III WARREN AND MAHONEY®

International Case Study Climate Emergency Solution; NARC

Northcote Aquatic and Recreation Centre



Climate Emergency

9 Key Directions

- Climate Emergency mobilisation and leadership
- Energy efficiency
- Renewable energy and fuel switching
- Zero emissions transport
- Consumption and waste minimisation
- Fossil fuel divestment
- Adaptation and resilience
- Engaging the community
- Climate Emergency Darebin



Climate Emergency Plan

Darebin Climate Emergency Plan 2017-2022 Summary

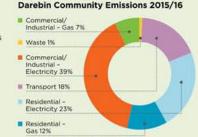
Council recognises that we are in a state of climate emergency. Unless we restore a safe climate at emergency speed, there will be dramatic and negative impacts on our community and around the world. We are already seeing more intense and frequent heatwaves, heavy rainfall and flooding, the bleaching of the Great Barrier Reef, extreme fire weather and more bushfires.

Our best hope of securing our future is to move into emergency mode. Darebin Council is committed to urgent action to make our planet safe for ourselves, our children and future generations. Council has developed this Climate Emergency Plan to work together with our community and other levels of government to restore a safe climate.

Eliminating emissions

To avert or reduce the effects of climate change, we need to stop emitting greenhouse gases and remove the excess emissions already in the atmosphere. Greenhouse gases are produced when fossil fuels are burned to create energy to power our homes and businesses, and run vehicles and machinery. Eliminating our emissions will involve: ambitious energy efficiency (decreasing the energy we use in the first place); getting our electricity from renewable sources (such as solar); moving away from gas; and moving to transport powered by renewable energy, and cycling and walking.

This is a breakdown of where our carbon emissions in Darebin are coming from:









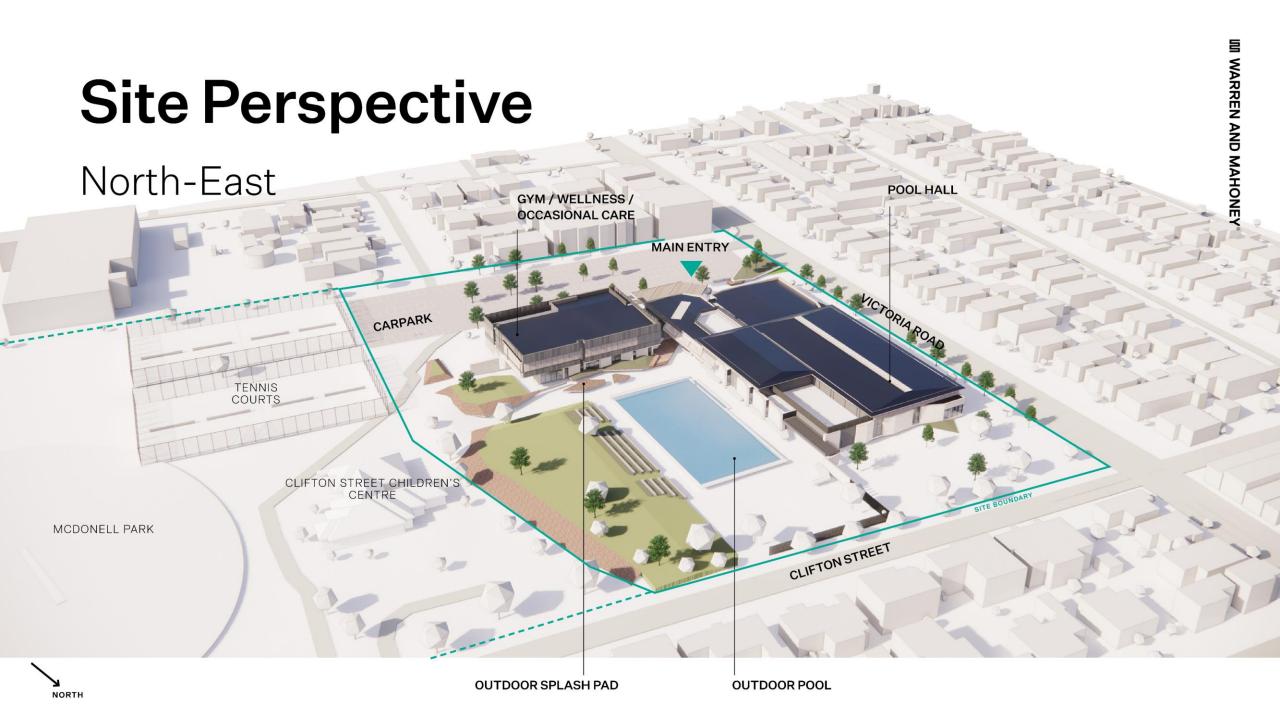




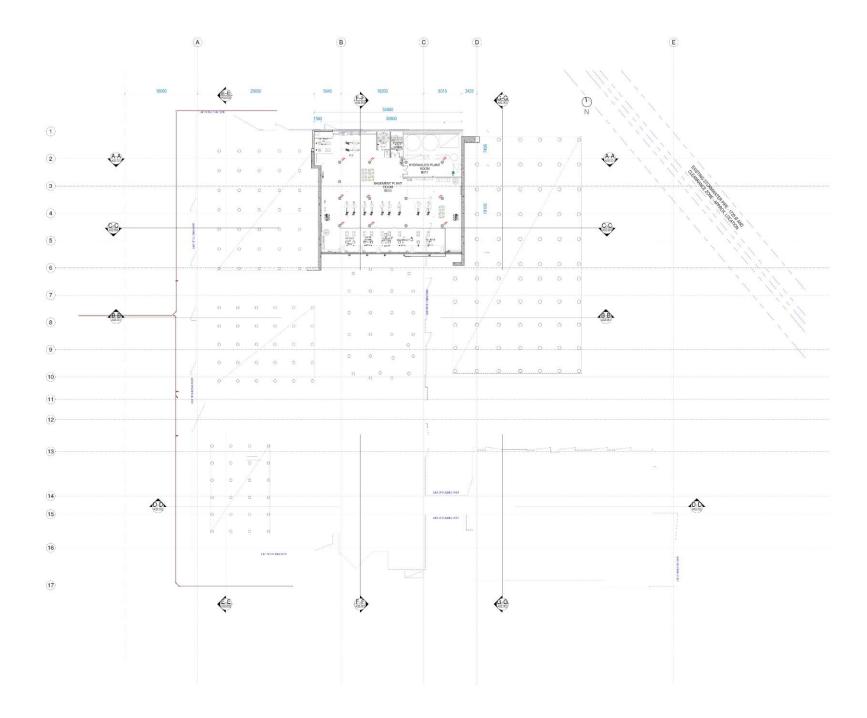
Proposed Site Plan



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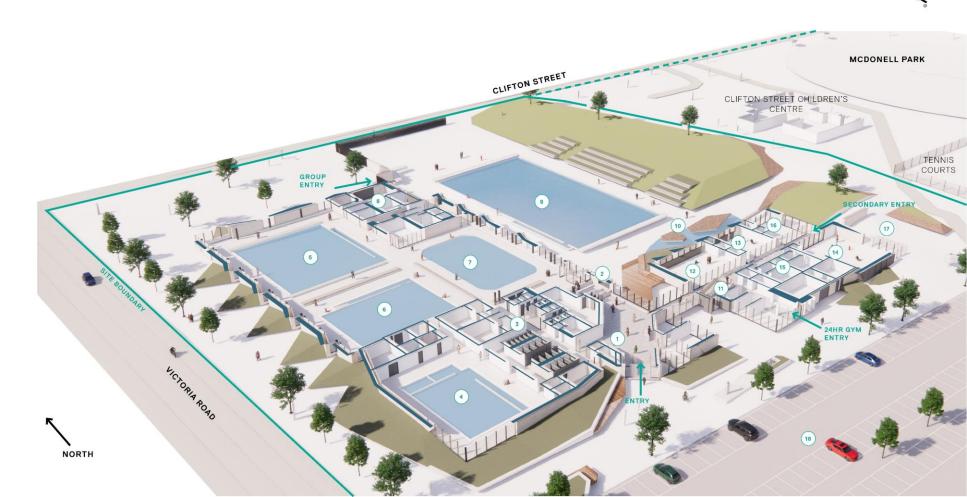
Basement Plan



Sectional Perspective Ground Floor Plan

Key

- 1. Entry Foyer
- 2. Cafe
- 3. Amenities
- 4. Warm Water Pool
- 5. 25 Metre Pool
- 6, Learn To Swim Pool
- 7. Leisure/Toddler Pool
- 8. Services And Group Change
- 9. Outdoor 50 Metre Pool
- 10. Outdoor Splash Pad
- 11. Welness Foyer
- 12. Welness Studio
- 13. Pilates
- 14. Program Room
- 15. Amenities
- 16. Occasional Care
- 17 Outdoor Gym
- 18 Car Park







NARC - Scope

Northcote Aquatic and Recreation Facility

POOL	SURFACE AREA	VOLUME	WATER TEMPERATURE
50m External Lap Pool	1,320m²	2,575m³	26-27 °C
25m Indoor Lap Pool	545m²	900m³	27 – 28 °C
Indoor Learn to Swim Pool (LTS)	315m²	425m³	32 °C
Indoor Warm Water Pool (WWP)	195m²	305m³	34 °C
Indoor Splash and Toddler Pool	310m²	190m³	32 °C
Outdoor Splash Pad / External Pool	125m²	80m³	29 °C

NARC - Start up Loads

Northcote Aquatic andd Recreation Facility

POOL	ELECTRICAL LOADS	DURATION (HOURS)
50m External Lap Pool	800kW	60
25m Indoor Lap Pool	325kW	48
Indoor Learn to Swim Pool (LTS)	170kW	64
Indoor Warm Water Pool (WWP)	115kW	72
Indoor Splash and Toddler Pool	85kW	48
Outdoor Splash Pad / External Pool	200kW	24
TOTAL	1,695kW	60-24

NARC - Maintenance | Operational Loads

Northcote Aquatic and Recreation Facility

POOL ELECTRICAL LOADS

50m External Lap Pool	250kW
25m Indoor Lap Pool	85kW
Indoor Learn to Swim Pool (LTS)	40kW
Indoor Warm Water Pool (WWP)	25kW
Indoor Splash and Toddler Pool	17.5kW
Outdoor Splash Pad / External Pool	15kW
TOTAL	432.5kW



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ENERGY DASHBOARD

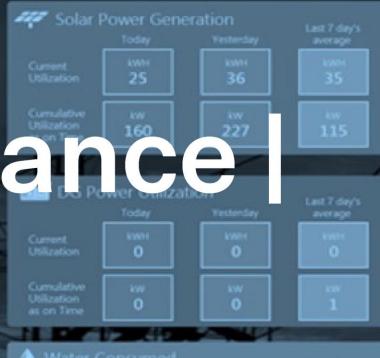
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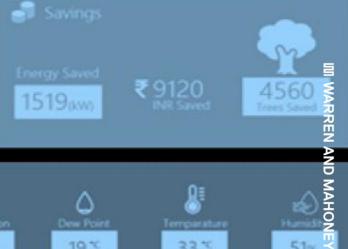








































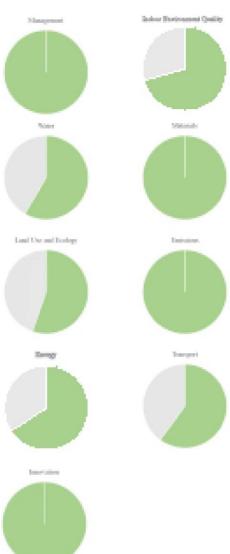




ESD and Sustainability Energy Fossil fuel free; future proof for alternative energy sources **Skylights** Reduce glare while maintaining maximum solar gains into the pool hall. **Estimated consumption** 3.1GWh of grid electricity annually **Heat Pumps PV Panel Capacity** High performance Air Source Heat Pumps with low-emissions refrigerant 1,125 No panels with 450 kWh capacity Annual solar yield: 520MWh **Pool Filtration** Ultra fine filtration to reduce water backwash/top up and energy con-**III WARREN AND MAHONEY®**

sumption

Green Star



Northeron Aquetic di Rectanion Contro B = Primary Responsibility A = Assistance S = Confed C = Consideration Con-en-170A

			(leave	14	Soigs from	Building Asta	Borisons	
	Credit	Fullmap	Fix	History	Charles School S	15 15 15 15 15 15 15 15 15 15 15 15 15 1	b all	Auditors Notice
	Grace Star Profounceal		1/1	L	P A		5	Any most pilosis.
	Commissioning and Tuning		478	[84]	A AAA A AF		1 3	Allen for whole/subling air rightmeanest and appointment of findipendent Commissioning Agent
- 60	Adaptative and Earlifeacy		2/2	(8.0	A A A A A A A A F		K X	Climate-drange adaptation plan to be developed
. 9	Highling Indonestries		171	L	为在为及为及为及为为 成果		E 3	Newstors consolitate and time to develop But tiling Uner Costile. Tingagement with Inciding soors on portConsens
- 66	Commission to Performance		3.73	L			10	Commitment required for energy and water consemption, and beat practice and of life water management
- 69	Minuring and Manitoring		171	148	F A A A		E 3	Services consultants and thrup to develop matering and monthsing plans
- 90	Keywoolde-Construction		272	18.0	A A E		C 30	Specification is include experiments for Contractor to promote validating to subcontractor.
- 06	Operational Wasse	A [Port]	171	L	A DE		X	Operational Waste Management Plan required to be developed and largers set:
- 00	Indice Air Quality		3-74	788	A P A A		T X	SPS more cutride six, sir-quality management in construction and provision for fit-out exhausts.
19	Acoustic Comfort		373	56	AAAA A F A		CON	Acoustics to meet best practice if satrollan Standards for proceduration, notice levels and appendion.
S 11	Lighting Condist		175	L	AAP A A		CCN	Lighting levels to most host practice for 1 point, 2nd point for up : deven lighting and 2nd for controls.
	Visual Condet		27.5		F N		1	Burgates an interest plant. Minute to be provided to all valueurs
	Indoor Pollenans		1/2		F 1		10 N	Low YOC and formuladrade products for flooring, feminure, points, adhesives are:
	Theresi Combet	s (Fort)	125	318			E C N	To be continued with modelling. Preceded for 2nd point notice actioned
		A (Post)	12,936	041	AAAA F		CCA	Max PS + 1895. Grow Proper for regres. To be preferred with registling
	Peak Discricity Demand	it (Port)	2.63	16.0	4 4 4 4 9		CX	Assitose, Tobe confirmed with modeling
	Bushamable Transport	a (Port)	6.0130	1	AF A A A		-	Transf Plantin berkenlayed. At least 13 bills parks provided for recognits and visitors and 10 EV charges.
	Posable Water	A (Fort)	2812	Init		and the second second second	CUL	High performance flatters and finlags, MAI, extraster suck and grey water record to solies and irrigation
		# (Port)	3.67	(4.)				Detailed whose of this whole of healthing amountees required for additional points using performance path.
	Life Cycle Repacts	W. Carrier	3/15	81	F A A AA A			
	Kesponsible Materials		3/3	164	the state of the s	The second secon		Allow the and previous from contractors for targeting 3rd point for responsible index.
	Sustainable Products	B 194 E		15.0	AAAAA E AA A			Conferendown required to confere points and patricip. 3 points in cypically possible.
- 13	Construction Works	HIN	121	-			200	Roginsment for contractor. Assessed I follow service registration, Selliner laws
	Eorlogical Value	_		N.I				
	Nustainable litter. Floor leisted 1976et	_	171	15.0	P 0 0		CX	Survey of an siting faciliting expored and commitment in noncon becoming materials empowelly.
		_	272	-			-	White test and hard scoping to be specified with high value reflective index (SRA)
	Stormester	_	171	L			in.	Ashires minimum pollution rachetico-taques and minimin, economics flows. Indigest to economic modelling results
	Light Polloties	_	121				CA	Marring Association Brandon's for Egle pullsation.
No.	Mirobiol Coased			L				No water based cooling towers for primary systems
	Exhigment Impacts	-	1/1	SI_			EEL	ETC but pumps assumed, TSDEI * 17 potential deposition on YEE proposal for gym ann
	On size Renewable Energy	_	6/3				-	HIN LW PT army assemed for I point. To be on ferred with energy modelling.
	Soft Landings	_	0.1		A BA		30 8	Net traped at this stage. ICs organists deliver soft tradings.
	November		0.1	341			1000	Politrian reduction targets arbitroud. Indepent to stomerculor modelling results.
	Supplementary systems serior	-						Net tepted at thirutage,
	Ultra low FOC points	_	171	L				SRS of points by anal or cost to lone after low YOCs (15 g/m2).
100	Life Cycle Reports		3./3	18.0	AAAA P			Arrested based on communications
	Financial transparency		171	L	FAAAAAAAAAAAAAA		RULL	Displaces of cost of Crace Star par and it from project spen.
	High performance site offices		67.1				E h	Unlikely that contractor could achieve his target with existing building on nite.
	Marketing Encodence		071		E A		UN	Percental for additional points to be achieved if Council committe to marketing
	Reconstitution 64 on Fire		601		FA A A		2 3	Council in incorporate ICAP on this project to subtree the point.
B 1 00	Social Extent on Investment		0.1				CA	Net separal se this stage.
	Occupies Engagement		171	1	M A			Net tageted at this stage, flur-eye to be completed pro and peet development.
	Flority Olsen LDC)		1/4	L	The state of the s			Architect to associate area(c) of healthing that are designed for horses delight. Horsey post-company soy's.
0.5	Public Art Elses DOVEs		121	L			CCX	Public set to be inagrated into building. Assumed part of brief.
100	India shall thermal possibilition	ntrod	9573		A.E. A.		A	Fed largeted at this stage.
	Delding Integrand PV		467.1		A P A		CCA	Assessed pre-conspusey analyzed company evaluation to be analystaken for government offices.
	Passive water treatment		0/1		T A A		14	Net septed at this steps.
3.6	Misrobial mass make control		9871		F A A			Net terprised at this stage.
5.6	Ne raspada-on-else		6/1		A P		CA	Not togeted at this stage. Its no now our purks are proposed, potential to be swanded. TESC with CBCA
54	Indigenous durige		121		D A			Authbut to incorporate indigenous considerations in design
	Culture, bearings and identity		6/1		F 4 A	医神经阴管神 独国特	CN	Net suggested at this stage as an healthings of colleges highly Bosons on site
2.0	Groot chanings from Partiers		121	100				Once disenting to water's to be integrated into operations, statumed as good practice.

Total points 87-9 per Grean Star valley, 6-star Vergitals with risk TTP per Pendicted Green Star rating; 6-star

Australia's Best Practice Aquatic Centre

WHOLE OF LIFE CARBON

AIR TIGHT HIGHLY INSULATED BUILDING ENVELOPE

GOOD NATURAL DAYLIGHT

BICYCLE PARKS

INDIGENOUS ENGAGEMENT

LOW IMPACT REFRIGERANTS

CLIMATE CHANGE ADAPTATION PLAN DEVELOPED

LARGE VEGETATED AREA

PARTIAL TIMBER STRUCTURE

WASTE WATER HEAT RECOVERY

GREEN CLEANING WITH E-WATER

EXCELLENT INDOOR AIR QUALITY

PUBLIC ART

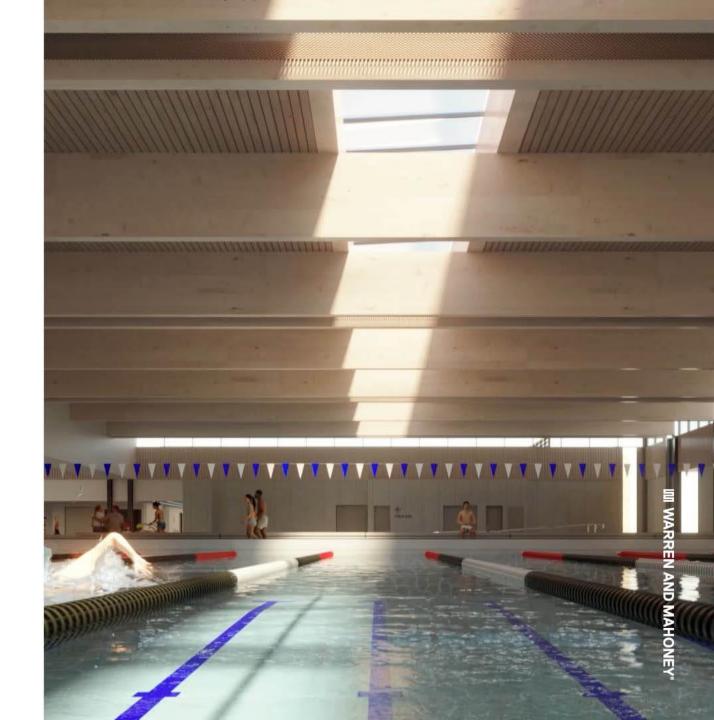
COMMUNITY ENGAGEMENT DISPLAYS

HIGH PERFORMANCE FIXTURES AND FITTINGS

6 STAR GREEN STAR ALL ELECTRIC DEVELOPMENT

ELECTRIC CAR CHARGING

ROOF TOP SOLAR AND 100% GREEN POWER





MELBOURNE

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Our studios span across New Zealand and Australia, yet we operate as one.

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