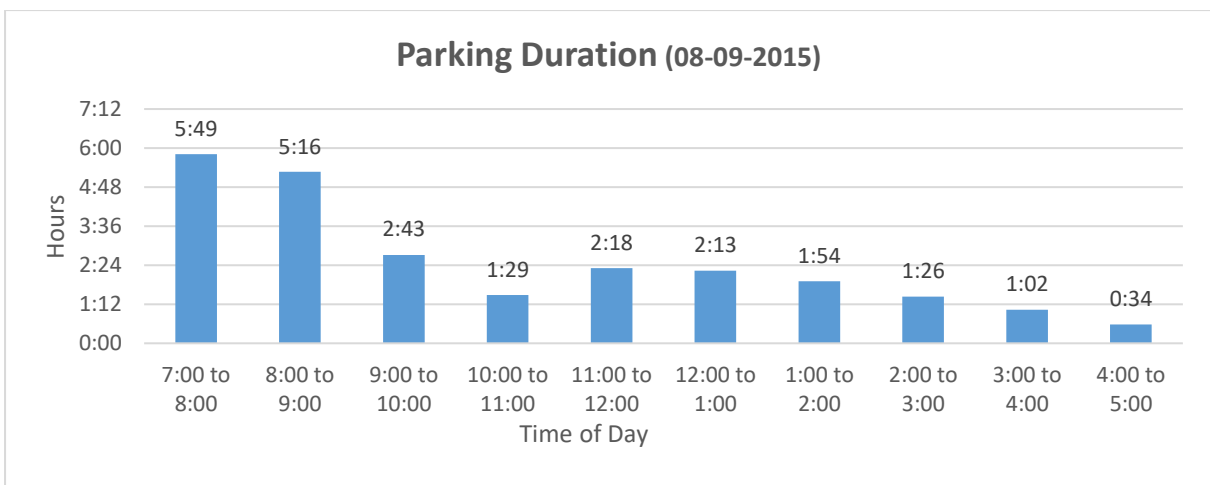


Figure 13 Average Duration of Parking

Figure 12 show that, in average, vehicles came in between 7 – 9am stayed more than 5 hours which assumed to be belonged to staffs. The rest of vehicles came to the village from 9am to 5pm, may it be considered as visitors or delivery vehicles, spent a half hour to 2.5 hours.

4.1.4 Speed

The study recorded the speed of vehicle for four days in total of 1,175 vehicles entering the site. The speed bump was found to be effective to initially slow down the vehicles, however, most vehicles accelerated afterwards as the average speed for the four surveys is found to be 25.9km/h. Figure 13 demonstrate the percentage of people travelling at different speed. The fastest speed recorded was 59km/h with several vehicles with speed between 40 – 55km/h, although these incidents happened at a rare rate. Overall, it has been found out that average speed during the four survey days was 25.9km/h, while 88% of the surveyed vehicles operating at speed range from 16 to 35.

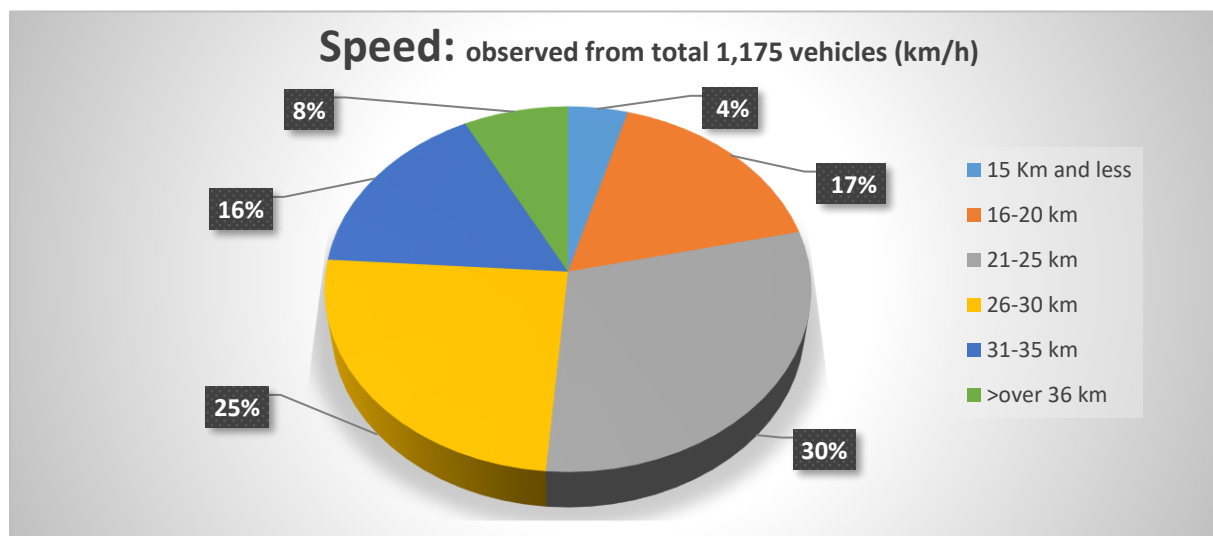


Figure 14 Distribution of Speed within Te Ara Hou Village

4.2 Predicted Traffic Flows

The incremental travel demand is to determine the traffic generation by the village in a foreseeable future. The prediction is vital as it determines the long term plan in terms of parking management.

Currently daily traffic generated by the village was found to be 303trips/day shown above. Due to the fact that there is no information regarding the trips generated by the village in the past five years, and no information regarding the growth of the on-site agencies in a foreseeable future. Therefore, the current data cannot be compared to previous data to work out a growth factor in order to determine the future traffic flows.

This proposal then assumes that the traffic generation will be experiencing with the same growth factor as the population increase rate as Hamilton city. According to *Subnational population projections* listed in Statistics New Zealand (Stats.govt.nz, 2015), Hamilton city has a 1.2 per cent of population growth rate. The growth rate is assumed to be consistent for the next 20 years. Therefore, the predicted traffic flows is listed on the Figure 14.

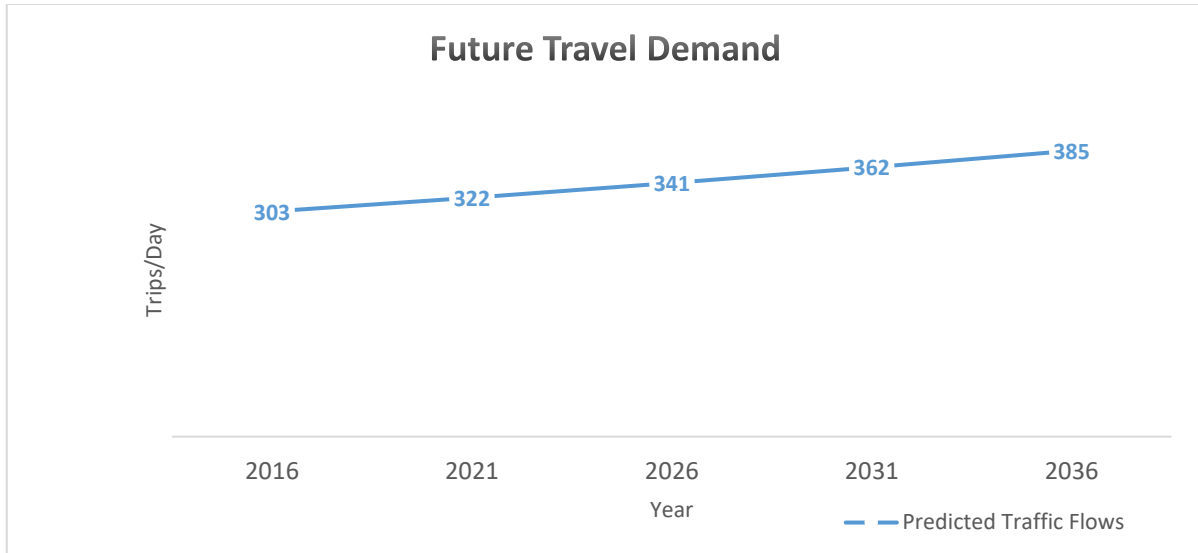


Figure 15 Future Travel Demand

Table 3 also shown that the traffic generation will increase from 6.3% to 27.1% from next five years to twenty years. As considering the current parking operation, it is clear the TAH village will be required additional parking spaces as time moves along.

Table 3 Peak-time and Parking Occupancy Ratio

Year	2021	2026	2031	2036
Increase Rate	6.3%	12.5%	19.5%	27.1%
Predicted Parking Utilisation	92 – 113%	98 – 119%	105 – 127%	113 – 135%

5. Council Regulations

This report follows the requirements set out by the Proposed Hamilton City Council District Plan. The rules followed in the District Plan can be found in *Appendix A*, *Appendix B*. Table 4 shows the Zoning as per Hamilton City Council Proposed District Plan Maps (see also *Appendix C* for detailed map).

Table 4 Zoning Classified by HCC

Address	Lot No.	Zoning
100 Morrinsville Road	Lot 1	Community Facilities
102 Morrinsville Road	Lot 2	Community Facilities
104 Morrinsville Road	Lot 3	Residential

The following rules were followed for the proposals:

- Rule 5.2 - Parking, loading and Access
- Rule 5.3 - Planting and Screening
- Rule 4.6 - Community Facilities

The parking space requirements are set out by Rule 5.2-1a of the operative District Plan. Table 5 show the parking space requirements determined by using the total Gross Floor Area (GFA) for the combined buildings located on each Lot.

Table 5 Parking Requirement by HCC

TAH Village	GFA (m ²)	Parking Spaces Required (1 per 30m ²)	Disabled Spaces Required
Lot 1	3,508 m ²	116	3
Lot 2	1,565 m ²		
Total	5,073 m ²	169	4

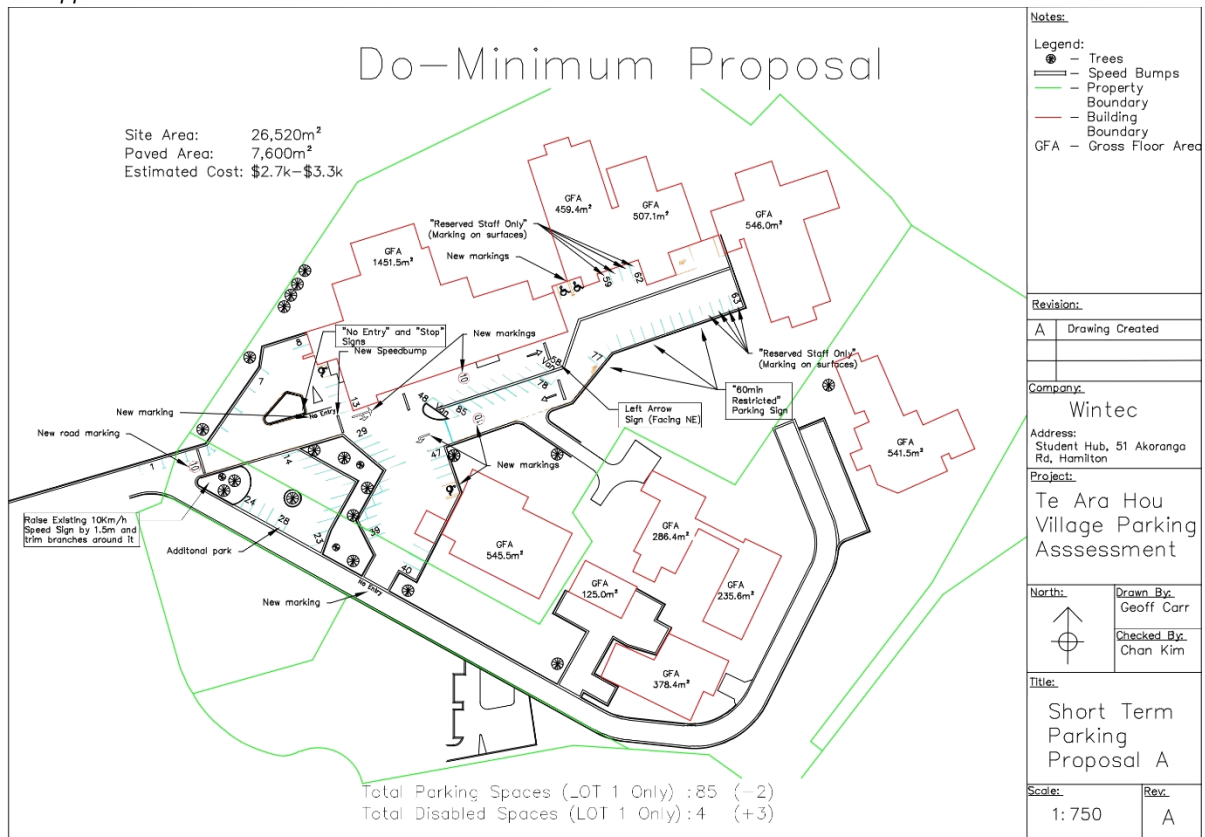
6. Description of Proposals

6.1 'Do-Minimum' Option (Lot 1 Development Only)

This proposal does not meet the parking requirements of 116 spaces and 5 disabled spaces set out by HCC District Plan. The proposal achieves a total of 87 parking spaces and 4 disabled with an estimated cost of \$3000. A detailed cost estimate is provided in *Appendix F*.

Key Costs		Additional Parking	
New Road Markings	\$2,400	Standard	Disabled
		0	3
Key Notes:			
<ul style="list-style-type: none"> Traffic exit flow altered 			

See *Appendix D* for more information



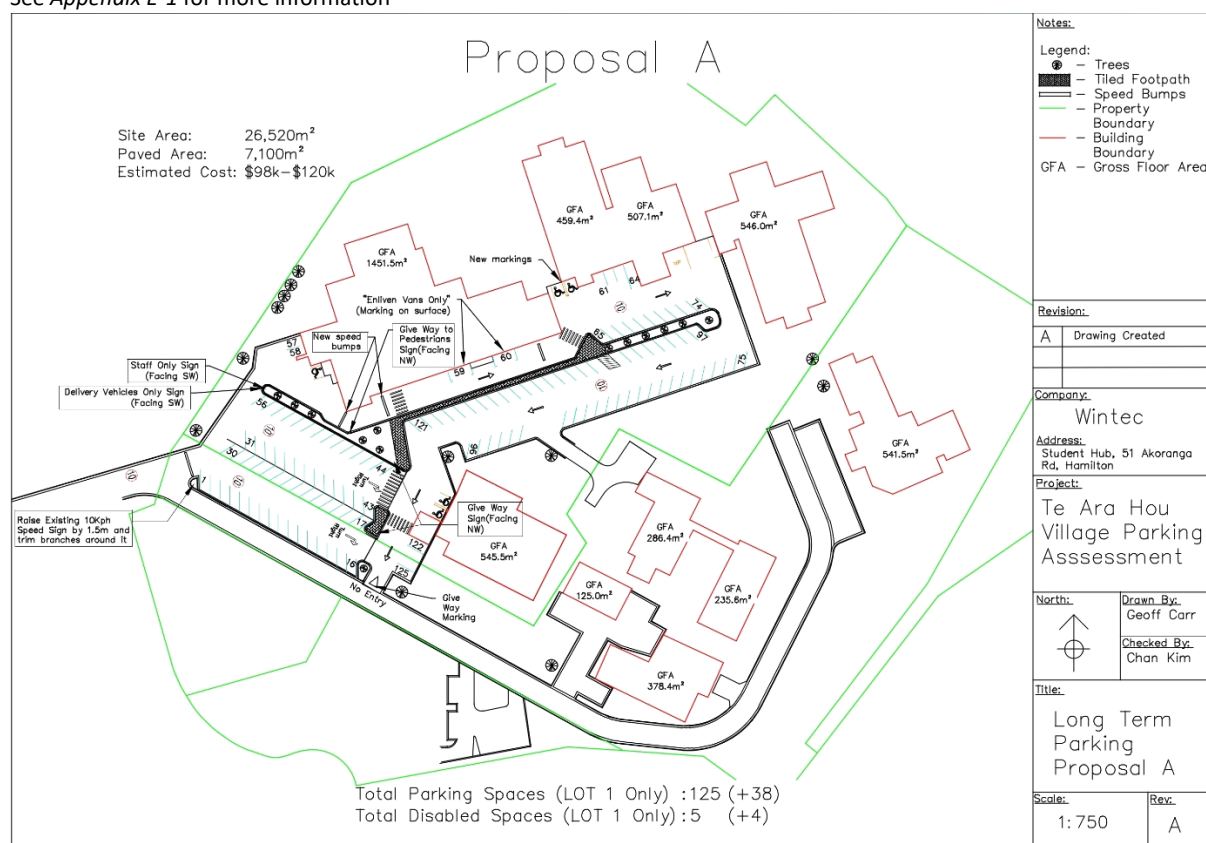
Advantages	Disadvantages
Low Cost	HCC parking space requirement is not met
Improved Traffic circulation	
Reduction in vehicle speed	
Improved separation between staff and visitor parking	

6.2 Long Term Proposal A (Lot 1 Development Only)

This proposal meets the parking requirements of 116 spaces and 5 disabled spaces set out by HCC District Plan. The proposal achieves a total of 127 parking spaces and 5 disabled with an estimated cost of \$98,000 to \$119,000. The works requires large amount of kerb and tree removal around the entrance of the village as well as new paving extension on the northern parking lot and the green area in front of Just Food Café. A detailed cost estimate is provided in *Appendix F*.

Key Costs		Additional Parking	
Kerb Removal	\$22,000	Standard	Disabled
New Paving	\$32,000	38	4
New Kerbs	\$22,000		
Tree Removal	\$18,000		
Key Notes:			
<ul style="list-style-type: none"> Large paved area will require drainage for surface water which can incur additional costs. Works take place over buried services – Water mains, telecommunications 			

See *Appendix E-1* for more information



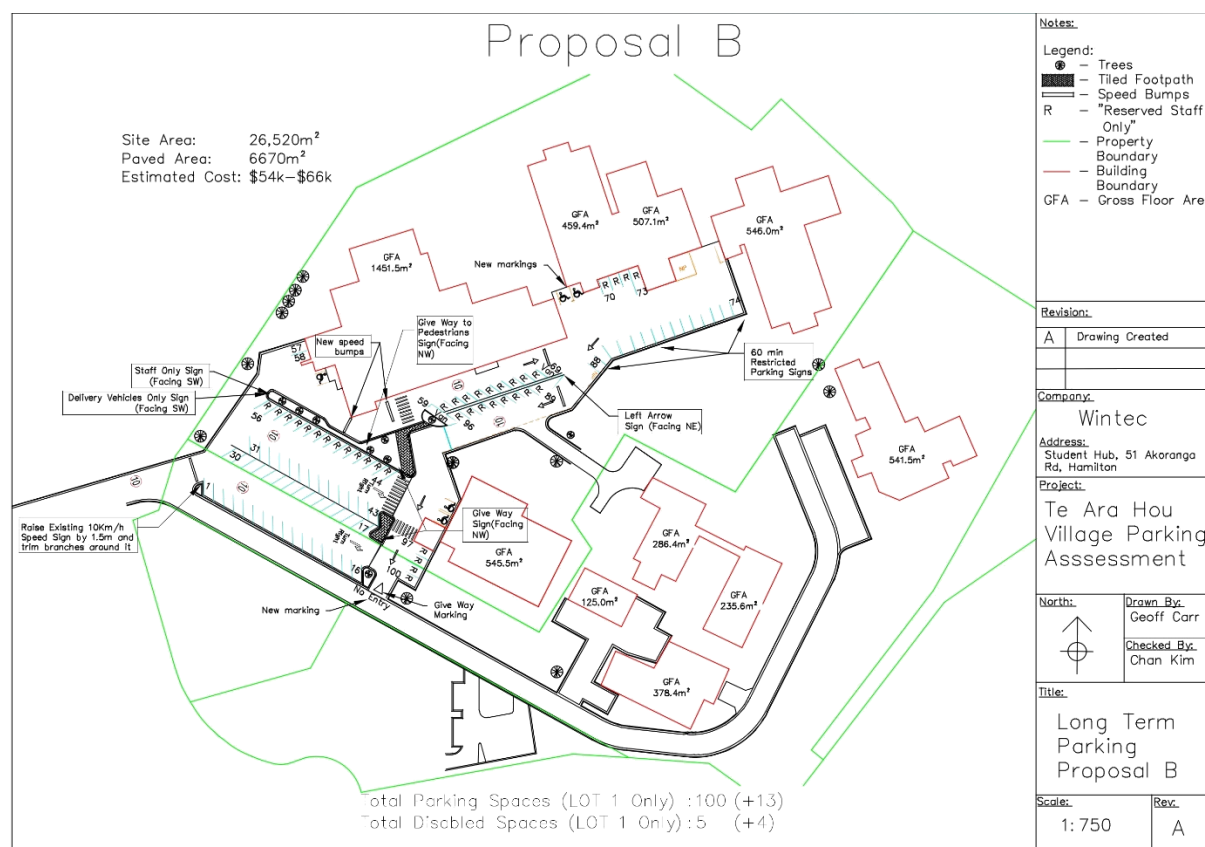
Advantages	Disadvantages
Improved Traffic circulation	High Initial Cost
Improved separation between staff and visitor parking	Consent required for works from Waikato Diocesan Trust Board
HCC parking space requirement is met	
Reduction in vehicle speed	

6.3 Long Term Proposal B (Lot 1 Development Only)

This proposal does not meet the parking requirements of 116 spaces and 5 disabled spaces set out by HCC District Plan. The proposal achieves a total of 102 parking spaces and 5 disabled with an estimated cost of \$54,000 to \$66,000. The works require a large amount of kerb and tree removal around the entrance of the village. A detailed cost estimate is provided in Appendix F.

See Appendix F for more detail costing estimates

Key Costs		Additional Parking	
Kerb Removal	\$13,000	Standard	Disabled
New Paving	\$11,000	13	4
New Kerbs	\$10,000		
Tree Removal	\$17,000		
Key Notes:			
<ul style="list-style-type: none"> Works take place over buried services – Water mains, telecommunications 			

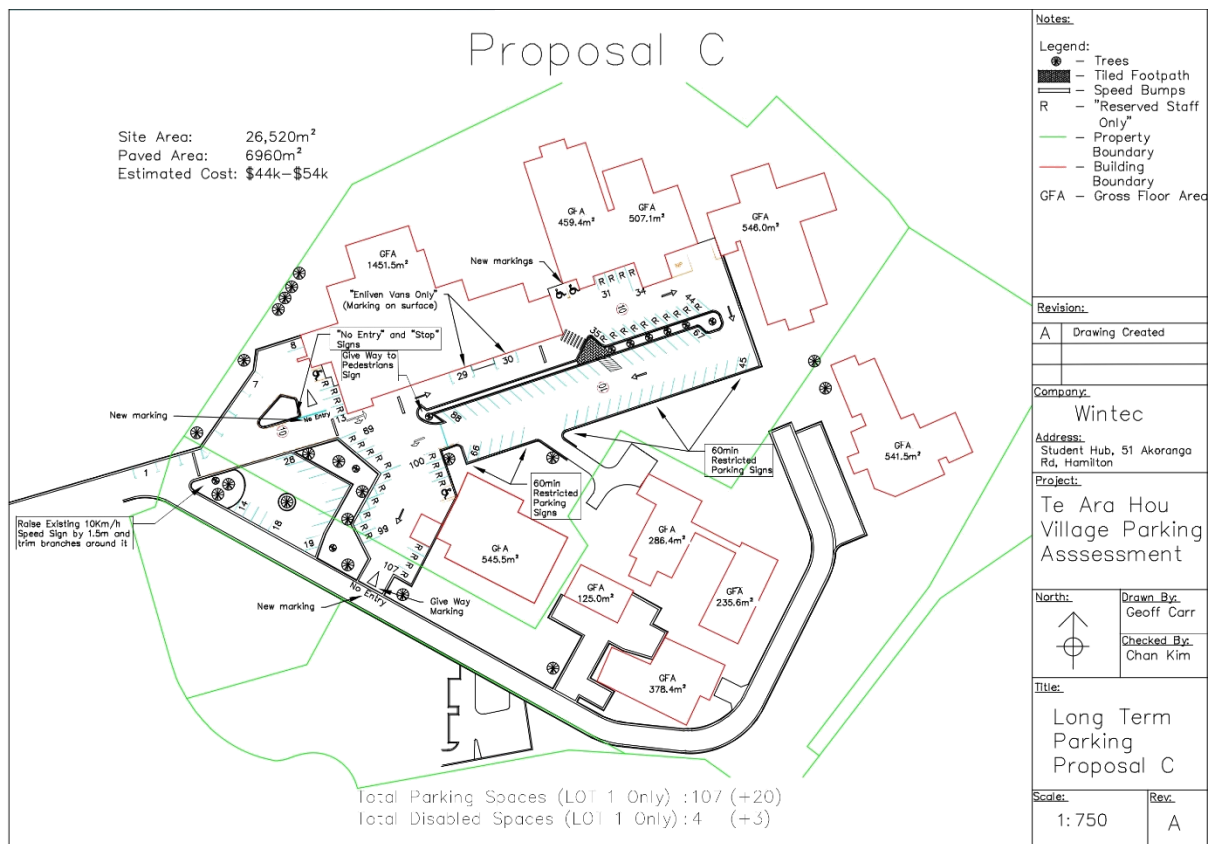


Advantages	Disadvantages
Reduction in vehicle speed	Poor cost to new parking ratio
Improved separation between staff and visitor parking	Consent required for works from Waikato Diocesan Trust Board
Improved Traffic circulation	HCC parking space requirement is not met

6.4 Long Term Proposal C (Lot 1 Development Only)

This proposal does not meet the parking requirements of 116 spaces and 5 disabled spaces set out by HCC District Plan. The proposal achieves a total of 102 parking spaces and 4 disabled with an estimated cost of \$44,000 to \$54,000. A detailed cost estimate is provided in Appendix F.

Key Costs		Additional Parking	
Kerb Removal	\$13,000	Standard	Disabled
New Paving	\$11,000	19	3
New Kerbs	\$10,000		
Tree Removal	\$17,000		
Key Notes:			
New paved area will require drainage for surface water which can incur additional costs.			

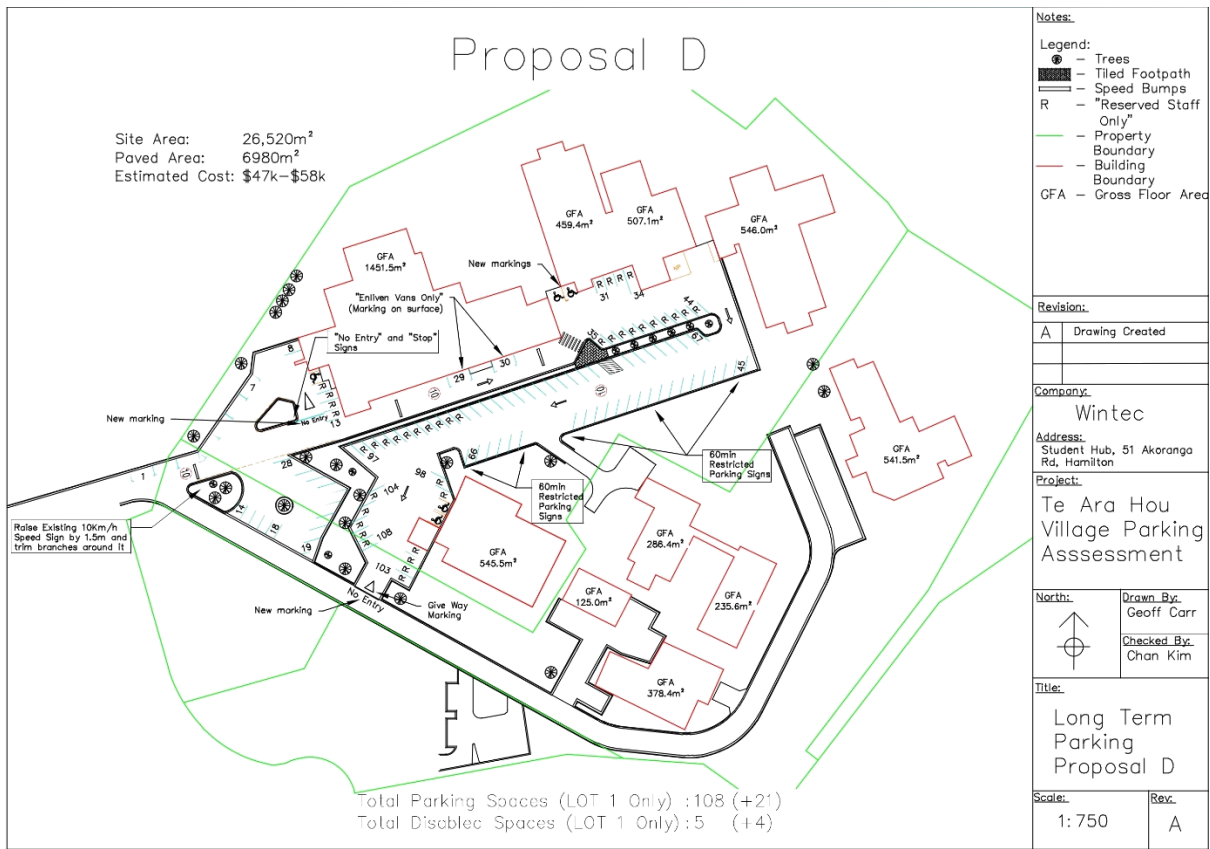


Advantages	Disadvantages
Reduction in vehicle speed	HCC parking space requirement is not met
Improved Traffic circulation	
Good cost to new parking ratio	
Low Cost	

6.5 Long Term Proposal D (Lot 1 Development Only)

This proposal does not meet the parking requirements of 116 spaces and 5 disabled spaces set out by HCC District Plan. The proposal achieves a total of 110 parking spaces and 5 disabled with an estimated cost of \$47,000 to \$58,000. The connecting island running along the middle similes the traffic circulation. A detailed cost estimate is provided in *Appendix F*.

Key Costs		Additional Parking	
Kerb Removal	\$9,000	Standard	Disabled
New Paving	\$21,000	21	4
New Kerbs	\$12,000		
Key Notes:			
New paved area will require drainage for surface water which can incur additional costs.			

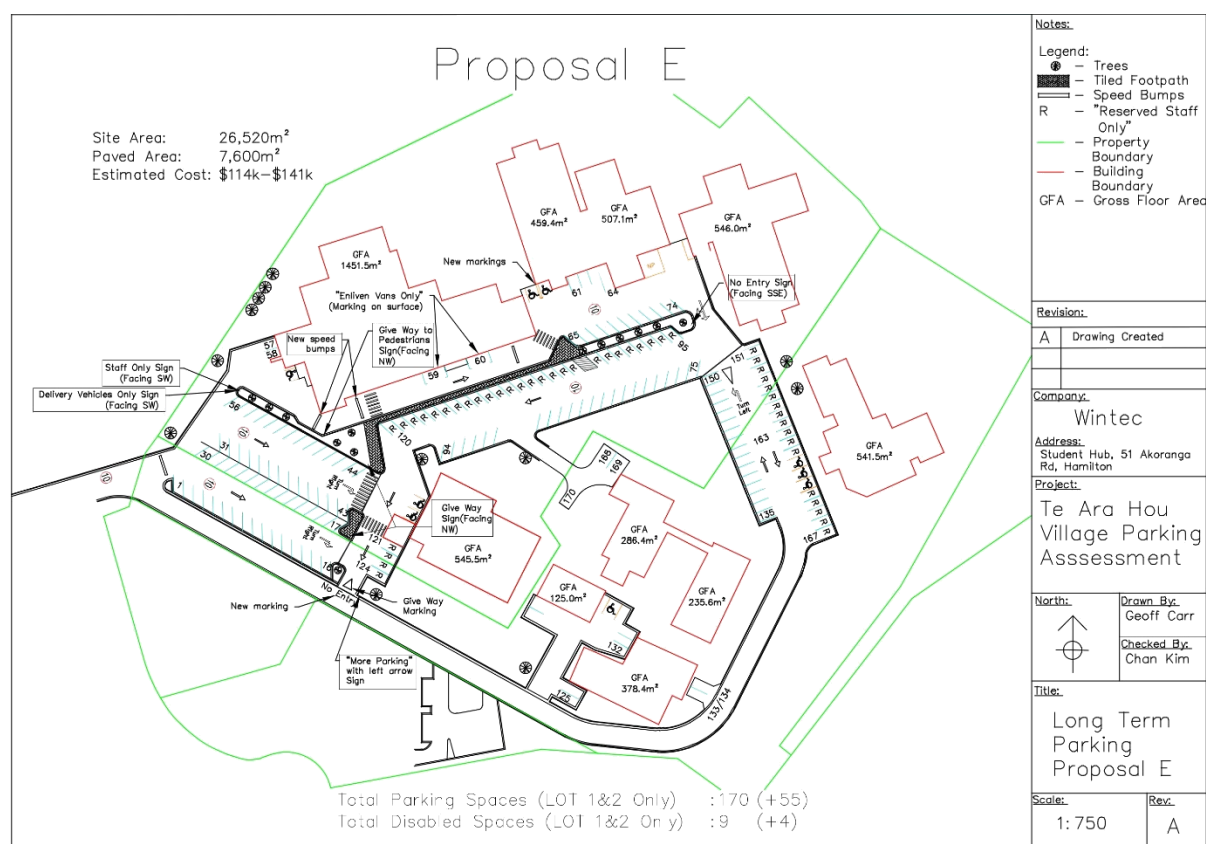


Advantages	Disadvantages
Reduction in vehicle speed	HCC parking space requirement is not met
Improved Traffic circulation	
Good cost to new parking ratio	
Low Cost	

6.6 Long Term Proposal E (Lot 1 & 2 Development Only)

This proposal does meet the parking requirements of 169 spaces and 8 disabled spaces set out by HCC District Plan. The proposal achieves a total of 171 parking spaces and 8 disabled with an estimated cost of \$114,000 to \$140,000. A detailed cost estimate is provided in *Appendix F*.

Key Costs		Additional Parking	
Kerb Removal	\$9,000	Standard	Disabled
New Paving	\$21,000	54	4
New Kerbs	\$12,000		
Key Notes:			
<ul style="list-style-type: none"> New paved area will require drainage for surface water which can incur additional costs. Works take place over buried services – Water mains, telecommunications 			



Advantages	Disadvantages
Improved Traffic circulation	High Initial Cost
Improved separation between staff and visitor parking	Consent required for works from Waikato Diocesan Trust Board
Good cost to new parking ratio	
Reduction in vehicle speed	
HCC parking space requirement is met	

7. Discussion

The current parking operation at Te Ara Hou Village is not ideal or satisfactory for serving current traffic volumes and future demand by visitors and staffs. The results of Revealed Preference survey revealed that both staff and visitors are not happy with the amount of parking spaces, speed control and car-park separation. The traffic survey data reinforces these claims and shows that the current parking lot is operating at near or over 100% capacity.

The amount of parking spaces for the whole village is well under the required limit of 169 spaces. To achieve this requirement additional parking lots need to be built, it is impossible to reach this value by altering the existing layout alone.

Works done at the entrance of the village seen in proposals A, B and E involve earth works over existing water mains and telecommunication services. This is generally a small problem which only requires extra care when it comes to the construction progress however the risk of damaging these services are still there and additional costs may be incurred.

8. Conclusion

The parking conditions within Te Ara Hou Village is at an un-satisfactory level. With the steady growth of Hamilton's population and consequently visitors and staffs in TAH village, the parking situation will become worse with long term timeframe. There is a currently a lack of parking spaces with drivers being forced to park on grass areas as well as in no park zones. This is supported by surveys which showed at certain times there were more vehicles in the village than there were parking spaces. Excessive speed within the area is another issue highlighted by the survey data which showed on average a speed of 20-30km/h with the peak of 51km/h. A short term proposal and several long term proposals were prepared that addresses most to all of these issues. The proposals were prepared taking into account the Hamilton City Council Operative District Plan. The short term proposal addressed the speed issue as well as traffic flow throughout the village by making modification to the existing road markings at an estimated cost of \$2,7k to \$3,3k. However, an additional three disabled spaces only can be attained without compromising other spaces such as green areas. The long term proposals alter the existing parking layout to improve circulation as well as increase the total number of parking spaces required. These proposals add an additional 13 to 55 spaces along with a few additional disabled spaces. The rough cost estimates for these proposals range from \$44k to \$141k. It is recommended a long term proposal be considered to provide the most improvement for the parking conditions at Te Ara Hou Village.

5.2.1 Standards

The following standards apply to all Permitted and Controlled Activities, and Restricted Discretionary Activities where they are listed as such in the activities list for the relevant zone.

a) Number of Parking Spaces

- iii) All parking areas shall include accessible parking spaces for persons with disabilities, as follows:
 - one space for carparks up to 10 spaces
 - two spaces for carparks with 11 to 99 spaces
 - one space for each additional 50 spaces commencing at 100 spaces.
- iv) Parking Lots (excluding car parking buildings) shall provide stands to accommodate bicycles on the site at the following rates:
 - 5 bicycles for car parks of 40 to 100 car parking spaces; and
 - one additional bicycle per 20 car parking spaces over 100 spaces.
- v) Parking Lots shall provide space specifically identified for motorcycle parking, as part of the overall parking space requirement, at the following rates:
 - space for 3 motorcycles (one car space equivalent) in car parks of 20 to 100 spaces; and
 - space for one additional motorcycle per 40 car spaces over 100 spaces.

b) Number of Loading Spaces

- i) Where any activity occurs on a site, loading space is to be provided according to Table 5.2-1a, Table 5.2-1c or Table 5.2-1d.
- ii) Access to the loading space shall be readily available from the individual occupancies in each tenancy or development on the site that the loading space is to serve.

c) Parking and Loading Space Dimensions and Layout

- i) Parking space dimensions and layout shall be in accordance with Figure 5.2-1.
- ii) Every car parking space shall accommodate the 90 percentile car tracking curve (Figure 5.2-2).
- iii) Dimensions for accessible car parks (for people with disabilities) should be as specified in NZS 4121.

Appendix A-2

Table 5.3-2 Planting and Screening Requirements for Specified Activities

	Environment Zone	
Parking and Loading Spaces	Any parking or loading spaces associated with Community Centres, Education and Training Facilities, Health Care Services and Offices in the Residential Zone	1.8m high fence, or similar, or a 1m wide buffer strip around the spaces (excluding access points)
Parking Spaces	Where 15 or more spaces at ground level are provided and are visible from any public place, road, or adjoining or nearby site	At least one tree per 15 parking spaces is required in the form of internal planting

iii) Detailed Planting Standards

- a. Where **internal planting** is required, the planting must be located within the sealed area to break up the impermeable expanse, and must be formed using tree guards or grates, planting boxes, or raised planting beds and kerbs.
- b. All planting shall be protected from potential pedestrian and vehicle damage.
- c. All planting must meet the standards specified within two years from the time of planting, and shall be maintained to the satisfaction of Council.

iv) Applications for Resource Consent

- i) Any activity requiring a resource consent under this District Plan, and which is required to comply with the planting provisions in Rule 5.3 shall include for Council’s approval a Planting Plan.
- ii) All Planting Plans shall include:
 - i. site and property boundaries
 - ii. roads adjacent to the site and site access
 - iii. public spaces, such as parks and walkways, adjacent to the site

Appendix A-3

Table 5.2-1a Number of Parking and Loading Spaces Required in all Zones Except City Centre and Recreation Environment Zones¹

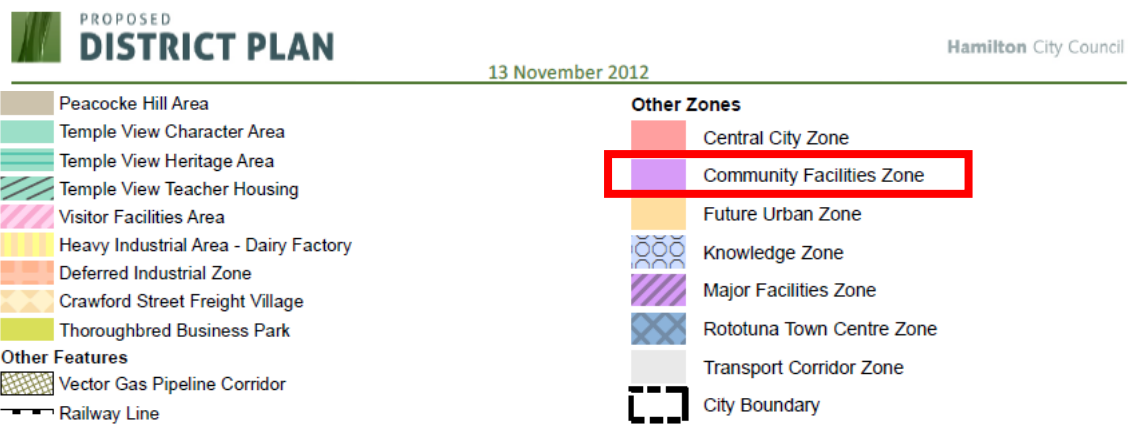
Building or use	Car parking spaces required	Loading/service spaces required
Community Centre	1 per 30m ² gfa	1 space

* gfa = gross floor area

July 2012

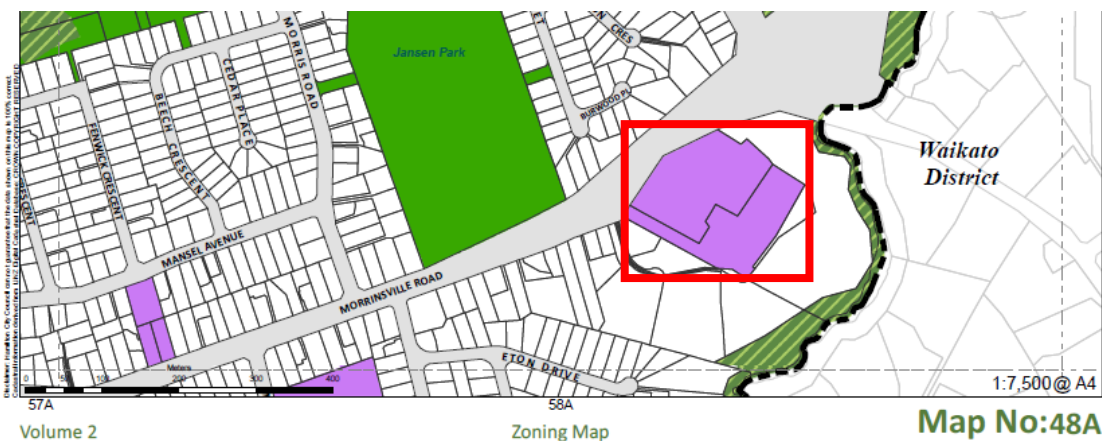
Parking, Loading and Access

Rule 5.2 - 7

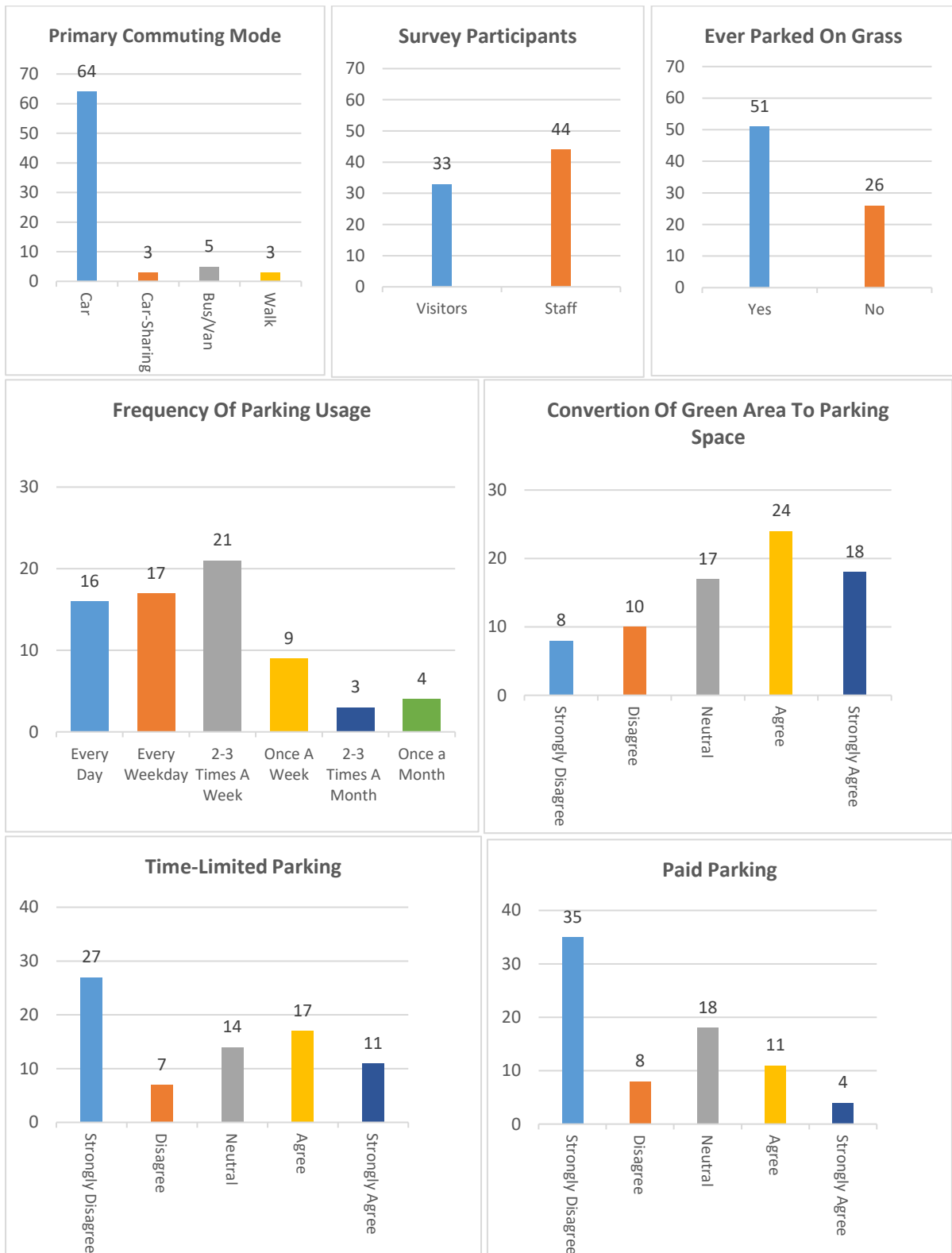


Volume 2

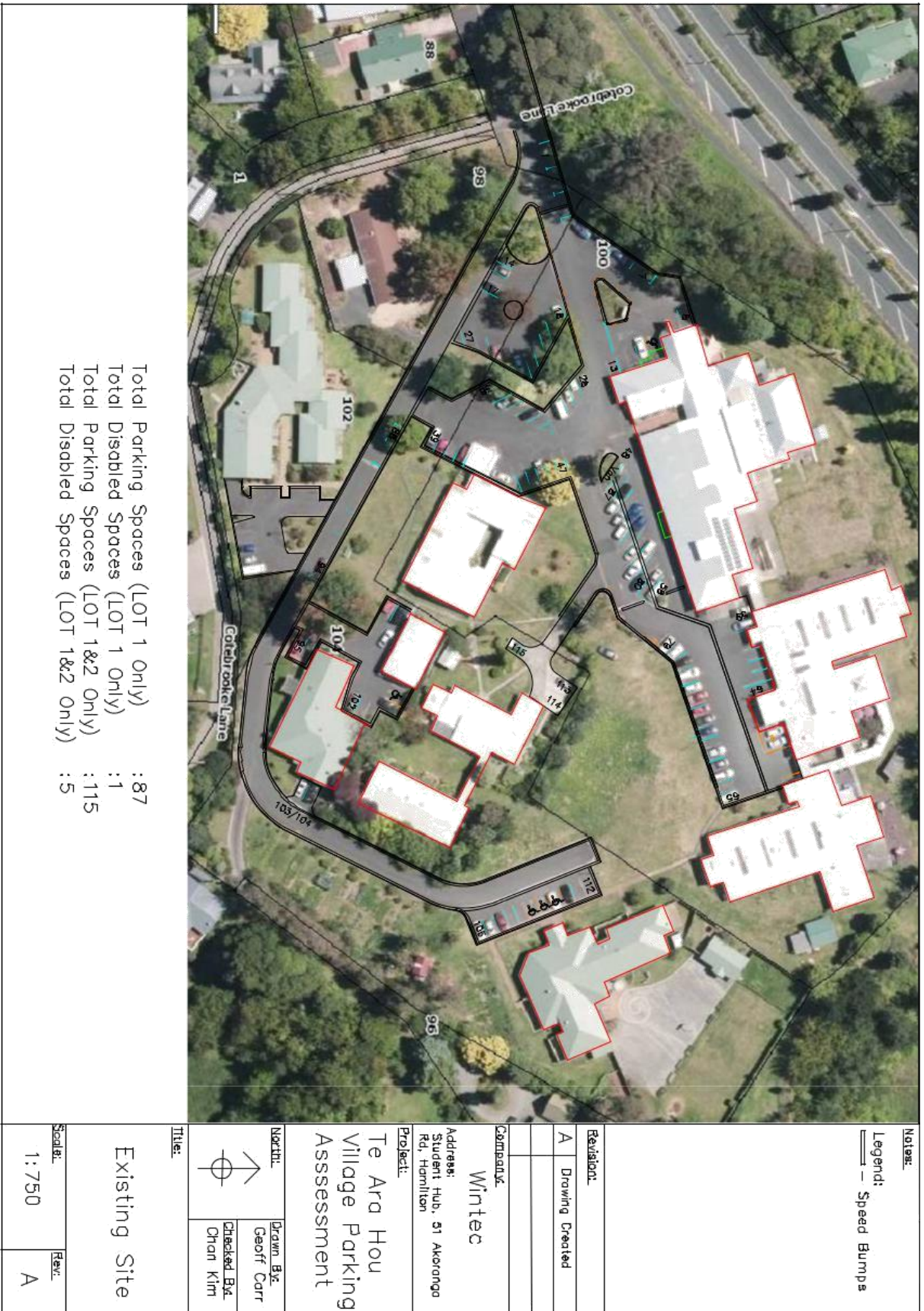
Planning Maps - Zoning and Features Legend



Appendix B



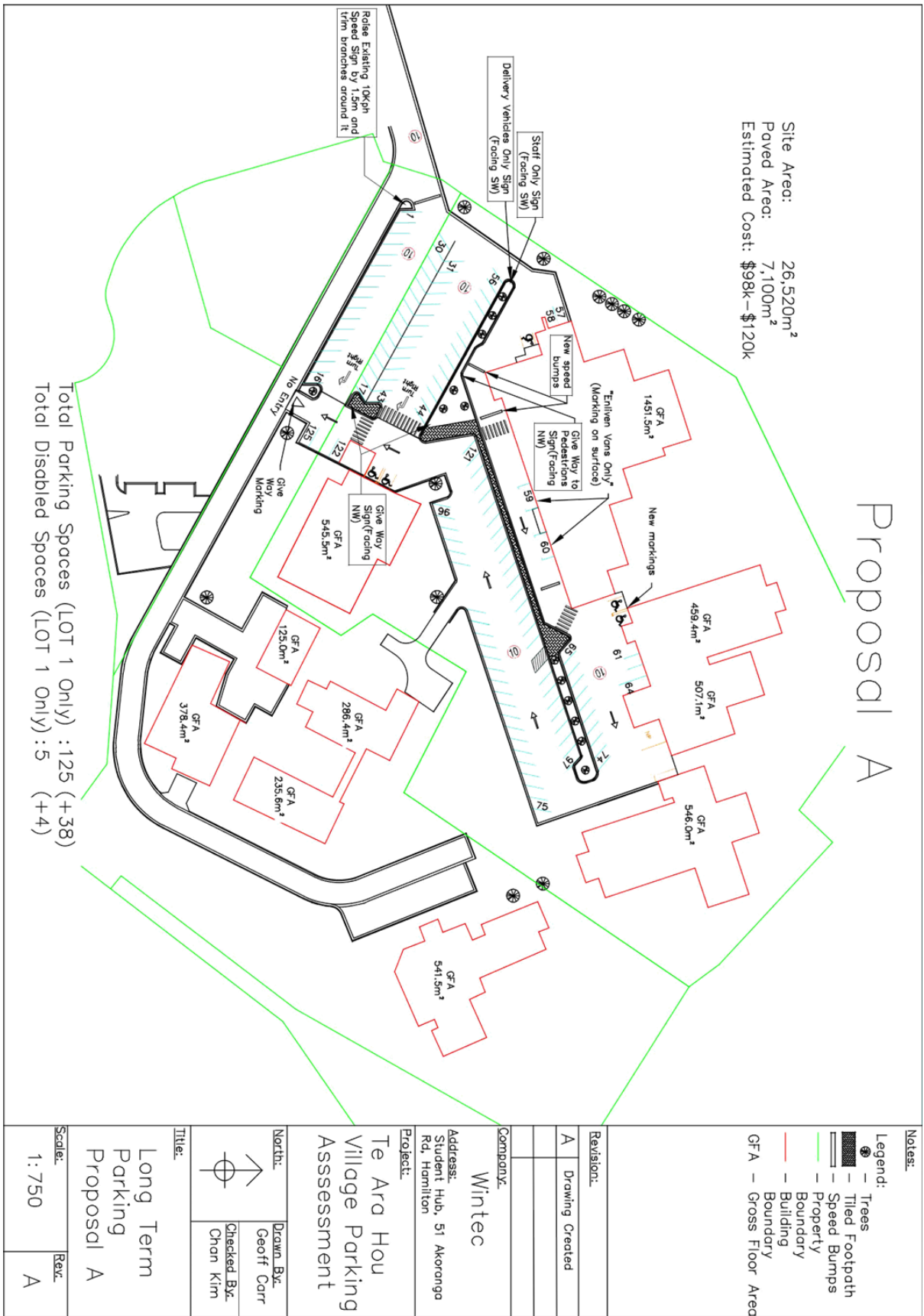
Appendix C



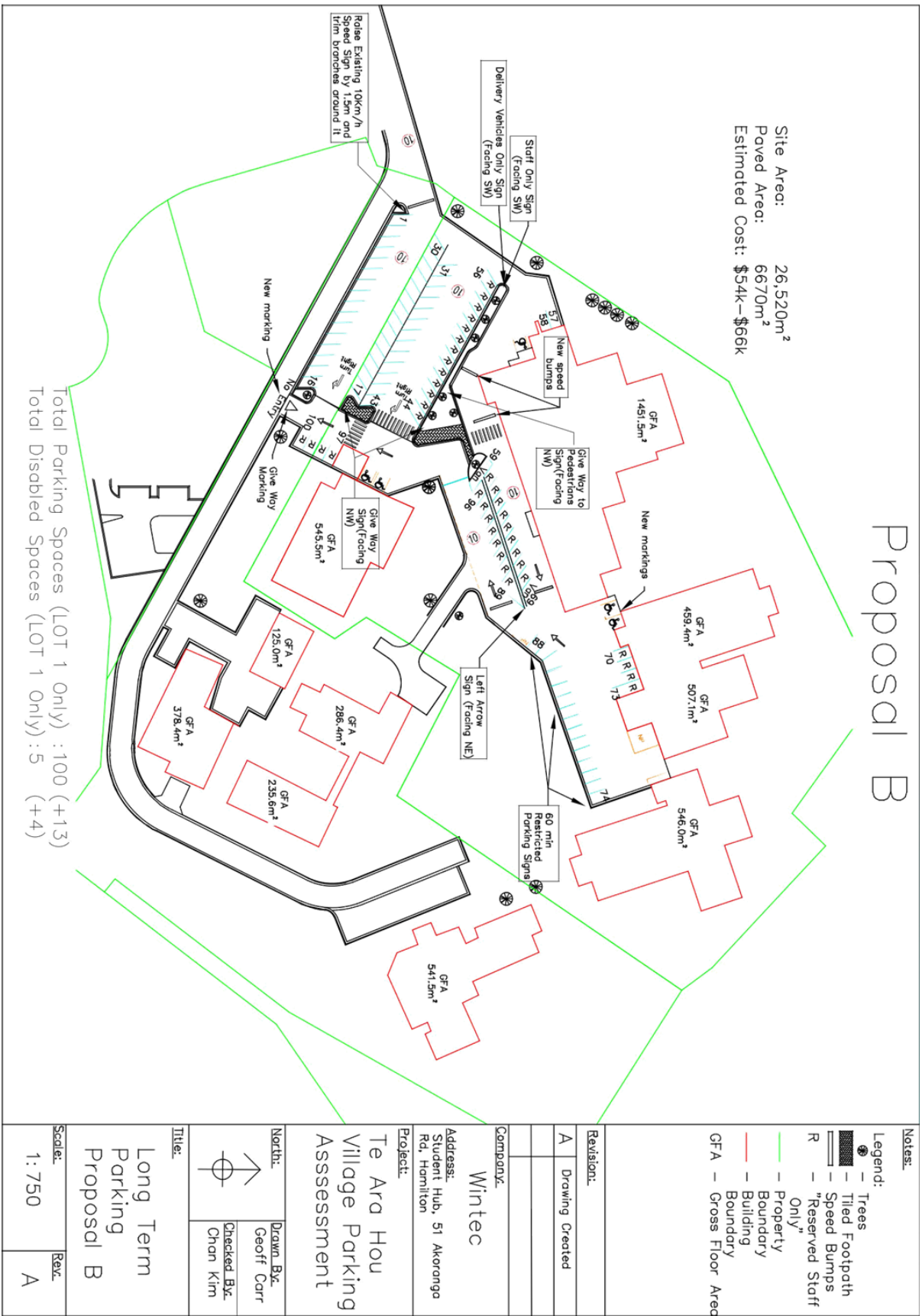
Total Parking Spaces (LOT 1 Only) : 87
 Total Disabled Spaces (LOT 1 Only) : 1
 Total Parking Spaces (LOT 1&2 Only) : 115
 Total Disabled Spaces (LOT 1&2 Only) : 5

Notes:	
Legend: — Speed Bumps	
Revision:	
A	Drawing Created
Comments:	
Wintec	
Address: Student Hub, 51 Akorongo Rd, Hamilton	
Project: Te Ara Hou Village Parking Assessment	
North:	Drawn By: Geoff Carr
	Checked By: Chan Kim
Title: Existing Site	
Scale: 1 : 750	Rev: A

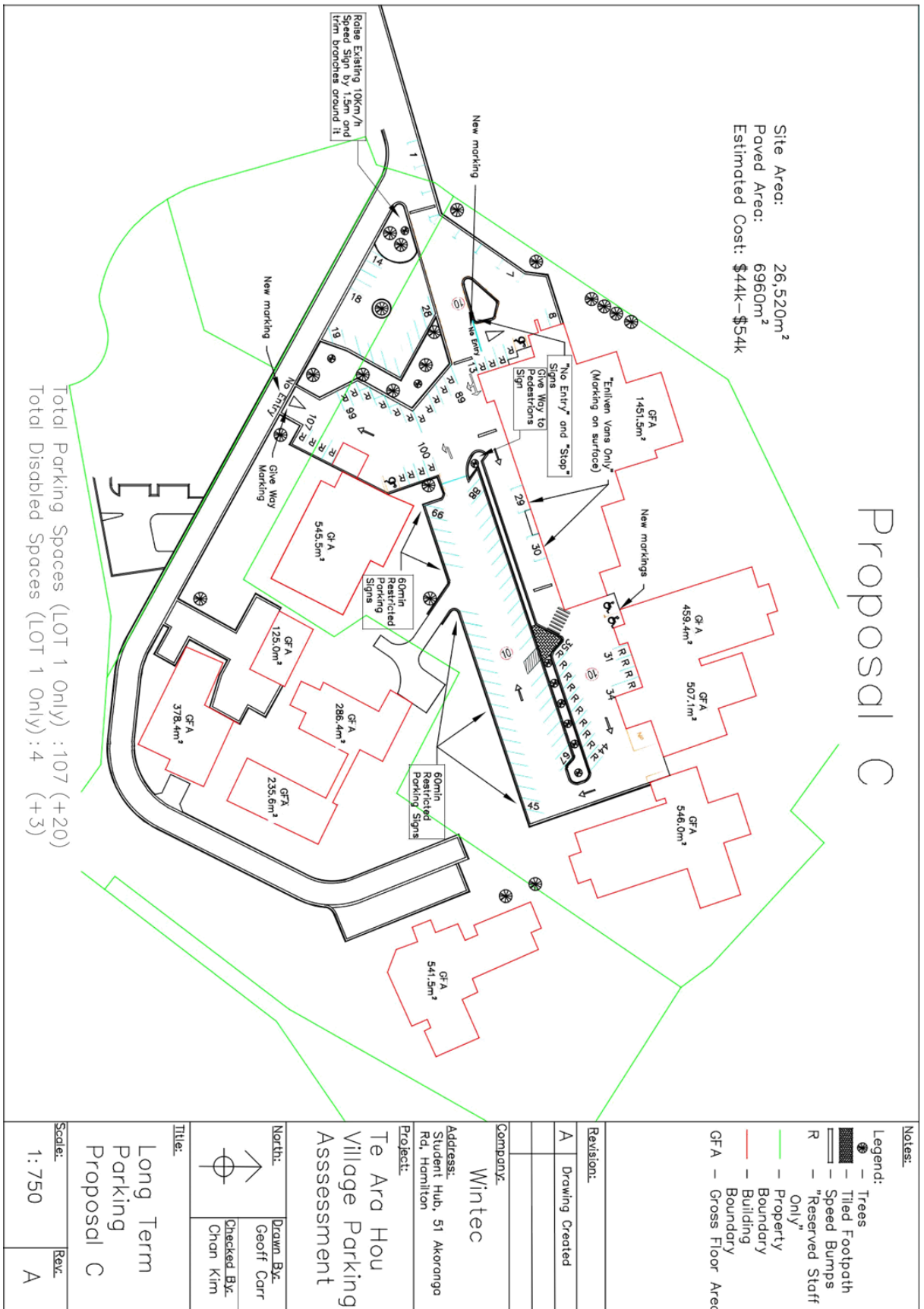
Appendix E-1



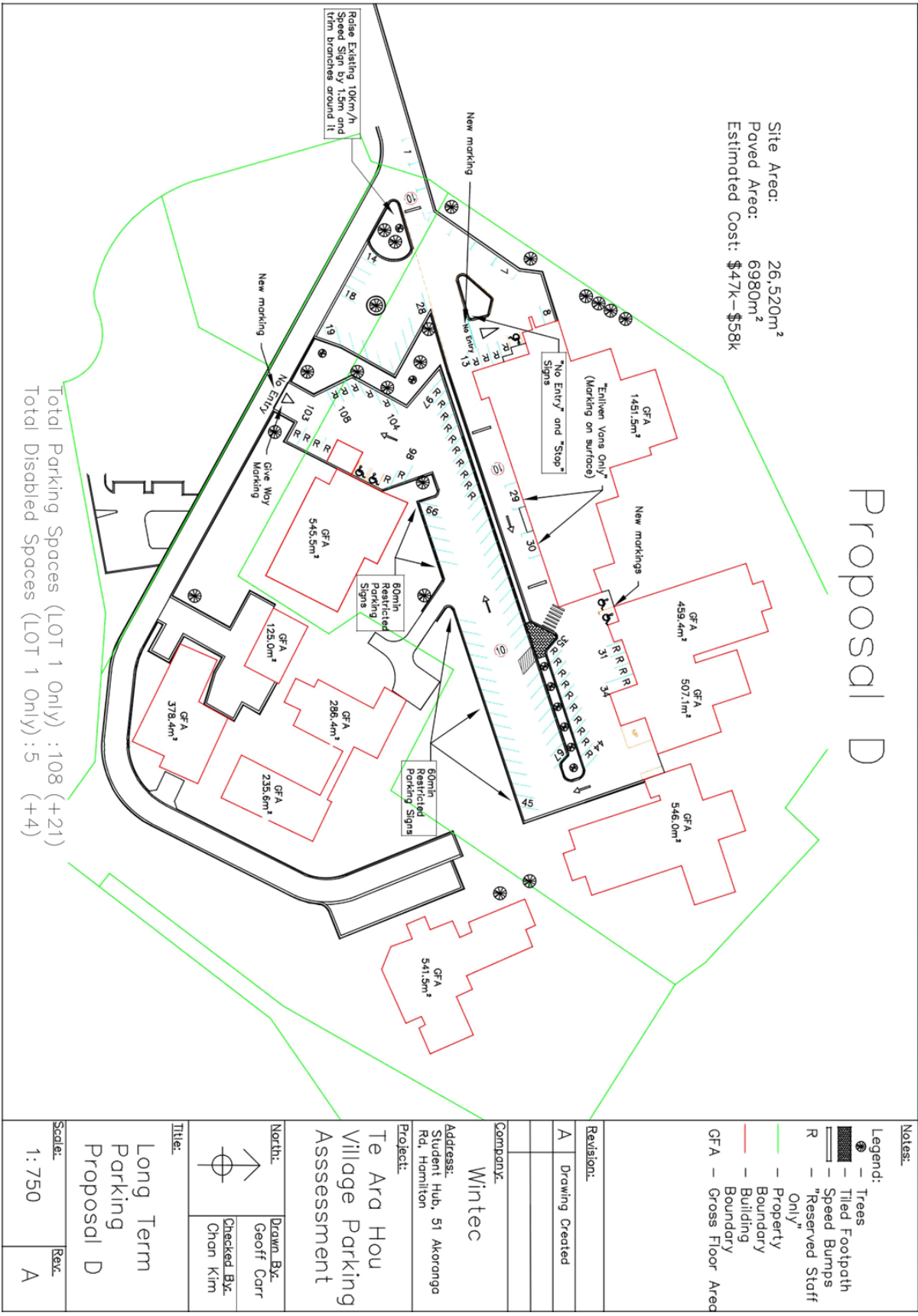
Appendix E-2



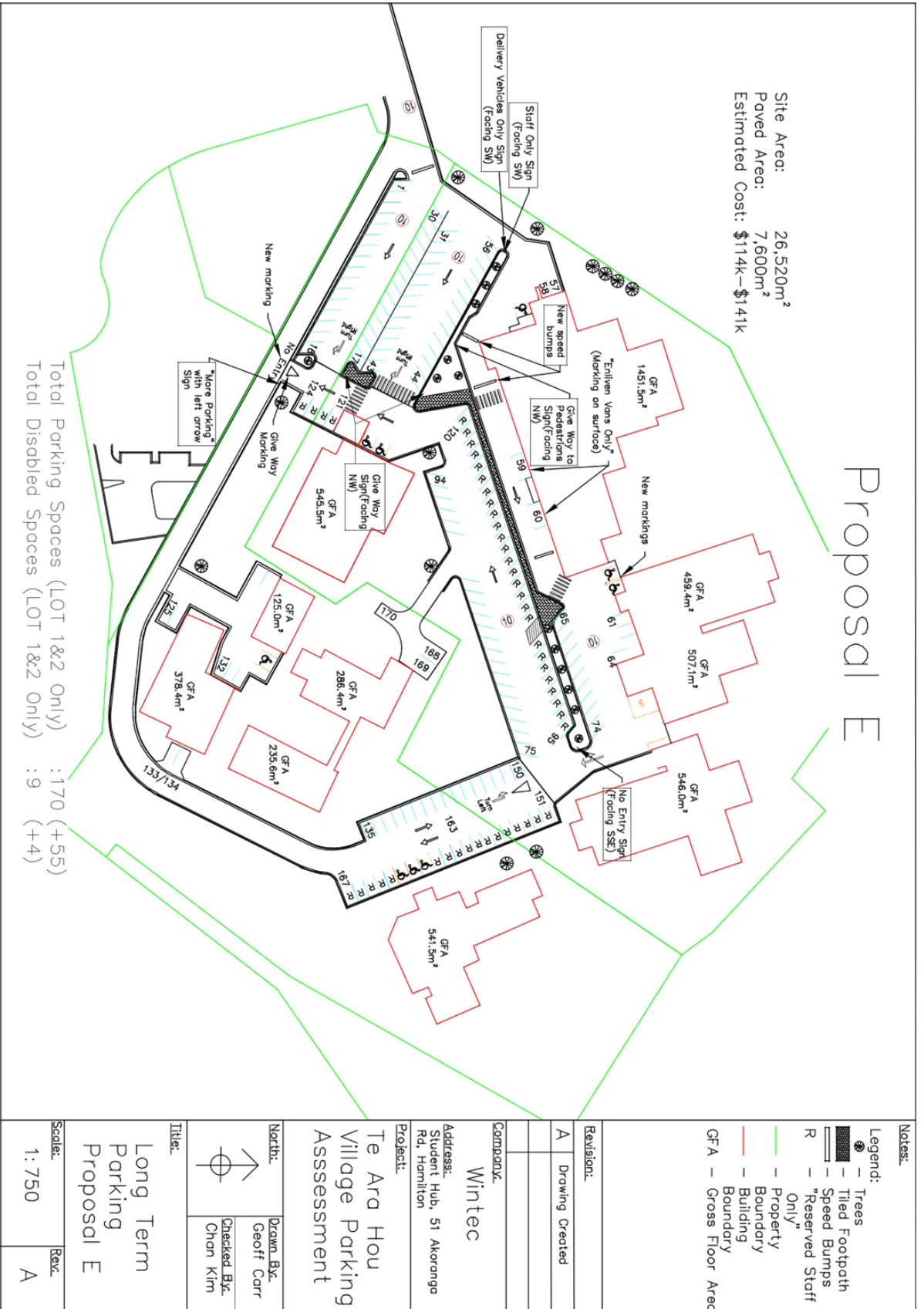
Appendix E-3



Appendix E-4



Appendix E-5



Appendix F

100 Morrinsville Road Parking Proposal Costings Estimates						
	Short Term Proposal A	Long Term Proposal A	Long Term Proposal B	Long Term Proposal C	Long Term Proposal D	Long Term Proposal E
Road Markings	\$2,400	\$3,600	\$2,200	\$2,300	\$2,300	\$4,000
Paving						
Area removed (m ²)	0	317	195	122	135	317
Cost to remove Paving	\$0	\$6,000	\$4,000	\$2,000	\$3,000	\$6,000
Added Paved Area (m ²)	0	1277	430	850	850	1772
Cost of New Paving	\$0	\$32,000	\$11,000	\$21,000	\$21,000	\$44,000
Kerbs						
Length of Kerb removed (m)	0	298	174	124	124	337
Cost of Kerb Removal	\$0	\$22,000	\$13,000	\$9,000	\$9,000	\$25,000
Length of Kerb added (m)	0	512	243	269	269	584
Cost of New Kerb	\$0	\$22,000	\$10,000	\$12,000	\$12,000	\$25,000
Signage	\$600	\$800	\$1,300	\$900	\$900	\$1,000
Concrete Footpath						
Area of new Footpath/Island (m ²)	0	137	64	73	73	137
Cost of Footpath/island	\$0	\$4,100	\$1,900	\$2,200	\$2,200	\$4,100
Tree Removal	\$0	\$18,000	\$17,000	\$0	\$2,000	\$18,000
Total Cost Lower Estimate	\$2,700	\$98,000	\$54,000	\$44,000	\$47,000	\$114,000
Total Cost Upper Estimate	\$3,300.0	\$119,000.0	\$66,000.0	\$54,000.0	\$58,000.0	\$140,000.0
Additional Car parks(Regular)	-2	38	13	20	21	55
Additional Car parks(Disabled)	3	4	4	3	4	4
Approximate Price per additional space	\$2,700	\$2,300	\$3,200	\$1,900	\$1,900	\$1,900

NOTE: The estimated Costs only an indicative value of the likely cost of redevelopment a roading and earthwork within the TAH village. The cost should not be taken as an accurate value.