

Memo

9 May 2018

To: Māngere-Ōtāhuhu Local Board

Cc: Carol McKenzie-Rex, Relationship Manager
Rina Tagore, Senior Local Board Advisor
Ayr Jones, Specialist Advisor, Community Empowerment Unit
Liz Muliaga, Strategic Broker

From: Dr Mary Dawson, Manager Strategic Brokers

Subject: Funding support to Auckland Teaching Gardens Trust (ATGT) for hydroponic and solar equipment for work item 632: Mara Kai projects.

Purpose

1. To provide details to the Māngere-Ōtāhuhu Local Board for funding the Auckland Teaching Gardens Trust (ATGT) \$9000 for hydroponic and solar equipment and also provide a quote.

Background

The board deferred the decision to fund the Auckland Teaching Gardens Trust, subject to further information on additional plans at the Old School Reserve, where the Trust operates from, and implications of use of the proposed equipment to the area. (Resolution number MO/2018/14 – d)

Quote and associated documentation

2. In the Arts, Community and Events (ACE) work programme 2017/2019, \$9,000 from line 632, *Build capacity: Māngere Ōtāhuhu – Mara Kai projects*, has been allocated to ATGT Trust to purchase equipment for their gardens at Old School Reserve.
3. The local board have requested full details regarding this quote, taking into account any implications of the location of this equipment for the footprint of the ATGT on the reserve.
4. All the requested equipment relates to the hydroponics system and the solar power unit to operate the system.
5. There is no power onsite other than solar. The solar power unit is required to power the hydroponics system and computer equipment used for youth education workshops.
6. Staff advise that this funding agreement will be actioned, given the additional details and assurance that the proposed location for the equipment will not extend the ATGT's current footprint on the Old School Reserve.
7. Accompanying this memo are quotes for the hydroponics system and solar system, as well as additional information including the intended location

i) Quotes for the hydroponics system

Parts	For nutrient tanks, pumps and equipment	Cost
Hailea 6840	Water pump	\$173.50
320LitreRXTankWithLid	Holding tank	\$266.00
AquaOneSR12000-AirPumpFourWayOutlets-turningKnob	Oxygenator/ mixer pump	\$59.50
Vermiculite-100LTR	Moisture retentive medium	\$54.00
Herbs DigitalTimer	Timer for pump and nutrients	\$48.50
pH Pen	Measures PH	\$143.00
Bluelab Combo Meter	Metering for tanks/ nutrients	\$380.00
3rd Edition (Integral Hydroponics	Instruction book/ manuals	\$45.00
30 Amp H/Duty Timer (30AmpEziGroTimer)	Timer – metering system	\$325.00
Domestic 6m (Ghouse budget6m	Green house cover	\$2000.00
Parts	For planter gullies – growing tanks	Cost
6mx5gullies-wide 150x75mm-gully	Gullys – growing tanks	\$1406.50
CF Metre Trunchron	Gullys – growing tanks	\$144.00
Flood and drain system with Stand 116 x 116)	Drainage system	\$570.00
Parts	Nutrient stock tank – growing medium	Cost
GuanoSuperGrow-5Litre	Nutrients	\$106.50
Trace Element mix 5kg	Nutrients	\$102.00
Total		\$5823
GST		\$873.45
Total A		\$6696.45

ii) Quote for the solar power system

Part		Cost
YINGLI 150W 12V MonoCrystalline Solar Module #:	Solar modules	1,130.43
Sunlock Rail,End & Mid Clamps,Earthlock washers,MC4 Connectors,	Connectors,	
Sunlock L foot tin roof interface, Single Bracket kit,screws,pad	Bracket kit,screws,pad	501.95
MORNINGSTAR TriStar 45A 12/24/48V PWM Controller** #:	Power management controller	330.16
VICTRON Phoenix Compact Inverter 2000W 24V, 230VAC**#:	Inverter 2000W 24V, 230VAC	1,381.78
REMCO Sealed AGM Deep Cycle Battery 12V 200A/Hr	Deep Cycle Battery 12V 200A/Hr	1,328.80
PVPOWER 8 Pole Breaker Enclosure IP65	Cabinet	61.13
NOARK 16A 500VDC, 2 Pole, Non-Polarised, K-Type curve	NOARK 16A 500VDC, 2 Pole, Non-Polarised, K-Type curve	208.64
Black Battery Cable 64mm, 2/0 BS, V90 PVC, 60VDC Max, /m 2m battery to inverter cables	Cable	129.84
Black Solar Twin Core Cable 6mm, PV1F, /m	Cable	81.00
MIDNITE SOLAR Battery Capacity Meter, switched lead version	MIDNITE SOLAR Battery Capacity Meter	114.12
Battery Cable Lug to suit 70mm cable w/ 8mm hole, each for battery to inverter cables	Battery Cable Lug	16.28
Black Battery Cable 64mm, 2/0 BS, V90 PVC, 60VDC Max, battery interconnect cable	Cable	8.12
	battery interconnect cable	8.14
MIDNITE SOLAR Enclosure Only, Holds 4 x 19mm wide Panel Mount Breakers	MIDNITE SOLAR Enclosure	105.97
50A 150VDC Panel Mount Breaker solar to controller and controller to battery breakers	50A 150VDC Panel Mount Breaker solar to controller and controller to battery breakers	71.72
Installation of upgraded System Test & Commission + CoC & Installation warranty	Installation	\$1250.00
Total		\$6728.08
GST		\$1009.21
Total B		\$7737.29
Total A		\$6696.45
Total B		\$7737.29
Project Total		\$14433.74

Auckland Teaching Gardens contribution		\$5433.74 Min
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iii) Additional information

Q1: Where is the hydroponics plant expected to be located – or is it portable?

The system will be located to the right of the main entrance, close to the containers/ sheds within the current boundary of the gardens (where the chicken coop is currently located.)



The growing racks are 6 metres long with a shade cover/plastic cover over the top. The system is portable – however it will be located near the existing containers where the electrical equipment/ metres and batteries will be housed for security purposes.

Q2: Having onsite solar power could provide a local emergency charging capability etc. How much power capability would this system provide?

The system provides a local emergency charging capability in the event of major power outage. Along with onsite water, solar power and food, the garden may be seen as a local resilience centre.

The system has 2 x 12V 200 AMP storage batteries. This produces around 400 AMP hours of power. Converting to a 24V system these batteries will hold around 200 AMP hours at 24V.

A cell phone (iPhone) draws 1 AMP to charge so theoretically you could charge 200 iPhone or 80 iPads (2.5AMPS to charge). However the limit is the number of charger units on the line at a time.

Q3: What are potential risks of having a hydroponics system and solar power system in this vicinity: e.g. would they be a target for stealing? Ongoing maintenance costs? Anything else?

There are minor maintenance costs ongoing – pumps for example. Nutrient costs are reduced as nutrients are recycled through the system but still require refreshing.

Over the last two years the garden has reported a reduction in vandalism based on the changing profile of the local community and connection with local streets through the waste programme.

Theft and vandalism cannot be ruled out of any venture. Fencing is good quality. All batteries, metering and important electronics will be housed in the nearby secure container. This is why it will be positioned near the current container. To date no one has interfered with the existing solar array.

Engagement with youth and local schools will show children the value of the educational resource.

Q4: If the footprint of the ATGT on the reserve ends up being reduced, do you see any other possible ramifications in terms of having installed this hydroponics system?

When staff met with the local board, they detailed the existing footprint of the gardens within the existing fence line. However all hydroponic and solar equipment will remain close to the existing structures for security and installation purposes. The local board has approved three year funding via the Parks, Sport and Recreation department for the gardens.

Q5: Other relevant points:

This is an opportunity to increase the educational activity currently available onsite to youth and the community and further enhance Old School Reserve's reputation as a leader in organic, suburban gardening methodologies and as an exemplar educational resource to the entire region.