

AUCKLAND UNITARY PLAN OPERATIVE IN PART

PROPOSED PLAN CHANGE 93 (Private)

Warkworth South

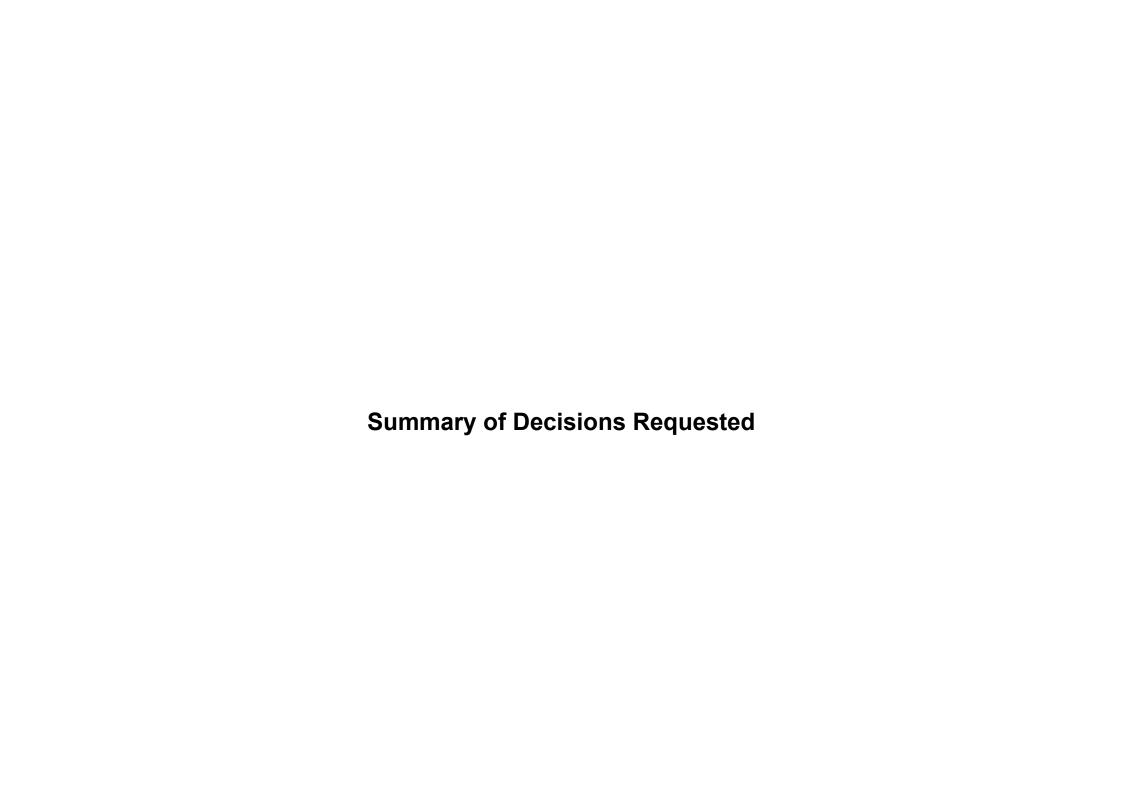
SUMMARY OF DECISIONS REQUESTED

Enclosed:

- Explanation
- Summary of Decisions Requested
- Submissions

Explanation

- You may make a "further submission" to support or oppose any submission already received (see summaries that follow).
- You should use Form 6.
- Your further submission must be received by 9 February 2024.
- Send a copy of your further submission to the original submitter as soon as possible after submitting it to the Council.





	Plan Change 93 (Private) - Warkworth South					
				Summary of Decisions Requested		
Sub	Sub					
#		Submitter Name	Address for Service	Summary of Decisions Requested		
1	1.1	Hugh Briggs	hugh@briggs.kiwi	Approve the plan change with amendments I have requested		
2	2.1	David Owen Morgan	oyster109@yahoo.com	Approve the plan change without any amendments		
2	3.1	Dianne Lillian Morgan	musicmakerdiannem@gmail.com	Approve the plan change without any amendments		
3		Dominique Coote	dominiquecoote@outlook.com	Approve the plan change without any amendments Approve the plan change without any amendments		
4	4.1	Louisa Gowing	jandlgowing@gmail.com	Approve the plan change without any amendments Approve the plan change without any amendments		
0	5.1	•	stanleycoote@outlook.com			
7	6.1	Stanley Coote		Approve the plan change without any amendments		
7	7.1 7.2	Stephen Haycock	steve@haycocks.nz steve@haycocks.nz	Approve the plan change Bring forward the land release date from that which Council approved in the Future Development Strategy		
/	1.2	Stephen Haycock	<u>steve@naycocks.nz</u>	bring forward the fand release date from that which Council approved in the Future Development Strategy		
	0.4	Warkworth Area Liaison Group	humb @brings kind	Annual of the plant sharp as with the annual property of		
0	8.1	(WALG) and One Mahurangi	hugh@briggs.kiwi	Approve the plan change with the amendments I requested		
9	9.1	Paula Christine Anderson	piindibolli@gmail.com	Decline the plan change		
10	10.1	Maria Collins	maria.collins@harbourhospice.org.nz	Decline the plan change		
11	11.1	William Arthur Endean	bill@dawsonslawyers.co.nz	Approve the plan change without any amendments		
12	12.1	Arthur Douglas Brown	dougbrown.nz@gmail.com	That the southern potrtion of the Western Link meets old SH1 in the area of the dwelling at 1829 Old SH1		
13	13.1	Wendy Patricia Court	courtwp@hotmail.com	Decline the plan change		
14	14.1	Mark Calvert	mark.calvert360@gmail.com	Approve the plan change without any amendments		
15	15.1	Warwick William Scown	w1g1b1s1@gmail.com	Approve the plan change without any amendments		
16	16.1	Stevenson Family Trust	admin@stevensonfamilytrust.nz	Approve the plan change without any amendments		
				Waimanawa Precinct - Amend objective (8) to add the word avoid subdivision and development unless it is coordinated with the delivery of		
				infrastructure (including transportation, stormwater, potable water, wastewater and future education infrastructure) and services required to provide for		
17	17.1	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	development within the precinct and future community requirements.		
				Waimanawa Precinct - Retain existing non-complying activity status for activities not complying with Standard Ixxx.6.9 Standards for Wastewater and		
17	17.2	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	Potable Water Connections and/or lxxx.6.10 Standards for Stormwater.		
				Waimanawa Precinct Amend all activity tables to require subdivision and development not complying with 1xxx.6.8 Wider Western Link Road to be a		
17	17.3	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	non-complying activity.		
		-		Waimanawa Precinct - Amend all activity tables to require subdivision and development not complying with Standard Ixxx.6.15 Transportation		
17	17.4	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	Infrastructure to be a non- complying activity.		
		-		Waimanawa Precinct - Amend IXXX.5 Notification to require that any application for resource consent for a number of non-complying activities		
17	17.5	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	identified in the submission must be publicly notified:		
			<u>aman, promoçado mando amongo man</u>	Waimanawa Precinct- Amend Table IXXX.6.15.1 Transport Infrastructure Requirements to reduce the trigger from 20 residential lots to 3 residential		
17	17.6	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	lots.		
17	17.7	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	Waimanawa Precinct - Add an additional indicative north-south connection on Precinct Map 3.		
17	17.7	Auckland Council	unitarypian@auckianucouncii.govt.nz	Waimanawa Precinct - Add an additional indicative north-south connection on Precinct map 3. Waimanawa Precinct - Amend existing provisions to ensure consistency with drafting in other precincts in the AUP, including standard conventions		
17	17.8	Auckland Council	unitaryplan@aucklandcouncil.govt.nz	such as referencing to other parts of the AUP, and correct all numbering references.		
17	17.0	Auckland Council	unitarypian@auckianucouncii.govt.nz	Morrison Heritage Orchard Precinct - Amend Table XXX.X.1 Activity table, XXX.6. Standards and make consequential amendments to address the		
17	17.9	Auckland Council	unitaryplan@aucklandcouncil.govt.nz			
17	17.9	Auchiania Council	<u>шттагурганцуацсктанцсоцпсн.govt.nz</u>	cumulative effects of the activities, either in combination or where more than one of the same activity occurs within the precinct. Morrison Heritage Orchard Precinct - Amend XXX.6. Standards and make consequential amendments by adding provisions that:		
				, , , , ,		
17	17 10	Auckland Council	unitary/plan@queklandaquesil qqyt ==	(i) recognise, maintain and enhance the existing planting, particularly the shelter belt; and		
17			unitaryplan@aucklandcouncil.govt.nz	(ii) identify the streams within the precinct and the planting on either side.		
18	18.1	Mahurangi Trail Society	Hugh@Briggs.kiwi	Approve the plan change		
10	10.4	Karan and Otafar Dishards	atafan siahandaan Calaasi Isaa	Approve the plan change with the amendments I requested related to the certainty around accessand infrastructure provision to the submitters' land		
19	19.1	Karen and Stefan Richardson	stefan richardson@cheerful.com	referred to as Waimanawa Hills B		
				Decline the plan change unless the matters set out in this submission, as outlined in the main body of this submission and in this table, are addressed		
20	20.1	Auckland Transport	katherine.dorofaeff@at.govt.nz	and resolved to Auckland Transport's satisfaction.		
				Take into account the public transport deficiencies and assess the proposal against the NPS-UD and RPS objectives and policies relevant to public		
20	20.2	Auckland Transport	katherine.dorofaeff@at.govt.nz	transport and transport choice.		
				Amend Map 3 - Control: Arterial Roads, so it is clear that its purpose is to identify the Wider Western Link Road as an arterial road in the controls layer		
20	20.3	Auckland Transport	katherine.dorofaeff@at.govt.nz	of the AUP(OP) map viewer. Delete from Map 3 the annotations for State Highway 1 and the indicative WWLR / SH1 intersection.		
				Ensure that a minimum area of 2500m2 is identified for the public transport Interchange. Amend plan change as required to ensure that this is provided		
20	20.4	Auckland Transport	katherine.dorofaeff@at.govt.nz	for.		
				Amend the fourth paragraph of IXXX.1 Precinct description, by deleting the following:		
20	20.5	Auckland Transport	katherine.dorofaeff@at.govt.nz	'the proposed opening of the Puhoi to Warkworth Motorway in 2023 and'		
				Amend paragraph 12 of IXXX.1 Precinct description as follows: 'Construction of the Wider Western Link Road through the precinct to a collector road-		
20	20.6	Auckland Transport	katherine.dorofaeff@at.govt.nz	standard will be integrated with subdivision and development within the Precinct.'		
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Sub Sub # Point Submitter Name Address for Service Summary of Decisions Requested Amend paragraph 14 of IXXX.1 Precinct description as follows: ' provision is made for an off-road greenway network and walkways through the various open spaces and reade and' Amend the plan change by including precinct provisions (Objectives, policies and rules) within the Waimanawa Precinct developments and alterations to existing buildings mitigate potential road traffic noise effects on activities sensitive to not highway 1 arterial and the future Wider Western Link Road arterial. Amend Objective as a follows: '(2) The Warkworth South Precinct is subdivided and developments and development and development providesing for and supporting the se and future national strategic and local reading transport necessary. Amend Objective 8 as follows: 'Subdivision and development to coordinated with the delivery of infrastructure (including protable water, and future education infrastructure) and services required to provide for development with community requirements. 20 20.10 Auckland Transport katherine dorofaeff@at.govt.nz Amend Objective 8 as follows: 'Subdivision and development is coordinated with the delivery of infrastructure (including protable water, and future education infrastructure) and services required to provide for development with community requirements. 20 20.11 Auckland Transport katherine dorofaeff@at.govt.nz Amend Objective as follows: 'Subdivision and development does not occur in advance of the availability of operation Add a new objective as follows: 'Access to furfic generation on the surrounding road network.' Add a new objective as follows: 'Access to furfic generation on the surrounding road network.' Add a new objective as follows: 'Require subdivision and development does not occur in advance of the availability of operation Add a new objective as follows: 'Require subdivision and development to provide stormwater, wastewater, potable water, as fellows: 'Require subdivision and development to						
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Amend Objective 10 as follows: 'To provide for the opportunity for a future public transportation interchange adjacent to safely accessed by a range of buses and other required transportation modes.' Add a new objective as follows: 'Subdivision and development does not occur in advance of the availability of operation and an advance of the availability of operation.' Add a new objective as follows: 'Access to and from and within the precinct for all modes of transport cocurs in a effect that mitigates the adverse effects of traffic generation on the surrounding road network.' Add a new objective as follows: 'The precinct develops and functions in a way that: (a) supports a mode shift to public and active modes of transport follows: 'The precinct develops and functions in a way that: (b) provides safe and effective movement between the focal centre, community facilities, housing, jobs, open spaces and the public transport facilities by active modes.' Amend Policy 12 as follows: 'Require subdivision and development to provide for walking and cycling networks within to safely accessed by a range of buses and other required transport and development to provide for a future public transportation interchange adjacent to safely accessed by a range of buses and other required transportation modes.' Add a new objective as follows: 'Access to and from and within the precinct for all modes of transport for all modes of transport for all modes of transport dad new objective as follows: 'The precinct develops and functions in a way that: (a) supports a mode shift to public and active modes of transport feet of transport for precinct for all modes of transport for all mode	iami are preemet and ratare					
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Amend Policy 13 as follows: 'Require subdivision and development to provide fer walking and cycling networks within t						
future public transport interchange, while also providing connections to the wider transportation network and any future.	the precinct <u>, including to any</u>					
	-public transport interchange					
20 20.16 Auckland Transport <u>katherine.dorofaeff@at.govt.nz</u> <u>existing urban development.'</u>						
Amend Policy 14 as follows: 'Require subdivision and development to upgrade existing and/or provide new roading infra						
accordance with Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements for a range of mod						
20 20.17 Auckland Transport <u>katherine.dorofaeff@at.govt.nz</u> public transport) within the precinct and to provide connections to adjoining land generally in accordance with Precinct Famous Amend Policy 15 as follows: 'Provide for and require the Wider Western Link Road to be constructed to a collector road						
service subdivision and development within the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct, while recognising that it will form part of provision is made for in the precinct part of the provision is made for in the precinct part of the provision is made for in the precinct part of the provision is made for in the precinct part of the provision is made for in the precinct part of the provision is made for in the precinct part of the	Its ruture upgrauing by Auckianu					
Amend Policy 16 as follows: 'Avoid direct vehicle access from individual sites on to the Wider Western Link Road and S	State Highway One, while					
20 20.19 Auckland Transport katherine.dorofaeff@at.govt.nz allowing direct pedestrian and cycle access and for bus and service vehicle access to the future public transport interch	9 ,					
20 20.20 Auckland Transport katherine.dorofaeff@at.govt.nz Retain Policy 19	idingo.					
Include a new policy as follows: 'Provide for the development and operation of a public transport interchange in the indices	icative location identified on					
20 20.21 Auckland Transport katherine.dorofaeff@at.govt.nz Precinct Plan 3.'	cative location identified on					
20 20.22 Auckland Transport katherine.dorofaeff@at.govt.nz Amend the activity tables to reduce complexity and repetition so that they are easy for the user to understand.						
Amend the activity tables to include a restricted discretionary (RD) status for 'Subdivision and / or development that does	es not comply with Table					
IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements'. Consequential to this, amend Ixxx.7 Asset						
discretionary activities, to include appropriate Matters of Discretion and Assessment Criteria to assess proposals that d						
20 20.23 Auckland Transport katherine.dorofaeff@at.govt.nz IXXX.6.15.2.	, ,					
Amend (A17) in Table IXXX.4.1 All zones, to include the following standard in the 'Standards to be complied with' column	nn: <u>'Ixxxx6.15 Transportatio</u> n					
20 20.24 Auckland Transport <u>katherine.dorofaeff@at.govt.nz</u> <u>Infrastructure'</u> Make similar amendments to other entries in Table IXXX.4.1 where required.						
Amend (A3) in Table IXXX.4.2 Residential - Large Lot Zone, to apply a NC activity status to 'Development not complying	ng with Standard lxxx6.15					
20 20.25 Auckland Transport <u>katherine.dorofaeff@at.govt.nz</u> Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elem						
Amend (A4) in Table IXXX.4.2 Residential - Large Lot Zone, to apply a NC activity status to 'Subdivision not complying'						
20 20.26 Auckland Transport <u>katherine.dorofaeff@at.govt.nz</u> than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements)'	with Standard Ixxx6.15 (other					
Amend Table IXXX.4.3 Residential - Single House Zone to include the following as a non-complying activity (NC). 'Deve	·					
20 20.27 Auckland Transport <u>katherine.dorofaeff@at.govt.nz</u> <u>Standard Ixxx.6.7 Limited Access Restrictions and Pedestrian Connections'</u>	·					



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				Summary of Decisions Requested	
	Sub Point	Submitter Name	Address for Service	Summary of Decisions Requested	
20	20.28	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend (A6) Table IXXX.4.4 to apply a discretionary (D) or restricted discretionary (RD) status (with appropriate assessment matters, including transport effects) to restaurants and cafes within the existing former Ransom Vineyard Building. In the alternative, provide supporting information about transport effects sufficient to satisfy Auckland Transport that no additional assessment is required via a resource consent process. Amend (A7) Table IXXX.4.4 to apply a discretionary (D) or restricted discretionary (RD) status (with appropriate assessment matters, including	
20	20.29	Auckland Transport	katherine.dorofaeff@at.govt.nz	transport effects) to education facilities within the existing former Ransom Vineyard Building. In the alternative, provide supporting information about transport effects sufficient to satisfy Auckland Transport that no additional assessment is required via a resource consent process.	
20	20.30	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend (A8) in Table IXXX.4.4 Residential - Mixed Housing Urban Zone, to apply a non-complying (NC) status to 'Development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements).' Amend (A11) in Table IXXX.4.4 Residential - Mixed Housing Urban Zone, to apply a non-complying (NC) status to 'Subdivision not complying with	
20	20.31	Auckland Transport	katherine.dorofaeff@at.govt.nz	Standard Ixxx6.15 (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements).' Amend (A6) in Table IXXX.4.5 Residential - Terrace Housing and Apartment Buildings, to apply a non-complying (NC) status to 'Development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design	
20	20.32	Auckland Transport	katherine.dorofaeff@at.govt.nz	Elements).' Amend (A9) in Table IXXX.4.5 Residential - Terrace Housing and Apartment Buildings, to apply a non-complying (NC) status to 'Subdivision not	
20	20.33	Auckland Transport	katherine.dorofaeff@at.govt.nz	complying with Standard Ixxx6.15 (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements).' Amend (A1) in Table IXXX.4. 6 Business – Local Centre, to describe the activity as 'Operation and maintenance of a public transport interchange', and	
20	20.34	Auckland Transport	katherine.dorofaeff@at.govt.nz	to delete the list of standards to be complied with as none are relevant to operation and maintenance but relate to the construction phase which is covered elsewhere in the table. Retain permitted (P) status for 'Operation of a public transport interchange'.	
20	20.35	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend (A6) in Table IXXX.4. 6 Business – Local Centre, to delete Ixxx.6.7 Limited Access Restrictions, from the list of standards to be complied with. Retain controlled (C) status for 'Development of a public transport interchange and associated facilities'.	
20		Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend (A7) in Table IXXX.4. 6 Business – Local Centre, to applying a non-complying (NC) activity status for 'Development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements)'. Amend (A11) in Table IXXX.4. 6 Business – Local Centre, to applying a non-complying (NC) activity status for 'Subdivision not complying with Standard	
20	20.37	Auckland Transport	katherine.dorofaeff@at.govt.nz	Ixxx6.15 (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements)'.	
20	20.38	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend IXXX.6 Standards (3) as follows: 'Permitted All activities listed in Activity Tables Ixxx.4.1 to Ixxx.4.7 must comply with Standard Ixxx.6.' Amend Ixxx.6.7 Limited Access Restrictions, Pedestrian Connections and Cycle Facilities to clarify whether the standard requires any pedestrian and	
20	20.39	Auckland Transport	katherine.dorofaeff@at.govt.nz	cycle facilities to be provided, or whether it only includes vehicle access restrictions. Amend the title and Ixxx.6.7(3) accordingly.	
20	20.40	Augkland Transport	ketherine derefoeff@et govt nz	Amend the title and purpose statement of Ixxx.6.7 as follows: 'Limited Vehicle Access Restrictions, Pedestrian Connections and Cycle Facilities Purpose: • to avoid direct vehicle access from individual sites onto State Highway One, and the Wider Western Link Road, Green Avenue, and collector roads; and • to have promote safe and efficient operation of transport infrastructure; and • to achieve safe, accessible and high-quality pedestrian and cycle connections within the Precinct and including to the Local Centre and any future public transportation interchange that provides	
20	20.40	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend Ixxx.6.7 Limited Access Restrictions, Pedestrian Connections and Cycle Facilities, (1) to (4) as follows: '(1) Any new road intersections with State Highway One or the Wider Western Link Road servicing the precinct, shall be generally located as identified as "Access Points" on IXXX.10.3 Waimanawa: Precinct Plan 3. (2) Sites that front onto the Wider Western Link Road, Green Avenue and State Highway One must not have direct vehicle access to the road except where required for the public transport interchange, and Sites, other than the public transport interchange, must be provided with access from a rear-driveway, rear lanes (access lots) or side roads at the time of subdivision. (3) At the time of adjacent land subdivision and / or development, pedestrian connections, generally as shown in Precinct Plan 3, shall be provided. (4) Residential sites that front a collector road other than the 'Green Avenue' as shown on Precinct Plan 3, must not have direct vehicle access to the	
20		Auckland Transport Auckland Transport	katherine.dorofaeff@at.govt.nz katherine.dorofaeff@at.govt.nz	road and must be provided with access from a rear driveway, rear lanes (access lots) or side roads at the time of subdivision.' Delete 1xxx.6.8 Wider Western Link Road in its entirety. Retain the non-complying activity status for subdivision and development which does not construct the Wider Western Link Road by applying an non-complying activity status to a 'Subdivision and development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements), as sought elsewhere in this submission.	



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#	Point	Submitter Name	Address for Service	Summary of Decisions Requested		
				Amend Ixxx.6.12 Riparian Yards for Streams and Natural Wetlands, by deleting the third bullet point under the purpose statement as follows: 'To-integrate the section of watercourse along the Wider Western Link Road within a wide road berm or as a separate open space integrated with the road-		
20	20.43	Auckland Transport	katherine.dorofaeff@at.govt.nz	berm.'-		
20	20.40	Additional Transport	<u>Ratherme.dororaen@at.govt.nz</u>	Amend Ixxx.6.14 Greenways - Walking and Cycling Infrastructure, as follows: 'Purpose: To provide for off-road walkways and cycleways which Council		
				wants vested in Council to form part of the public greenway network. (1) Walkways and cycleways that are to be vested in the Council (other than		
				those vested as road) shall be provided within the greenways shown on Precinct Plan 1 and: (a) Shall be constructed either to a walking track standard		
				similar to that constructed in Regional Parks if not part of a vested formed road, or in the case where the greenway is part of a vested formed road,		
20	20.44	Auckland Transport	katherine.dorofaeff@at.govt.nz	constructed to normal footpath standards as appropriate;		
				Amend the title and purpose statement of Ixxx.6.15 as follows: 'Transportation Infrastructure		
				Purpose:		
				To achieve the integration of land use and transport ation infrastructure (including walking		
				and cycling).		
				• To ensure transportation infrastructure is		
				appropriately provided for.		
				• To provide a pedestrian and cycle connection to		
20	20.45	Auckland Transport	katherine.dorofaeff@at.govt.nz	the McKinney Road/ northwards along State Highway One Intersection to the existing urban area.'		
				Amend Ixxx.6.15 Transportation Infrastructure, (1) and (2) as follows: '(1) Subdivision and development within the Precinct must not exceed the triggers		
				in Table IXXX.6.15.1 until the identified transport infrastructure upgrades are constructed and operational, The development of any part of the Precinct shall provide the relevant transport infrastructure, including walking and cycling, as indicated in Ixxx10.1 and applying to the development site, in the		
				general location shown on Precinct Plans 1 and 3.		
20	20.46	Auckland Transport	katherine.dorofaeff@at.govt.nz	(2) Subdivision and development (including construction of any new road) must comply with the standards in Table I4XX.6.4.2.1'		
				Amend (T1) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to set a clear and appropriate trigger for upgrading of the Valerie Close /		
20	20.47	Auckland Transport	katherine.dorofaeff@at.govt.nz	State Highway 1 intersection.		
				Assert (TO) in Table IVVV C 45 4 Transportation Information Demoisson and Assert Assert and a self-linear		
20	20.48	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend (T2) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to describe the upgrade as follows: 'Upgrading of State Highway One though where it has frontage to the WW South Precinct to an urban arterial standard with active mode facilities'		
20	20.40	Auditalia Halisport	<u>katrierine.dororaen@at.govt.nz</u>	Amend (T2) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, by deleting the existing trigger for the State Highway 1 upgrade and		
				replacing it with the following:		
				'Any subdivision and/or development:		
				• within the Business - Local Centre zone;		
				• for a retirement village; or		
20	20.49	Auckland Transport	katherine.dorofaeff@at.govt.nz	• resulting in a cumulative total of 20 residential lots or dwellings within the Precinct.'		
20	20.49	Auckianu Transport	<u>Katherine.dororaen@at.govt.nz</u>	of dwellings within the Frechict.		
				Amend the provisions relating to active mode connections along State Highway 1 to:		
				• require pedestrian and cycle facilities to be provided in their ultimate form and location as part of the upgrade of State Highway 1 where it has frontage		
				to the precinct		
				• clarify which pedestrian and cycle facilities are to be provided in an interim or temporary form		
				• require pedestrian and cycle facilities to be provided along State Highway 1 from the precinct to the northern end of Wech Drive. This is likely to require amendments to Table IXXX.6.15.1(T1), (T3) and (T4), Table IXXX.6.15.2 Note 2, and possibly Precinct Plan 3 Transportation.		
				Require the applicant to provide additional detail to demonstrate that safe pedestrian and cycle facilities can be provided along SH1 from the precinct to		
20	20.50	Auckland Transport	katherine.dorofaeff@at.govt.nz	the northern end of Wech Drive.		
		-		Amend (T5) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, by deleting the existing trigger for the Wider Western Link Road / State		
				Highway 1 intersection and replacing it with the following:		
				'Any subdivision and/or development:		
				• within the Business - Local Centre zone;		
				 for a retirement village; or resulting in a cumulative total of 20 residential lots 		
20	20.51	Auckland Transport	katherine.dorofaeff@at.govt.nz	or dwellings within the Precinct.'		
20	20.01	Adollaria Fransport	Natifetifie.dorolaeti(@at.govt.fi2	Amend (T8) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to describe the transport infrastructure as follows:		
				'Construction of Collector Roads (including Green Avenue)'		
20	20.52	Auckland Transport	katherine.dorofaeff@at.govt.nz	Consequential deletion of (T7)		



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20		Auckland Transport Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend (T9) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to better describe the transport infrastructure upgrade as follows; 'Upgrading of Mason Heights including filling in any gaps in the existing footpath network to provide a continuous connection between the precinct and the intersection of Mason Heights with Woodcocks Road' Amend (T9) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to better describe the trigger as follows: 'Any subdivision or development with access to frontage to that section of Mason Heights or in the event that Mason Heights is extended or a new road is connected to it within the Waimanawa Precinct.
20	20.54	Auckland Transport	<u>Katrierine.dororaen@at.govt.nz</u>	Amend the note under Table IXXX.6.15.1 Transportation Infrastructure Requirements, as follows:
20		Auckland Transport	katherine.dorofaeff@at.govt.nz	'Note: Development relevant to any of the Standards T6, <u>and T8</u> and <u>T9</u> only apply to the section of the road adjacent to the development or subdivision area.' Amend the title of Table IXXX.6.15.2 as follows:
20	20.56	Auckland Transport	katherine.dorofaeff@at.govt.nz	'Minimum Road width, Function and Required Design Elements'
20	20.57	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend Table IXXX.6.15.2, including Note 6, to be consistent with the rules in Standard Ixxx.6.7(2) and (4) which applies a vehicle access restriction to Green Avenue and other collector roads.
20	20.58	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend Table IXXX.6.15.2, Note 3 to require better provision for active modes along State Highway 1 as described elsewhere in this submission. Amend Table IXXX.6.15.2, Note 4 as follows:
20	20.59	Auckland Transport	katherine.dorofaeff@at.govt.nz	Carriageway and intersection geometry capable of accommodating buses. Bus stop form and locations and bus route shall be determined with Auckland Transport at resource consent and engineering plan approval stage. Amend Table IXXX.6.15.2, Note 5 as follows:
20	20.60	Auckland Transport	katherine.dorofaeff@at.govt.nz	Cycle lane will only be provided Bi-directional cycle facility may be appropriate on the northern side of wWider wWiestern ILink Road in the section-where road boundary abutting existing stream riparian yard adjoining the Morrison Orchard Precinct.
20		Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend Ixxx.7.2(1)(b) as follows: 'For public transport interchanges, whether safe and efficient vehicle, pedestrian and cyclist access (as relevant) into and within the public transport interchange is achieved.'
20	20.62	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend Ixxx.8.1 Matters of discretion, (1) as follows: 'Subdivision and new buildings prior to subdivision' Amend Ixxx.8.1 Matters of discretion, (1)(b) as follows:
				'Transport including: (a) access, walking and cycling infrastructure, (b) traffic generation, (c) access to public transport and parking (d) location and design of the Wider Western Link Road, collector roads, key local roads and connections with neighbouring sites to achieve and integrated street network and appropriately provide for all modes (e) provision of cycling and pedestrian networks and connections (f) provision of public transport facilities (bus stops and shelters)
20	20.63	Auckland Transport	katherine.dorofaeff@at.govt.nz	(g) design and sequencing of upgrades to the transport network.
20	20.64	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1), as follows: 'Subdivision and for new buildings prior to subdivision' Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1)(a)(ii) as follows:
20	20.65	Auckland Transport	katherine.dorofaeff@at.govt.nz	'Subdivision and development layout is consistent with Precinct Plans 1 to 4' Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1)(c) as follows: 'Transport
20	20.66	Auckland Transport	katherine.dorofaeff@at.govt.nz	The extent to which Whether:'
20	20.67	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1)(d) Stormwater management, by adding the following: '(ii) The design and efficacy of infrastructure and devices with consideration given to the likely effectiveness, ease of access, operation, ongoing viability and maintenance, and integration with the surrounding environment including the road corridor where relevant' Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (2)(i) as follows: 'The design of the Local Centre shall achieve a connected and functional design that reflects a high quality of architectural design, landscape
20	20.68	Auckland Transport	katherine.dorofaeff@at.govt.nz	architecture and best practise urban design principles, including the extent to which a suitable pedestrian and cyclist connection is provided between the Local Centre and any public transport interchange facilities, the land to the west, south and to the pedestrian and cycle crossing at the Wider Western Link Road and State Highway One Intersection.'



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20	20.69	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend the special information requirements under lxxx.9.1 Transport and safety, by adding the following as clause (2): 'Transport Design Report Any proposed new key road intersection or upgrading of existing key road intersections illustrated on the Precinct Plan or otherwise identified in the precinct provisions must be supported by a Transport Design Report and Concept Plans (including forecast transport modelling and land use assumptions), prepared by a suitably qualified transport engineer confirming the location and design of any road and its intersection(s) supports the safe and efficient function of the existing and future (ultimate) transport network and can be accommodated within the proposed or available road reserves. This may be included within a transport assessment supporting land use or subdivision consents. In addition, where an interim upgrade is proposed, information must be provided, detailing how the design allows for the ultimate upgrade to be efficiently delivered. For the avoidance of doubt, the key road intersections for the purposes of this requirement are identified on Precinct Plan 3 as 'Indicative Access Points onto WWLR' and 'Indicative WWLR / SH1 Intersection'. In addition the Valerie Close / SH1 intersection is a key road intersection.'
		·		Amend Ixxx.9.4 Waimanawa Precinct Plan 1 Spatial provisions by removing the following information (which already appears on Precinct Plan 3): • Indicative WWLR / SH1 Intersection • Indicative Future Public Transport Hub
20	20.70	Auckland Transport	katherine.dorofaeff@at.govt.nz	Indicative Dedicated On-Road Cycle Path. Amend the key for Ixxx.9.4 Waimanawa Precinct Plan 3 Transportation, as follows:
20	20.71	Auckland Transport	katherine.dorofaeff@at.govt.nz	'Indicative Future Public Transport Hub Interchange (approximately 2100m2)' Amend Ixxx.9.4 Waimanawa Precinct Plan 3 Transportation, to show the cycle facilities proposed on State Highway 1.
20	20.72	Auckland Transport	katherine.dorofaeff@at.govt.nz	Or in the alternative, delete all of the 'Indicative Dedicated On-Road Cycle Path' from Precinct Plan 3 as these can be covered by the requirements in Table IXXX.6.15.1 and Table IXXX.6.15.2.
20	20.73	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend the Morrison Heritage Orchard precinct provisions, including objectives, policies and rules, to more rigorously address transport effects and promote good transport land use integration. Amend the plan change by including precinct provisions (objectives, policies and rules) within the Morrison Heritage Orchard Precinct to require that
20	20.74	Auckland Transport	katherine.dorofaeff@at.govt.nz	future developments and alterations to existing buildings mitigate potential road traffic noise effects on activities sensitive to noise from the existing State Highway 1 arterial and the future Wider Western Link Road arterial. Amend Table XXX.X.1 Activity table, to include the following as a non-complying (NC) activity:
20	20.75	Auckland Transport	katherine.dorofaeff@at.govt.nz	'Subdivision and development with vehicle access to the Wider Western Link Road'
20	20.76	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend the precinct provisions applying to weddings and functions to ensure that transport effects can be appropriately assessed and addressed. This is likely to require (but is not limited to) amendments to Table XXX.X.1 Activity table, and the standards in XXX.6.9 Weddings and functions.
20	20.77	Auckland Transport	katherine.dorofaeff@at.govt.nz	Delete or amend XXX.5 Notification (1) to enable public or limited notification of applications which have a potential adverse effect on the transport network. Amend XXX.6.1 General access and traffic generation standard, (1), as follows:
20	20.78	Auckland Transport	katherine.dorofaeff@at.govt.nz	'All activities shall obtain Vehicle access is limited to State Highway One-in accordance with at the Approved Entry Point (AEP) shown on the Precinct Plan.' Amend or replace XXX.6.1 General access and traffic generation standard (2), with robust, and enforceable standards which can be easily measured
20	20.79	Auckland Transport	katherine.dorofaeff@at.govt.nz	by the Council and applicants and which appropriately address transport effects and transport land use integration and provide for the access to the precinct to be upgraded if required.
20	20.80	Auckland Transport	katherine.dorofaeff@at.govt.nz	Amend XXX.6.1 General access and traffic generation standard, by adding a new clause as follows: 'Subdivision and development that has frontage to the Wider Western Link Road must not be provided with vehicle access to that road.'
				Amend Xxxx8.1 Transportation and Safety by replacing the reference to E27.9 with a special information requirement for a transport assessment which is more specific to the precinct, and includes consideration of the access point on State Highway One. Amend Xxxx8.1 Transportation and Safety as follows: The special information requirements under E27.9 apply. The Council may require applications which affect the transport network to include a transport assessment prepared by a suitably qualified transport planner or traffic engineer. Any upgrading of existing State Highway One access illustrated on the Precinct Plan as the Approved Entrance Point must be supported by a Transport Design Report and Concept Plans (including forecast transport modelling and land use assumptions), prepared by a suitably qualified transport engineer confirming the location and design of any access supports the safe and efficient function of the existing and future (ultimate) transport network and can be accommodated within the proposed or available road reserves. This may be included within a transport assessment supporting land use or subdivision consents. In addition, where an interim upgrade is proposed, information must be provided, detailing how the design allows for the ultimate upgrade to be
20 21		Auckland Transport Ash Hames and Fiona Rayner	katherine.dorofaeff@at.govt.nz burnette@thepc.co.nz	efficiently delivered. Retain Residential Large Lot zoning on submitters land



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21	21.2	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	Retain Landscape Protection Area and Special yard on submitters' land but that the yard standard should be amended for clarity		
				Amend Policy 16 as follows; (16) <u>Subdivision</u> , use and land development shall avoid direct vehicle access from <u>newly created</u> individual sites on to the		
	04.0			Wider Western Link Road and State Highway One [rename to reflect the AT road name eg Great North Road], while allowing direct pedestrian and		
	21.3	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	cycle access.		
21	21.4	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	The references to State Highway 1 be updated when the road is reverted to Auckland Transport so there is no confusion with Ara Tūhono.		
				Rule Ixxx.6.7 – Limited Access Restrictions, Pedestrian Connections and Cycle Facilities (2) needs to be amended so it is clear that the rule applies		
				only to new sites being created as a result of subdivision and land development within the PPC93 area and associated Precinct. In the Residential -		
21	21.5	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	Large Lot zone this rule only appears to apply to Supported Residential Care accommodating greater than 10 people per site		
		- territarine erra i terra i tagrier	<u>Surrotte(s) are police in E</u>	Rule (A3) in Table IXXX.4.2 relating to the Residential – Large Lot zone should apply only to the Residential - Mixed Housing Urban and Residential -		
21	21.6	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	Terrace Housing and Apartment Buildings zoned land within PPC93.		
				Proposed Precinct Rule Ixxx.6.11 proposes a minimum site size of 1,000m2 in the Eastern Escarpment Area. The Submitter's land is within the		
				Eastern Escarpment Protection Area as shown on Precinct Plan 1 but is also proposed to be zoned Residential – Large Lot which has a minimum site		
21	21.7	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	size of 4,000m2. The rule requires clarification.		
0.4	04.0	Ash Hamas and Figure Dayman	1	Retain the Restricted Discretionary activity status specified for Rule (A10) in Activity Table IXXX.4.1 All zones that alters the activity status for		
	21.8	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	subdivision of parent sites with an area of greater than 1- hectare.		
21	21.9	Ash Hames and Fiona Rayner	burnette@thepc.co.nz	Rule (A6) in Activity Table IXXX.4.1 is opposed . Restricted Discretionary activity status is appropriate for infringements to the Standards.		
		B B				
		Barry Blennerhassett and Lorraine				
22	22.1	Margaret Blennerhassett (Blennerhassett family)	burnette@thepc.co.nz	That the Plan Change 93 be refused or preferably approved with changes to address matters raised in the submission		
	23.1	David Lawrence Morrison	dmorrison@davcoelectrical.co.nz	Approve the plan change without any amendments		
	20.1	KA Waimanawa Limited	amornoon(a da voccicoti ioai.oc.nz	7 Apriovo uno pian onango wunout any amonamona		
		Partnership and Stepping				
		Towards Far Limited (The				
24	24.1	Submitters)	ian.smallburn@tattico.co.nz	That PC93 is approved with any amendments necessary to clarify provisions, including those as set out in Attachment A of this submission.		
		KA Waimanawa Limited				
		Partnership and Stepping				
24	24.2	Towards Far Limited (The	ion and the marketing of the	Any further or alternative relief or any consequential amendments that may be required to address the matters raised in this submission or any other		
24	24.2	Submitters) KA Waimanawa Limited	ian.smallburn@tattico.co.nz	related matters.		
		Partnership and Stepping				
		Towards Far Limited (The				
24	24.3	Submitters)	ian.smallburn@tattico.co.nz	Update all references to 'State Highway One' in the Precinct Plan to 'Old State Highway One'.		
		KA Waimanawa Limited				
		Partnership and Stepping				
		Towards Far Limited (The				
24	24.4	Submitters)	ian.smallburn@tattico.co.nz	Update right hand column on all Tables from 'Standards to be complied with' to 'Precinct Standards to be complied with'		
		KA Waimanawa Limited Partnership and Stepping				
		Towards Far Limited (The				
24	24.5	Submitters)	ian.smallburn@tattico.co.nz	Delete (A2) – 'New buildings and additions to buildings which meet Standard Ixxx.6.13 High Contaminant Yield Material' from Table IXXX4.1		
		KA Waimanawa Limited		(,		
		Partnership and Stepping				
		Towards Far Limited (The		Reword and update (A4) to 'New reclamation and drainage of a Retained Stream on Precinct Plan 2, including filling within the stream and piping of a		
24	24.6	Submitters)	ian.smallburn@tattico.co.nz	stream, but excluding drainage works underneath a stream or bridging over a stream' in Table IXXX4.1		
		KA Waimanawa Limited				
		Partnership and Stepping				
24	24.7	Towards Far Limited (The	ion on allbum Otation - and	Reword and update IXXX6(2)(a) bullet points 2 and 3 by removing 'special subdivision control area' and adding 'Landscape Protection Area – Eastern		
24	24.7	Submitters) KA Waimanawa Limited	ian.smallburn@tattico.co.nz	Escarpment'.		
		Partnership and Stepping				
		Towards Far Limited (The		Update IXXX6(2)(a) bullet point 1 by removing reference to A1 and adding reference to (A2) – 'New buildings' and (A3) – 'Additions and alterations to		
24	24.8	Submitters)	ian.smallburn@tattico.co.nz	buildings not otherwise provided for'.		
<u> </u>		/		,		



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		KA Waimanawa Limited		Update standard Ixxx6.12(1) and Ixxx6.12(2) by removing the reference to 'land development' within the opening sentence and replacing it with 'site
		Partnership and Stepping		development'.
.	0.4.0	Towards Far Limited (The		Update standard lxxx6.12(1) and lxxx6.12(2) by removing the reference to 'or along the riparian yard' within the final sentence and replacing it with 'or
24	24.9	Submitters)	ian.smallburn@tattico.co.nz	within the riparian yard'.
		KA Waimanawa Limited		
		Partnership and Stepping		Undete standard love C 14/2) with the fellowing wording Whore the Council does not went on it would be accent vecting of the wellows very and
24	24.40	Towards Far Limited (The Submitters)	ion on allbum Otattica on m	Update standard Ixxx.6.14(2) with the following wording 'Where the Council does not want or is unable to accept vesting of the walkway/cycleway and associated riparian yard and stream bank, then there is no requirement to provide the walkway/cycleway'.
24	24.10	KA Waimanawa Limited	ian.smallburn@tattico.co.nz	Update the Trigger within the third column of Table IXXX.6.15.1 relating to (T2) with the following wording:
		Partnership and Stepping		'As part of the first subdivision for any land: (a) within the Business – Local Centre
		Towards Far Limited (The		zone: or
24	24.11	Submitters)	ian.smallburn@tattico.co.nz	(b) for a retirement village; or (c) for a residential development creating more than 20 residential lots.'
	27.11	oublinitio(3)	ian.smailburn@tattico.co.nz	Update the Transport Infrastructure Upgrade within the second column of Table IXXX.6.15.1 relating to (T2) with the following wording:
				'Upgrading of old State Highway One though the WW South Precinct to the extent shown on Precinct Plan 3.'
		KA Waimanawa Limited		Update the Transport Infrastructure Upgrade within the second column of Table IXXX.6.15.1 relating to (T3) with the following wording:
		Partnership and Stepping		'Construction of the temporary pedestrian/cycle path on old State Highway One from the Wider Western Link Road/old State Highway One Intersection
		Towards Far Limited (The		to McKinney Road.'
24	24.12	Submitters)	ian.smallburn@tattico.co.nz	Delete row (T4).
		KA Waimanawa Limited		Update the Trigger within the third column of Table IXXX.6.15.1 relating to (T2) with the following wording:
		Partnership and Stepping		'As part of the first subdivision for any land: (a) within the Business – Local Centre
		Towards Far Limited (The		zone: or
24	24.13	Submitters)	ian.smallburn@tattico.co.nz	(b) for a retirement village; or (c) for a residential development creating more than 20 residential lots.'
		KA Waimanawa Limited		
		Partnership and Stepping		Update the Trigger within the third column of Table IXXX.6.15.1 relating to (T7) with the following wording:
		Towards Far Limited (The		As part of the first subdivision for residential development within Waimanawa Valley, as shown on Precinct Plan 3, which has vehicle access to Valerie
24	24.14	Submitters)	ian.smallburn@tattico.co.nz	Close.'
		KA Waimanawa Limited		
		Partnership and Stepping		Update Note 3 to Table IXXX.6.15.2 with the following wording:
24	24.45	Towards Far Limited (The	ion on allbum Otattica on m	'Note 3: The shared walking and cycle path provision on old State Highway One will be a temporary cycling and walking facility from the Wider Western Link Boad and State Highway One intersection is the McKinney Boad and State Highway One intersection.'
24	24.15	Submitters) KA Waimanawa Limited	ian.smallburn@tattico.co.nz	Link Road/old State Highway One intersection to the McKinney Road/old State Highway One intersection.'
		Partnership and Stepping		Update Ixxx.8.1 Matters of discretion to incorporate or cross reference the matters of discretion from the Local Centre zone being H11.8.1(4).
		Towards Far Limited (The		One additional amendment to the Matters of discretion in H11.8.1(4) is proposed which relates to H11.8.1(4)(a)(i) with the following wording:
24	24.16	Submitters)	ian.smallburn@tattico.co.nz	'the contribution that such buildings make to the attractiveness pleasantness and enclosure of the public space (including the watercourse);'
-'-	0	KA Waimanawa Limited	IST. IST. IST. IST. IST. IST. IST. IST.	and the manufactured of the distribution productions and one of the public space (moraling the materiodalise),
		Partnership and Stepping		
		Towards Far Limited (The		
24	24.17	Submitters)	ian.smallburn@tattico.co.nz	Updates and amendments to PC93 to align with the progression and outcomes of PC78.
		Mikel Jon Thorogood (Mike		That Plan Change 93 – Warkworth South plan change be approved with changes to provisions to address the matters raised in this submission
25	25.1	Thorogood)	burnette@thepc.co.nz	(including infrastructure, roading matters in respect of McKinney Road intersection, integrated development and a well functioning urban environment).
		Mikel Jon Thorogood (Mike		
25	25.2	Thorogood)	burnette@thepc.co.nz	If the matters addressed in the submission cannot be addressed PPC93 should be refused.
				That Plan Change 93 – Warkworth South plan change be refused or preferably approved with changes to provisions to address the matters raised in
26	26.1	Guy Matches	burnette@thepc.co.nz	this submission.
		John and Sue Wynyard (Wynyard		
27	27.1	family)	burnette@thepc.co.nz	That Plan Change 93 – Warkworth South plan change be approved with changes to provisions to address the matters raised in this submission.
		John and Sue Wynyard (Wynyard		The Submitter seeks identification of the Wider Western Link Road bridge location. The location put forward in NOR 8 – Wider Western Link Road is
	27.2	family)	burnette@thepc.co.nz	supported, and it is sought this location be secured and identified on Precinct Plan 1 – Spatial Provisions.
28	28.1	Department of Conservation	cschipper@doc.govt.nz	Undertake further surveying in the PPC site to fully understand the population size and location of long-tailed bats.
				Insert the requirement for the PPC to ensure developers abide the Department of Conservation Protocols for minimising the risk of felling occupied bat
28	28.2	Department of Conservation	cschipper@doc.govt.nz	roosts.



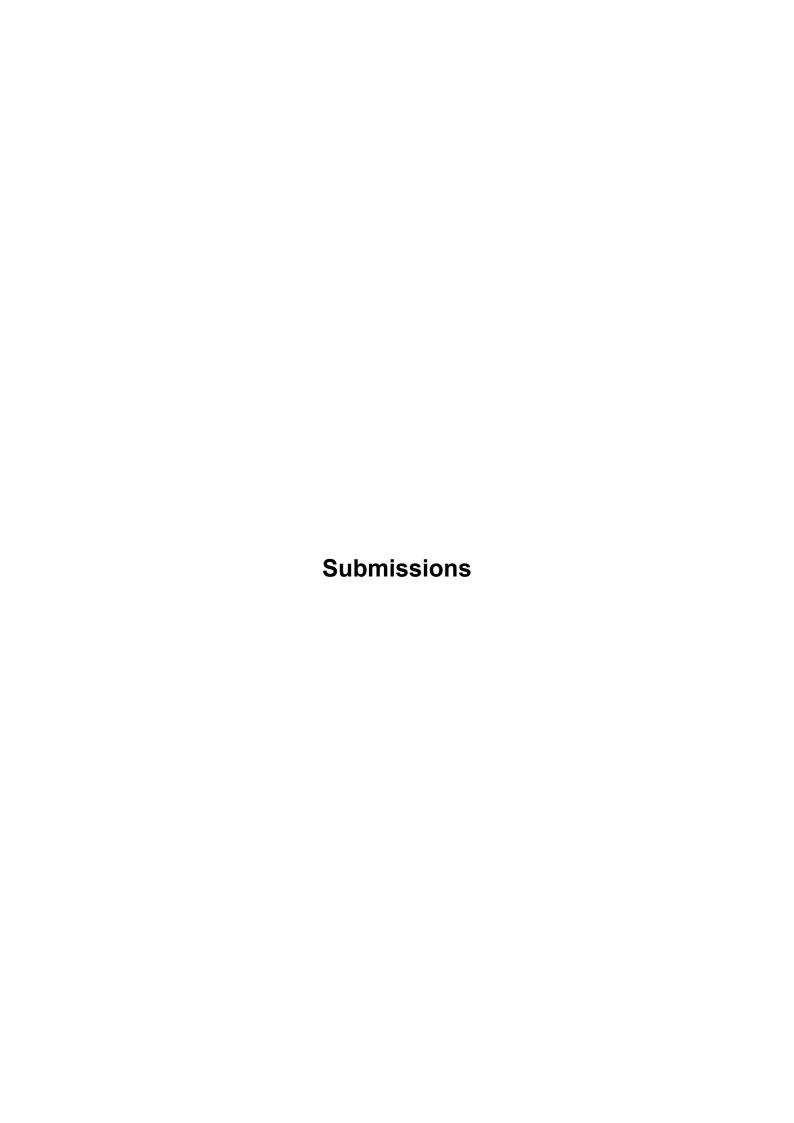
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				Amend the plan to adequately cover the following issues: • Zone the Bat Flight Corridor as Open Space – Conservation. • Increase the minimum corridor width to one hundred metres. • Require the lighting provisions alongside the bat flight corridor to abide by the Australian Government "National Light Pollution Guidelines for Wildlife". • Require that development in, and adjacent to, the bat flight corridor utilises the Department of Conservation's Protocols for minimising the risk of felling occupied bat roosts (2021).		
28	28.3	Department of Conservation	cschipper@doc.govt.nz	Require a prohibition in keeping domestic cats within one kilometre of the bat flight corridor. Amend the plan to adequately cover the following issues:		
28	28.4	Department of Conservation	cschipper@doc.govt.nz	Require a prohibition in keeping domestic cats within one kilometre of the Avice Miller Scenic Reserve.		
29	29.1	Ministry of Education	vicky.hu@beca.com_AND moe.submissions@beca.com vicky.hu@beca.com_AND	Amend Objective 10 as follows: (10) Subdivision and development is coordinated with the delivery of infrastructure (including transportation, stormwater, potable water, wastewater and future education infrastructure educational facilities) and services required to provide for development within the precinct and future community requirements. Amend Policy 12 as follows; (12) Require subdivision and development to provide stormwater, wastewater, potable water, electricity, communication		
29	29.2	Ministry of Education	moe.submissions@beca.com	services and educational infrastructure educational facilities in a coordinated manner.		
30	30.1	GW Boyes Waka Kotahi NZ Transport	gcwboyes@xtra.co.nz	Decline the plan change		
31	31.1	Agency	Evan.Keating@nzta.govt.nz	Provide an assessment of the proposal relative to the Future Development Strategy		
31	31.2	Waka Kotahi NZ Transport Agency	Evan.Keating@nzta.govt.nz	Provide an assessment of the proposal relative to the Emissions Reduction Plan		
31	31.3	Waka Kotahi NZ Transport Agency	Evan.Keating@nzta.govt.nz	Update the ITA and planning provisions to include all required upgrades, including walking and cycling connections to existing paths in the urban area and clarify the extent of intersection upgrades required, including at Valerie Close.		
31	31.4	Waka Kotahi NZ Transport Agency	Evan.Keating@nzta.govt.nz	Provide an assessment of the number and location of pedestrian crossings of SH1 required to service this development and update the precinct provisions to reflect the outcomes of this assessment.		
31	31.5	Waka Kotahi NZ Transport Agency	Evan.Keating@nzta.govt.nz	Amend the precinct provisions to include objectives, policies and rules to manage effects of road traffic noise on future sensitive receivers in the plan change area.		
32	32.1	Watercare Services Limited	planchanges@water.co.nz	Watercare seeks a decision that ensures that the water and wastewater capacity and servicing requirements of the Plan Change will be adequately met, such that the water and wastewater related effects are appropriately managed.		
32	32.2	Watercare Services Limited	planchanges@water.co.nz	Watercare strongly supports precinct provisions that require subdivision and development to be coordinated with the provision of adequate water supply and wastewater infrastructure. Watercare supports an activity status of non complying for any subdivision or development that precedes the provision of adequate water supply and		
32	32.3	Watercare Services Limited	planchanges@water.co.nz	wastewater infrastructure.		
32	32.4	Watercare Services Limited	planchanges@water.co.nz	Watercare supports Standard 1XXX.6 Wastewater and Potable Water Connections clauses (1) and (2) which require all lots except for those in Residential – Large Lot and Open Space – Conservation zones to be connected to a reticulated wastewater network and potable water network.		
32	32.5	Watercare Services Limited	planchanges@water.co.nz	Watercare supports Standard 1XXX.6 Wastewater and Potable Water Connections clause (3) which requires development to be connected to a functioning water and wastewater network prior to the issue of a s224(c) certificate, subject to the following amendment to ensure that the network also has the capacity to serve the proposed development. Ixxx.6.9 Wastewater and Potable Water Connections (3) Prior to the issue of s224(c), the development shall be connected to a functioning water and wastewater network with sufficient capacity to service the proposed development.		
				To ensure that the precinct description is consistent with the requirements of Standard 1XXX.6 Wastewater and Potable Water Connections and the amendments proposed by Watercare, Watercare seeks the following amendments to the precinct description.		
32	32.6	Watercare Services Limited	planchanges@water.co.nz	The development controls for the precinct recognise that development of residential lots can occur concurrently with the provision of infrastructure but prior to the issuing of s224(c) certification for subdivision. However, the development controls do require that development is connected to a functioning water and wastewater network with sufficient capacity to service the proposed development prior to the issuing of s224(c) certification for subdivision. To ensure there is strong and directive policy support for the non-complying activity classification for development and subdivisions that do not comply with Standard 1XXX.6 Wastewater and Potable Water Connections, Watercare seeks the inclusion of the following new policy. IXXX.3 Policies (XX) Avoid subdivision and development progressing ahead of the provision of a functioning water and wastewater network with sufficient capacity to		
32 33	32.7 33.1	Watercare Services Limited Caroline Barrett	planchanges@water.co.nz carolinebarrett1@mac.com	service the proposed development. Decline the plan change		



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34	34.1	Pete Sinton	petesinton@townplanner.co.nz	Decline the plan change		
35	35.1	Bevan Morrison	bevanmorrison75@gmail.com	Approve the plan change without any amendments		
36	36.1	Red Bluff investment ltd	bevanmorrison75@gmail.com	Approve the plan change without any amendments		
37	37.1	Gumfield Property Ltd	tdrj.morrison@xtra.co.nz	Approve the plan change without any amendments		
38	38.1	Kenilworth Orchards	tdrj.morrison@xtra.co.nz	Approve the plan change without any amendments		
39	39.1	Thompson Road Residents	burnette@thepc.co.nz	That PPC93 – Warkworth South plan change be approved with changes to provisions to address the matters raised in this submission.		
		Thempeen Road Residents	<u>barriotto(@,triopo.co.ri2</u>	That a note be added to Precinct Plan 1 – Spatial Provisions to indicate that the Trail to the north of 1768 State Highway is indicative and planned		
39	39.2	Thompson Road Residents	burnette@thepc.co.nz	upgrades of Thompson Road to facilitate the trail will be required.		
33	33.2	Thompson Road Residents	<u>burnette@thepc.co.nz</u>			
				The submitters have no objection to Plan Change 93 (Private), provided that there will be no further degradation of telecoms and Internet / broadband		
40	40.4	NA A O NAC NACIL	0 " 10	supply to our property as a result of the increase in residential and commercial premises within this defined zone i.e. the contention ratio, must be taken		
40	40.1	M A & MG Wilson	murray@mwilson13.com	into consideration, inclusive of the nearby properties with the proposal.		
				In the Morrison Heritage Orchard Precinct amend Table XXX.X.1 (A2) to read One dwelling per site in Activity Areas A, B and C other than as permitted		
41	41.1	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	in (A1) above and (A12) of this Table.		
				In the Morrison Heritage Orchard Precinct amend Table XXX.X.1 (A6) to read One minor dwelling per principal dwelling, excluding		
41	41.2	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	dwellings established under (A12) of this Table.		
				In the Morrison Heritage Orchard Precinct amend Table XXX.X.1 (A16) to read New buildings or additions 250m2 GFA or greater in all Precinct Activity		
41	41.3	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	Areas.		
		·		In the Morrison Heritage Orchard Precinct amend Standard XXX.6.1(2) to read Activities A3 to A13, excluding produce sales (A7), listed in Table		
41	41.4	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	XXX.X.1 above do not either singularly or cumulatively exceed a trip generation threshold of 100 v/hr (any hour).		
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.2 as follows; XXX.6.2. Camping grounds within Precinct PlanActivity Areas A and B		
				(1) Camping ground(s) for a maximum of 50 sites within each either of Activity Areas A and		
				R		
41	41.5	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	(2) Camping ground sites shall not cumulatively exceed 100 sites over both Activity Areas A and B		
7 '	41.5	Rand F Wornson, D Wornson	Shahehartiey@thp.co.nz	In the Morrison Heritage Orchard Precinct amend Standard XXX.6.3 as follows; XXX.6.3. Garden Centre within Precinct PlanActivity Areas A and B		
				(1) The maximum area of a garden centre in including building and outdoor sales and		
1,,	44.0	D I T.M D.M		storage areas is 750m2.		
41	41.6	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	(2) Only one garden centre may be established in either Activity Area A or B, but not both.		
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.4 as follows; XXX.6.4. Markets		
				(1) The location of the market shall be located within Activity Area B.		
				(2) A-The market shall have a maximum of 100 stalls.		
				(3) The trading hours of markets are limited to 7.00am until to 11.00pm.		
				(4) Any other activities associated with the market must not occur between midnight and 6.00am.		
				(5) Stalls involved in the markets are limited to the sale of food and beverages or items produced by the stall holder which may include fresh and		
				processed goods, small holding livestock, artwork, crafts and pottery and includes locally made products. This includes shops with an operational		
41	41.7	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	function (e.g. cheese making).		
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.5 as follows; XXX.6.5. Produce sales		
				(1) The location of the Orchard produce sales shop shall be located within Activity Area B of the Precinct plan.		
				(2) A The produce shop shall have a maximum of 450m2 including building and outdoor sales for the display and sale of produce.		
				(3) The type of produce offered for sale on the site must be confined to the following:		
				(a) fruit, vegetables, plants, eggs, flowers, honey, dairy products, meat, beer, wine, juices.		
				(a) fruit, vegetables, plants, eggs, nowers, noney, daily products, meat, beer, wine, juices. (b) produce or products from on-site primary produce manufacturing.		
4.4	44.0	D and T Marris are D Marris	all and all and and an Ottom	(c) produce and handcrafts not grown or produced on the site or on a site in the locality, shall not exceed 10 % of the GFA produce display and sales		
41	41.8	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	area.		
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.6 as follows: XXX.6.6. Restaurant and cafe		
				(1) One restaurant and one café <u>may be established</u> in Activity Area B.		
				(2) A restaurant or café shall <u>each</u> provide <u>have maximum</u> seating for a maximum of 120		
				people.		
41	41.9	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	(3) The hours of operation of <u>both</u> a restaurant or <u>and</u> café are limited to 7.00am to midnight.		
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.7 as follows: XXX.6.7. Rural tourist and visitor activities		
41	41.10	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	(1) Rural tourist and visitor activities for a maximum of 500 people <u>cumulatively</u> in Activity Areas A and B.		
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.8 as follows: XXX.6.8 Visitor accommodation		
				(1) Visitor accommodation (including manager's accommodation) for a maximum of 25 units or 100 people (whichever is greater) within either or both		
				each of Activity Areas A and B.		
41	41.11	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	(2) Visitor accommodation shall not cumulatively exceed 50 units or 200 people (whichever is greater) over both Activity Areas A and B.		
L.,			2arioriarao y (w, arip. 100.112	1-1		



	Plan Change 93 (Private) - Warkworth South				1
				Summary of Decisions Requested	
Sub #	Sub Point	Submitter Name	Address for Service	Summary of Decisions Requested	
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.9 as follows: XXX.6.9 Weddings and functions (1) Wedding and function activities may occur within either or both Activity Areas A and B.	
41	41.12	R and T Morrison, D Morrison		(2) The activity may include use of an existing restaurant / café on the site and temporary or semi-permanent marquees.	
				In the Morrison Heritage Orchard Precinct amend Standard XXX.6.10 as follows: XXX.6.10. Workers accommodation (1) Workers accommodation with a maximum of 10 dwellings in total in either or both within each of Activity Areas A and B complying with the following (a) Dwellings shall comply with all the relevant yard setbacks and height standards for buildings in the Zone. (b) Dwellings shall have a maximum floor area of 120m2 excluding decks and garaging. The floor area may include a dormitory or individual rooms. (c) The accommodation may accommodate seasonal workers.	:
41	41.13	R and T Morrison, D Morrison		(2) Workers accommodation shall not cumulatively exceed 20 dwellings over both Activity Areas A and B.	
41	41.14	R and T Morrison, D Morrison	shanehartley@tnp.co.nz	In the Morrison Heritage Orchard Precinct amend Table XXX.X.1 (A5) to read Markets	1



To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Hugh Briggs

Date: Thursday, 2 November 2023 2:00:50 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Hugh Briggs

Organisation name:

Agent's full name: Hugh Briggs

Email address: hugh@briggs.kiwi

Contact phone number: 027 243 5301

Postal address: hugh@briggs.kiwi Snells Beach Auckland 0920

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

No specific rules but a general one on total Plan Change

Property address:

Map or maps:

Other provisions:

Timing of proposed development given the new Draft Future Development Strategy which delays the development of several Growth Areas around Warkworth

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The recently amended Future Development Strategy proposes to delay by at least 10 years several of the Growth Areas, including Warkworth South, because of infrastructural and financial constraints.

The Plan Change developers propose to create the necessary infrastructure without the need for any Council funding, so that development can commence 2025. It will be necessary for Council to resolve this issue for this Plan Change and ensure that those services and roading can be development ready. At present this Change would be contrary to the FUD strategy.

I or we seek the following decision by council: Approve the plan change with the amendments I requested

Details of amendments: None specific, but general concern about timing.

Submission date: 2 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission? Yes

Declaration

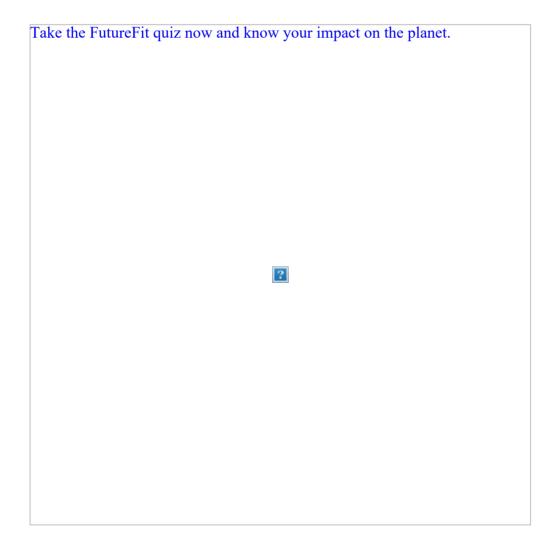
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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attachments is strictly prohibited. If you have received this email message in error please notify us immediately and erase all copies of the message and attachments. We do not accept responsibility for any viruses or similar carried with our email, or any effects our email may have on the recipient computer system or network. Any views expressed in this email may be those of the individual sender and may not necessarily reflect the views of Council.

PROPOSED PLAN CHANGE – WARKWORTH SOUTH SUBMISSION

Introduction

My name is **Hugh Briggs**. I am a retired planning consultant with over 45 year's experience, much of which involved urban growth development planning.

I am Secretary of the Mahurangi Trails Society (MTS) and also the Northern Action Group (NAG), indicating my interest in development issues in the Warkworth region. I am also involved with Warkworth Area Liaison Group (WALG). I have written similar submissions on behalf of MTS and WALG/One Mahurangi. This one reflects my own professional opinion based on my relevant experience.

Summary

- I fully support the form of development as proposed in the Plan Change Precinct Plans and Zoning Map.
- The Plan Change is accompanied by a very comprehensive analysis of all planning, transport, design and environmental factors, reaching a logical and practical development solution for this sector of Warkworth township.
- I do not support the timetable for releasing land as indicated in the Council's recently amended Future Development Strategy (FDS). The proposed date for such release (2040-45+) is totally unrealistic, as the reason for making that decision was based on the difficulty Council faced in being able to fund and implement those services and roading upgrades.
- This development undertaken by the developers will enable the creation of new service infrastructure and upgrading of the existing main arterial as well as the proposed new link road without the need for any significant work involvement or funding by Council.
- It will enable the area to be serviced and developed earlier, enabling land being available to: meet housing demands for varied house types, improve roading access into and around Warkworth, create more and safer pedestrian and cycle routes in and around this part of

Warkworth, and create attractive reserve areas and open space linkages.

Analysis of Precinct Plans and Proposed Zoning Map Residential Areas

The Plan Change Zoning Map proposes using a range of residential zones (from the AUP), being Mixed Housing Urban, Terrace Housing and Apartments, Low Density and Large Lots zones. This is an appropriate zoning distribution to create a mix of housing types to meet the varying demands for such a mix in Warkworth.

However, the use of a high density zone in this "outer" area of Warkworth would compete with the need for such higher density developments closer to the town centre which would provide more support for retail activity.

The layout reflects the need to respect the varied landscape qualities. The areas are broken into smaller "cells" with the creation of the open space linkages along the streams and undulations. It also protects the bush and ecological areas and respects the amenity of the adjacent Morrison Heritage Orchard precinct by having a lower density along that boundary.

Roading Network and Upgrades

The development area is "split" by SH1(A), and by a proposed Wider Western Link Road.

This development provides a very real opportunity for an upgrade of the existing section of SHI(A) in a coordinated manner by the developers without requiring significant work and funding contributions from Council. This upgrade would also include both pedestrian and cycle paths to be included.

It would also enable this section of the Wider Western Link Road to be built to the appropriate standard and on an alignment to be agreed by the developer and Auckland Transport.

Cycle and Pedestrian Links

The opening up of this area will enable the earlier building of key cycle tracks between this southern area and Warkworth centre and other new trails around the region.

The layout provides for dedicated on-road tracks enabling safer movement through the development. More importantly, it is creating offroad tracks through the area along the open space network. This will

provide attractive routes for the recreational cyclists, encouraging more people to be active.

Natural Environment and Open Space

The Precinct Plan layout recognises the value of the site's landscape with its creation of the open space linkages, and opportunities for people to move readily through the development area, as indicated above. They will also enable the protection of the biodiversity within these areas.

Development Issues

I do not agree with the Council's timetable for land release in the Warkworth area, as now indicated in its amended Future Development Strategy (FDS). It is proposing to defer all of the recognised growth areas by a considerable extension of time. In this case Warkworth South is proposed to be deferred until 2040-45.

This decision has been made based on Council's inability to implement the necessary upgrade or provision of new service infrastructure or new or upgraded roads, due to work and financial constraints.

In an ideal situation, Council would control the release of urban growth areas, having created the planning layouts themselves through detailed structure plans and zone changes, with the accompanying schedule of the necessary infrastructure. (This was achieved in other Councils when circumstances were easier, eg Manukau City in the 1970's).

Auckland Council does not have the planning resources to have achieved this, and is severely constrained financially to provide the service and roading infrastructure in the time required.

Development of such areas is necessary earlier rather than later to meet housing demand and to create much needed improvement to traffic movements through and within the township. The introduction of these Private Plan Changes does provide a realistic opportunity to develop these areas in a rational and cost effective fashion.

Conclusion

The development as proposed has considerable merit as an appropriate form of development, with some attractive landscape and environmental features, with a network of cycle ways and pedestrian linkages. The necessary infrastructure (services and roads) can be implemented without any significant reliance on Council funding. I would thus request that the Council approve this proposed Plan Change to be notified and progressed through the appropriate procedures.

Hugh Briggs (Retired Urban Planning Consultant)

PROPOSED PLAN CHANGE – WARKWORTH SOUTH SUBMISSION

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- It will enable the area to be serviced and developed earlier, enabling land being available to: meet housing demands for varied house types, improve roading access into and around Warkworth, create more and safer pedestrian and cycle routes in and around this part of

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The Plan Change Zoning Map proposes using a range of residential zones (from the AUP), being Mixed Housing Urban, Terrace Housing and Apartments, Low Density and Large Lots zones. This is an appropriate zoning distribution to create a mix of housing types to meet the varying demands for such a mix in Warkworth.

However, the use of a high density zone in this "outer" area of Warkworth may compete to a limited extent with the need for such higher density developments closer to the town centre which would provide more support for retail activity.

The layout reflects the need to respect the varied landscape qualities. The areas are broken into smaller "cells" with the creation of the open space linkages along the streams and undulations. It also protects the bush and ecological areas and respects the amenity of the adjacent Morrison Heritage Orchard precinct by having a lower density along that boundary.

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The Precinct Plan layout recognises the value of the site's landscape with its creation of the open space linkages, and opportunities for people to move readily through the development area, as indicated above. They will also enable the protection of the biodiversity within these areas.

Development Issues

I do not agree with the Council's timetable for land release in the Warkworth area, as now indicated in its amended Future Development Strategy (FDS). It is proposing to defer all of the recognised growth areas by a considerable extension of time. In this case Warkworth South is proposed to be deferred until 2040-45.

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Development of such areas is necessary earlier rather than later to meet housing demand and to create much needed improvement to traffic movements through and within the township. The introduction of these Private Plan Changes does provide a realistic opportunity to develop these areas in a rational and cost effective fashion.

Conclusion

The development as proposed has considerable merit as an appropriate form of development, with some attractive landscape and environmental features, with a network of cycle ways and pedestrian linkages. The necessary infrastructure (services and roads) can be implemented without any significant reliance on Council funding. I would thus request that the Council approve this proposed Plan Change to be notified and progressed through the appropriate procedures.

Hugh Briggs (Retired Urban Planning Consultant)

1.1

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - David Owen Morgan

Date: Friday, 3 November 2023 7:46:04 am

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: David Owen Morgan

Organisation name:

Agent's full name: Dave Morgan

Email address: oyster109@yahoo.com

Contact phone number:

Postal address: 8 Valerie Close Warkworth Auckland 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Private plan change 93, Warkworth South

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

I support the plan change in full, without any amendments.

I or we seek the following decision by council: Approve the plan change without any amendments

2.1

Details of amendments:

Submission date: 3 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

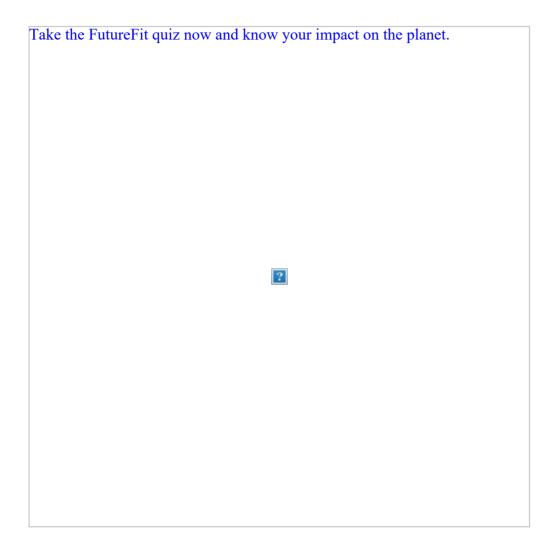
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



Unitary Plan To:

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Dianne Lillian Morgan

Date: Friday, 3 November 2023 8:31:07 am

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Dianne Lillian Morgan

Organisation name:

Agent's full name:

Email address: musicmakerdiannem@gmail.com

Contact phone number:

Postal address:

28 Komokoriki Hill Road Makarau

RD1 Warkworth Auckland 0981

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Proposed Private Plan Change 93

Property address: 8 Valerie Close, Warkworth

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

I support the Proposed Plan Change 93 (Private) for Warkworth South to rezone land. The development will enhance the Warkworth area, which is popular and growing rapidly. The change will make possible additional, attractive housing in a beautiful setting close to Warkworth, as well as providing additional community areas, including the Waimanawa precinct and Morrison Heritage Orchards.

I or we seek the following decision by council: Approve the plan change without any amendments | 3.1

Details of amendments:

Submission date: 3 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

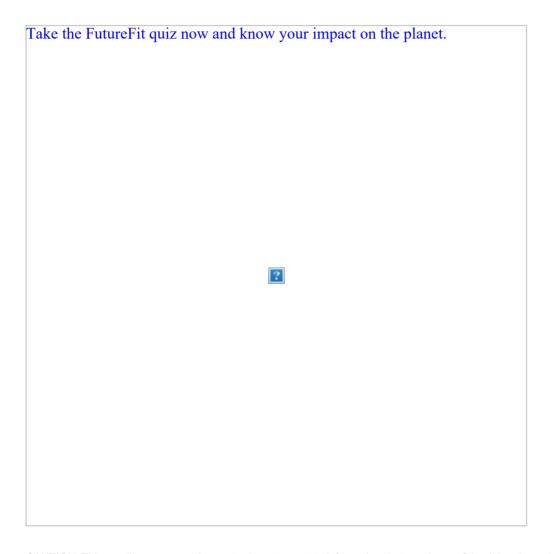
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Dominique Coote

Date: Saturday, 4 November 2023 3:15:37 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Dominique Coote

Organisation name:

Agent's full name:

Email address: dominiquecoote@outlook.com

Contact phone number:

Postal address:

Orewa

Auckland 0931

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

-

Property address: -

Map or maps: -

Other provisions:

-

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The proposed plan with help with housing & transport.

I or we seek the following decision by council: Approve the plan change without any amendments

4.1

Details of amendments:

Submission date: 4 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

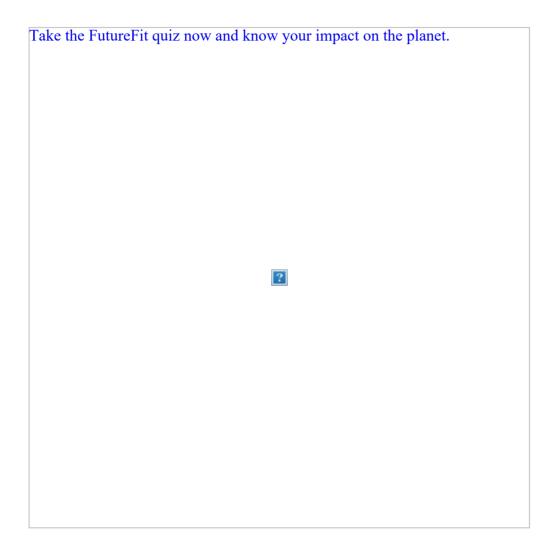
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Louisa Gowing

Date: Sunday, 5 November 2023 3:31:00 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Louisa Gowing

Organisation name:

Agent's full name:

Email address: jandlgowing@gmail.com

Contact phone number:

Postal address: 83 Valerie Close

Warkworth 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Proposed plan change

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Warkworth is a growing town and needs the amenities that this plan covers. The recreation facilities by the river along with the market area, will make the subdivision a thriving and sort after area by new residents

The fact that they will be providing their own utilities which can then be joined into the Council infrastructure at a later date is a bonus.

I or we seek the following decision by council: Approve the plan change without any amendments

5.1

Details of amendments:

Submission date: 5 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

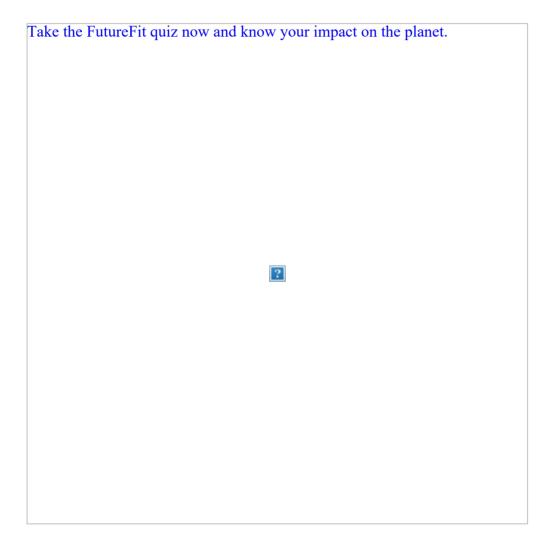
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Stanley Coote

Date: Sunday, 5 November 2023 9:16:04 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Stanley Coote

Organisation name:

Agent's full name:

Email address: stanleycoote@outlook.com

Contact phone number:

Postal address: 18 muncaster Rd Snells Beach Auckland 0942

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

-

Property address: -

Map or maps: -

Other provisions:

-

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

This proposed plan will help fix Warkworth's traffic issues and extend housing on the south side of Warkworth.

I or we seek the following decision by council: Approve the plan change without any amendments

6.1

Details of amendments:

Submission date: 5 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

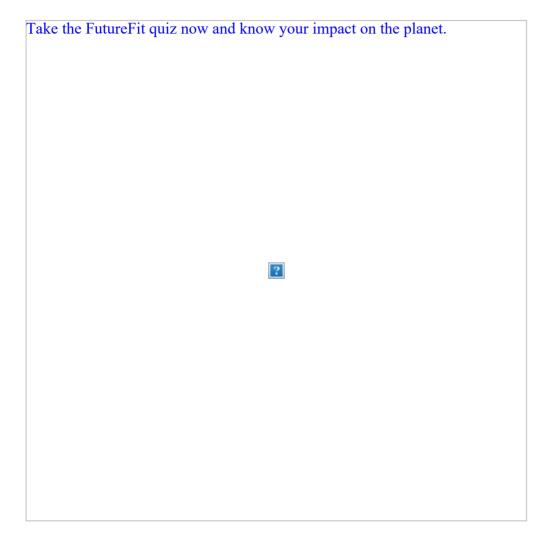
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Stephen Haycock

 Date:
 Wednesday, 15 November 2023 2:00:17 pm

 Attachments:
 Warkworth South submission from S Haycock.pdf

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Stephen Haycock

Organisation name:

Agent's full name:

Email address: steve@haycocks.nz

Contact phone number:

Postal address: 270 Falls Rd RD4 Warkworth Auckland 0984

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

My submission relates to the type of housing that is proposed and the layout of subdivision. I am also commenting on the timing of release of land for development by Council

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

Council needs to release this land for development sooner rather than later as Warkworth needs quality properties for housing given the prospective population increases. This development would also give the Council the opportunity to get infrastructure provided by the developers rather than having to provide it themselves.

I or we seek the following decision by council: Approve the plan change with the amendments I requested

Details of amendments: Bring forward the land release date from that which Council has proposed in its recent amendment to the Future Development Strategy

Submission date: 15 November 2023

Supporting documents

Warkworth South submission from S Haycock.pdf

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

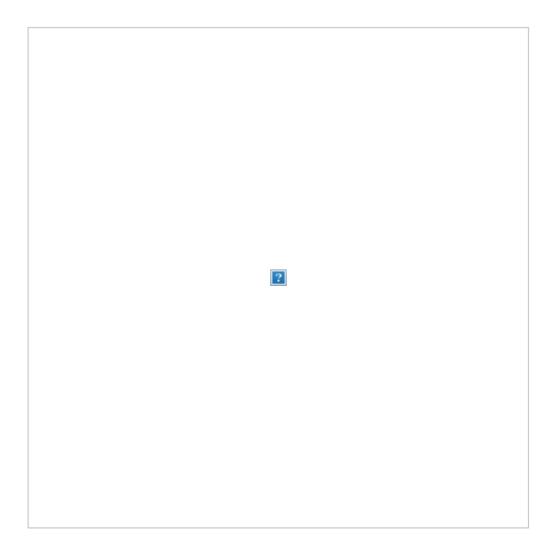
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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our email, or any effects our email may have on the recipient computer system or network. Any views expressed in this email may be those of the individual sender and may not necessarily reflect the views of Council.

PROPOSED PLAN CHANGE – WARKWORTH SOUTH SUBMISSION

Introduction

My name is **Steve Haycock**. I am a retired builder. I try to involve myself positively in local affairs and am making this submission as a party interested in ensuring the future needs of Warkworth are adequately met through well planned and timely constructed subdivisions.

Summary

- I do not support the timetable for releasing land as indicated in the Council's recently amended Future Development Strategy (FDS). The proposed date for such release (2040-45+) is totally unrealistic, as the reason for making that decision was based on the difficulty Council faced in being able to fund and implement those services and roading upgrades.
- This development undertaken by the developers will enable the creation of new service infrastructure and upgrading of the existing main arterial as well as the proposed new link road without the need for any significant work involvement or funding by Council.
- It will enable the area to be serviced and developed earlier, enabling land being available to: meet housing demands for varied house types, improve roading access into and around Warkworth, create more and safer pedestrian and cycle routes in and around this part of Warkworth, and create attractive reserve areas and open space linkages.

Residential Areas

I like the mix of housing types that will meet the varying demands for such a mix in Warkworth. I also like that the subdivision design protects the bush and ecological areas and respects the amenity of the adjacent Morrison Heritage Orchard precinct by having a lower density along that boundary.

Roading Network and Upgrades

This development provides a very real opportunity for an upgrade of the existing section of SHI(A) in a coordinated manner by the developers

without requiring significant work and funding contributions from Council. This upgrade would also include both pedestrian and cycle paths to be included.

It would also enable this section of the Wider Western Link Road to be built to the appropriate standard and on an alignment to be agreed by the developer and Auckland Transport.

Cycle and Pedestrian Links

The opening up of this area will enable the earlier building of key cycle tracks between this southern area and Warkworth centre and other new trails around the region.

The layout provides for dedicated on-road tracks enabling safer movement through the development. More importantly, it is creating off-road tracks through the area along the open space network. This will provide attractive routes for the recreational cyclists, encouraging more people to be active.

Development Issues

I do not agree with the Council's timetable for land release in the Warkworth area, as now indicated in its amended Future Development Strategy (FDS). It is proposing to defer all of the recognised growth areas by a considerable extension of time. In this case Warkworth South is proposed to be deferred until 2040-45.

Development of subdivisions such as this is necessary earlier rather than later to meet housing demand and to create much needed improvement to traffic movements through and within the township.

The introduction of these Private Plan Changes does provide a realistic opportunity to develop these areas in a rational and cost effective fashion.

Conclusion

The development as proposed has considerable merit as an appropriate form of development, with some attractive landscape and environmental features, with a network of cycle ways and pedestrian linkages. The necessary infrastructure (services and roads) can be implemented without any significant reliance on Council funding.

I request that the Council approve this proposed Plan Change to be notified and progressed through the appropriate procedures.

PROPOSED PLAN CHANGE – WARKWORTH SOUTH SUBMISSION

Introduction

My name is **Hugh Briggs**. I am a retired planning consultant with over 45 year's experience, much of which involved urban growth development planning. I am making this submission on behalf of the Warkworth Area Liaison Group (WALG) and One Mahurangi, as I am involved with both these Groups.

Summary

- WALG and One Mahurangi fully support the form of development as proposed in the Plan Change Precinct Plans and Zoning Map.
- The Plan Change is accompanied by a very comprehensive analysis of all planning, transport, design and environmental factors, reaching a logical and practical development solution for this sector of Warkworth township.
- WALG and One Mahurangi do not support the timetable for releasing land as indicated in the Council's recently amended Future Development Strategy (FDS). The proposed date for such release (2040-45+) is totally unrealistic, as the reason for making that decision was based on the difficulty Council faced in being able to fund and implement those services and roading upgrades.
- This development undertaken by the developers will enable the creation of new service infrastructure and upgrading of the existing main arterial as well as the proposed new link road without the need for any significant work involvement or funding by Council.
- It will enable the area to be serviced and developed earlier, enabling land being available to: meet housing demands for varied house types, improve roading access into and around Warkworth, create more and safer pedestrian and cycle routes in and around this part of Warkworth, and create attractive reserve areas and open space linkages.

Analysis of Precinct Plans and Proposed Zoning Map Residential Areas

The Plan Change Zoning Map proposes using a range of residential zones (from the AUP), being Mixed Housing Urban, Terrace Housing and Apartments, Low Density and Large Lots zones. This is considered to be the most appropriate zoning distribution to create a mix of housing types to meet the varying demands for such a mix in Warkworth.

The layout reflects the need to respect the varied landscape qualities. The areas are broken into smaller "cells" with the creation of the open space linkages along the streams and undulations. It also protects the bush and ecological areas and respects the amenity of the adjacent Morrison Heritage Orchard precinct by having a lower density along that boundary.

Roading Network and Upgrades

The development area is "split" by SH1(A), and by a proposed Wider Western Link Road.

This development provides a very real opportunity for an upgrade of the existing section of SHI(A) in a coordinated manner by the developers without requiring significant work and funding contributions from Council. This upgrade would also include both pedestrian and cycle paths to be included.

It would also enable this section of the Wider Western Link Road to be built to the appropriate standard and on an alignment to be agreed by the developer and Auckland Transport.

Cycle and Pedestrian Links

The opening up of this area will enable the earlier building of key cycle tracks between this southern area and Warkworth centre and other new trails around the region.

The layout provides for dedicated on-road tracks enabling safer movement through the development. More importantly, it is creating off-road tracks through the area along the open space network. This will provide attractive routes for the recreational cyclists, encouraging more people to be active.

Natural Environment and Open Space

The Precinct Plan layout recognises the value of the site's landscape with its creation of the open space linkages, and opportunities for people to move readily through the development area, as indicated above. They will also enable the protection of the biodiversity within these areas.

Development Issues

WALG and One Mahurangi do not agree with the Council's timetable for land release in the Warkworth area, as now indicated in its amended Future Development Strategy (FDS). It is proposing to defer all of the recognised growth areas by a considerable extension of time. In this case Warkworth South is proposed to be deferred until 2040-45.

This decision has been made based on Council's inability to implement the necessary upgrade or provision of new service infrastructure or new or upgraded roads, due to work and financial constraints.

In an ideal situation, Council would control the release of urban growth areas, having created the planning layouts themselves through detailed structure plans and zone changes, with the accompanying schedule of the necessary infrastructure. (This was achieved in other Councils when circumstances were easier, eg Manukau City in the 1970's).

Auckland Council does not have the planning resources to have achieved this, and is severely constrained financially to provide the service and roading infrastructure in the time required.

Development of such areas is necessary earlier rather than later to meet housing demand and to create much needed improvement to traffic movements through and within the township.

The introduction of these Private Plan Changes does provide a realistic opportunity to develop these areas in a rational and cost effective fashion.

Conclusion

The development as proposed has considerable merit as an appropriate form of development, with some attractive landscape and environmental features, with a network of cycle ways and pedestrian linkages. The necessary infrastructure (services and roads) can be implemented without any significant reliance on Council funding.

WALG and One Mahurangi would thus request that the Council approve this proposed Plan Change to be notified and progressed through the appropriate procedures. 8.1

From: UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz

To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Paula Christine Anderson

Date: Monday, 20 November 2023 6:45:58 am

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Paula Christine Anderson

Organisation name:

Agent's full name: Paula Christine Anderson

Email address: piindibolli@gmail.com

Contact phone number:

Postal address: 63 Perry Road

Warkworth 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

The "six goals to achieve" the applicants's "vision" as provided on page 39 of the application are disengenuous and misleading.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The plan change application fails to address and/or diminishes the adverse effects upon the natural environment of crowding into a relatively small area of what is currently farm land and treed areas so many structures and paved areas. The number of buildings and streets and footpaths will result in an over-crowded area of land which is currently part of the essential "breathing space" for Warkworth and its inhabitants. I have an intimate knowledge of the subject area. The lower soils are rich and rain water drains down into the lower areas and then drains to the Mahurangi river. Covering the soil areas which are currently grassed will result in water volume and velocity problems. Pollutants from human habitats will be greatly increased and will enter the water habitats. Areas with rich soils should be preserved and planted with trees and not covered in impenetrable materials. Additionally, the utilities in the area are of a quality and supply that current residents have to live with unacceptable daily challenges to quality of life - for example, an inability to find a job in the local area, inability to receive consistent electricity supply, inability to obtain a land line

telephone connection, inability to obtain a doctor's visit within 3 weeks or more of requesting an appointment, inability to enrol a new student in the local school, inability, in summertime and during national holidays, to drive to local shops and businesses without encountering unacceptable levels of traffic congestion. According to an article in the Mahurangi Matters publication of February 20, 2023, it is contemplated that a further approximately "7500 additional dwellings" are expected to be built in the areas of land around Warkworth which are being contemplated for future urban development. The proposal by Waimanawa is for approximately one quarter of that number to be crammed into a relatively small area of land. Some of the buildings will be multi-storey. It would result in an inappropriate, intensive, human habitat which will resemble a modern ghetto with no meaningful protection of the current environment.

I or we seek the following decision by council: Decline the plan change 9.1

Submission date: 20 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

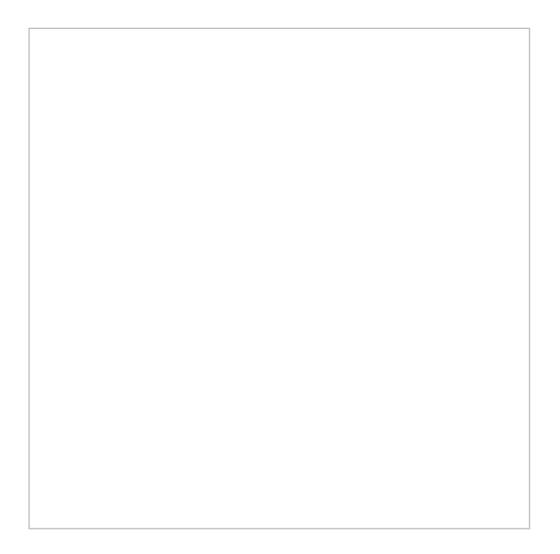
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Maria Collins

Date: Monday, 20 November 2023 3:31:09 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Maria Collins

Organisation name:

Agent's full name:

Email address: maria.collins@harbourhospice.org.nz

Contact phone number:

Postal address: 47 Glenmore Drive Warkworth Auckland 0901

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Property address: 32 Glenmore Drive and 47 Morrison Drive

Map or maps:

Other provisions:

The traffic would affect the people who use Tui House, Harbour Hospice, the traffic needs to continue on the old state highway one.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

The traffic would create a lot of congestion and noise.

It will have an effect on the people who use Tui House Harbour Hospice.

There are many people who utilise our services 5 days a week, with the District Nurses and Hospice Nurses needing to be able to easily access Tui House on the weekends as well.

I or we seek the following decision by council: Decline the plan change 10.1

Submission date: 20 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

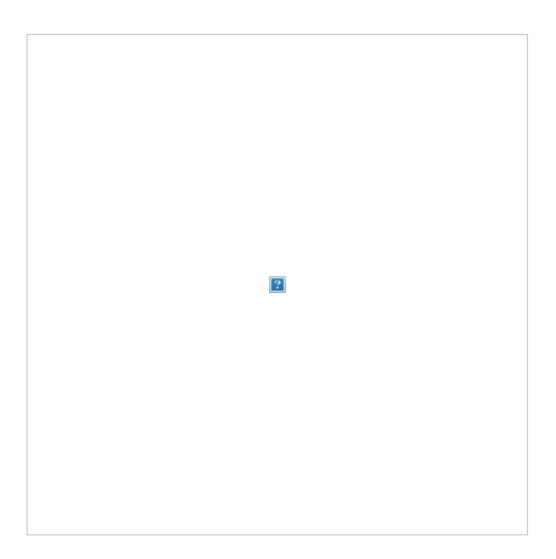
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - William Arthur Endean

Date: Tuesday, 21 November 2023 1:31:01 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: William Arthur Endean

Organisation name:

Agent's full name:

Email address: bill@dawsonslawyers.co.nz

Contact phone number: 021 904 867

Postal address: 11 Judge St Parnell Auckland 1052

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

This submission relates to the whole of the Plan Change

Property address: 36,40,46, 123 Valerie Close, Warkworth

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The properties we own referred to above are within the plan Change area.

We have owned property in the area for the past 18 years and are very familiar with the area. The Plan Change mostly follows the plans for the area as set out in the 2019 Warkworth Structure Plan

The Plan Change provides for a generous amount of Public Open Space, conservation, Riparian margins, Informal zones and playing fields which will benefit all of Warkworth, compared to the modest contributions provided by Plan Changes 25 and 40.

Since the opening of the Puhoi to Warkworth Motorway, retail business in Warkworth has declined dramatically. Warkworth needs an increase in population to make up for the loss in trade before there are more business closures. Already there is a 25% vacancy rate in the Grange Retail Centre as a consequence of the Motorway Bypass.

Warkworth needs more housing for worker accommodation, for workers in the district.

The Plan Change area is ideally suited for residential housing due to it's favourable topography and

sheltered environment. In the 18 years we have owned our properties they have never been flooded.

I or we seek the following decision by council: Approve the plan change without any amendments

11.1

Details of amendments:

Submission date: 21 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission? Yes

Declaration

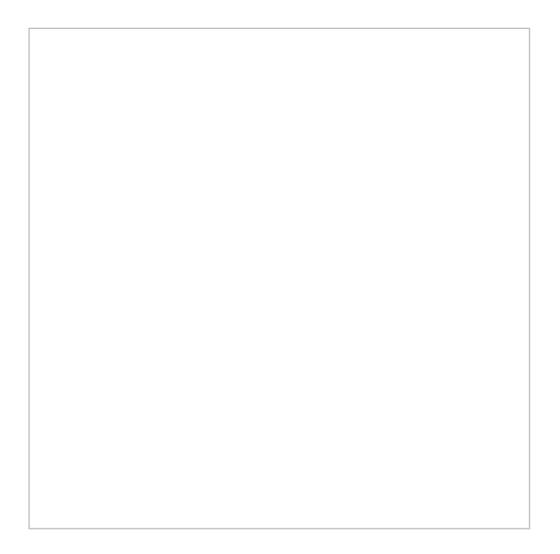
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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Submission on a notified proposal for policy statement or plan change or variation

Clause 6A of Schedule 1, Resource Management Act 1991 FORM 5

amended and the reasons for your views)



This plan change has limited notification under clause 5A(4)(b) of First Schedule, Resource Management Act 1991, making submissions under this clause limited to those given written notice of this plan change.

Send your submission to <u>unitaryplan@aucklandcouncil.govt.nz</u> or post to :	For office use only	
Attn: Planning Technician	Submission No:	
Auckland Council Level 24, 135 Albert Street	Receipt Date:	
Private Bag 92300		
Auckland 1142		
Cubmitten detaile		
Submitter details		
Full Name or Name of Agent (if applicable)		
Name) Mr ARTHUR DOUGLAS BROWN		
Organisation Name (if submission is made on behalf of Organisation)		
Address for service of Submitter		
13 OLINER STREET		
WARKWORTH 0910		
Telephone: 021 171 3310 Fax/Email: doughrown	1,nz@gmail.com	
Contact Person: (Name and designation, if applicable)		
Seems of authorization		
Scope of submission This is a submission on the following proposed plan change / variation to an existing plan:		
This is a submission on the following proposed plan change / variation to an existing plan:		
Plan Change/Variation Number)	
Plan Change/Variation Name Onewa-Road WARK WORT H	SOUTH	
The specific provisions that my submission relates to are: (Please identify the specific parts of the proposed plan change / variation)		
Plan provision(s)		
Or		
Property Address		
Or Control of the Con		
Map PLEASE SEE MAP		
Or Other (specify)		
Submission		

My submission is: (Please indicate whether you support or oppose the specific provisions or wish to have them

Please see attacked letter and map
Page 1 of 4

I support the specific provisions identified above		
I oppose the specific provisions identified above		
I wish to have the provisions identified above amended Yes No		
Road to old state highway I at the junction is Makinney Road would excite a major hazard esp	wood co	
(continue on a separat	te sheet if necessary	
I seek the following decision by Council:		
Accept the proposed plan change / variation		
Accept the proposed plan change / variation with amendments as outlined below		
Decline the proposed plan change / variation		
If the proposed plan change / variation is not declined, then amend it as outlined below.		
I wish to be heard in support of my submission	D	
I do not wish to be heard in support of my submission		
If others make a similar submission, I will consider presenting a joint case with them at a hearing		
Signature of Submitter (or person authorised to sign on behalf of submitter) 20 November 2 Date	2023	
Notes to person making submission:		
If you are making a submission to the Environmental Protection Authority, you should use Form 16E	3.	
Please note that your address is required to be made publicly available under the Resource Manage 1991, as any further submission supporting or opposing this submission is required to be forwarded as the Council.		
If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by clause 6(4) of Part 1 of Schedule 1 of the Resource Management Act 1991.		
I could /could not gain an advantage in trade competition through this submission. If you <u>could</u> gain an advantage in trade competition through this submission please following:		
I am / am not directly affected by an effect of the subject matter of the submission that: (a) adversely affects the environment; and		
(a) adversely affects the environment; and (b) does not relate to trade competition or the effects of trade competition		

Planning Technicians
Plans and Places
Auckland Council
Private Bag 92300
Auckland 1142

20 November 2023

Plan Change 93 (Private) - Warkworth South

I wish to draw attention to the proposed intersection of McKinney Road and Old State Highway 1.

In my opinion any crossing including McKinney Road would produce a hazard to traffic travelling South on Old State Highway 1.

Traffic traveling South would be accelerating as they climbed past the Grange. At the brow, just South of Wech Drive, Old State Highway 1 bends to the right and descends towards McKinney Road.

The distance between the brow of the rise and the first sighting of McKinney Road is very short. Activity at the convergence with McKinney Road is already an issue!

Any increase in that activity should be avoided.

I strongly recommend that the Southern portion of the Western Link meet up with Old State Highway 1 in the area of the dwelling at 1829 Old State Highway 1, Warkworth.

12.1

Please see attached maps.

That would be half way between McKinney Road to the North and Old State Highway 1 bending to the right on its way South.

Regards Douglas Brown dougbrown.nz@gmail.com

A D Brown (Arthur Douglas Brown)
13 Oliver Street
Warkworth 0910

all 1/23



From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Wendy Patricia COURT

Date: Wednesday, 22 November 2023 11:45:13 am

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Wendy Patricia COURT

Organisation name: NA

Agent's full name: NA

Email address: courtwp@hotmail.com

Contact phone number:

Postal address: 124 Perry Rd Warkworth Auckland 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Property address:

Map or maps:

Other provisions:

The goals to achieve the applicants vision as provided on pg 39 are misleading.

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? Yes

The reason for my or our views are:

I live in Perry rd and I strongly object to any change in the district plan which allows for more dense building in the green belt to the south of Warkworth.

My reasons for objecting are as follows:

Warkworth is surrounded by countless aquifers. Yet another high density subdivision will alter the water table and interfere with drainage into the Mahurangi River.

The infrastructure around Warkworth is already stretched to its limits as shown by such things as glacial slow internet, frequent power outages, and potholes aplenty. Yet another high density subdivision will cause more infrastructure issues for current residents.

As residents of Perry Rd we have been subjected to 8 years of motorway construction with associated noise, construction traffic and dust production. It was a very stressful episode which led to health issues.

As a long standing Auckland City rate payer (43years), I moved to the country to experience a rural lifestyle, not so I could live perched on the edge of yet another high density sub-division.

I or we seek the following decision by council: Decline the plan change 13.1

Submission date: 22 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

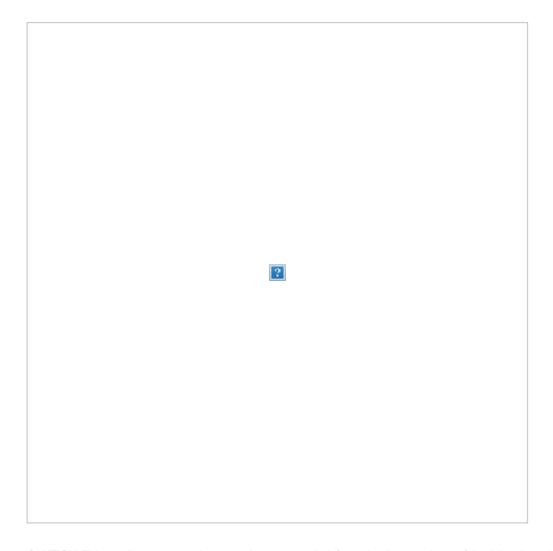
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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email may be those of the individual sender and may not necessarily reflect the views of Council.

From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Mark Calvert

Date: Wednesday, 22 November 2023 1:45:20 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Mark Calvert

Organisation name:

Agent's full name:

Email address: mark.calvert360@gmail.com

Contact phone number:

Postal address: PO Box 109042 Newmarket Auckland 1149

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Property address: 123 Valerie Close, 40 Valerie Close, 36 Valerie Close, 1711 SH1 and 1723 SH1

Warkworth

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The proposal adds to the much needed urban land available for the construction of housing.

I or we seek the following decision by council: Approve the plan change without any amendments

14.1

Details of amendments:

Submission date: 22 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

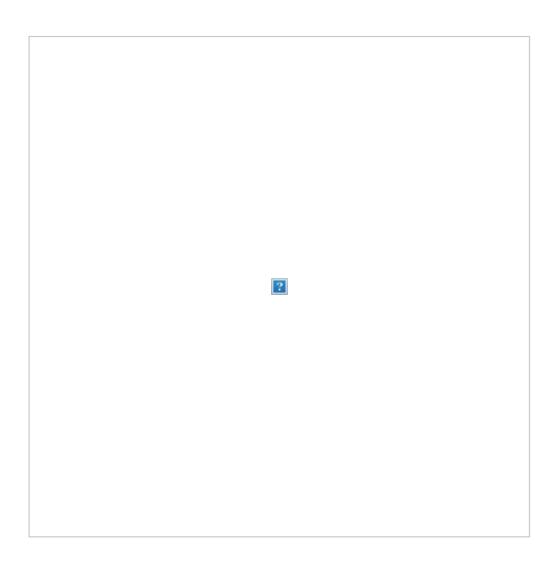
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Warwick William Scown

Date: Wednesday, 22 November 2023 2:30:12 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Warwick William Scown

Organisation name:

Agent's full name: Warwick Scown

Email address: w1g1b1s1@gmail.com

Contact phone number:

Postal address: 34 Green Road Matakana Auckland 0985

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Property address: 40 46, 83, 123, 125 Valerie Close, 1711 1723, 1738 and 1773 State Highway 1

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

I support the visionary plan for the future offered by PC 93.

There is a current desperate need for more well designed housing north of Auckland, now that the area has been unlocked by the Ara Tuhono -Puhoito Warkworth motorway.

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 22 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

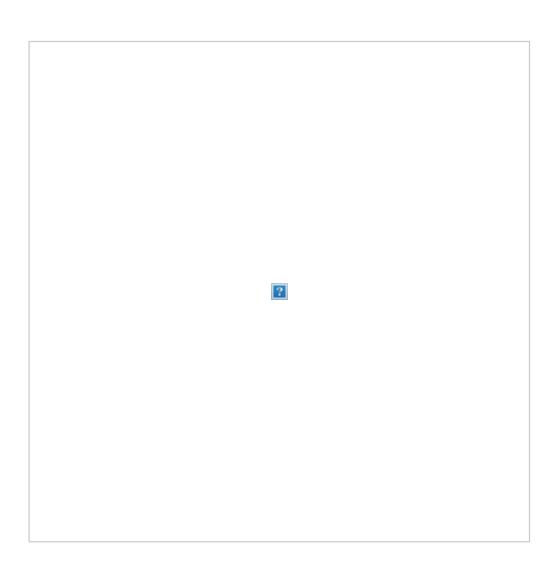
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Gregor Stevenson

Date: Wednesday, 22 November 2023 3:00:14 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Gregor Stevenson

Organisation name: Stevenson Family Trust

Agent's full name:

Email address: admin@stevensonfamilytrust.nz

Contact phone number:

Postal address:

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Private Plan change

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Plan is inline with Warkworth Structure plan which I broadly support.

I or we seek the following decision by council: Approve the plan change without any amendments

16.1

Details of amendments:

Submission date: 22 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

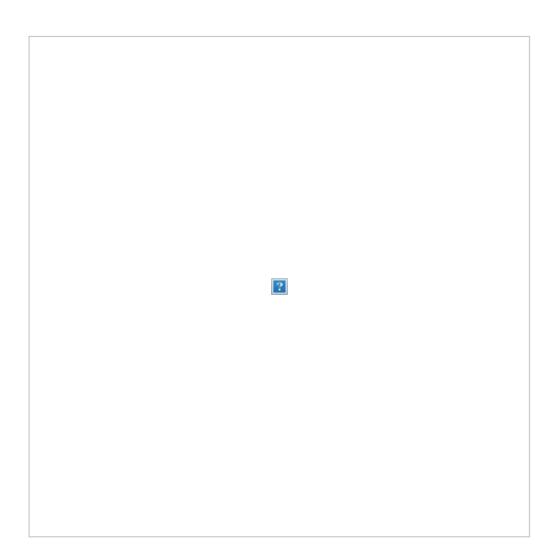
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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IN THE MATTER of the Resource

Management Act 1991

(RMA)

AND

IN THE MATTER of a submission under

clause 6 of the First Schedule to the RMA on Private Plan Change 93:

Warkworth South

SUBMISSION ON NOTIFIED PROPOSAL FOR PRIVATE PLAN CHANGE 93: WARKWORTH SOUTH TO THE AUCKLAND UNITARY PLAN (OPERATIVE IN PART)

To: Auckland Council

Name of submitter: Auckland Council

(contact: Craig Cairncross)

Address for service: 35 Albert Street

Private Bag 92300 Auckland 1142

INTRODUCTION

- 1. This is a submission on Private Plan Change 93: Warkworth South (**PPC 93**) to the Auckland Unitary Plan (Operative in Part) (**AUP**) by KA Waimanawa Limited Partnership and Stepping Towards Far Limited (**Applicant**).
- 2. This submission by Auckland Council is in its capacity as submitter (ACS).
- 3. The scope of the submission is to:
 - a. the Waimanawa Precinct; and
 - b. the Morrison Heritage Orchard Precinct
- 4. ACS submit a neutral position regarding the re-zoning of the land, on the proviso that amendments are made to infrastructure provisions in the proposed Waimanawa Precinct.

- 5. ACS submit a neutral position on the extension of 6,40m² to the Rural Urban Boundary (**RUB**), on the proviso that this cannot occur separately from the balance of the plan change.
- 6. ACS seek amendments to provisions in the Waimanawa Precinct and the Morrison Heritage Orchard Precinct. Providing the matters raised in this submission are addressed, ACS do not oppose the two precincts.

GENERAL REASONS FOR SUBMISSION

Funding and infrastructure pre-requisite

- 7. The National Policy Statement on Uban Development (NPS-UD) and Auckland Regional Policy Statement (RPS) Chapters B2 and B3 of the AUP contain objectives and policies that place strong emphasis on the importance of ensuring the integration of infrastructure, including transport infrastructure, with land use / urbanisation. Section 75(3) of the RMA requires PPC 93 to "give effect to" these higher order provisions. This is a strong directive requiring the relevant objectives and policies to be implemented. Examples of these provisions include:
 - a. Objective 6 of the NPS-UD which requires local authority decisions on urban development that affect urban environments to be "Integrated with infrastructure planning and funding decisions".
 - b. The range of RPS provisions in chapters B2 and B3 that address the need for the integration of infrastructure provisions, planning and funding with land use, and the timely, efficient, and adequate provision of infrastructure, including B2.2.1(1); B2.2.2(2)(c) and (d); B2.2.2(4) and (7); B3.3.1(1)(b); B3.3.2(5).
- 8. Policy B2.2.2(7) is directly relevant to PPC 93 as it applies to Future Urban Zoned land.
 - B2.2.2(7) Enable rezoning of land within the Rural Urban Boundary or other land zoned future urban to accommodate urban growth in ways that do all of the following
 - (a) support a quality compact urban form;
 - (b) provide for a range of housing types and employment choices for the area;
 - (c) integrate with the provision of infrastructure; and

-

¹ Environmental Defence Society Inc v New Zealand King Salmon Company Ltd [2014] NZSC 38 at [77].

- (d) follow the structure plan guidelines as set out in Appendix 1.
- 9. Plan Change 80 amended Policy B2.2.2(7) to integrate the concepts of "well-functioning urban environment" and added the following additional clause: "(caa) provide good accessibility, including by way of efficient and effective public or active transport". The decision on this plan change was notified on 14 September 2023.
- 10. B2.9 Explanation and Principal Reasons for Adoption of the objectives and policies, states:

In addressing the effects of growth, a key factor is enabling sufficient development capacity in the urban area and sufficient land for new housing and businesses over the next 30 years. The objectives and policies guide the location of urban growth areas. They identify how greenfield land which is suitable for urbanisation will be managed until it is re-zoned for urban development. They encourage provision for Mana Whenua to develop and use their resources. They also set out the process to be followed to ensure that urban development is supported by infrastructure on a timely and efficient basis.

They should be considered in conjunction with the Council's other principal strategic plans such as the Auckland Plan, the Long-term plan and the Regional Land Transport Plan. The strategies and asset management plans of infrastructure providers will also be highly relevant.

[Emphasis added]

- 11. The explanatory text at B3.5 of the RPS confirms the intention that "development, especially that associated with growth in greenfield areas, must be integrated and co-ordinated with the provision of infrastructure and the extension of networks".
- 12. Auckland Council recently adopted the Auckland Future Development Strategy 2023-2053 (**FDS**). This replaces the Future Urban Land Supply Strategy (2023-2027). The FDS meets the intent behind the NPS-UD and focuses on the long-term future of Tamaki Makaurau. A key component of the FDS is to integrate long-term land use and infrastructure planning while meeting future climate, environmental, population, housing and employment needs.
- 13. The FDS introduces infrastructure prerequisites, linked to the development readiness of areas. This is to ensure that bulk infrastructure for development is well-coordinated and is able to provide a safe, sustainable environment on which communities can be based. In the previous strategy Warkworth South was proposed to be developed for urban development between 2028 and 2032. The anticipated time for 'live zoned' at Warkworth South is now not before 2040+. This

is to enable various transport upgrades and implementation of the Warkworth Wastewater Growth Strategy.

- 14. Matters concerning the provision, timing and funding of infrastructure are directly relevant to decisions on zoning, and it is poor resource management practice and contrary to the purpose of the RMA to zone land for an activity when the infrastructure necessary to allow that activity to occur without adverse effects on the environment does not exist, or there is a high degree of uncertainty as to whether that infrastructure will be provided in a timely and efficient way.²
- 15. Where infrastructure needed to support a plan change is not planned for in the Long Term Plan and Regional Land Transport Plan³, it is incumbent on the Applicant to show how the infrastructure needed to service the development would be provided.
- 16. A key concern for ACS is therefore that PPC 93 must adequately provide for the strategic integration of transport infrastructure, and the planning / funding of such infrastructure, with land use, otherwise it would be contrary to the thrust of the above provisions.
- 17. The FDS recognises there may be times where alternative funding methods or partners enable all or parts of these future urban areas to be live zoned earlier than where the provision of infrastructure solely rely on council funding.
- 18. As part of the plan change, the Applicant has undertaken to provide all necessary infrastructure to bring forward the 'live zoned' date. Outside of any agreements with the council, a series of objectives, policies and rules/standards are included in the plan change requiring the identified infrastructure to be provided prior to the issuing of s224(c) certification for subdivision. ACS consider this is fundamental to enabling the Future Urban Zoned land to be rezoned for development ahead of forecast.
- 19. ACS consider the provisions are generally strongly worded and most infringements of the standards has full non-complying activity status. ACS supports this but seeks this is applied to all infrastructure and proposes further strengthening commensurate with the significance of the Applicant delivering the infrastructure prerequisites.

² See, for instance, *Foreworld Developments Ltd v Napier City Council* EnvC Wellington W8/2005, 2 February 2005.

³ Documents to which regard must be had under section 74(2)(b)(i) of the RMA.

North-South connections

- 20. ACS is concerned that the precinct shows a north-south connection between State-Highway 1 and the wider western link road joining to Woodcocks Road that is over 2.2km.
- 21. A single connection over this distance has the potential to create segregation of communities. The long pedestrian routes through parks and bush areas are not considered a practical solution to providing additional connections. The need for an additional north-south connection requires greater consideration and an indicative connection shown on Precinct Map 3.

Consistency with AUP precinct provisions

22. ACS is concerned that some of the wording in the Waimanawa Precinct is inconsistent with the format used in other precincts in the AUP. To avoid potential ambiguity and enforcement issues, it is essential the wording in the precinct is consistent with standard conventions, such as referencing to other parts of the AUP and provision drafting follows good practice guidelines.⁴

Morrison Heritage Orchard Precinct

- ACS supports the retention, operation, and enhancement of the existing Morrison's Orchard, but is concerned with the potential intensity of uses and development permitted in the precinct plan. Other than for dwellings and workers accommodation, the activity status and the standards do not address the cumulative effects of the activities, either in combination or where more than one of the same activity occurs within the precinct.
- 24. Existing planting, particularly the shelter belt, is considered one of the defining features of Morrison's Orchard. The provisions do not recognise, maintain and enhance these plantings. Similarly, the streams and associated plantings are not identified and therefore could be removed without appropriate consideration of their value to Morrison's Orchard.

DECISION SOUGHT

Waimanawa Precinct

25. ACS seeks the following decisions on the proposed Waimanawa Precinct, or any other alternative or consequential relief to give effect to this submission:

-

⁴ Such as Quality Planning: Writing Provisions for Plans

Funding and infrastructure pre-requisite

a. Amend objective (8) to add the word <u>avoid</u> subdivision and development unless it is coordinated with the delivery of infrastructure (including transportation, stormwater, potable water, wastewater and future education infrastructure) and services required to provide for development within the precinct and future community requirements.

17.1

b. Retain existing non-complying activity status for activities not complying with Standard Ixxx.6.9 Standards for Wastewater and Potable Water Connections and/or Ixxx.6.10 Standards for Stormwater.

17.2

c. Amend all activity tables to require subdivision and development not complying with 1xxx.6.8 Wider Western Link Road to be a non-complying activity.

7.3

d. Amend all activity tables to require subdivision and development not complying with Standard Ixxx.6.15 Transportation Infrastructure to be a non-complying activity.

17.4

e. Amend IXXX.5 Notification to require that any application for resource consent for any of the following non-complying activities must be publicly notified:

17.5

- (i) 1xxx.6.8 Wider Western Link Road
- (ii) Ixxx.6.9 Wastewater and Potable Water Connections
- (iii) Ixxx.6.10 Stormwater Management
- (iv) Ixxx6.15 Transportation Infrastructure

17.6

f. Amend Table IXXX.6.15.1 Transport Infrastructure Requirements to reduce the trigger from 20 residential lots to 3 residential lots.

17.7

North-south connection

g. Add an additional indicative north-south connection on Precinct Map 3.

Consistency with AUP precinct provisions

h. Amend existing provisions to ensure consistency with drafting in other precincts in the AUP, including standard conventions such as referencing to other parts of the AUP, and correct all numbering references.

17.8

Morrison Heritage Orchard Precinct

26. ACS seeks the following decisions on the proposed Morrison Heritage Orchard Precinct, or any other alternative or consequential relief to give effect to this submission:

Intensity of use and activities

a. Amend Table XXX.X.1 Activity table, XXX.6. Standards and make consequential amendments to address the cumulative effects of the activities, either in combination or where more than one of the same activity occurs within the precinct.

17.9

b. Amend XXX.6. Standards and make consequential amendments by adding provisions that:

17.10

- (i) recognise, maintain and enhance the existing planting, particularly the shelter belt; and
- (ii) identify the streams within the precinct and the planting on either side.

APPEARANCES AT THE HEARING

- 27. ACS could not gain an advantage in trade competition through this submission.
- 28. ACS wishes to be heard with regards to its submission.
- 29. If others wish to make a similar submission, ACS will consider presenting a joint case with them at the hearing

DATED 23 November 2023

On behalf of Auckland Council as submitter:



Councillor Richard Hills, Chairperson of the Planning, Environment and Parks Committee

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Councillor Angela Dalton, Deputy Chairperson of the Planning, Environment and Parks Committee

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Edward Ashby, Independent Māori Statutory Board member

Address for service:

Craig Cairncross

Team Leader Planning Central/South

Email: craig.cairncross@aucklandcouncil.govt.nz

Telephone: 09 301 0101

Postal address: Auckland Council 135 Albert Street Private Bag 92300 Auckland 1142 Mahurangi Trail Society 591 Sandspit Road RD2 Warkworth



22 November 2023

To: Auckland Council "Have Your Say"

Warkworth South Plan Change: Submission by Mahurangi Trail Society Incorporated

Summary

- MTS supports the development concept plan proposed for the Warkworth South area as shown in the Plan Change documents.
 The Plan Change has been comprehensively prepared, providing an excellent evaluation of the development area within the overall planning context of Warkworth's demand for growth.
- This concept plan provides for a number of cycle and pedestrian path options
 within the Plan Change area, which will also link in with other paths and trails
 being developed in the Warkworth area. This will encourage greater use of
 cycling and walking, which will reduce overall vehicle emissions and promote
 better health.
- MTS does not support the proposed timetable in Council's amended Future
 Development Strategy (FDS), which delays the release of these growth areas,
 such as Warkworth South. Some of the key infrastructure, such as roads and
 services, will be provided by the developers as part of the development of the
 area. This will minimise the need for Council to have that funding available.

Submission

Introduction

The Mahurangi Trail Society (MTS) is one of a number of organisations involved in developing cycle and walking trails through the Mahurangi "region". It has already created sections of trails around the Snells Beach/Warkworth area and is working closely with the "umbrella" organisation, the

Matakana Coastal Trail Trust (MCTT). The network of proposed trails extends from Pūhoi to Mangawhai. These trails are designed to provide more opportunities for people to use alternative means of movement around the area, for both commuting and recreation.

General Approach to Urban Development

MTS has been working on the creation of such off road trails through working closely and effectively with many landowners, developers and other organisations such as DOC and Council. It has taken MTS (and MCTT) a great deal of work to reach the extent of progress to date with the actual construction of sections of trail.

MTS has made a number of similar submissions to recent Private Plan Changes and resource consent applications and fully support those that have made provision for new cycle and footpath links (primarily off road). MTS is fully supportive of such development taking place in the manner shown.

MTS has looked at the overall development concept design in terms of the layout of housing types and densities, the provision of open space and retention of streams and vegetation, the internal roading pattern and external main routes to ensure that appropriate safe links can be created within the development area which will also link appropriately to other actual and proposed links in the regional network espoused by MCTT.

Analysis of Development Concept

The concept plan provides for a good range of housing types and forms to meet varied demands. The housing areas have been designed to fit in with the landform and landscape values.

There are some attractive areas of bush and streams which are to be retained and used as open space links and reserves. Within these, a comprehensive network of pedestrian walk ways and cycle tracks will be created. MTS considers that these are well located and designed to enable ease of movement through the development and to links to adjacent areas and roads.

Development Issues

The recently approved Council Future Development Strategy(FDS), which has been amended from an earlier one, proposes to defer the release of the various growth areas, such as Warkworth South, for many years — in this case until after 2040-2045. The decision was made based on the severe constraints on Council providing the funding for the service infrastructure and roading upgrades. Council also considered that it needed a greater degree of control over the timing of the growth of Warkworth.

MTS supports the early development of this area, as is being proposed in the Plan Change. It considers that with much of the infrastructure costs being borne by the developers, this will enable such development to proceed in the near future. MTS wishes to see as many cycle links coming into operation over the next few years, to encourage people to become more active and have other efficient and sustainable means of movement.

Conclusion

MTS requests that Council approve this Plan Change as proposed. The society expects to be notified as part of the approval process. The development as proposed has considerable merit as an appropriate form of development, with some attractive landscape and environmental features, with a network of cycle ways and pedestrian linkages. The necessary infrastructure (services and roads) can be implemented without any significant reliance on Council funding.

18.1

Hugh Briggs

Secretary

Submission on Proposed Plan Change 93 (Private): Warkworth South

Schedule 1 to the Resource Management Act 1991 (RMA)

.....

To: Auckland Council

1. SUBMITTER DETAILS

Name of Submitter: Karen and Stefan Richardson

Address of Submitter: 1768 State Highway 1, RD 3, Warkworth 0983

This is a submission on Proposed Private Plan Change 93 ("PPC93") to Auckland Council

Karen and Stefan Richardson could not gain an advantage in trade competition through this submission.

Karen and Stefan Richardson own 1768 State Highway One, Lot 1 DP 578389, and will be directly affected by the Request as our property is within the proposed plan change area.

We are part of the co-operating landowners' group in support of the plan change in principle.

The Submitter's landholding is referred to as Waimanawa Hills(B) in the PPC93 submission. A map showing the property is under **Appendix A**.

The Submitter's **SUPPORT** the Proposed Plan Change Request in principle subject to the points stated in the submission.

2. The Plan Change Request

The purpose of PPC93 is to rezone the location to a mix of residential, business, open space and rural zones. The key features of the plan change are:

- Rezone approximately 159 hectares of land on either side of the old State Highway One, South of Warkworth.
- Introduction of two new precincts "Waimanawa" and "Morrison Heritage Orchard".
- The proposal also includes the introduction of the SMAF1 Overlay and an amendment to the Rural Urban Boundary (RUB) to the south of Warkworth.

SCOPE OF SUBMISSION

Whilst rezoning the land for residential, business, and open space purposes is supported, there are matters of detail regarding the Submitter's landholding that require consideration and an appropriate degree of certainty of outcome/s needs to be secured through the plan change and its related provisions.

As an integral part of the rezoning and future development of Warkworth South, Waimanawa Hills(B) is reliant on the agreed design, planning, infrastructure, and stormwater management submitted in PPC93.

This requires that:

- Reasonable and appropriate access will be retained to the State Highway to allow both for general access and, when required, for the future urban development of the land in line with PPC93.
- Timing and coordination for delivery of infrastructure is aligned and certainty given around the planned Collector Road access and associated infrastructure.
- Stormwater management is designed so as not to impact the planned development outcomes for Waimanawa Hills(B) and the Submitter's land.
- Wastewater drainage will be provided through an extension to the existing network and sufficient capacity will be provided in the network to enable urban development of the Submitter's land in accordance with the Request. Coordination and timing should incorporate Waimanawa Hills(B) for planning and infrastructure delivery purposes.
- Water reticulation is planned to be provided for the proposed development through an extension of the existing rising main and booster pump to a proposed reservoir within the Plan Change Area. Coordination, timing and delivery of water supply infrastructure should incorporate Waimanawa Hills(B) for planning purposes. Final planned location of the proposed reservoir should not impact the planned development outcomes for Waimanawa Hills(B) and the Submitter's land.

The provisions are required to provide greater certainty as to the development outcomes and the timing and coordinated delivery of infrastructure.

4. Decision sought

Karen and Stefan Richardson seek that Plan Change 93 – Warkworth South be **Accepted subject to** the detail of the Request and related provisions securing the outcomes sought in this submission.

Karen and Stefan Richardson wish to be heard in support of this submission.

19.1

If others make a similar submission, Karen and Stefan Richardson will consider presenting a joint case at the hearing.

Yours sincerely

Stefan Richardson Ph: +64 020 40961374

Email: stefan_richardson@cheerful.com

Appendix A - 1768 State Highway 1, Waimanawa Hills(B)

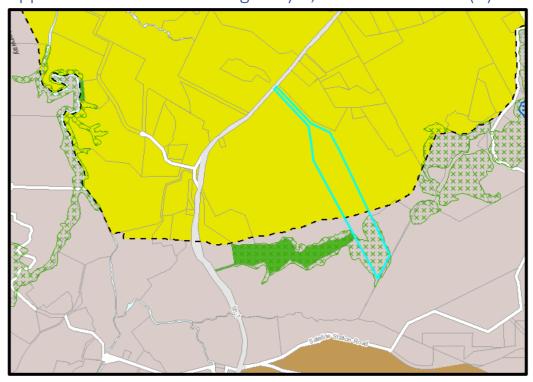


Figure 1 – Auckland Unitary Plan - Operative in Part, 1768 State Highway 1, Warkworth (source: Auckland Unitary Plan maps, 03 July 2023)



Figure 2, Waimanawa Hills(B), excerpt form PPC93



20 Viaduct Harbour Avenue, Auckland 1010 Private Bag 92250, Auckland 1142, New Zealand **Phone** 09 355 3553 **Website** www.AT.govt.nz

23 November 2023

Plans and Places Auckland Council Private Bag 92300 Auckland 1142

Attn: Planning Technician

Email: unitaryplan@aucklandcouncil.govt.nz

Proposed Private Plan Change 93 - Warkworth South

Please find attached Auckland Transport's submission on Proposed Private Plan Change 93 Warkworth South. The applicants are the KA Waimanawa Limited Partnership and Stepping Towards Far Limited.

If you have any queries in relation to this submission, please contact me at katherine.dorofaeff@at.govt.nz or on 021 932 722.

Yours sincerely

Katherine Dorofaeff

Knowtach

Principal Planner, Spatial Planning and Policy Advice

CC:

David Hay - Osborne Hay (North) Ltd; and John Duthie - Tattico Ltd by email: david@osbornehay.co.nz; john.duthie@tattico.co.nz



Submission by Auckland Transport on Private Plan Change 93: Warkworth South

To: Auckland Council

Private Bag 92300 Auckland 1142

Submission on: Proposed Private Plan Change 93 from the KA Waimanawa

Limited Partnership and Stepping Towards Far Limited for land

located at Warkworth South

From: Auckland Transport

Private Bag 92250 Auckland 1142

1. Introduction

- The KA Waimanawa Limited Partnership and Stepping Towards Far Limited (the applicants) are seeking a private plan change (PC93 or the plan change) to the Auckland Unitary Plan Operative in Part (AUP(OP)) to rezone approximately 159ha of land (the site) at Warkworth South from a mix of Future Urban, Open Space Conservation, and Rural Rural Production zonings to a combination of residential (Large Lot, Single House, Mixed Housing Urban, Terrace Housing and Apartment Buildings), business (Local Centre), open space (Conservation) and rural (Mixed Rural) zones. The applicants expect that the rezoning will provide capacity for approximately 1600 dwellings. PC93 also proposes two new precincts (Waimanawa and Morrison Heritage Orchard), applies a SMAF 1 Overlay, and seeks an amendment to the Rural Urban Boundary.
- 1.2 Auckland Transport is a Council-Controlled Organisation of Auckland Council (**the Council**) and the Road Controlling Authority for the Auckland region. Its statutory purpose is 'to contribute to an effective, efficient and safe Auckland land transport system in the public interest'. In fulfilling this role, Auckland Transport is responsible for the following:
 - a. The planning and funding of most public transport, including bus, train and ferry services
 - b. Promoting alternative modes of transport (i.e. alternatives to the private motor vehicle)
 - c. Operating the roading network
 - d. Developing and enhancing the local road, public transport, walking and cycling networks.
- 1.3 Urban development on greenfield land not previously developed for urban purposes generates transport effects and needs transport infrastructure and services to support construction, land use activities and the communities that will live and work in these areas. Auckland Transport's submission seeks to ensure that the transport related matters raised by PC93 are appropriately considered and addressed.

¹ Local Government (Auckland Council) Act 2009, section 39.

- 1.4 Auckland Transport is part of the Te Tupu Ngātahi Supporting Growth Alliance (**Te Tupu Ngātahi**) which is a collaboration between Auckland Transport and Waka Kotahi New Zealand Transport Agency (**Waka Kotahi**) to plan and route protect, where appropriate, the preferred transport network in future growth areas such as Warkworth. The Recommended Strategic Transport Network identified by Te Tupu Ngātahi to support growth in Warkworth identifies three projects of direct relevance to this site:
 - 1. Wider Western Link Road linking between State Highway 1 and Woodcocks Road.
 - 2. Public transport interchange located on the Wider Western Link Road, near the intersection with State Highway 1.
 - 3. Upgrade urban section of State Highway 1 to accommodate walking and cycling.
- 1.5 Auckland Transport has lodged notices of requirement (NOR) to route protect for the future Warkworth strategic transport network. However Auckland Transport has adopted an alternative route protection strategy for the Wider Western Link Road where it traverses through the plan change area (between the Mahurangi Bridge and State Highway 1), and for the public transport interchange. Rather than lodging NOR for this portion of the Wider Western Link Road and the public transport interchange, Auckland Transport are relying on the plan change process and associated infrastructure agreements (if required) to achieve route protection. The NOR lodged for the Wider Western Link Road North provides for an intersection with State Highway 1, and for the urban arterial road between Woodcocks Road and the Mahurangi River (including the river crossing). A NOR has also been lodged for the upgrade of the existing State Highway 1 south corridor between Fairwater Road and the southern Rural Urban Boundary to an urban arterial corridor with active mode facilities.
- 1.6 Auckland Transport is not a trade competitor for the purposes of section 308B of the Resource Management Act 1991.

2. Strategic context

2.1 The key overarching considerations and concerns for Auckland Transport are described below.

Auckland Plan 2050

The Auckland Plan 2050 (**Auckland Plan**) is a 30-year plan outlining the long-term strategy for Auckland's growth and development, including social, economic, environmental and cultural goals². The transport outcomes identified in the Auckland Plan include providing better connections, increasing travel choices and maximising safety. To achieve these outcomes, focus areas outlined in the Auckland Plan include targeting new transport investment to the most significant challenges; making walking, cycling and public transport preferred choices for many more Aucklanders; and better integrating land use and transport. The high-level direction contained in the Auckland Plan informs the strategic transport priorities to support growth and manage the effects associated with this plan change.

-

² The Auckland Plan is a statutory spatial plan required under section 79 of the Local Government (Auckland Council) Act 2009.

Sequencing growth and aligning with the provision of transport infrastructure and services

- 2.3 The Auckland Plan 2050 and the Future Development Strategy 2023 (**FDS**) work together to set the high-level direction for Auckland over the long-term. The FDS sets out the timing of when future urban areas will be ready for development to commence.
- 2.4 Most of the site is zoned Future Urban and is therefore identified for growth. Following a structure plan, a plan change is required to rezone future urban land to an appropriate live urban zoning. Residential or business occupation should not occur until the bulk infrastructure / networks are in place. The FDS identifies the future urban land included within the plan change as being mostly in Warkworth South West and South East, with some in Warkworth South Central. Bulk infrastructure delivery is not planned to support development until the following timeframes:
 - Warkworth South Central 2040+
 - Warkworth South West and South East 2045+.
- 2.5 Appendix 6 of the FDS includes infrastructure prerequisites, linked to the development readiness of areas. Transport prerequisites relevant to the plan change area include SH1 Southern Interchange, Woodcocks Road upgrade, Western Link south, Southern Public Transport Interchange, SH1 South upgrade, and Wider Western Link.
- The growth in transport demands across Auckland comes from development in greenfield areas as well as from the smaller scale incremental intensification enabled through the AUP(OP). There is a need to support the movement of the additional people, goods and services resulting from the widespread growth. This increases pressure on the available and limited transport resources. A high level of certainty is needed about the funding, financing and delivery of transport infrastructure and services if the growth enabled by the AUP(OP) and plan changes is to be aligned with the required transport infrastructure and services. Otherwise there will continue to be a significant deficiency in the ability of the transport network to provide and co-ordinate transport responses to dispersed growth across the region. This results in poor transport outcomes including lack of travel choice and car dependency.
- 2.7 Plan changes which allow future urban land to be urbanised need to be carefully considered in the context of the wider staging and delivery of planned transport infrastructure and services. Any misalignment in timing between urbanising greenfield areas and providing infrastructure and services brings into question whether the proposed development area is 'development ready'. The matters that need to be carefully considered include:
 - Whether the plan change includes mechanisms requiring applicants to mitigate the transport effects associated with their development and to provide the transport infrastructure needed to service or meet the demands from their development
 - Whether the development means that any strategic transport infrastructure being planned to service the wider growth area identified in the FDS needs to be provided earlier
 - Whether the development impacts the ability to provide any strategic transport infrastructure identified to service the wider growth area e.g. will it

foreclose route options or hinder future upgrades of existing strategic transport infrastructure.

2.8 The need to coordinate urban development with infrastructure planning and funding decisions is highlighted in the objectives of the National Policy Statement on Urban Development 2020 (NPS-UD). Those objectives are quoted below (with emphasis in bold):

'Objective 3: Regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment in which one or more of the following apply:

- (a) the area is in or near a centre zone or other area with many employment opportunities
- (b) the area is well-serviced by existing or planned public transport
- (c) there is high demand for housing or for business land in the area, relative to other areas within the urban environment.'

'Objective 6: Local authority decisions on urban development that affect urban environments are:

- (a) integrated with infrastructure planning and funding decisions; and
- (b) strategic over the medium term and long term; and
- (c) responsive, particularly in relation to proposals that would supply significant development capacity.'
- 2.9 The Regional Policy Statement (**RPS**) objectives and policies in the AUP(OP) place similar clear emphasis on the efficient provision of infrastructure and on the integration of land use and development with infrastructure, including transport infrastructure. Refer, for instance, to Objectives B2.2.1(1)(c) and (5) and B3.3.1(1)(b), and Policies B2.2.2(7)(c) and B3.3.2(5)(a). For example, Policy B3.3.2(5)(a) is to: 'Improve the integration of land use and transport by... ensuring transport infrastructure is planned, funded and staged to integrate with urban growth'. The alignment of infrastructure to support growth is essential to achieving a well-functioning urban environment.
- 2.10 The Regional Land Transport Plan (**RLTP**) sets out the 10 year programme of transport infrastructure investment required to support the transport network including planned and enabled growth in the Auckland region. The RLTP is aligned with the Council's priority areas and the spend proposed within the Council's 10 Year Budget 2021-2031. Within the current RLTP 2021-2031 there is funding for the Hill Street intersection improvement in Warkworth.

3. Specific parts of the plan change that this submission relates to

- 3.1 The specific parts of the plan change that this submission relates to are set out in **Attachment 1**. In keeping with Auckland Transport's purpose, the matters raised relate to transport and transport assets, including integration between transport and land use. Issues raised include:
 - Lack of public transport to service subdivision and development in this location
 - Need for acoustic mitigation to mitigate potential road traffic noise effects for sensitive activities located adjacent to existing and future arterial roads
 - Aligning subdivision and development with the provision of transport infrastructure - including support for provisions which are consistent with this outcome

- Amendments sought to provisions relating to transport provisions achieve greater clarity and robustness.
- 3.2 Auckland Transport **does not oppose** the plan change **if** the matters raised in **Attachment 1** are satisfactorily addressed by the applicant.
- 3.3 Auckland Transport is available and willing to work through the matters raised in this submission with the applicant.

4. Decisions sought

- 4.1 The decisions which Auckland Transport seeks from the Council are set out in **Attachment 1**.
- 4.2 In all cases where amendments to the plan change are proposed, Auckland Transport would consider alternative wording or amendments which address the reason for Auckland Transport's submission. Auckland Transport also seeks any consequential amendments required to give effect to the decisions requested.
- 5. Appearance at the hearing
- 5.1 Auckland Transport wishes to be heard in support of this submission.
- 5.2 If others make a similar submission, Auckland Transport will consider presenting a joint case with them at the hearing.

Name: Auckland Transport

Signature:

Rory Power

Spatial Planning Manager

Date: 23 November 2023

Contact person: Katherine Dorofaeff

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Attachment 1

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
Overall Oppose	Amendments are needed to the plan change to address concerns raised by Auckland Transport about transport matters. These matters must be addressed before Auckland Transport can be satisfied that appropriate provision has been made to ensure that the transport needs of the precinct can be met and that future strategic transport infrastructure is provided for and protected.	Decline the plan change unless the matters set out in this submission, as outlined in the main body of this submission and in this table, are addressed and resolved to Auckland Transport's satisfaction.	
		It is essential to ensure the plan change addresses how transport infrastructure and services will be provided to support the planned growth, mitigate adverse transport effects and achieve a well-functioning urban environment.	
Overall	Oppose	The plan change will enable development in a location which does not have frequent public transport services and where there is no Auckland Transport funding available to improve the services. For this reason the plan change does not give effect to some NPS-UD and RPS objectives and policies relating to public transport. In particular it will not: • enable more people to live or be located in areas of an urban environment that is well-serviced by existing or planned public transport (NPS-UD Objective 3(b)) • have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport (NPS-UD Policy 1(c)) • enable 'improved and more effective public transport' (AUP RPS Objective B2.2.1(1)(d)) • achieve 'effective, efficient and safe transport that facilitates transport choices and enables accessibility and mobility for all sectors of the community.' (AUP RPS Objective B3.3.1(1)(e)) • encourage 'land use development and patterns that reduce the rate of growth in demand for private vehicle trips, especially during peak periods' (AUP RPS Policy B3.3.2(5)(b)).	Take into account the public transport deficiencies and assess the proposal against the NPS-UD and RPS objectives and policies relevant to public transport and transport choice.

20.1

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
		Given the public transport deficiencies, the plan change will be limited in the extent to which it can 'promote the health, safety and well-being of people and communities by 'enabling walking, cycling and public transport and minimising vehicle movements' (AUP RPS Policy B2.3.2(2)(b)).	
Map 3 - Control: Arterial Roads	Support in part	Auckland Transport supports the identification of the Wider Western Link Road as an arterial road in the AUP(OP). However the map needs amendment to more clearly specify the changes needed to the AUP(OP) to give effect to it.	Amend Map 3 - Control: Arterial Roads, so it is clear that its purpose is to identify the Wider Western Link Road as an arterial road in the controls layer of the AUP(OP) map viewer. Delete from Map 3 the annotations for State Highway 1 and the indicative WWLR / SH1 intersection.
Waimanawa Precinct			
Public Transport Interchange	Support in part	PC93 and the associated Waimanawa Precinct Plan provide for the establishment of a public transport interchange on the western edge of the local centre. Subject to amendments sought in this submission, Auckland Transport generally supports the provision made for this facility. However it not clear whether a sufficient area of land has been identified on Precinct Plan 3 to accommodate the interchange which requires approximately 2500m² of land.	Ensure that a minimum area of 2500m² is identified for the public transport Interchange. Amend plan change as required to ensure that this is provided for.
IXXX.1 Precinct description	Oppose in part	An update is required as the Ara Tūhono - Pūhoi to Warkworth Motorway is now open and forms part of the existing road environment.	Amend the fourth paragraph of IXXX.1 Precinct description, by deleting the following: 'the proposed opening of the Puhoi to Warkworth Motorway in 2023 and'
IXXX.1 Precinct description	Oppose in part	The precinct provisions require the Wider Western Link Road between State Highway 1 and the Mahurangi River Tributary, to be constructed as a two lane, 24m wide road with a median, and active mode facilities. This will function as a collector road but this width and form will also be sufficient to enable it to function as an arterial road for the wider area once it is extended to Woodcocks Road.	Amend paragraph 12 of IXXX.1 Precinct description as follows: 'Construction of the Wider Western Link Road through the precinct to a collector road standard will be integrated with subdivision and development within the Precinct.'
IXXX.1 Precinct description	Oppose in part	Amendments are required to make it clear that the greenway network is an off-road network. It will connect into the walking and cycling facilities on the road network.	Amend paragraph 14 of IXXX.1 Precinct description as follows:

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
			' provision is made for an off-road greenway network providing a network of tracks and walkways through the various open spaces and roads and'	
Acoustic mitigation	Oppose	The proposal will enable residential development adjacent to an existing arterial road (State Highway 1) and a future arterial road (Wider Western Link Road). Residential activity is sensitive to noise and development should be designed to protect people's health and residential amenity while they are indoors. This is not currently adequately addressed by existing AUP(OP) provisions, but has been addressed in a number of recent operative plan changes (e.g. PC49 Drury East, PC50 Waihoehoe, PC61 Waipupuke and PC76 Kohe / Pukekohe East-Central). Relevant objectives, policies and rules should be provided.	Amend the plan change by including precinct provisions (objectives, policies and rules) within the Waimanawa Precinct to require that future developments and alterations to existing buildings mitigate potential road traffic noise effects on activities sensitive to noise from the existing State Highway 1 arterial and the future Wider Western Link Road arterial.	20.8
IXXX.2 Objective 2	Oppose in part	Objective 2 is too long and lacks clarity. The outcome sought by the objective would be clearer if it was divided into two objectives. The objective also refers to a 'national roading network' and it is not clear what this means as the former State Highway 1 will be removed from the state highway network with the opening of the Pūhoi to Warkworth motorway. 'Strategic' is a better term to use. The term 'transport network' is preferred to 'roading network' as it better reflects the different modes that form the network.	Amend Objective 2, and split it into two objectives as follows: '(2) The Warkworth South Precinct is subdivided and developed in a manner that Subdivision and development achieves an accessible urban area with efficient, safe and integrated vehicle, walking and cycle connections internally and to the wider Warkworth urban area. (2A) while Subdivision and development providesing for and supportsing the safety and efficiency of the current and future national strategic and local roading transport network.'	20.9
IXXX.2 Objective 8	Oppose in part	The reference to 'future education infrastructure' is unclear and should be deleted as the precinct provisions do not require education infrastructure to be co-ordinated with subdivision and development. The other infrastructure referred to (transport, stormwater, potable water and wastewater) is required by precinct provisions.	Amend Objective 8 as follows: 'Subdivision and development is coordinated with the delivery of infrastructure (including transportation, stormwater, potable water, and wastewater and future education infrastructure) and services required to provide for development within the precinct and future community requirements.'	20.10

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
IXXX.2 Objective 10	Support in part	Amendments are needed to make Objective 10 clearer, recognise the importance of the interchange being adjacent to the local centre, and focus on safe bus access.	Amend Objective 10 as follows: 'To provide for the opportunity for a future public transportation interchange adjacent to the local centre which can be safely accessed by a range of buses and other required transportation modes.'
IXXX.2 Objectives	Oppose	To support transport land use integration, a robust objective is needed whereby subdivision and development does not occur in advance of the availability of operational transport infrastructure.	Add a new objective as follows: 'Subdivision and development does not occur in advance of the availability of operational transport infrastructure.'
IXXX.2 Objectives	Oppose	An additional objective is needed to address access to, from and within the precinct. In addition, the outcome of safe, effective and efficient access needs to be linked to mitigating the adverse effects of traffic generation on the surrounding road network.	Add a new objective as follows: 'Access to and from and within the precinct for all modes of transport occurs in a effective, efficient and safe manner that mitigates the adverse effects of traffic generation on the surrounding road network.'
IXXX.2 Objectives	Oppose	An additional objective is needed to focus on active modes and public transport. This is consistent with NPS-UD and Regional Policy Statement objectives and policies which emphasis reducing dependence on private vehicle trips and enabling walking, cycling and public transport.	Add a new objective as follows: 'The precinct develops and functions in a way that: (a) supports a mode shift to public and active modes of transport (b) provides safe and effective movement between the local centre, community facilities, housing, jobs, open spaces and the public transport facilities by active modes.'
IXXX.3 Policy 12	Oppose in part	The reference to 'educational infrastructure' in this policy is unclear and should be deleted as the precinct provisions do not require subdivision and development to provide educational infrastructure. The other infrastructure referred to (transport, stormwater, potable water and wastewater) is required by precinct provisions.	Amend Policy 12 as follows: 'Require subdivision and development to provide stormwater, wastewater, potable water, electricity, and communication services and educational infrastructure in a coordinated manner.'
IXXX.3 Policy 13	Support in part	Policy 13 needs amendment to make it clearer and to identify the need to provide walking and cycling connections to existing urban development.	Amend Policy 13 as follows: 'Require subdivision and development to provide for walking and cycling networks within the precinct, including to any future public transport interchange, while also providing connections to the wider transportation

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
			network and any future public transport interchange existing urban development.'	
IXXX.3 Policy 14	Support in part	The requirement to provide the roading infrastructure in accordance with Precinct Plan 3 is supported. However the policy would benefit from amendment to provide explicit support to the design and functional elements identified in the transport infrastructure standard.	Amend Policy 14 as follows: 'Require subdivision and development to upgrade existing and/or provide new roading infrastructure (which is designed in accordance with Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements for a range of modes of transport and including public transport) within the precinct and to provide connections to adjoining land generally in accordance with Precinct Plan 3.'	20.1
IXXX.3 Policy 15	Support in part	The precinct provisions require the Wider Western Link Road between State Highway 1 and the Mahurangi River Tributary, to be constructed as a two lane, 24m wide road with a median, and active mode facilities. This will initially function as a collector road servicing the precinct but is of the width and form required to function as part an arterial road for the wider area once it is extended to Woodcocks Road. Policy 15 needs amendment to more clearly reflect this.	Amend Policy 15 as follows: 'Provide for and require the Wider Western Link Road to be constructed to a collector road standard in the interim to service subdivision and development within the precinct, while recognising that it will form part of provision is made for its future upgrading by Auckland Transport to provide a future strategic transport connection.'	20.18
IXXX.3 Policy 16	Support in part	Auckland Transport supports the vehicle access restriction applying to development with frontage to the Wider Western Link Road and State Highway 1. However an exemption is needed for the future public transport interchange as this cannot function without vehicle access.	Amend Policy 16 as follows: 'Avoid direct vehicle access from individual sites on to the Wider Western Link Road and State Highway One, while allowing direct pedestrian and cycle access and for bus and service vehicle access to the future public transport interchange.'	20.1
IXXX.3 Policy 19	Support	Minimising direct vehicle access from individual sites on to collector roads will improve safety for pedestrians and cyclists, particularly given the separated cycle facilities that will be provided.	Retain Policy 19	20.2
IXXX.3 Policies	Oppose in part	None of the existing policies explicitly link with Objective 10 which addresses the provision for a public transport interchanges. There is a need to provide a supporting policy.	Include a new policy as follows: 'Provide for the development and operation of a public transport interchange in the indicative location identified on Precinct Plan 3.'	20.2

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
IXXX.4 Activity tables	Oppose	The activity tables are long and repetitive and could be made more legible for users. They unnecessarily repeat 'standards to be complied with' rather than relying on blanket rules such as IXXX.6(3) which states that permitted activities must comply with Standards Ixxx.6.	Amend the activity tables to reduce complexity and repetition so that they are easy for the user to understand.
IXXX.4 Activity tables, & Ixxx.7 Assessment - restricted discretionary activities	Oppose in part	While in general, the road design and functional elements set out in Table IXXX.6.15.2 should be complied with, there may be circumstances where some variation in road design is acceptable. This is subject to assessment against relevant precinct policies, consideration of design constraints, and ensuring appropriate interface design treatment at property boundaries (particularly for pedestrians and cyclists). The activity tables should be amended to include an appropriate restricted discretionary activity.	Amend the activity tables to include a restricted discretionary (RD) status for 'Subdivision and / or development that does not comply with Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements'. Consequential to this, amend Ixxx.7 Assessment - restricted discretionary activities, to include appropriate Matters of Discretion and Assessment Criteria to assess proposals that do not comply with Table IXXX.6.15.2.
Table IXXX.4.1 All zones (A17)	Oppose	(A17) relates to 'subdivision not complying with Standard Ixxx.6.14 Greenways - Walking and Cycling Infrastructure'. Such subdivision should still need to comply with Standard Ixxx.6.15 Transportation Infrastructure. It appears this standard may have been omitted in error.	Amend (A17) in Table IXXX.4.1 All zones, to include the following standard in the 'Standards to be complied with' column: 'Ixxxx6.15 Transportation Infrastructure' Make similar amendments to other entries in Table IXXX.4.1 where required.
Table IXXX.4.2 Residential - Large Lot Zone (A3)	Oppose	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	Amend (A3) in Table IXXX.4.2 Residential - Large Lot Zone, to apply a NC activity status to 'Development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements)'
Table IXXX.4.2 Residential - Large Lot Zone (A4)	Oppose	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	Amend (A4) in Table IXXX.4.2 Residential - Large Lot Zone, to apply a NC activity status to 'Subdivision not complying with Standard Ixxx6.15 (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements)'
Table IXXX.4.3 Residential - Single House Zone	Oppose in part	Auckland Transport supports the non-complying activity status applying to subdivision not complying with Standard Ixxx.6.7 Limited Access Restrictions and Pedestrian Connections (A5).	Amend Table IXXX.4.3 Residential - Single House Zone to include the following as a non-complying activity (NC).

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
		However a similar entry needs to be included in the table for development that does not comply with this standard.	'Development not complying with Standard Ixxx.6.7 Limited Access Restrictions and Pedestrian Connections'	
Table IXXX.4.4 Residential - Mixed Housing Urban Zone (A6)	Oppose in part	Restaurants and cafes are provided for as a permitted activity within the existing former Ransom Vineyard Building. The scale and transport effects of this activity have not been addressed in either the planning assessment or the ITA provided to support the application. It is not clear why this is provided for as a permitted activity in the Mixed Housing Urban zone.	Amend (A6) Table IXXX.4.4 to apply a discretionary (D) or restricted discretionary (RD) status (with appropriate assessment matters, including transport effects) to restaurants and cafes within the existing former Ransom Vineyard Building. In the alternative, provide supporting information about transport effects sufficient to satisfy Auckland Transport that no additional assessment is required via a resource consent process.	20.28
Table IXXX.4.4 Residential - Mixed Housing Urban Zone (A7)	Oppose in part	Education facilities are provided for as a permitted activity within the existing former Ransom Vineyard Building. The scale and transport effects of this activity have not been addressed in either the planning assessment or the ITA provided to support the application. It is not clear why this is provided for as a permitted activity in the Mixed Housing Urban zone.	Amend (A7) Table IXXX.4.4 to apply a discretionary (D) or restricted discretionary (RD) status (with appropriate assessment matters, including transport effects) to education facilities within the existing former Ransom Vineyard Building. In the alternative, provide supporting information about transport effects sufficient to satisfy Auckland Transport that no additional assessment is required via a resource consent process.	20.29
Table IXXX.4.4 Residential - Mixed Housing Urban Zone (A8)	Oppose in part	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	Amend (A8) in Table IXXX.4.4 Residential - Mixed Housing Urban Zone, to apply a non-complying (NC) status to 'Development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements).'	20.3
Table IXXX.4.4 Residential - Mixed Housing Urban Zone (A11)	Oppose in part	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	Amend (A11) in Table IXXX.4.4 Residential - Mixed Housing Urban Zone, to apply a non-complying (NC) status to 'Subdivision not complying with Standard Ixxx6.15 (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements).'	20.31
Table IXXX.4.5 Residential - Terrace	Oppose in part	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be	Amend (A6) in Table IXXX.4.5 Residential - Terrace Housing and Apartment Buildings, to apply a non-complying (NC)	20.32

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
Housing and Apartment Buildings (A6)		provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	status to 'Development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements).'	
Table IXXX.4.5 Residential - Terrace Housing and Apartment Buildings (A9)	Oppose in part	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	Amend (A9) in Table IXXX.4.5 Residential - Terrace Housing and Apartment Buildings, to apply a non-complying (NC) status to 'Subdivision not complying with Standard Ixxx6.15 (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements).'	20.33
Table IXXX.4.6 Business – Local Centre (A1)	Support in part	For the avoidance of doubt, the listed activity (A1) should provide for the 'operation <u>and maintenance</u> of a public transport interchange'. It is appropriate to apply a permitted activity to the operation and maintenance of a public transport interchange once it is established. However the standards listed in the activity table are not relevant to the operation of such a facility. They are relevant at the construction phase which is covered elsewhere in the activity table.	Amend (A1) in Table IXXX.4. 6 Business – Local Centre, to describe the activity as 'Operation <u>and maintenance</u> of a public transport interchange', and to delete the list of standards to be complied with as none are relevant to operation and maintenance but relate to the construction phase which is covered elsewhere in the table. Retain permitted (P) status for 'Operation of a public transport interchange'.	20.34
Table IXXX.4.6 Business – Local Centre (A6)	Support in part	Auckland Transport supports the vehicle access restriction applying to development with frontage to the Wider Western Link Road and State Highway 1. However an exemption is needed for the future public transport interchange as this has a functional need for vehicle access. It is appropriate to apply a controlled activity status for the 'Development of a public transport interchange and associated facilities' so that the detail of the proposal can be assessed.	Amend (A6) in Table IXXX.4. 6 Business – Local Centre, to delete Ixxx.6.7 Limited Access Restrictions, from the list of standards to be complied with. Retain controlled (C) status for 'Development of a public transport interchange and associated facilities'.	20.35
Table IXXX.4.6 Business – Local Centre (A7)	Oppose in part	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	Amend (A7) in Table IXXX.4. 6 Business – Local Centre, to applying a non-complying (NC) activity status for 'Development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements)'.	20.36
Table IXXX.4.6 Business – Local Centre	Oppose in part	Subdivision and / or development which does not comply with the standards requiring specified transport infrastructure to be	Amend (A11) in Table IXXX.4. 6 Business – Local Centre, to applying a non-complying (NC) activity status for 'Subdivision	20.3

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
(A11)		provided should be assessed as a non-complying activity. The transport infrastructure specified in Table IXXX.6.15.1 is critical to servicing subdivision and development within the precinct.	not complying with Standard Ixxx6.15 (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements)'.
IXXX.6 Standards (3)	Oppose	All activities in the tables (including D and NC activities) should be required to comply with the standards unless non-compliance is specifically addressed as part of a consent application. This is the standard approach in recent precincts. Where the precinct provisions do not specifically address non-compliance with individual standards, this can be addressed under the AUP(OP) general rules at C1.9 Infringement of standards.	Amend IXXX.6 Standards (3) as follows: 'Permitted All activities listed in Activity Tables Ixxx.4.1 to Ixxx.4.7 must comply with Standard Ixxx.6.'
Ixxx.6.7 Limited Access Restrictions, Pedestrian Connections and Cycle Facilities	Support in part	Ixxx.6.7 seeks to address vehicle access restrictions as well as pedestrian connections and cycle facilities. However the application of this rule to pedestrian and cycle facilities is unclear and amendments are needed to address this. Clause (3) requires pedestrian connections to be provided generally as shown on Precinct Plan 3. The only reference to pedestrians on Precinct Plan 3 is at the Wider Western Link Road / State Highway One intersection. Ixxx.6.7 does not require any cycle facilities to be required. However there are other standards elsewhere in the precinct provisions that do require pedestrian and cycle facilities to be provided - Ixxx.6.14 Greenways - Walking and Cycling Infrastructure, Ixxx.6.15 Transportation Infrastructure. It appears that Ixxx.6.7 does not need to include any requirements for pedestrian connections and cycle facilities, other than supporting their safety through vehicle access restrictions.	Amend Ixxx.6.7 Limited Access Restrictions, Pedestrian Connections and Cycle Facilities to clarify whether the standard requires any pedestrian and cycle facilities to be provided, or whether it only includes vehicle access restrictions. Amend the title and Ixxx.6.7(3) accordingly.
Ixxx.6.7 Limited Access Restrictions, Pedestrian Connections and Cycle Facilities	Support in part	Some amendments are required to the title and purpose statement of lxxx.6.7 to clarify the purpose of the standard. Such restrictions are generally called vehicle access restrictions (rather than limited access restrictions) elsewhere in the AUP(OP), particularly in Chapter E27 Transport. The first bullet point should be amended to include Green Avenue and other collector roads, given that Standard lxxx.6.7(2) and (4) includes vehicle access restrictions for those roads.	Amend the title and purpose statement of Ixxx.6.7 as follows: 'Limited Vehicle Access Restrictions, Pedestrian Connections and Cycle Facilities Purpose: • to avoid direct vehicle access from individual sites onto State Highway One, and the Wider Western Link Road, Green Avenue, and collector roads; and • to have promote safe and efficient operation of

20.41

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
		The second bullet point should refer to ' to promote safe and efficient operation' rather than 'to have safe and efficient operation'. The third bullet point should include 'safe' as the vehicle access restriction is important for achieving safe pedestrian and cycle connections. The last part of the sentence should be deleted as its meaning is unclear and therefore it does not add value to the purpose statement.	transport infrastructure; and to achieve <u>safe</u> , accessible and high-quality pedestrian and cycle connections within the Precinct and including to the Local Centre and any future public transportation interchange-that provides positively for the needs to the local community.'
Ixxx.6.7 Limited Access Restrictions, Pedestrian Connections and Cycle Facilities	Support in part	Some amendments are required to lxxx.6.7 (2), (3) and (4). As mentioned elsewhere in this submission, the public transport interchange has functional requirements which mean it needs to be exempt from the vehicle access restriction. The references to providing access via a rear driveway should be deleted, and it is not clear what this means. Rather vehicle access can be provided by rear lanes (access lots) or side roads. An amendment is required to (3) to make it clear that pedestrian connections shown in Precinct Plan 3 should be provided in conjunction with subdivision as well as in conjunction with development.	Amend Ixxx.6.7 Limited Access Restrictions, Pedestrian Connections and Cycle Facilities, (1) to (4) as follows: '(1) Any new road intersections with State Highway One or the Wider Western Link Road servicing the precinct, shall be generally located as identified as "Access Points" on IXXX.10.3 Waimanawa: Precinct Plan 3. (2) Sites that front onto the Wider Western Link Road, Green Avenue and State Highway One must not have direct vehicle access to the road except where required for the public transport interchange. and Sites, other than the public transport interchange, must be provided with access from a rear driveway, rear lanes (access lots) or side roads at the time of subdivision. (3) At the time of adjacent land subdivision and / or development, pedestrian connections, generally as shown in Precinct Plan 3, shall be provided. (4) Residential sites that front a collector road other than the 'Green Avenue" as shown on Precinct Plan 3, must not have direct vehicle access to the road and must be provided with access from a rear driveway, rear lanes (access lots) or side roads at the time of subdivision.'
1xxx.6.8 Wider Western Link Road	Oppose	Ixxx.6.8 Wider Western Link Road can be deleted. This standard is not required as:	Delete 1xxx.6.8 Wider Western Link Road in its entirety. Retain the non-complying activity status for subdivision and development which does not construct the Wider Western Link Road by applying an non-complying activity status to a

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
		 the requirement to construct the Wider Western Link Road through the precinct, and the intersection with State Highway 1 is covered in Ixxx.6.15. the location of intersections for local roads connecting with the Wider Western Link Road is covered in Ixxx.6.7 the developer is required to construct a 24m wide road as set out in Table IXXX.6.15.2 and no additional land needs to be acquired by Auckland Transport for future upgrading to an arterial road. 	'Subdivision and development not complying with Standard Ixxx6.15 Transportation Infrastructure (other than Table IXXX.6.15.2 Minimum Road Width, Function and Required Design Elements), as sought elsewhere in this submission.	
Ixxx.6.12 Riparian Yards for Streams and Natural Wetlands	Oppose in part	An earlier proposal sought to include 6m width of land alongside the Wider Western Link Road as riparian planting within the road to vest. This was not acceptable to Auckland Transport. Bullet point 3 should be deleted accordingly as it suggests that the riparian yard would be included within the road reserve.	Amend Ixxx.6.12 Riparian Yards for Streams and Natural Wetlands, by deleting the third bullet point under the purpose statement as follows: 'To integrate the section of watercourse along the Wider Western Link Road within a wide road berm or as a separate open space integrated with the road berm.'	20.4
Ixxx.6.14 Greenways - Walking and Cycling Infrastructure	Oppose in part	Amendments are required to focus Ixxx.6.14 on off-road walking and cycling infrastructure. On-road active mode facilities are addressed under Ixxx.6.15 Transportation infrastructure.	Amend Ixxx.6.14 Greenways - Walking and Cycling Infrastructure, as follows: 'Purpose: To provide for off-road walkways and cycleways which Council wants vested in Council to form part of the public greenway network. (1) Walkways and cycleways that are to be vested in the Council (other than those vested as road) shall be provided within the greenways shown on Precinct Plan 1 and: (a) Shall be constructed either to a walking track standard similar to that constructed in Regional Parks if not part of a vested formed road, or in the case where the greenway is part of a vested formed road, constructed to normal footpath standards as appropriate;'	20.4
Ixxx.6.15 Transportation Infrastructure	Support in part	Amendments are required to the title and purpose statement relating to transport infrastructure to:	Amend the title and purpose statement of lxxx.6.15 as follows:	20.

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
		 refer to 'transport infrastructure' rather than 'transportation infrastructure' make it clear that the transport infrastructure it to be provided, not just provided for reflect the need to provide a pedestrian and cycle connection further northwards along State Highway 1 (past the McKinney Road intersection) as outlined elsewhere in this submission. 	 'Transportation Infrastructure Purpose: To achieve the integration of land use and transportation infrastructure (including walking and cycling). To ensure transportation infrastructure is appropriately provided for. To provide a pedestrian and cycle connection to the McKinney Road/northwards along State Highway One Intersection to the existing urban area.' 	
Ixxx.6.15 Transportation Infrastructure (1) and (2)	Oppose in part	Amendments are required to make it clear that subdivision and development within the Precinct must not exceed the triggers in the relevant Table until the identified transport infrastructure upgrade is constructed and operational, in the general location shown on Precinct Plan 3. Transport upgrades should be identified on Precinct Plan 3 Transportation, and there should be no need to reference Precinct Plan 1 Spatial Provisions.	Amend Ixxx.6.15 Transportation Infrastructure, (1) and (2) as follows: '(1) Subdivision and development within the Precinct must not exceed the triggers in Table IXXX.6.15.1 until the identified transport infrastructure upgrades are constructed and operational. The development of any part of the Precinct shall provide the relevant transport infrastructure, including walking and eyeling, as indicated in Ixxx10.1 and applying to the development site, in the general location shown on Precinct Plans 1 and 3. (2) Subdivision and development (including construction of any new road) must comply with the standards in Table I4XX.6.4.2.1'	20.4
Table IXXX.6.15.1 Transportation Infrastructure Requirements (T1)	Oppose in part	Table IXXX.6.15.1 Transport Infrastructure Requirements does not include a clear requirement to upgrade the Valerie Close / State Highway 1 intersection. Instead it requires an assessment to be undertaken to confirm whether or not upgrading is required as part of any subdivision with frontage to Valerie Close or with a new road connection to Valerie Close. As currently worded the trigger is unclear and is more like an assessment matter than a rule. Amendment is required to achieve a more robust trigger and upgrading requirement.	Amend (T1) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to set a clear and appropriate trigger for upgrading of the Valerie Close / State Highway 1 intersection.	20.

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
Table IXXX.6.15.1 Transportation Infrastructure Requirements (T2)	Support in part	Amendments are required to better describe the location and form of the upgrade to State Highway 1 so it is clearer what is required.	Amend (T2) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to describe the upgrade as follows: 'Upgrading of State Highway One though where it has frontage to the WW South Precinct to an urban arterial standard with active mode facilities'
Table IXXX.6.15.1 Transportation Infrastructure Requirements (T2)	Support in part	Amendments are required to clearly identify the trigger for upgrading of State Highway 1.	Amend (T2) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, by deleting the existing trigger for the State Highway 1 upgrade and replacing it with the following: 'Any subdivision and/or development: • within the Business - Local Centre zone; • for a retirement village; or • resulting in a cumulative total of 20 residential lots or dwellings within the Precinct.'
Table IXXX.6.15.1 Transportation Infrastructure Requirements (T3) and (T4)		Amendments and clarification are needed to ensure appropriate provision for active modes along State Highway 1. It is important to provide such facilities as part of the State Highway 1 upgrade (T2 in Table IXXX.6.15.1). In addition, an active mode connection should be provided along State Highway 1 to the connect in to the existing urban area to the north. This extended connection beyond the precinct area may need to be interim or temporary in nature to fit within the existing road reserve until the upgrades planned for State Highway 1 can be undertaken. (T3) and (T4) of Table IXXX.6.15.1 provides for a pedestrian/ cycle path on the eastern side of State Highway 1 to McKinney Road, and on the western side of State Highway 1 to Morrisons Heritage Orchard Entrance. Auckland Transport has the following concerns about the provisions: • it is not clear how the transport infrastructure requirements in (T3) and (T4) of Table IXXX.6.15.1 fit in with (T1) along the precinct frontage to State Highway 1 • the connection to the north should extend to the northern end of Wech Drive to provide connection to the	 Amend the provisions relating to active mode connections along State Highway 1 to: require pedestrian and cycle facilities to be provided in their ultimate form and location as part of the upgrade of State Highway 1 where it has frontage to the precinct clarify which pedestrian and cycle facilities are to be provided in an interim or temporary form require pedestrian and cycle facilities to be provided along State Highway 1 from the precinct to the northern end of Wech Drive. This is likely to require amendments to Table IXXX.6.15.1(T1), (T3) and (T4), Table IXXX.6.15.2 Note 2, and possibly Precinct Plan 3 Transportation. Require the applicant to provide additional detail to demonstrate that safe pedestrian and cycle facilities can be provided along SH1 from the precinct to the northern end of

oppose	Reasons for submission	Decision requested	
	 more detail is needed to demonstrate that a safe active modes connection can be provided to the north given constraints (such as power poles) within the existing road reserve. 		
Support in part	Amendments are required to clearly identify the trigger for the construction of the Wider Western Link Road / State Highway 1 intersection	Amend (T5) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, by deleting the existing trigger for the Wider Western Link Road / State Highway 1 intersection and replacing it with the following: 'Any subdivision and/or development: • within the Business - Local Centre zone; • for a retirement village; or • resulting in a cumulative total of 20 residential lots or dwellings within the Precinct.'	20.5 ⁻
Support in part	 (T7) applying to Green Avenue can be deleted and combined with the requirements applying to other collector roads. As currently worded, Green Avenue would need to be constructed as part of the first subdivision for residential development, rather than when there is subdivision or development with frontage to that road. This wording does not match with the recommendations in Section 5 of the the ITA and would appear to be an error. Amendments are required to: refer to 'construction' in keeping with the other entries in the table 	Amend (T8) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to describe the transport infrastructure as follows: 'Construction of Collector Roads (including Green Avenue)' Consequential deletion of (T7)	20.5
	 note that there is more than one collector road include specific reference to Green Avenue. 		
Support in part	Amendments are required to better describe the upgrading required to Mason Heights. The upgrading should include filling in any gaps in the existing footpath network to provide a safe connection between the precinct and the intersection with Woodcocks Road. Mason Heights is expected to provide access to a limited.	Amend (T9) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to better describe the transport infrastructure upgrade as follows; 'Upgrading of Mason Heights including filling in any gaps in the existing footpath network to provide a continuous connection between the precinct and the intersection of	20.5
	Support in part Support in	Support in part Support in part CT7) applying to Green Avenue can be deleted and combined with the requirements applying to other collector roads. As currently worded, Green Avenue would need to be constructed as part of the first subdivision for residential development, rather than when there is subdivision or development with frontage to that road. This wording does not match with the recommendations in Section 5 of the the ITA and would appear to be an error. Amendments are required to: • refer to 'construction' in keeping with the other entries in the table • note that there is more than one collector road • include specific reference to Green Avenue. Support in part Amendments are required to better describe the upgrading required to Mason Heights. The upgrading should include filling in any gaps in the existing footpath network to provide a safe connection between the precinct and the intersection with	Support in part Support in part Amendments are required to clearly identify the trigger for the construction of the Wider Western Link Road / State Highway 1 intersection Amendments are required to search work of the with the following: Amend (T5) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, by deleting the existing trigger for the Wider Western Link Road / State Highway 1 intersection and replacing it with the following: Amend (T5) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, by deleting the existing trigger for the Wider Western Link Road / State Highway 1 intersection and replacing it with the following: 'Any subdivision and/or development: 'Any subdivision

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
Table IXXX.6.15.1 Transportation Infrastructure Requirements (T9)	Support in part	Amendments are required to better define the trigger for upgrading to Mason Heights. There are some footpath upgrades required on Mason Heights to provide a safe connection from the Precinct through to Woodcocks Road.	Amend (T9) in Table IXXX.6.15.1 Transportation Infrastructure Requirements, to better describe the trigger as follows: 'Any subdivision or development with access to frontage to that section of Mason Heights or in the event that Mason Heights is extended or a new road is connected to it within the Waimanawa Precinct.'	20.9
Table IXXX.6.15.1 Transportation Infrastructure Requirements Note	Oppose in part	Consequential to the amendment to (T9) sought elsewhere in this submission, the note under Table IXXX.6.15.1 Transportation Infrastructure Requirements needs to be amended. The upgrades required to Mason Heights are not limited to the area adjacent to the subdivision or development as there are some gaps in the footpath network that need to be completed.	Amend the note under Table IXXX.6.15.1 Transportation Infrastructure Requirements, as follows: 'Note: Development relevant to any of the Standards T6, and T8 and T9 only apply to the section of the road adjacent to the development or subdivision area.'	20.5
Table IXXX.6.15.2 Minimum Road Width, Function, and Required Design Elements	Support in part	The title given to the table should be shortened, consistent with the naming used in other recent plan changes (though there are some variations).	Amend the title of Table IXXX.6.15.2 as follows: 'Minimum Road width, Function and Required Design Elements'	20.8
Table IXXX.6.15.2 Minimum Road Width, Function, and Required Design Elements	Oppose in part	Amendments are required as the access restrictions recorded in Table IXXX.6.15.2 for Green Avenue and other collector roads do not match with the vehicle access restrictions applying under Standard Ixxx.6.7(2) and (4).	Amend Table IXXX.6.15.2, including Note 6, to be consistent with the rules in Standard Ixxx.6.7(2) and (4) which applies a vehicle access restriction to Green Avenue and other collector roads.	20.5
Table IXXX.6.15.2 Minimum Road Width, Function, and Required Design Elements Note 3	Oppose in part	As noted in an earlier submission point (relating to Table IXXX.6.15.1 Transport Infrastructure Requirements) amendments and clarification are need to ensure appropriate provision for active modes along State Highway 1. It is important to provide such facilities as part of the State Highway 1 upgrade (T2 in Table IXXX.6.15.1). In addition, an active mode connection should be provided along State Highway 1 to the connect in to the existing urban area to the north. The connection to the north should extend to the northern end of Wech Drive to provide connection to the existing urban area.	Amend Table IXXX.6.15.2, Note 3 to require better provision for active modes along State Highway 1 as described elsewhere in this submission.	20.5

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
		Auckland Transport is not satisfied that the standard of walking and cycling facility along State Highway 1 as described in Note 3 is adequate.	
Table IXXX.6.15.2 Minimum Road Width, Function, and Required Design Elements Note 4	Support in part	A minor amendment is required to clarify that it is bus stop 'form and location', as well as bus routes that will be determined with Auckland Transport as part of later consent processes.	Amend Table IXXX.6.15.2, Note 4 as follows: Carriageway and intersection geometry capable of accommodating buses. Bus stop form and locations and bus route shall be determined with Auckland Transport at resource consent and engineering plan approval stage.
Table IXXX.6.15.2 Minimum Road Width, Function, and Required Design Elements Note 5	Oppose in part	The applicant has suggested that a bi-directional cycle facility be provided along part of Wider Western Link Road, rather than uni-directional cycleways on each side of the road. This may be an appropriate design response, but at this stage of the consenting process Auckland Transport is not able to confirm that it is acceptable. The wording in Note 5 needs to be amended accordingly.	Amend Table IXXX.6.15.2, Note 5 as follows: Cycle lane will only be provided Bi-directional cycle facility may be appropriate on the northern side of wWider wWestern ILink Road in the section where road boundary abutting existing stream riparian yard adjoining the Morrison Orchard Precinct.
Ixxx.7.2 Assessment criteria – Controlled Activities	Support in part	The public transport interchange is expected to provide offline facilities to serve starting / terminating services and through facilities. This would include driver facilities (e.g. breakrooms and toilets) and layover spaces with charging facilities. Some cycle parking and storage could be included. At this stage it is not clear that pedestrian and cyclist access would be a key requirement for the interchange. A modification to the assessment criterion is therefore recommended.	Amend Ixxx.7.2(1)(b) as follows: 'For public transport interchanges, whether safe and efficient vehicle, pedestrian and cyclist access (as relevant) into and within the public transport interchange is achieved.'
Ixxx.8.1 Matters of discretion (1)	Oppose in part	An amendment is required so that the matters of discretion applying to subdivision also apply to development. Substantive development, such as retirement villages, can occur without subdivision.	Amend Ixxx.8.1 Matters of discretion, (1) as follows: 'Subdivision and new buildings prior to subdivision'
Ixxx.8.1 Matters of discretion (1)(b)	Oppose in part	Amendments are required to better describe the matters of discretion relating to transport.	Amend Ixxx.8.1 Matters of discretion, (1)(b) as follows: 'Transport including: (a) access, walking and cycling infrastructure, (b) traffic generation, (c) access to public transport and parking

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
			(d) location and design of the Wider Western Link Road, collector roads, key local roads and connections with neighbouring sites to achieve and integrated street network and appropriately provide for all modes (e) provision of cycling and pedestrian networks and connections (f) provision of public transport facilities (bus stops and shelters) (g) design and sequencing of upgrades to the transport network.	
Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities (1)	Oppose in part	An amendment is required so that the assessment criteria applying to subdivision also apply to development. Substantive development, such as retirement villages, can occur without subdivision.	Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1), as follows: 'Subdivision and for new buildings prior to subdivision'	20.64
Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities (1)	Oppose in part	An amendment is required so that development, as well as subdivision, is assessed for consistency with the precinct plans.	Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1)(a)(ii) as follows: 'Subdivision and development layout is consistent with Precinct Plans 1 to 4'	20.65
Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities (1)(c)	Oppose in part	The assessment criteria relating to transport should be strengthened by requiring a consideration as to 'whether' they are met, rather than 'the extent to which' they are met.	Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1)(c) as follows: 'Transport The extent to which Whether:'	20.66
Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities (1)(d)	Oppose in part	The assessment criteria for stormwater management need to explicitly consider the whole of life costs and long-term effectiveness of publicly vested stormwater assets. Auckland Transport has a particular concern in ensuring appropriate design and use of any communal devices (such as raingardens) proposed to treat road runoff.	Amend Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (1)(d) Stormwater management, by adding the following: '(ii) The design and efficacy of infrastructure and devices with consideration given to the likely effectiveness, ease of access, operation, ongoing viability and maintenance, and integration with the surrounding environment including the road corridor where relevant'	20.67

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities (2)	Support in part	The reference to providing a suitable pedestrian and cyclist connection between the Local Centre and any public transport interchange should be amended to refer to any public transport facilities. Bus stops could be provided on Wider Western Link Road separate from the public transport interchanges. It is also likely that such bus stops would be provided before the public transport interchange is established.	Ixxx.8.2 Assessment criteria - Restricted Discretionary Activities, (2)(i) as follows: 'The design of the Local Centre shall achieve a connected and functional design that reflects a high quality of architectural design, landscape architecture and best practise urban design principles, including the extent to which a suitable pedestrian and cyclist connection is provided between the Local Centre and any public transport interchange facilities, the land to the west, south and to the pedestrian and cycle crossing at the Wider Western Link Road and State Highway One Intersection.'
Ixxx.9.1 Transport and safety	Oppose in part	A special information requirement should be added specifying that a transport design report must be provided to support any proposed new key road intersections or upgrading of existing key road intersections. This signals the additional information and assessment that will be required to support resource consent applications. It is also consistent with special information requirements included in other recent plan changes which are now operative e.g. Plan Changes 48 Drury Centre, 49 Drury East, 50 Waihoehoe and 76 Pukekohe East-Central.	Amend the special information requirements under Ixxx.9.1 Transport and safety, by adding the following as clause (2): 'Transport Design Report Any proposed new key road intersection or upgrading of existing key road intersections illustrated on the Precinct Plan or otherwise identified in the precinct provisions must be supported by a Transport Design Report and Concept Plans (including forecast transport modelling and land use assumptions), prepared by a suitably qualified transport engineer confirming the location and design of any road and its intersection(s) supports the safe and efficient function of the existing and future (ultimate) transport network and can be accommodated within the proposed or available road reserves. This may be included within a transport assessment supporting land use or subdivision consents.
			In addition, where an interim upgrade is proposed, information must be provided, detailing how the design allows for the ultimate upgrade to be efficiently delivered. For the avoidance of doubt, the key road intersections for the purposes of this requirement are identified on Precinct Plan 3 as 'Indicative Access Points onto WWLR'

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
			and 'Indicative WWLR / SH1 Intersection'. In addition the Valerie Close / SH1 intersection is a key road intersection.'
Ixxx.9.4 Waimanawa Precinct Plan 1 Spatial provisions	Oppose in part	Some transport information shown on Precinct Plan 3 Transportation is unnecessarily duplicated on Precinct Plan 1 which could cause confusion. In addition Precinct Plan 1 is already difficult to read and would be clearer if unnecessary information was removed.	Amend Ixxx.9.4 Waimanawa Precinct Plan 1 Spatial provisions by removing the following information (which already appears on Precinct Plan 3): Indicative WWLR / SH1 Intersection Indicative Future Public Transport Hub Indicative Dedicated On-Road Cycle Path.
Ixxx.9.4 Waimanawa Precinct Plan 3 Transportation	Support in part	A minor amendment is required to the key in Precinct Plan 3 to ensure that consistent terminology is used for referring to the future Public Transport Interchange. In addition, it would be helpful to identify the approximate size of the public transport interchange.	Amend the key for Ixxx.9.4 Waimanawa Precinct Plan 3 Transportation, as follows: 'Indicative Future Public Transport Hub Interchange (approximately 2100m²)'
Ixxx.9.4 Waimanawa Precinct Plan 3 Transportation	Oppose in part	Precinct Plan 3 shows the location of some but not all of the separated cycle facilities required to be provided. Either, all of the cycle facilities should be shown. Or alternatively, none should be shown because they are difficult to show clearly on the precinct plan, and all the requirements can be adequately described in the relevant standards (Table IXXX.6.15.1 and Table IXXX.6.15.2.	Amend Ixxx.9.4 Waimanawa Precinct Plan 3 Transportation, to show the cycle facilities proposed on State Highway 1. Or in the alternative, delete all of the 'Indicative Dedicated On-Road Cycle Path' from Precinct Plan 3 as these can be covered by the requirements in Table IXXX.6.15.1 and Table IXXX.6.15.2.
Morrison Heritage Orch	ard Precinct		,
XXX Morrison Heritage Orchard Precinct	Oppose	The precinct provisions do not adequately address traffic and other transport effects including how development will be integrated with effective, efficient and safe transport. None of the objectives and policies include transport matters. A wide range of potential traffic generating activities are provided for as permitted activities. While there are limits on the scale of some of these activities it is not clear that these are sufficient to address cumulative transport effects. The standard relating to access and traffic generation lacks robustness and would be difficult to monitor and enforce.	Amend precinct provisions, including objectives, policies and rules, to more rigorously address transport effects and promote good transport land use integration.

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
Acoustic mitigation	Oppose	The proposal will enable residential activities such as dwellings, camping grounds, and other accommodation, adjacent to an existing arterial road (State Highway 1) and a future arterial road (Wider Western Link Road). Residential activity is sensitive to noise and development should be designed to protect people's health and residential amenity while they are indoors. This is not currently adequately addressed by existing AUP(OP) provisions, but has been addressed in a number of recent plan changes (e.g. PC49 Drury East, PC50 Waihoehoe, PC61 Waipupuke and PC76 Kohe / Pukekohe East-Central). Relevant objectives, policies and rules should be provided.	Amend the plan change by including precinct provisions (objectives, policies and rules) within the Morrison Heritage Orchard Precinct to require that future developments and alterations to existing buildings mitigate potential road traffic noise effects on activities sensitive to noise from the existing State Highway 1 arterial and the future Wider Western Link Road arterial.	20.74
Table XXX.X.1 Activity table	Oppose	The ITA provided to support the plan change does not propose any vehicle access from the Wider Western Link Road to service the Morrison Heritage Orchard Precinct. Rather the ITA has considered vehicle trips using the access point on State Highway 1. Given that no vehicle access to Wider Western Link Road is proposed or has been assessed in the ITA, it is appropriate to include an activity status of non-complying in the activity table. This is consistent with the approach in the adjacent Waimanawa Precinct.	Amend Table XXX.X.1 Activity table, to include the following as a non-complying (NC) activity: 'Subdivision and development with vehicle access to the Wider Western Link Road'	20.75
Table XXX.X.1 Activity table (A13)	Oppose	Weddings and functions are provided for as a permitted activity. There is no limit on scale, and it is not clear from the AUP(OP) what fits into the category of 'function' as it is not a defined term. Amendments are required to ensure that transport effects can be adequately assessed and addressed.	Amend the precinct provisions applying to weddings and functions to ensure that transport effects can be appropriately assessed and addressed. This is likely to require (but is not limited to) amendments to Table XXX.X.1 Activity table, and the standards in XXX.6.9 Weddings and functions.	20.76
XXX.5 Notification	Oppose	It is not appropriate for all applications for restricted discretionary activities to be considered without public or limited notification or the need to obtain written approval from affected parties. There will be some proposals with potential effects on the transport network where Auckland Transport as road controlling authority would want to be considered as an affected party for a restricted discretionary proposal, with Council making its decision on notification on the merits of the particular proposal.	Delete or amend XXX.5 Notification (1) to enable public or limited notification of applications which have a potential adverse effect on the transport network.	20.7

Issue / Provision	Support / oppose	Reasons for submission	Decision requested	
XXX.6.1 General access and traffic generation	Support in part	Amendments are required to more clearly set out the vehicle access restriction applying on State Highway 1.	Amend XXX.6.1 General access and traffic generation standard, (1), as follows:	
standard (1)			'All activities shall obtain Vehicle access is limited to State Highway One in accordance with at the Approved Entry Point (AEP) shown on the Precinct Plan.'	
XXX.6.1 General access and traffic generation standard (2)	Oppose	The standard relating to access and traffic generation lacks robustness and would be difficult to monitor and enforce.	Amend or replace XXX.6.1 General access and traffic generation standard (2), with robust, and enforceable standards which can be easily measured by the Council and applicants and which appropriately address transport effects and transport land use integration and provide for the access to the precinct to be upgraded if required.	2
XXX.6.1 General access and traffic generation standard	Oppose in part	The ITA and other documentation suggests that there is no intention to provide vehicle access from the Wider Western Link Road to the Morrisons Orchard. This should be reflected in precinct provisions. This is consistent with the approach in the Waimanawa Precinct.	Amend XXX.6.1 General access and traffic generation standard, by adding a new clause as follows: 'Subdivision and development that has frontage to the Wider Western Link Road must not be provided with vehicle access to that road.'	2
Xxxx8.1 Transportation and Safety	Support in part	It is appropriate to require transport assessments to be provided to support applications which have potential transport effects, particularly in relation to the access point on State Highway 1. However the cross-reference to E27.9 requirements should be replaced by a requirement which is more specific to the precinct.	Amend Xxxx8.1 Transportation and Safety by replacing the reference to E27.9 with a special information requirement for a transport assessment which is more specific to the precinct, and includes consideration of the access point on State Highway One.	
			Amend Xxxx8.1 Transportation and Safety as follows:	
			The special information requirements under E27.9 apply. The Council may require applications which affect the transport network to include a transport assessment prepared by a suitably qualified transport planner or traffic engineer.	
			Any upgrading of existing State Highway One access illustrated on the Precinct Plan as the Approved Entrance Point must be supported by a Transport Design Report and Concept Plans (including forecast transport modelling and land use assumptions), prepared by a suitably qualified transport engineer confirming the	

Issue / Provision	Support / oppose	Reasons for submission	Decision requested
			location and design of any access supports the safe and efficient function of the existing and future (ultimate) transport network and can be accommodated within the proposed or available road reserves. This may be included within a transport assessment supporting land use or subdivision consents.
			In addition, where an interim upgrade is proposed, information must be provided, detailing how the design allows for the ultimate upgrade to be efficiently delivered.



Submission on Proposed Private Plan Change 93 – Warkworth South - Waimanawa

Clause 6 of Schedule 1, Resource Management Act 1991 (Form 5)

To: Auckland Council

1. SUBMITTER DETAILS

Name of Submitter(s): Ash Hames and Fiona Rayner

This is a submission on Proposed Private Plan Change 93 ("PPC93") to the Auckland Unitary Plan – ("AUP").

Ash Hames and Fiona Rayner could not gain an advantage in trade competition through this submission.

The Submitter's own the land at 1684A State Highway 1, Warkworth, legally described as Lot 2 DP 119449. The Submitter's land will be directly affected by the Proposed Plan Change Request. A map showing the property is **Attachment A**.

The Submitter's land is situated within the PPC 93 area.

The Submitter's **SUPPORT** the Proposed Plan Change Request in principle, subject to the matters stated in this submission being addressed and for the reasons stated.

2. The Plan Change Request

PPC93 – Warkworth South - Waimanawa seeks a comprehensive rezoning and the introduction of Precinct provisions for Waimanawa (comprising of Waimanawa Valley and Waimanawa Hills) and the Morrison Orchard areas. The stated purpose of PPC93 is:

The purpose of the plan change is to re-zone land in Warkworth South to:

- (a) Provide for the continuation and expansion of the Morrison Heritage Orchard and further development of this site with supporting activities and limited residential development.
- (b) Enable the urban development of the remainder of the area (referred to as Waimanawa) to proceed generally in accordance with the outcomes sought through the Warkworth Structure Plan.

SCOPE OF SUBMISSION

3. SUBMISSION

3.1 General

Whilst rezoning the land for urban purposes is <u>supported in principle</u>, there are matters of detail that need to be secured through the plan change process. This submission addresses those matters that need to be

addressed and secured via the plan change provisions.

PPC93 proposes two new Precincts – "Waimanawa" and "Morrison Heritage Orchard". This submission focuses on the plan change itself and the "Waimanawa" Precinct only.

3.2 Plan Change Provisions

The Submitter's support the proposed Residential – Large Lot zoning shown for their land. This is appropriate for the location, character and values of the land. The proposed zoning will enable an appropriate self-serviced development outcome for the land which is at the southern extent of the planned urban area identified for Warkworth.

21.1

The Submitter's support the proposed Landscape Protection Area – Eastern Escarpment as shown on Precinct Plan 1 – Spatial Provisions. This overlay is appropriate to respect the landscape, ecological and other values associated with the adjacent Avice Miller Scenic Reserve. For these reasons the Submitter's also support the proposed Indicative Special Yard – Avice Miller Scenic Reserve as a 6-metre setback. It is noted that Precinct Plan 1 refers to this as a 3m setback whereas the Special Yard provisions say the yard setback is 6-metres and that of this 6-metres a 3m strip of the special yard is to be planted with indigenous vegetation. The Precinct plan and wording of the Rule should be amended to achieve clarity.

21.2

The Submitter's oppose proposed Precinct policy (16) which seeks to avoid direct vehicle access onto the old State Highway 1. Existing vehicle access onto State Highway 1 will be retained and the Policy needs to be reworded to ensure it enables existing access points, such as that for the Submitter's land to be retained and also to be used as a shared, or jointly owned access, point for the future urban development enabled by PPC93. A suggested rewording of the Policy is as follows – the additional text is shown underlined:

21.3

(16) <u>Subdivision, use and land development shall</u> avoid direct vehicle access from <u>newly created</u> individual sites on to the Wider Western Link Road and State Highway One [rename to reflect the AT road name eg Great North Road], while allowing direct pedestrian and cycle access.

21.4

It is also suggested that the references to State Highway 1 be updated when the road is reverted to Auckland Transport so there is no confusion with Ara Tūhono.

21.5

To this end the Submitter's oppose the proposed Rule Ixxx.6.7 – Limited Access Restrictions, Pedestrian Connections and Cycle Facilities (2). The Rule needs to be amended so it is clear that the rule applies only to new sites being created as a result of subdivision and land development within the PPC93 area and associated Precinct. In the Residential - Large Lot zone this rule only appears to apply to Supported Residential Care accommodating greater than 10 people per site, so this needs to be clarified with respect to the policy discussed above.

21.6

The Submitter's oppose Rule (A3) in Table IXXX.4.2 relating to the Residential – Large Lot zone. The development of the Submitter's land and the adjoining Residential - Large Lot zoned land is unlikely to require construction of the pedestrian links specified in Ixxx.6.15 and therefore this Rule should apply only to the Residential - Mixed Housing Urban and Residential - Terrace Housing and Apartment Buildings zoned land within PPC93.

1.0

Proposed Precinct Rule Ixxx.6.11 proposes a minimum site size of 1,000m² in the Eastern Escarpment Area. The Submitter's land is within the Eastern Escarpment Protection Area as shown on Precinct Plan 1 but is also

proposed to be zoned Residential – Large Lot which has a minimum site size of 4,000m². The rule requires clarification.

The Submitter's support the Restricted Discretionary activity status specified for Rule (A10) in Activity Table IXXX.4.1 All zones that alters the activity status for subdivision of parent sites with an area of greater than 1-hectare. It is appropriate for the activity status to be the same as for parent sites less than 1-hectare.

Rule (A6) in Activity Table IXXX.4.1 is opposed because Non-complying activity status for an infringement of the proposed 6-metre yard and associated indigenous vegetation planting standard for the Avice Miller Scenic Reserve boundary is too onerous. Restricted Discretionary activity status is appropriate for infringements to the Standards. This activity status is also consistent with the AUP as it currently exists.

3.3 Decisions Sought

Ash Hames and Fiona Rayner seek that PPC93 – Warkworth South plan change be **approved** with changes to provisions to address the matters raised in this submission.

Ash Hames and Fiona Rayner wish to be heard in support of this submission.

If others make a similar submission, the Submitters will consider presenting a joint case at the hearing.

Yours sincerely

Burnette O'Connor Director | Planner

The Planning Collective Limited

Ruette O' Carrow

Ph: +64 021 422 346

Email: burnette@thepc.co.nz

Attachment A – Submitter's Property Location Map

21.8





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Submission on Proposed Private Plan Change 93 – Warkworth South - Waimanawa

Clause 6 of Schedule 1, Resource Management Act 1991 (Form 5)

To: Auckland Council

1. SUBMITTER DETAILS

Name of Submitter: Barry Blennerhassett and Lorraine Margaret Blennerhassett (Blennerhassett family)

This is a submission on Proposed Private Plan Change 93 ("PPC93") to the Auckland Unitary Plan – ("AUP").

The Blennerhassett family could not gain an advantage in trade competition through this submission.

The Blennerhassett family own the land at 50 Mason Heights Road, legally described as Lot 2 DP336865 and will be directly affected by the Request. A map showing the property is **Attachment A**.

The Submitter's land is directly adjoining the PPC 93 area. The Submitter's land accesses Mason Heights Road and parts of the PPC93 land will access via Mason Heights Road.

The Submitter **SUPPORTS** the Proposed Plan Change Request in principle, subject to the matters stated in this submission and for the reasons stated.

2. The Plan Change Request

PPC93 – Warkworth South - Waimanawa seeks a comprehensive rezoning and the introduction of Precinct provisions for Waimanawa (comprising of Waimanawa Valley and Waimanawa Hills) and the Morrison Orchard areas. The stated purpose of PPC93 is:

The purpose of the plan change is to re-zone land in Warkworth South to:

- (a) Provide for the continuation and expansion of the Morrison Heritage Orchard and further development of this site with supporting activities and limited residential development.
- (b) Enable the urban development of the remainder of the area (referred to as Waimanawa) to proceed generally in accordance with the outcomes sought through the Warkworth Structure Plan.

SCOPE OF SUBMISSION

3. SUBMISSION

3.1 General

Whilst rezoning the land for urban purposes is <u>supported in principle</u>, there are matters of detail that need to be secured through the plan change process. The development of Warkworth South is an important and necessary component for the continued development of Warkworth into a satellite town which is critical in

terms of ensuring that Warkworth becomes a sustainable urban area.

This submission addresses those matters that need to be addressed and secured via the plan change provisions.

PPC93 proposes two new Precincts – "Waimanawa" and "Morrison Heritage Orchard". This submission focuses on the plan change itself and the "Waimanawa" Precinct only.

3.2 Plan Change Assessments

General:

The Plan Change report states that the Blennerhassett family, the owners of 50 Mason Heights Road, are not a cooperating landowner. It is assumed this statement is made on the basis that the Blennerhassett family land is not included in the plan change area.

The Submitter met with Bill Endean regarding his plans for some of the Warkworth South area on or around 18 November 2020 and attended an open day for adjoining landowners hosted by the Warkworth South team on 9 April 2022. This engagement provided a high-level opportunity to see some of the plans and have an informal discussion. The Submitter subsequently received a draft masterplan and zoning map from Mr David Hay by email on 14 April 2022. There have not been any formal one on one meetings with the Warkworth South team.

In any event the Blennerhassett family is supportive of PPC93 subject to the matters raised in this submission.

Infrastructure:

The Plan Change report states that there will be an Infrastructure Funding Agreement ("IFA") and this is currently being negotiated with Auckland Council and presumably the relevant CCO's ("Council Controlled Organisations"). The Plan Change report states that "An IFA will ensure that all relevant infrastructure required for any stage of the project is in place prior to residential connections for that stage".

The infrastructure servicing is designed to be delivered from the south, within the PC93 area and then extend north back towards the existing Warkworth urban area.

The infrastructure for the PPC93 area needs to be designed and constructed to enable servicing capacity for the Future Urban land between the plan change area and existing urban area of Warkworth, including the Submitter's land.

The Submitter understands that PPC93 does not currently require access through the Submitter's land for services to Warkworth South, however the Submitter wishes to identify that if changes to the site servicing are required then the Submitter is open to discussions regarding providing necessary services through its property in order to ensure that the Warkworth South Area (and the Submitter's land) can be efficiently developed. If this outcome were to occur there would be better outcomes achieved from incorporating the Submitter's land in the plan change and rezoning their land to an appropriate urban zone such as Residential – Mixed Housing Urban, consistent with the likely zoning outcome for the residential development to the east of Mason Heights Road.

The assessments for infrastructure capacity need to consider the existing infrastructure in Warkworth and whether any upgrades are required to that existing infrastructure, to enable infrastructure servicing now and

into the future for both the plan change 93 area *and* the 'stranded' future urban land located between PPC93 and the existing urban area (including the Submitter's land). It is not acceptable to leave reticulation or capacity issues to the resource consent stage. If there is insufficient capacity in the reticulated network, or at the plant, then this will result in inefficient outcomes and there will not be the required integration between the delivery of urban land and the effective and efficient of infrastructure to support that urban development.

The infrastructure assessment also needs to assess the capacity of the Snells Beach plant and the reticulated infrastructure in the context of all the development planned for Warkworth.

These important assessments are not apparent from the Infrastructure report in Appendix 5 of the Plan Change documentation.

Compact Urban Form / Integrated Planning and Quality Urban Environment:

The Submitter's land is to the north of the plan change area and is zoned Future Urban. The approach of PPC93 leaves out areas of Future Urban zoned land between the plan change area and the existing urban zoned areas of Warkworth, including the Submitter's land. The outcome is further plan changes will be required to provide urban zonings to the Future Urban land 'stranded' between PPC93 and the existing urban area.

The Submitter questions why their land, and adjacent Future Urban zoned land was not included in the Plan Change area. Inclusion of the Submitters' land would assist in achieving a more integrated outcome with respect to integrated planning and a coordinated and efficient delivery of infrastructure.

3.3 Effects on the Environment

The proposed infrastructure servicing does not provide sufficient detail to show how the stranded land could be serviced in the future. Without this information it is likely that there will be inefficient outcomes in relation to the provision of infrastructure. This in turn could lead to adverse effects on the quality of the urban environment as land areas adjacent to the existing urban area may not be able to be developed.

3.4 Policy Framework

The National Policy Statement Urban Development ("NPS UD") objective 1 seek well-functioning urban environments. Objective 6 requires that "…local authority decisions on urban development that affects environments are integrated with infrastructure planning and funding decisions and strategic over the medium term and long term and are responsive, particularly in relation to proposal that would supply significant development capacity".

The Auckland Regional Policy Statement ("RPS") – Chapter B2 Urban growth B2.2.1 (1) seeks a quality compact urban form that enables **all** of the following:

- (a) a higher-quality urban environment;
- (b) greater productivity and economic growth;
- (c) better use of existing infrastructure and efficient provision of new infrastructure;
- (d) improved and more effective public transport;
- (e) greater social and cultural vitality;
- (f) better maintenance of rural character and rural productivity; and
- (g) reduced adverse environmental effects.

The current proposal in the PPC93 documentation for infrastructure servicing will not achieve the integrated

outcomes sought by the NPS UD or the RPS.

3.5 Precinct Provisions

Zoning:

Land to the east of the Submitter's land, within the plan change area is proposed to be zoned Residential – Large Lot and Residential – Mixed Housing Urban.

The Submitter supports the zoning as set out on the proposed zoning map and the extent of the proposed Waimanawa Precinct as shown on Map 4.

The Submitter supports the proposed Landscape Protection Area – Northern Escarpment extent to apply over the Residential – Large Lot zoned land as shown on Precinct Plan 1 – Spatial Provisions.

The 20-metre riparian yard as shown on Precinct Plan 1- Spatial Provisions is also generally supported with the exception that the useability and land use opportunities for the land to the north of the riparian yard in the north-western extent of the plan change area adjacent to the Submitter's land should be addressed. What is intended for this land? The plan shows proposed Open Space – Conservation. However, if there is urban development on the portion of land to the west of the riparian yard then dwellings may be close to the Submitter's land. This could lead to reverse sensitivity issues as the Submitter farms their land in keeping with the Future Urban zoning intent for land to be used for rural activities until it is zoned for urban land uses. The Open Space – Conservation zone is therefore supported.

Confirmation is required that the identified 'Bat Flight Corridor' does not extend further north to the Submitter's land.

3.6 Statutory Assessment

The effects of PPC93 on the environment are uncertain and not adequately managed by the plan change provisions with respect to the design and delivery of infrastructure.

The Request does not achieve the required outcomes of the National Policy Statement Urban Development, particularly with respect to the integration of infrastructure and urban development, strategic planning over the medium term and long term. All existing and future urban areas of Warkworth need to be taken into consideration in the assessment of infrastructure capacity.

The Request is not in keeping with the provisions of the Regional Policy Statement that it has to give effect to. Particularly with respect to infrastructure servicing and urban form.

In its current form the Request does not meet the objectives of the NPS UD or the Auckland Unitary Plan.

3.6 Conclusions

The Blennerhassett family seek that Plan Change 93 – Warkworth South plan change be **refused** or preferably **approved** with changes to provisions to address the matters raised in this submission.

The Blennerhassett family wish to be heard in support of this submission.

If others make a similar submission, the Submitter will consider presenting a joint case at the hearing.

22 1

Yours sincerely

Burnette O'Connor

Director | Planner

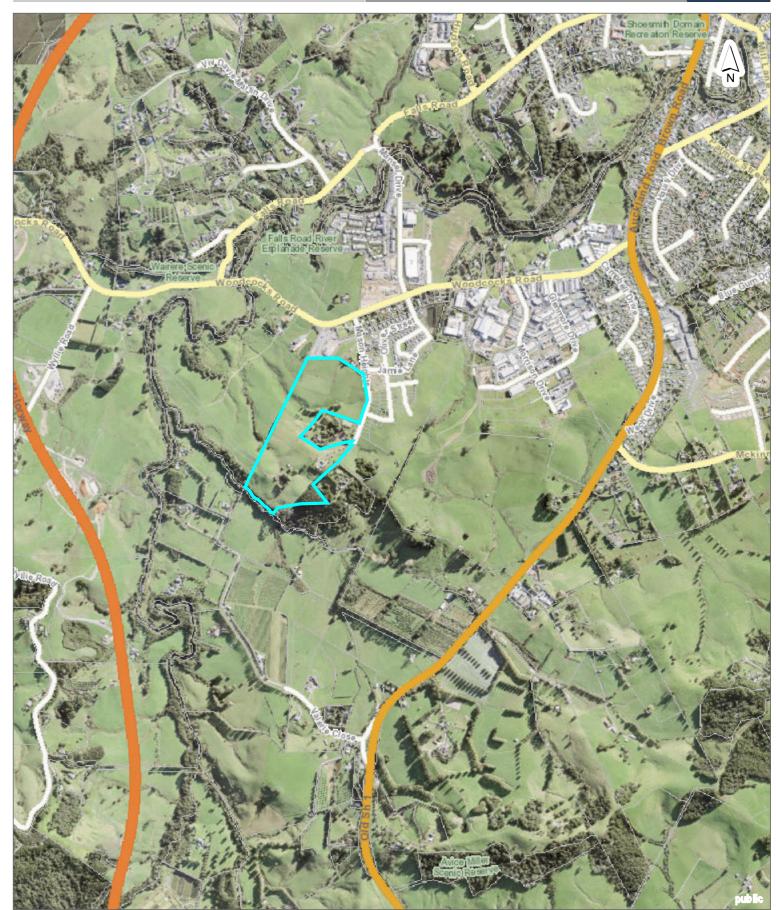
The Planning Collective Limited

Swette O'Comor

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Email: burnette@thepc.co.nz

Attachment A – Submitter's Property Boundaries



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - David Lawrence Morrison

Date: Thursday, 23 November 2023 9:15:25 am

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: David Lawrence Morrison

Organisation name:

Agent's full name:

Email address: dmorrison@davcoelectrical.co.nz

Contact phone number:

Postal address:

1773 Old State Highway One

Warkworth Auckland 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Complete plan change PC93

Property address: Warkworth South

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The proposed development aligns with the future plans of myself and my family

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 23 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

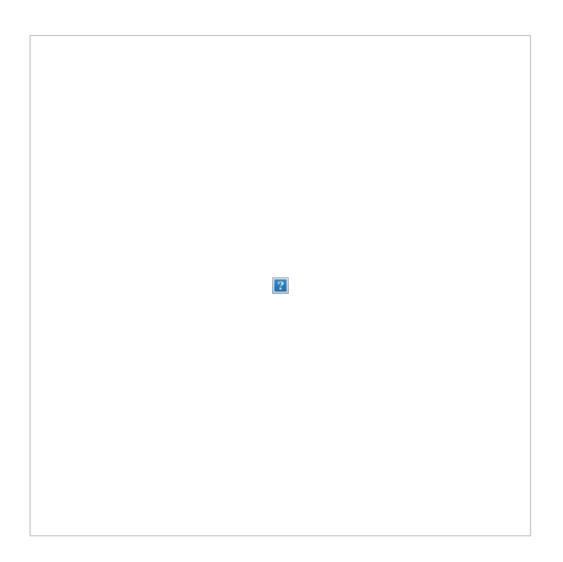
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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24

SUBMISSION ON PROPOSED PRIVATE PLAN CHANGE 93 – WARKWORTH SOUTH PRECINCT TO THE

AUCKLAND UNITARY PLAN (OPERATIVE IN PART)

To: Auckland Council

Name: KA Waimanawa Limited Partnership and Stepping Towards Far Limited (jointly The

Submitters)

Date: 23rd November 2023

Submitter Details

1. This is a submission on Proposed Private Plan Change 93 (PC93) to the Auckland Unitary Plan -

Operative in Part.

2. The Submitters are the applicant for PC93, which seeks to rezone approximately 159ha of Future

Urban and Rural – Rural Production zoned land in Warkworth to a mix of residential, business, open

space and rural zones through the introduction of two new precincts – Waimanawa and Morrison

Heritage Orchard.

3. KA Waimanawa Limited Partnership is a wholly owned subsidiary of Kaha Ake, a partnership between

The New Zealand Super Fund and Classic Group. Kaha Ake brings together long-term financial support

and experienced development capability to support the creation of homes at pace and scale around

New Zealand. Classic Group is a privately owned, integrated portfolio of businesses in the property

sector including Classic Developments. Stepping Towards Far Limited has the right to develop part of

the Waimanawa Precinct land and has partnered with KA Waimanawa Limited Partnership.

4. The Submitters could not gain an advantage in trade competition through this submission.

Scope of Submission

5. This submission is in support of PC93 in its entirety, incorporating the amendments specified below.

6. The specific aspects and provisions of PC93 that this submission relate to include those outlined in

detail within Attachment A.

Reasons for submission

7. Since notification of PC93, the Submitters have identified particular aspects of PC93 which warrant amendments to provide clarity and consistency and for the sustainable management of natural and physical resources. Without limiting the generality of the above, the specific reasons for the submission include those set out in **Attachment A**.

Decision Sought

- 8. The Submitters seek that PC93 is approved with any amendments necessary to clarify provisions, including those as set out in **Attachment A** of this submission.
- 9. The Submitters seek any further or alternative relief or any consequential amendments that may be required to address the matters raised in this submission or any other related matters.
- 10. The Submitters wish to be heard in support of their submission.
- 11. The Submitters will consider presenting a joint case with others making a similar submission.

@ jaalbar_

Ian Smallburn

Senior Associate I Tattico

for and on behalf of KA Waimanawa Limited Partnership and Stepping Towards Far Limited

Address for service:

Contact person: Ian Smallburn

Electronic address for service: ian.smallburn@tattico.co.nz

Attachment A

No.	Submission Point	Reasons	Relief Sought
1	Reference to State Highway One throughout PC93.	Due to changes to the road network in the Warkworth area post lodgement of this request, and the construction of the new State Highway One, the reference could become confusing and is out of date.	Update all references to 'State Highway One' in the Precinct Plan to 'Old State Highway One'.
2	Update column headings in Tables IXXX.4.1, IXXX.4.2, IXXX.4.3, IXXX.4.4, IXXX.4.5, IXXX.4.6, and IXXX.4.7	The current term 'Standards to be complied with' may cause confusion, given the intent is for this to relate only to the Precinct Standards that need to be complied with.	Update right hand column on all Tables from 'Standards to be complied with' to 'Precinct Standards to be complied with'
3	Delete (A2) – 'New buildings and additions to buildings which meet Standard Ixxx.6.13 High Contaminant Yield Material' from Table IXXX4.1	This development activity is not required, as it is a double up of Standard Ixxx6.13, which adequately controls building materials.	Delete (A2) – 'New buildings and additions to buildings which meet Standard Ixxx.6.13 High Contaminant Yield Material' from Table IXXX4.1
4	Update (A4) — 'New reclamation or drainage, including filling over or piping of a stream shown as a Retained Stream on Precinct Plan 2' in Table IXXX4.1	The current wording potentially suggests that any reclamation or drainage works require consent. The intent of the Rule is to only control reclamation and drainage works within the identified retained streams.	Reword and update (A4) to 'New reclamation and drainage of a Retained Stream on Precinct Plan 2, including filling within the stream and piping of a stream, but excluding drainage works underneath a stream or bridging over a stream' in Table IXXX4.1
5	Update standards which do not apply under IXXX6(2)(a) bullet points 2 and 3.	The exemption currently references 'special subdivision control area' which is not shown on Precinct Plan 1. This area relates to the 'Landscape Protection Area – Eastern Escarpment', which has its own subdivision standard Ixxx6.11	Reword and update IXXX6(2)(a) bullet points 2 and 3 by removing 'special subdivision control area' and adding 'Landscape Protection Area – Eastern Escarpment'.
6	Update standards which do not apply under IXXX6(2)(g) bullet point 1.	The exemption currently references (A1) in Table lxxx4.6 Business Local Centre — 'Operation of a public transport interchange'. The exemption relates to yard controls and in turn physical construction. The correct references should be (A2) — 'New buildings' and (A3) — 'Additions and alterations to buildings not otherwise provided for'	Update IXXX6(2)(a) bullet point 1 by removing reference to A1 and adding reference to (A2) – 'New buildings' and (A3) – 'Additions and alterations to buildings not otherwise provided for'.

24.5

24.6

24.7

7	Update standard lxxx6.12(1) and lxxx6.12(2)	This standard, within sections (1) and (2), currently refers to 'land development' within the opening sentence as a trigger point. This does not provide enough certainty and could refer to land development within the whole precinct. The term 'site development' is considered more appropriate as planting of a riparian yard will relate to the specific site and area of development.	Update standard Ixxx6.12(1) and Ixxx6.12(2) by removing the reference to 'land development' within the opening sentence and replacing it with 'site development'.
		This standard, within sections (1) and (2), also currently refers to exemptions 'or along the riparian yard' within the final sentence. This does not provide enough certainty and should refer to effects directly relating to the riparian yard. The term 'or within the riparian yard' is considered more appropriate.	Update standard Ixxx6.12(1) and Ixxx6.12(2) by removing the reference to 'or along the riparian yard' within the final sentence and replacing it with 'or within the riparian yard'.
8	Update standard lxxx.6.14(2)	The current wording of this section of the standard refers to 'walkway', however, this could be clearer to also include 'cycleway'.	Update standard Ixxx.6.14(2) with the following wording 'Where the Council does not want or is unable to accept vesting of the walkway/cycleway and associated riparian yard and stream bank, then there is no requirement to provide the walkway/cycleway'.
9	Update Table IXXX.6.15.1 Transport Infrastructure Requirements (T2)	The current wording of the trigger within (T2) is open to interpretation. It is proposed to re-word this section to provide more clarity.	Update the Trigger within the third column of Table IXXX.6.15.1 relating to (T2) with the following wording: 'As part of the first subdivision for any land: (a) within the Business — Local Centre zone: or (b) for a retirement village; or

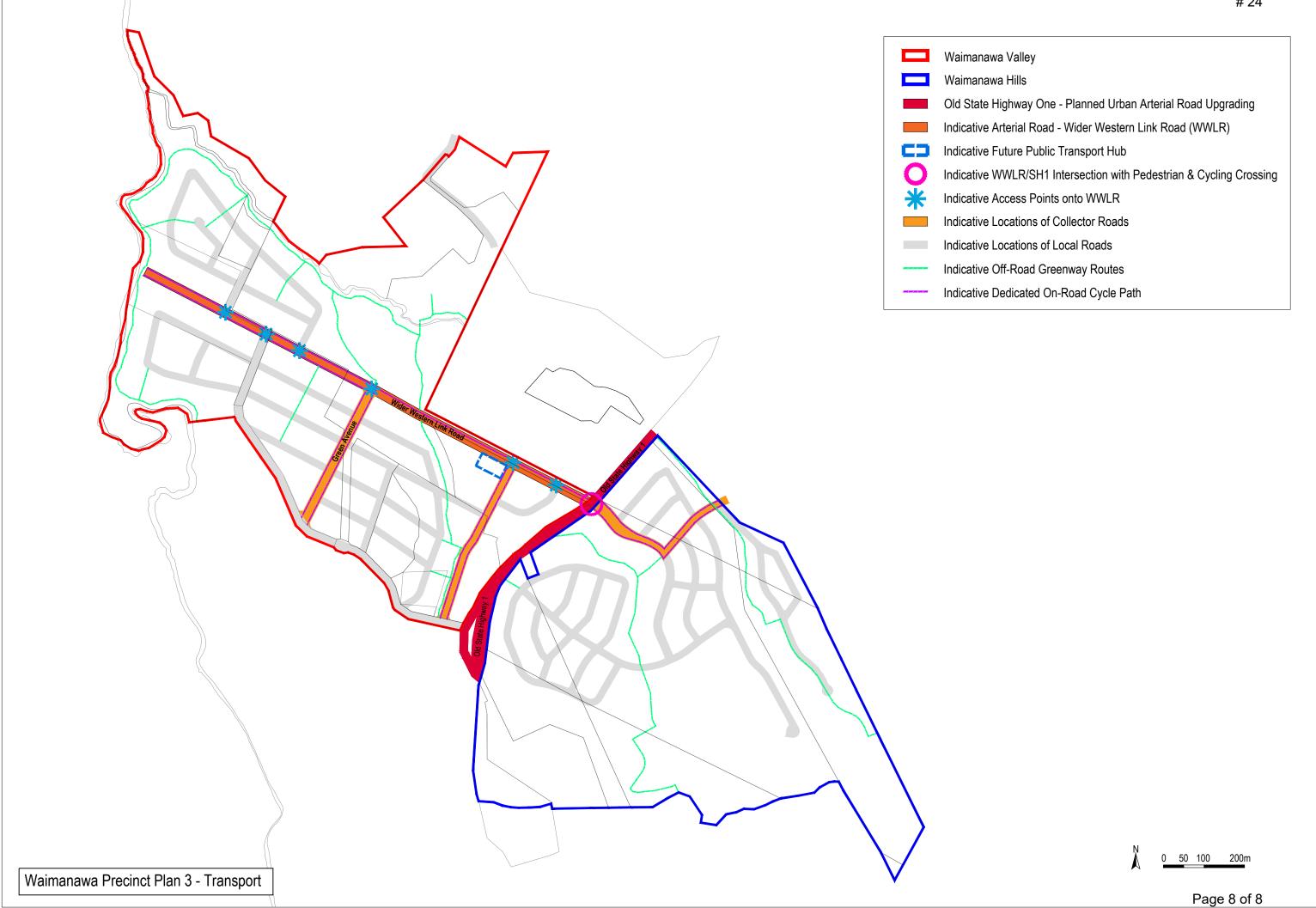
Page 4 of 8

			(c) for a residential development creating more than 20 residential lots.'
10	Update Table IXXX.6.15.1 Transport Infrastructure Requirements (T2), (T3) and (T4)	The interaction of the required transport infrastructure upgrades within (T2), (T3) and (T4) are open to interpretation given multiple references to the upgrade of old State Highway One and the extent of the required upgrades. This is made clearer within an amended Precinct Plan 3, which is Attachment B, updating the wording within T3 and deleting T4 due to duplication.	Update the Transport Infrastructure Upgrade within the second column of Table IXXX.6.15.1 relating to (T2) with the following wording: 'Upgrading of old State Highway One though the WW South Precinct to the extent shown on Precinct Plan 3.' Update the Transport Infrastructure Upgrade within the second column of Table IXXX.6.15.1 relating to (T3) with the following wording: 'Construction of the temporary pedestrian/cycle path on old State Highway One from the Wider Western Link Road/old State Highway One Intersection to McKinney Road.'
			Delete row (T4).
11	Update Table IXXX.6.15.1 Transport Infrastructure Requirements (T5)	The current wording of the trigger within (T5) is open to interpretation. It is proposed to re-word this section to provide more clarity.	Update the Trigger within the third column of Table IXXX.6.15.1 relating to (T2) with the following wording:
			'As part of the first subdivision for any land: (a) within the Business — Local Centre zone: or (b) for a retirement village; or

12	Update Table IXXX.6.15.1 Transport Infrastructure Requirements (T7)	The current wording of the trigger within (T7) is open to interpretation. It is proposed to re-word this section to provide more clarity as it currently relates to the first subdivision for residential development in the whole precinct, as opposed to the area influencing the requirement for the construction of Green Avenue. This is made clearer within an amended Precinct Plan 3, which is Attachment B .	(c) for a residential development creating more than 20 residential lots.' Update the Trigger within the third column of Table IXXX.6.15.1 relating to (T7) with the following wording: As part of the first subdivision for residential development within Waimanawa Valley, as shown on Precinct Plan 3, which has vehicle access to Valerie Close.'
13	Update Note 3 to Table IXXX.6.15.2	The current wording of Note 3 to Table IXXX.6.15.2 needs to align with submission point no. 10 above and the physical extent of the cycle path upgrade. Based on preliminary designs and taking into account the current extent of the road reserve, the temporary cycling and walking facility is like to be on the western side of Old State Highway One up to just north of Toovey Road, before crossing over Old State Highway one and continuing up the eastern side of Old State Highway One to the McKinney Road/Old State Highway One Intersection.	Update Note 3 to Table IXXX.6.15.2 with the following wording: 'Note 3: The shared walking and cycle path provision on old State Highway One will be a temporary cycling and walking facility from the Wider Western Link Road/old State Highway One intersection to the McKinney Road/old State Highway One intersection.'
14	Update Ixxx.8.1 Matters of discretion	The matters of discretion under lxxx.8.1 are narrow and only refer to Subdivision. Matters of discretion should also be incorporated regarding new buildings and alterations and additions to buildings within the Local Centre zone.	Update Ixxx.8.1 Matters of discretion to incorporate or cross reference the matters of discretion from the Local Centre zone being H11.8.1(4). One additional amendment to the Matters of discretion in H11.8.1(4) is proposed which

24.15

			relates to H11.8.1(4)(a)(i) with the following wording: 'the contribution that such buildings make to the attractiveness pleasantness and enclosure of the public space (including the watercourse);'
15	Plan Change 78: Intensification	Plan Change 78 to the Auckland Unitary Plan (Operative in Part) is a significant plan change and its future is uncertain. Potential changes to PC93 may be needed to ensure alignment, appropriate cross-referencing and consistency with PC78. The extent (if any) of changes required will be determined as PC93 progresses through the Schedule 1 process.	Updates and amendments to PC93 to align with the progression and outcomes of PC78.





Submission on Proposed Private Plan Change 93 – Warkworth South - Waimanawa

Clause 6 of Schedule 1, Resource Management Act 1991 (Form 5)

To: Auckland Council

1. SUBMITTER DETAILS

Name of Submitter(s): Mikel Jon Thorogood (Mike Thorogood)

This is a submission on Proposed Private Plan Change 93 ("PPC93") to the Auckland Unitary Plan – ("AUP").

Mike Thorogood could not gain an advantage in trade competition through this submission.

Mike Thorogood owns the land at 43 McKinney Road, Warkworth, legally described as Lot 1 DP 550765 - refer **Attachment A**. The Submitter's land is located in a recently rezoned area subject to Precinct provisions – I555 – Warkworth McKinney Road Precinct, in the Auckland Unitary Plan. The Submitter's land is zoned Residential – Mixed Housing Suburban.

The Submitter **SUPPORTS** the Proposed Plan Change Request in principle, subject to the matters stated in this submission.

2. The Plan Change Request

PC93 – Warkworth South - Waimanawa seeks a comprehensive rezoning and the introduction of Precinct provisions for Waimanawa (comprising of Waimanawa Valley and Waimanawa Hills) and the Morrison Orchard areas. The stated purpose of PPC93 is:

The purpose of the plan change is to re-zone land in Warkworth South to:

- (a) Provide for the continuation and expansion of the Morrison Heritage Orchard and further development of this site with supporting activities and limited residential development.
- (b) Enable the urban development of the remainder of the area (referred to as Waimanawa) to proceed generally in accordance with the outcomes sought through the Warkworth Structure Plan.

SCOPE OF SUBMISSION

Whilst rezoning the land for urban purposes is supported in principle, there are matters of detail that need to be secured through the plan change process. This submission addresses those matters that need to be addressed and secured via the plan change provisions.

PPC93 proposes two new Precincts – "Waimanawa" and "Morrison Heritage Orchard". This submission focuses on the plan change itself and the "Waimanawa" Precinct only.

3. SUBMISSION

3.1 Background – Warkworth McKinney Road Precinct

3.2 Warkworth South – Waimanawa - Plan Change Provisions

The focus of this submission is on securing and ensuring the coordinated and integrated delivery of infrastructure. There are several plan changes – approved, and in process - around Warkworth along with resource consents for urban development. Whilst the Submitter considers the developments are positive for Warkworth and assist in the delivery of infrastructure in a planned and timely manner, there are matters of detail that need to be addressed.

It cannot be assumed that the Warkworth McKinney Road Precinct area will develop ahead of the PPC93 area. Therefore, the effects of this plan change on the State Highway 1 / McKinney Road intersection have to be considered as does the pedestrian and cycle path connection proposed for the eastern side of the old State Highway 1.

<u>Warkworth – McKinney Road Precinct:</u>

The McKinney Road Precinct contains rules requiring the upgrade of the McKinney Road intersection with the old State Highway 1. The rules also require pedestrian and cycling links from Wech Drive to the McKinney Road Precinct boundary.

Wech Drive has recently been upgraded and there is a footpath stub newly constructed on the southern extent of Wech Drive.

A copy of the Warkworth McKinney Road Precinct is **Attachment B**. Relevant provisions are highlighted yellow.

Warkworth South – Waimanawa Precinct Provisions:

If Warkworth South proceeds ahead of the McKinney Road Precinct development, then Warkworth South — Waimanawa Precinct needs to secure the upgrade of the McKinney Road State Highway 1 intersection and also the formed pedestrian and cycle connection to Wech Drive. Without requiring formation of this connection and the intersection upgrade there will be inadequate pedestrian and cycle connectivity to the established urban area, including schools and areas of employment. It is also likely that the volume increase in traffic associated with Warkworth South development would adversely impact on the functioning of the McKinney Road / State Highway 1 intersection particularly as it is not known when public transport services will be available to Warkworth South.

3.3 Infrastructure – Assessments and Plan Change Provisions:

The Plan Change report states that there will be an Infrastructure Funding Agreement ("IFA"), and this is currently being negotiated with Auckland Council and presumably the relevant CCO's ("Council Controlled Organisations"). The reports states that "An IFA will ensure that all relevant infrastructure required for any stage of the project is in place prior to residential connections for that stage".

The infrastructure servicing is designed to be delivered from the south, within the PC93 area and then extend

north back towards the existing Warkworth urban area.

The infrastructure for the PPC93 area needs to be designed and constructed to enable servicing capacity for the Future Urban land between the plan change area and existing urban area of Warkworth, including the Submitter's land.

The assessments for infrastructure capacity need to consider the existing infrastructure in Warkworth and whether any upgrades are required to that existing infrastructure, to enable infrastructure servicing now and into the future for both the plan change 93 area and the 'stranded' future urban land. It is not acceptable to leave reticulation or capacity issues to the resource consent stage. If there is insufficient capacity in the reticulated network, or at the plant, then this will result in inefficient outcomes and there will not be the required integration between the delivery of urban land and the effective and efficient delivery of infrastructure to support that urban development.

The Infrastructure report in Appendix 5 of the Plan Change lodgment documents, does not detail any cumulative effects associated with other consented development in Warkworth including the Warkworth – McKinney Road Precinct that contains provisions servicing permitting up to 30 dwellings to be constructed and occupied prior to the Snells Beach plant connection becoming available – refer Rule I555.6.1 – Wastewater infrastructure upgrade and staging. A more detailed capacity assessment is required for both the upgraded Snells Beach plant and the reticulated network to connect to it. This needs to include all anticipated future development and consented development that is not yet under construction.

The infrastructure assessment also needs to assess the capacity of the Snells Beach plant and the reticulated infrastructure in the context of all the development planned for Warkworth.

These important assessments are not apparent from the Infrastructure report in Appendix 5 of the Plan Change documentation.

Without greater detail of the capacity in the existing and proposed network the effects of PPC93 are unknown and therefore cannot be determined to be acceptable.

3.4 Policy Framework – Integrated Planning and a Well-Functioning Urban Environment

The National Policy Statement Urban Development ("NPS UD") objective 1 seeks well-functioning urban environments are created. Policy 1 details what is meant by well-functioning urban environment. Whilst Policy 1 does not specifically relate to infrastructure delivering urban capacity and making that capacity affordable is related to the planned and coordinated delivery of infrastructure and ensuring that when infrastructure is constructed it caters for the reasonably expected demands on that infrastructure in terms of capacity.

Objective 6 requires that "...local authority decisions on urban development that affects environments are integrated with infrastructure planning and funding decisions and strategic over the medium term and long term and are responsive, particularly in relation to proposal that would supply significant development capacity".

The Auckland Regional Policy Statement ("RPS") – Chapter B2 Urban growth B2.2.1 (1) seeks a quality compact

urban form that enables all of the following:

- (a) a higher-quality urban environment;
- (b) greater productivity and economic growth;
- (c) better use of existing infrastructure and efficient provision of new infrastructure;
- (d) improved and more effective public transport;
- (e) greater social and cultural vitality;
- (f) better maintenance of rural character and rural productivity; and
- (g) reduced adverse environmental effects.

The current proposal in the PPC93 documentation for infrastructure servicing will not achieve the integrated outcomes sought by the NPS UD or the RPS.

Until these matters are addressed PPC93 is not in keeping with the relevant policy framework.

3.5 Decisions Sought

Mikel Jon Thorogood seeks that Plan Change 93 – Warkworth South plan change be **approved** with changes to provisions to address the matters raised in this submission. If the matters addressed in the submission cannot be addressed PPC93 should be **refused**.

Mikel Jon Thorogood wishes to be heard in support of this submission.

If others make a similar submission, the Submitters will consider presenting a joint case at the hearing.

Yours sincerely

Burnette O'Connor Director | Planner

The Planning Collective Limited

Ruette O'Conor

Ph: +64 021 422 346

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Attachment A – Submitters Land Location

Attachment B – Warkworth McKinney Road Precinct provisions

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25.1



DISCLAIMER:
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Scale @ A4 = 1:15,000

Date Printed:



ATTACHMENT B

I555. Warkworth McKinney Road Precinct

I555.1. Precinct Description

The Warkworth McKinney Road Precinct is located in the south of Warkworth, north of McKinney Road and to the east of State Highway 1 and applies to approximately 7.6ha of land held in six titles. State Highway 1 in this locality is to be revoked once the new section of State Highway 1 opens - Te Ara Tuhono - Puhoi to Warkworth and downgraded to an arterial route. For the purposes of this precinct it is still referred to as State Highway 1, and the provisions of this precinct will still apply to the road should the state highway status no longer apply.

Development is anticipated in accordance with the Residential – Mixed Housing Suburban zone provisions. The transport network shall be integrated across all the sites. Key pedestrian, cycle and road links, including required upgrading is provided for. Significant wetlands are identified and watercourses protected.

A comprehensive approach to managing stormwater has been designed and will be delivered in accordance with the Stormwater Management Plan for the Precinct. A new stormwater wetland to cater for stormwater from land in catchment A2 will be provided.

The land within the Precinct will be connected to the upgraded Warkworth - Snells Beach Wastewater Treatment Plant. Provision is made for limited development in advance of a wastewater network connection being available.

The zoning of the land within this precinct is Residential - Mixed Housing Suburban.

1555.2. Objectives

- (1) Development shall be coordinated with the upgrading of the Snells Beach Wastewater Treatment Plant and completion of the conveyance network from Warkworth to Snells Beach to avoid adverse effects on the environment.
- (2) An integrated, low-speed transport and movement network is established with safe and convenient road, pedestrian and cycling connections within the Precinct and along State Highway 1 from Wech Drive to McKinney Road, McKinney Road, John Andrew Drive and to Fairwater Road and The Grange commercial centre.
- (3) Improvements to the safety of the transport network at the intersection of McKinney Road with State Highway 1 and the intersection of McKinney Road and John Andrew Drive to be delivered in conjunction with development in the Precinct.
- (4) Subdivision and development enhances the ecological values and water quality of the precinct including by undertaking comprehensive stormwater management in accordance with the approved Stormwater Management Plan.

The overlay, Auckland-wide and zone objectives apply in this precinct in addition to those specified above.

1555.3. Policies

- (1) Require subdivision and development to be in accordance with the Warkworth McKinney Road Precinct Plan.
- (2) Require subdivision, use and development to align with the upgrading and provision of wastewater services, particularly the Snells Beach Wastewater Treatment Plant and a new conveyance network from Warkworth to Snells Beach.
- (3) Subdivision, use and development shall provide for integrated roading, pedestrian and cycling infrastructure, including safe and accessible separated pedestrian and cycling access to Wech Drive and the potential for safe and accessible separated pedestrian and cycling links to The Grange commercial centre, to achieve full connectivity of all development as shown in the Warkworth McKinney Road Precinct Plan.
- (4) Deliver the required upgrading of the McKinney Road and State Highway 1 intersection to achieve a safe intersection design, and to take into account the design requirements and any necessary land vesting for a future upgrade of the McKinney Road and John Andrew Drive intersection.
- (5) Require at least one vehicular local road connection from Titapu Road to McKinney Road, with an intersection on McKinney Road as indicated on the Warkworth McKinney Road Precinct Plan.
- (6) Require subdivision and development to protect and enhance water quality, ecology and morphology of the streams and natural wetlands identified in the Warkworth McKinney Road Precinct Plan.
- (7) Provide a new stormwater pond as indicated on the Precinct Plan to accommodate stormwater flows from Catchment A2 as provided for in the approved Stormwater Management Plan for the Precinct.

The overlay, Auckland-wide and zone policies apply in this precinct in addition to those specified above.

1555.4. Activity table

The activity tables in any relevant overlays, Auckland-wide and zones apply unless the activity is listed in Table I555.4.1 Activity table below.

Table I555.4.1 Land use and subdivision activities in Warkworth McKinney Road Precinct

Activity		Activity status
(A1)	Vacant sites subdivision involving parent sites of less than or greater than 1 ha complying with Standard E38.8.3.1	RD
(A2)	Subdivision or development complying with Standard I555.6.1. Wastewater infrastructure and staging, prior to the Snells Beach Wastewater Treatment Plant and the conveyance network from Warkworth to Snells Beach becoming operational	RD

(A3)	Subdivision or development that does not comply with Standard I555.6.1. Wastewater infrastructure and staging prior to the Snells Beach Wastewater Treatment Plant and the conveyance network from Warkworth to Snells Beach becoming operational	NC
(A4)	Development that does not comply with Standard I555.6.1 Wastewater infrastructure and staging once the Snells Beach Wastewater Treatment Plant and the conveyance network from Warkworth to Snells Beach is operational	Р
(A5)	Subdivision or development complying with:	RD
	Standard I555.6.2. Transport Connections	
	Standard I555.6.3. Streams and wetlands protection and enhancement	
(A6)	Subdivision or development that does not comply with:	D
	Standard I555.6.2. Transport Connections or does not deliver the safety upgrades required for the McKinney Road / State Highway 1 intersection as determined by Special Information requirement I555.9(2)	
	Standard I555.6.3. Streams and wetlands protection and enhancement	
	Standard I555.6.4. New Buildings and additions – High Contaminant Yielding Materials	
(A7)	Development complying with Standard I555.6.4. New Buildings and additions – High Contaminant Yielding Materials	P
(A8)	Any vehicle crossing that accesses McKinney Road or John Andrew Drive	RD

1555.5. Notification

(1) Any application for resource consent for an activity listed in Table 1555.4.1 Activity Table above will be subject to the normal tests for notification under the relevant sections of the Resource Management Act 1991. When deciding who is an affected person in relation to any activity for the purposes of section 95E of the Resource Management Act 1991 the Council will give specific consideration to those persons listed in Rule C1.13(4).

1555.6. Standards

- (1) The standards in the overlays, Auckland-wide and zones apply to all activities listed in Table I555.4.1 Activity table in this precinct.
- (2) Activities listed in Table I555.4.1 Activity table must comply with the specified standards in I555.6.1 I555.6.4, and the Special Information requirements of I555.9.

1555.6.1. Wastewater infrastructure upgrade and staging

Purpose: To ensure development is appropriately serviced by wastewater infrastructure prior to completion of the Snells Beach Wastewater Treatment Plant and the conveyance network from Warkworth to Snells Beach.

- (1) No dwellings may be occupied within the precinct until the upgrades to the Snells Beach Wastewater Treatment Plant and a new conveyance network from Warkworth to Snells Beach are operational.
 - (a) Provided that a maximum of 30 lots/dwellings may be constructed and occupied on Lot 1 DP558809 and Lot 2 DP 481942 within the precinct prior to the upgrades to the Snells Beach Wastewater Treatment Plant and a new conveyance network from Warkworth to Snells Beach becoming operational.

I555.6.2. Transport Connections

Purpose: To establish a safe and efficient transport network:

- (1) Road, and pedestrian and cycling links along State Highway 1 from Wech Drive to the McKinney Road Precinct boundary, McKinney Road and John Andrew Drive, and within the Precinct, as identified in the Warkworth McKinney Road Precinct Plan, shall be provided:
 - (a) At subdivision or land development stage other than for boundary relocation subdivision or bulk earthworks, prior to the occupation of dwellings in the Precinct.
 - (b) In perpetuity for both private and public access;
 - (c) With separated pedestrian and cycling along internal connecting route B if this is constructed as a vehicular through-road.
- (2) The McKinney Road and State Highway 1 intersection shall be upgraded to safely accommodate precinct development at subdivision or land development stage, other than for boundary relocation subdivision or bulk earthworks, prior to the occupation of dwellings in the Precinct.
- (3) The requirements of (1) and (2) above will be considered to be complied with if the identified upgrade forms part of the same resource consent, or a separate resource consent which is given effect to prior to release of section 224(c) for any subdivision OR prior to occupation of any new building(s) for a land use only.

1555.6.3. Streams and wetlands protection and enhancement

Purpose: To restore and enhance water quality, ecology and morphology of the streams and natural wetlands shown in the Warkworth McKinney Road Precinct Plan including the prevention of stream bank erosion.

(1) All wetlands, wetland buffers and riparian yards of the permanent and intermittent streams shown in the Warkworth McKinney Road Precinct Plan (being the land comprised in Lot 1 DP558809 and Lot 2 DP 481942) must be restored and their margins planted at the time of subdivision or land development, whichever occurs first, from the stream bed to a minimum width of 10m measured from the top of the stream bank.

- (2) The planting required in Standards I555.6.3(1) above must:
 - (a) Use eco-sourced native vegetation;
 - (b) Be consistent with local biodiversity;
 - (c) Be planted at a density of 10,000 plants per hectare;
 - (d) Planting must be undertaken in accordance with the Special Information Requirements in I555.9(1);
 - (e) Planting shall be legally protected and maintained in perpetuity.

1555.6.4. New Buildings and additions – High Contaminant Yielding Materials

Purpose: To protect water quality in streams, and the Mahurangi Catchment, by limiting the release of contaminants from building materials.

(1) New buildings, and additions to buildings must be constructed using inert cladding, roofing and spouting building materials that do not have an exposed surface made from contaminants of concern to water quality (i.e. zinc, copper and lead).

1555.7. Assessment - controlled activities

1555.7.1. Matters of control

There are no controlled activities in this precinct.

1555.8. Assessment – restricted discretionary activities

1555.8.1. Matters of discretion

The Council will restrict its discretion to all the following matters when assessing a restricted discretionary activity resource consent application, in addition to the matters specified for the relevant restricted discretionary activities in the overlay, Auckland wide or zone provisions:

- (1) Subdivision and development:
 - (a) Infrastructure and servicing, including interim wastewater disposal methods;
 - (b) The effects of development on wastewater infrastructure timing and capacities;
 - (c) The suitability of, and effects associated with the location and design of the roads and pedestrian / cycle linkages for public access;
 - (d) The effects of development on the safety and performance of the McKinney Road and State Highway 1 intersection and provision for the future upgrading of the McKinney Road and John Andrew Drive intersection;

- (e) The provision and maintenance of riparian planting for streams and natural wetlands;
- (f) Management of effects of stormwater including water quality.
- (2) Any vehicle crossing that accesses McKinney Road or John Andrew Drive
 - (a) The effects on the safe and efficient operation of existing or future cycleways including design, location and cumulative effects of multiple crossings.

1555.8.2. Assessment criteria

The Council will consider the relevant assessment criteria below for restricted discretionary activities, in addition to the assessment criteria specified for the relevant restricted discretionary activities in the overlay, Auckland wide or zone provisions, and the information required by the Special Information requirements in I555.9 below.

- (1) Subdivision and development:
 - (a) The extent to which any subdivision or development is consistent with and achieves the objectives and policies of the Warkworth McKinney Road Precinct Plan;
 - (b) The extent to which McKinney Road and State Highway 1 Intersection achieves safe intersection design and accommodates walking and cycling;
 - (c) For development of up to 30 dwellings or non-residential activity with equivalent traffic generation within the Precinct, consideration of the combined measures used to improve safety of the McKinney Road and State Highway 1 intersection, by improving visibility for turning traffic at the McKinney Road and State Highway 1 intersection and lowering of the operating speed on State Highway 1. Measures considered should include:
 - (i) Berm widening to improve visibility for traffic turning out from McKinney Road and for pedestrian and cycleway construction on the northern side of McKinney Road, and the eastern side of State Highway 1 to Wech Drive;
 - (ii) Intersection warning signage on State Highway 1 and measures to reduce speeds on State Highway 1, for traffic approaching the intersection from the north;
 - (iii) Surface treatment on State Highway 1 approaching the McKinney Road intersection from the north, to increase the surface friction of this section of State Highway and enhance safe stopping ability of vehicles leading up to the intersection
 - (d) For any development beyond 30 dwellings or non-residential activity with equivalent traffic generation within the Precinct, the safety and performance of McKinney Road and State Highway 1 intersection for all modes shall be

- considered, which may include monitored speed reduction on State Highway 1 and/or other measures.
- (e) The extent to which the location and design of the roads, intersections, and pedestrian / cycle linkages result in:
 - (i) an integrated network between McKinney Road and John Andrew Drive and to The Grange;
- (ii) McKinney Road and State Highway 1 Intersection upgrades, that meet the needs of the residents within the Precinct and the public generally.
 - (f) Whether the existing or any proposed road reserve provides for any necessary future upgrade of the McKinney Road and John Andrew Drive intersection.
 - (g) The extent to which the ecological values and water quality of existing watercourses and wetlands are maintained or enhanced by the proposed subdivision and development.
 - (h) Whether any subdivision or development can be served by reticulated wastewater treatment and disposal, or acceptable short term alternative methods for safe and legal disposal in advance of reticulated treatment and disposal.
 - (i) The extent to which subdivision and development implements stormwater management that:
 - (i) Is in accordance with the approved Stormwater Management Plan and Policies E1.3 (1) (14);
 - (ii) Implements a treatment train approach to treat stormwater runoff from impervious surfaces so that all contaminant generating surfaces are treated, including cumulative effects of lower contaminant generating surfaces.
 - (iii) The design and efficacy of stormwater devices considers the likely effectiveness, ease of access, operation and integration with the surrounding environment.
 - (j) For buildings that do not comply with Standard I555.6.4 New Buildings and additions High Contaminant Yielding Materials:
 - (i) Is in accordance with the approved Stormwater Management Plan and Policies E1.3 (1) (10) and (12) (14);
 - (ii) Implements a treatment train approach to treat runoff from impervious surfaces so that all contaminant generating surfaces are treated including cumulative effects of lower contaminant generating surfaces.
- (2) Any vehicle crossing that accesses McKinney Road or John Andrew Drive

(a) the proposed vehicle access is able to be located, formed, and used without resulting in actual or potential conflict between road users and to protect cycle safety.

1555.9. Special information requirements

(1) Riparian Planting for streams and natural wetlands

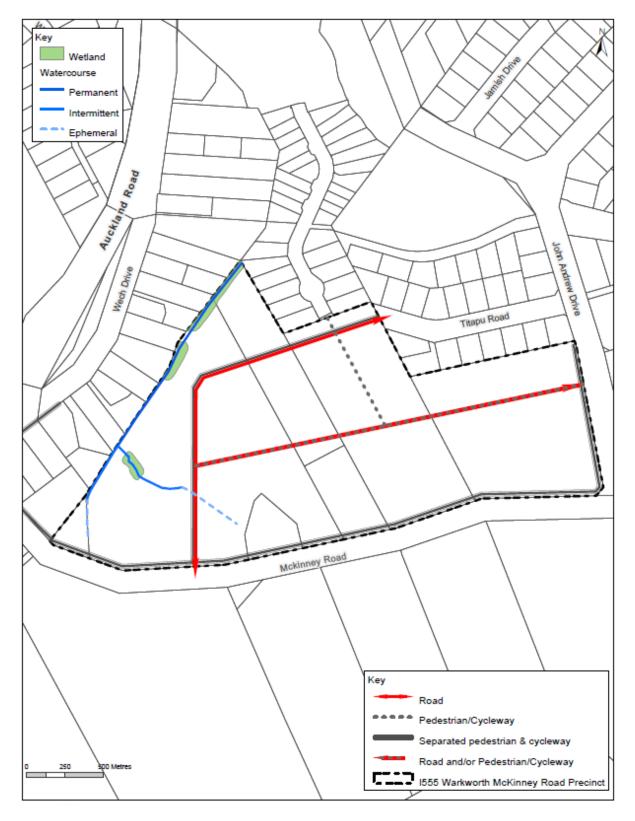
An application for any subdivision or land development that requires the planting of a riparian yard or buffer area under Rule I555.6.3 must be accompanied by the following information as a minimum:

- (a) A restoration plan prepared by a suitably qualified person.
- (b) The restoration plan must:
 - (i) Identify the location, species, planting bag size and density of the plants;
 - (ii) Confirm detail on the eco-sourcing proposed for the planting;
 - (iii) Confirm the maintenance of the planting for 5yrs, including weed and pest animal control;
 - (iv) Take into consideration the local biodiversity and ecosystem extent.
- (2) Transport connections, road and intersection upgrading on McKinney Road and State Highway 1:
 - (a) Any application for subdivision and / or dwellings or non-residential activity with equivalent traffic generation, other than boundary relocation subdivision and bulk earthworks, shall provide a Traffic Assessment addressing the traffic effects of the Precinct on the intersection of McKinney Road and State Highway 1. The Assessment shall detail any intersection upgrading works required to ensure the intersection is safe for traffic associated with development in the Precinct;
 - (b) A Transport Design Report and Concept Plans prepared by a suitably qualified transport engineer must be provided confirming the location and design of any road and its intersection(s) supports the safe and efficient function of the existing and future (ultimate) transport network and can be accommodated within the proposed or available road reserves. This may be included within a transport assessment supporting land use or subdivision consents. In addition, when an interim upgrade is proposed, information must be provided, detailing how the design allows for the ultimate upgrade to be efficiently delivered.
- (3) Subdivision or land development of Lot 1 DP 187649

An application for any subdivision or land development of Lot 1 DP 187649 must be supported by a Transport Design Report and Concept Plans prepared by a suitably qualified transport engineer confirming the proposed or available road reserve at the

intersection of McKinney Road and John Andrew Drive can accommodate a future safe and efficient intersection in accordance with the applicable standards for these roads.

I555.10. Warkworth McKinney Road Precinct Plan





Submission on Proposed Private Plan Change 93 – Warkworth South - Waimanawa

Clause 6 of Schedule 1, Resource Management Act 1991 (Form 5)

To: Auckland Council

1. SUBMITTER DETAILS

Name of Submitter: **Guy Matches**

This is a submission on Proposed Private Plan Change 93 ("PPC93") to the Auckland Unitary Plan – ("AUP").

Guy Matches could not gain an advantage in trade competition through this submission.

Guy Matches and JT Trustee Co Limited own the land at 127 Woodcocks Road, legally described as Lot 2 DP341541, Allot 62A Psh of Mahurangi DO 1150E, Pt Allot 62 Psh of Mahurangi SO 891E and will be directly affected by the Request. A map showing the property is **Attachment A**.

The Submitter's land is directly adjoining the PPC93 area. The Submitter's land accesses from Woodcocks Road and adjoins the PPC93 area along the southern boundary adjacent to the river tributary, and to the north of the proposed Open Space — Conservation zoned area and small portion of common boundary that directly adjoins proposed Residential Mixed Housing Urban zone..

The Submitter **SUPPORTS** the Proposed Plan Change Request in principle, subject to the matters stated in this submission.

2. The Plan Change Request

PPC93 – Warkworth South - Waimanawa seeks a comprehensive rezoning and the introduction of Precinct provisions for Waimanawa (comprising of Waimanawa Valley and Waimanawa Hills) and the Morrison Orchard areas. The stated purpose of PPC93 is:

The purpose of the plan change is to re-zone land in Warkworth South to:

- (a) Provide for the continuation and expansion of the Morrison Heritage Orchard and further development of this site with supporting activities and limited residential development.
- (b) Enable the urban development of the remainder of the area (referred to as Waimanawa) to proceed generally in accordance with the outcomes sought through the Warkworth Structure Plan.

3. SCOPE OF SUBMISSION

3.1 General

Whilst rezoning the land for urban purposes is <u>supported in principle</u>, there are matters of detail that need to be secured through the plan change process. The development of Warkworth South is an important and necessary component for the continued development of Warkworth into a satellite town which is critical in terms of ensuring that Warkworth becomes a sustainable urban area.

This submission addresses those matters that need to be addressed and secured via the plan change provisions.

PPC93 proposes two new Precincts – "Waimanawa" and "Morrison Heritage Orchard". This submission focuses on the plan change itself and the "Waimanawa" Precinct only.

3.2 Plan Change Assessments

General:

The Plan Change report does not address the adjacent land at 127 Woodcocks Road although page 17 does discuss other adjoining landowners.

Infrastructure:

The Plan Change report states that there will be an Infrastructure Funding Agreement ("IFA") and this is currently being negotiated with Auckland Council and presumably the relevant CCO's ("Council Controlled Organisations"). The Plan Change report states that "An IFA will ensure that all relevant infrastructure required for any stage of the project is in place prior to residential connections for that stage".

The infrastructure servicing is designed to be delivered from the south, within the PC93 area and then extend north back towards the existing Warkworth urban area.

The infrastructure for the PPC93 area needs to be designed and constructed to enable servicing capacity for the Future Urban land between the plan change area and existing urban area of Warkworth, including the Submitter's land.

The Submitter understands that PPC93 does not currently require access through the Submitter's land for services to Warkworth South, however the Submitter wishes to identify that if changes to the site servicing are required then the Submitter is open to discussions regarding providing necessary services through its property in order to ensure that the Warkworth South Area (and the Submitter's land) can be efficiently developed. If this outcome were to occur there would be better outcomes achieved from incorporating the Submitter's land in the plan change and rezoning their land to an appropriate urban zone such as Residential – Mixed Housing Urban, consistent with the likely zoning outcome for the residential development to the east of Mason Heights Road.

The assessments for infrastructure capacity need to consider the existing infrastructure in Warkworth and whether any upgrades are required to that existing infrastructure, to enable infrastructure servicing now and into the future for both the plan change 93 area *and* the 'stranded' future urban land located between PPC93 and the existing urban area (including the Submitter's land). It is not acceptable to leave reticulation or capacity issues to the resource consent stage. If there is insufficient capacity in the reticulated network, or at the plant, then this will result in inefficient outcomes and there will not be the required integration between the delivery

of urban land and the effective and efficient of infrastructure to support that urban development.

The infrastructure assessment also needs to assess the capacity of the Snells Beach plant and the reticulated infrastructure in the context of all the development planned for Warkworth.

These important assessments are not apparent from the Infrastructure report in Appendix 5 of the Plan Change documentation.

Compact Urban Form / Integrated Planning and Quality Urban Environment:

The Submitter's land is to the north of the plan change area and is zoned Future Urban. The approach of PPC93 leaves out areas of Future Urban zoned land between the plan change area and the existing urban zoned areas of Warkworth, including the Submitter's land. The outcome is further plan changes will be required to provide urban zonings to the Future Urban land 'stranded' between PPC93 and the existing urban area.

The Submitter questions why their land, and adjacent Future Urban zoned land was not included in the Plan Change area. Inclusion of the Submitters' land would assist in achieving a more integrated outcome with respect to integrated planning and a coordinated and efficient delivery of infrastructure.

3.3 Effects on the Environment

The proposed infrastructure servicing does not provide sufficient detail to show how the stranded land could be serviced in the future. Without this information it is likely that there will be inefficient outcomes in relation to the provision of infrastructure. This in turn could lead to adverse effects on the quality of the urban environment as land areas adjacent to the existing urban area may not be able to be developed.

3.4 Policy Framework

The National Policy Statement Urban Development ("NPS UD") objective 1 seek well-functioning urban environments. Objective 6 requires that "...local authority decisions on urban development that affects environments are integrated with infrastructure planning and funding decisions and strategic over the medium term and long term and are responsive, particularly in relation to proposal that would supply significant development capacity".

The Auckland Regional Policy Statement ("RPS") – Chapter B2 Urban growth B2.2.1 (1) seeks a quality compact urban form that enables **all** of the following:

- (a) a higher-quality urban environment;
- (b) greater productivity and economic growth;
- (c) better use of existing infrastructure and efficient provision of new infrastructure;
- (d) improved and more effective public transport;
- (e) greater social and cultural vitality;
- (f) better maintenance of rural character and rural productivity; and
- (g) reduced adverse environmental effects.

The current proposal in the PPC93 documentation for infrastructure servicing will not achieve the integrated outcomes sought by the NPS UD or the RPS.

3.5 Precinct Provisions

Zoning:

Land to the south of the Submitter's land, within the plan change area is proposed to be zoned Residential –

26

Mixed Housing Urban and Open Space – Conservation zone. The Submitter supports the zoning as set out on the proposed zoning map and the extent of the proposed Waimanawa Precinct as shown on Map 4.

The Submitter supports the proposed 20-metre riparian yards and the Indicative Off-Road Greenway routes as shown on Precinct Plan 1 – Spatial Provisions.

The plan shows proposed Residential – Mixed Housing Urban zoned land adjoining the Submitter's land. It is assumed given the riparian yard and the Indicative Off-Road Greenway that this boundary will in fact be esplanade reserve, or at least urban development / buildings will need to be set back at least 20-metres from the common boundary. However, if there is urban development on the portion of land to the south of the Submitter's land, on the portion where there is directly adjoining residential zoned land proposed, then dwellings may be close to the Submitter's land. This could lead to reverse sensitivity issues as the Submitter farms their land in keeping with the Future Urban zoning intent for land to be used for rural activities until it is zoned for urban land uses. The Open Space – Conservation zone is therefore supported.

Confirmation is required that the identified 'Bat Flight Corridor' does not extend further north to the Submitter's land.

3.6 Statutory Assessment

The effects of PPC93 on the environment are uncertain and not adequately managed by the plan change provisions with respect to the design and delivery of infrastructure.

The Request does not achieve the required outcomes of the National Policy Statement Urban Development, particularly with respect to the integration of infrastructure and urban development, strategic planning over the medium term and long term. All existing and future urban areas of Warkworth need to be taken into consideration in the assessment of infrastructure capacity.

The Request is not in keeping with the provisions of the Regional Policy Statement that it has to give effect to. Particularly with respect to infrastructure servicing and urban form.

In its current form the Request does not meet the objectives of the NPS UD or the Auckland Unitary Plan.

3.6 Conclusions

Guy Matches seeks that Plan Change 93 – Warkworth South plan change be **refused** or preferably **approved** with changes to provisions to address the matters raised in this submission.

Guy Matches wishes to be heard in support of this submission.

If others make a similar submission, the Submitter will consider presenting a joint case at the hearing.

Yours sincerely

Burnette O'Connor Director | Planner

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Ruette O' Courou

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Attachment A – Submitter's Property Boundaries



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Submission on Proposed Private Plan Change 93 – Warkworth South - Waimanawa

Clause 6 of Schedule 1, Resource Management Act 1991 (Form 5)

To: Auckland Council

1. SUBMITTER DETAILS

Name of Submitter: John and Sue Wynyard (Wynyard family)

This is a submission on Proposed Private Plan Change 93 ("PPC93") to the Auckland Unitary Plan – ("AUP").

The Wynyard family could not gain an advantage in trade competition through this submission.

The Wynyard family own land adjacent to the plan change area. A map showing the property is **Attachment A**. The Wynyard land is at 317 Woodcocks Road, is held in three Records of Title, and has the following legal descriptions:

- Lot 2 DP 473567 RoT 647897
- Lot 1 DP 437211 RoT 581654
- Lot 4 DP 473567 RoT 647898

The Submitter **SUPPORTS** the Proposed Plan Change Request in principle, subject to the matters stated in this submission and for the reasons stated.

2. The Plan Change Request

PPC93 – Warkworth South - Waimanawa seeks a comprehensive rezoning and the introduction of Precinct provisions for Waimanawa (comprising of Waimanawa Valley and Waimanawa Hills) and the Morrison Orchard areas. The stated purpose of PPC93 is:

The purpose of the plan change is to re-zone land in Warkworth South to:

- (a) Provide for the continuation and expansion of the Morrison Heritage Orchard and further development of this site with supporting activities and limited residential development.
- (b) Enable the urban development of the remainder of the area (referred to as Waimanawa) to proceed generally in accordance with the outcomes sought through the Warkworth Structure Plan.

SCOPE OF SUBMISSION

3. SUBMISSION

3.1 General

Whilst rezoning the land for urban purposes is <u>supported in principle</u>, there are matters of detail that need to be secured through the plan change process. The development of Warkworth South is an important and

necessary component for the continued development of Warkworth into a satellite town which is critical in terms of ensuring that Warkworth becomes a sustainable urban area.

This submission addresses those matters that need to be addressed and secured via the plan change provisions.

PPC93 proposes two new Precincts – "Waimanawa" and "Morrison Heritage Orchard". This submission focuses on the plan change itself and the "Waimanawa" Precinct only.

3.2 Plan Change Issues

Infrastructure:

The Plan Change report states that there will be an Infrastructure Funding Agreement ("IFA") and this is currently being negotiated with Auckland Council and presumably the relevant CCO's ("Council Controlled Organisations"). The Plan Change report states that "An IFA will ensure that all relevant infrastructure required for any stage of the project is in place prior to residential connections for that stage".

The infrastructure servicing is designed to be delivered from the south, within the PC93 area and then extend north back towards the existing Warkworth urban area.

The infrastructure for the PPC93 area needs to be designed and constructed to enable servicing capacity for the Future Urban land between the plan change area and existing urban area of Warkworth, including the Submitter's land.

The Submitter's land is effectively part of the 'stranded' land to the north of the Plan Change area and Woodcocks Road. Better outcomes would be achieved from incorporating the Submitter's land in the plan change and rezoning their land Business — Heavy Industry as indicated in the Adopted Auckland Council Structure Plan — June 2019.

The assessments for infrastructure capacity need to consider the existing infrastructure in Warkworth and whether any upgrades are required to that existing infrastructure, to enable infrastructure servicing now and into the future for both the plan change 93 area and the 'stranded' future urban land located between PPC93 and the existing urban area (including the Submitter's land). It is not acceptable to leave reticulation or capacity issues to the resource consent stage. If there is insufficient capacity in the reticulated network, or at the plant, then this will result in inefficient outcomes and there will not be the required integration between the delivery of urban land and the effective and efficient of infrastructure to support that urban development.

The infrastructure assessment also needs to assess the capacity of the Snells Beach plant and the reticulated infrastructure in the context of all the development planned for Warkworth.

These important assessments are not apparent from the Infrastructure report in Appendix 5 of the Plan Change documentation.

Compact Urban Form / Integrated Planning and Quality Urban Environment:

The Submitter's land is to the north of the plan change area and is zoned Future Urban. The approach of PPC93 leaves out areas of Future Urban zoned land between the plan change area and the existing urban zoned areas of Warkworth, including the Submitter's land. The outcome is further plan changes will be required to provide urban zonings to the Future Urban land 'stranded' between PPC93 and the existing urban

area.

The Submitter questions why their land, and adjacent Future Urban zoned land was not included in the Plan Change area. Inclusion of the Submitters' land would assist in achieving a more integrated outcome with respect to integrated planning and a coordinated and efficient delivery of infrastructure.

Woodcocks Properties has a resource consent, currently subject to appeal, for residential development on the Future Urban zoned land to the east of mason Heights Road. If this consent is granted the land at 50 Mason Heights, 127 Woodcocks Road and the Submitter's land will be the only remaining land areas excluded from zoned or consented urban development. As these land areas are at the western extent of the town, and as the Submitter's land is the only land planned for Business — Heavy Industry land uses in Warkworth, the land could be excluded from urban development for some time if it is not included in a comprehensive plan change such as PPC93.

The Submitter understands Auckland Council has no budget or plans to undertake plan changes at Warkworth.

Transportation:

The intention is for the Wider Western Link Road intersection with the old State Highway 1, and the connection through to the Submitter's land in the west, is to be delivered by the plan change. There are provisions in the proposed Waimanawa Precinct.

The Submitter questions whether the Wider Western Link Road will ever be delivered. But if it is then the Submitter seeks that the bridge location as sought in the Notice of Requirement for NOR 8 – Wider Western Link Road, also be shown on Warkworth South Map 3 – Indicative Arterial Roads and on Precinct Plan 1 – Spatial Provisions. The location of the bridge is significant in terms of its potential impacts on the Submitter's land in the future and therefore they seek certainty as to the location outcome.

Notice of Requirement #8 is not yet confirmed, and the Waimanawa Precinct Plan 1 does not show the Wider Western Link Road extending to the Submitter's land. The Precinct Plan needs to extend the road to Wynyard's land so that future development of the Wynyard land can connect to the Wider Western Link Road. It cannot be left to the Submitter, or a future developer of their land, to have to connect to the PPC93 land. This may not be legally or practically possible if the land has been subdivided and potentially on sold.

The Precinct Plan needs to provide for the connection direct to the Submitter's land with the bridge in the location it is shown in proposed Notice of Requirement #8 – Warkworth – Wider Western Link Road.

3.3 Effects on the Environment

The proposed infrastructure servicing does not provide sufficient detail to show how the stranded land could be serviced in the future. Without this information it is likely that there will be inefficient outcomes in relation to the provision of infrastructure. This in turn could lead to adverse effects on the quality of the urban environment as land areas adjacent to the existing urban area may not be able to be developed.

3.4 Policy Framework

The National Policy Statement Urban Development ("NPS UD") objective 1 seek well-functioning urban environments. Objective 6 requires that "…local authority decisions on urban development that affects environments are integrated with infrastructure planning and funding decisions and strategic over the medium term and long term and are responsive, particularly in relation to proposal that would supply significant

The Auckland Regional Policy Statement ("RPS") – Chapter B2 Urban growth B2.2.1 (1) seeks a quality compact urban form that enables **all** of the following:

- (a) a higher-quality urban environment;
- (b) greater productivity and economic growth;
- (c) better use of existing infrastructure and efficient provision of new infrastructure;
- (d) improved and more effective public transport;
- (e) greater social and cultural vitality;
- (f) better maintenance of rural character and rural productivity; and
- (g) reduced adverse environmental effects.

The current proposal in the PPC93 documentation for infrastructure servicing will not achieve the integrated outcomes sought by the NPS UD or the RPS.

3.5 Precinct Provisions

Zoning:

The Submitter supports the zoning as set out on the proposed zoning map and the extent of the proposed Waimanawa Precinct as shown on Map 4.

Confirmation is required that the identified 'Bat Flight Corridor' does not extend further west or north to the Submitter's land.

As set out above, the Submitter seeks identification of the Wider Western Link Road bridge location. The location put forward in NOR 8 – Wider Western Link Road is supported, and it is sought this location be secured and identified on Precinct Plan 1 – Spatial Provisions.

3.6 Statutory Assessment

The effects of PPC93 on the environment are uncertain and not adequately managed by the plan change provisions with respect to the design and delivery of infrastructure.

The Request does not achieve the required outcomes of the National Policy Statement Urban Development, particularly with respect to the integration of infrastructure and urban development, strategic planning over the medium term and long term. All existing and future urban areas of Warkworth need to be taken into consideration in the assessment of infrastructure capacity.

The Request is not in keeping with the provisions of the Regional Policy Statement that it has to give effect to. Particularly with respect to infrastructure servicing and urban form.

In its current form the Request does not meet the objectives of the NPS UD or the Auckland Unitary Plan.

3.6 Conclusions

The Wynyard family seek that Plan Change 93 – Warkworth South plan change be **approved** with changes to provisions to address the matters raised in this submission.

The Wynyard family wish to be heard in support of this submission.

27.2

If others make a similar submission, the Submitter will consider presenting a joint case at the hearing.

Yours sincerely

Burnette O'Connor Director | Planner

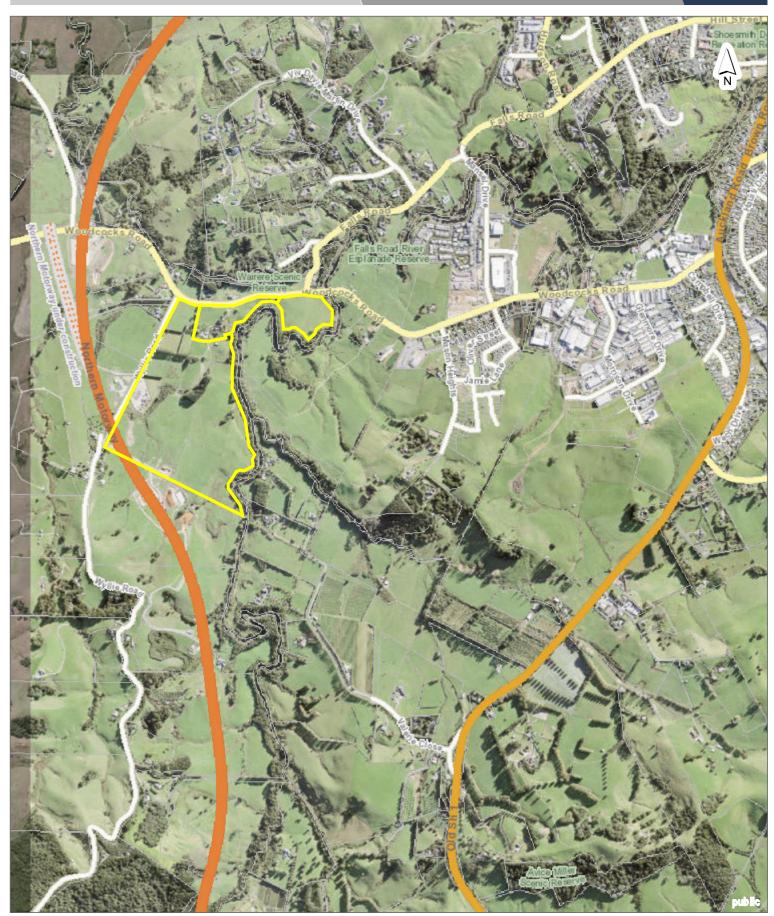
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Attachment A – Submitter's Property Boundaries



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Form 5: Submission on notified proposal for policy statement or plan, change or variation

Pursuant to clause 6 of the First Schedule of the Resource Management Act 1991

To: Auckland Council (the Council)

Name of submitter: Penny Nelson, Director-General of Conservation (the Director-

General)

1. This is a submission following proposed plan change proposed to the plan:

Auckland Unitary Plan - Private Plan Change Warkworth South

- 2. I could not gain an advantage in trade competition through this submission.
- 3. The specific provisions of the proposal that my submission relates, and the detailed decisions sought to are set out in **Attachment 1** to this submission.
- 4. I **seek** the following decision from the Council:
 - a. That the particular provisions of Proposed Plan 93 that I support, as identified in Attachment 1, are retained;
 - That the amendments, additions and deletions to Proposed Plan 93 sought in Attachments 1 are made; and
 - c. Further or alternative relief to like effect to that sought in 4. a. and 4. b. above.
- 5. The decisions sought in this submission are required to ensure that the Warkworth South:
 - a. Gives effect to the National Policy Statement on Indigenous Biodiversity 2023 and the Auckland Unitary Plan.
 - b. Recognises and provides for the matters of national importance listed in section 6 of the Act and to has particular regard to the other matters in section 7 of the Act;
 - c. Promotes the sustainable management of natural and physical resources; and

d. The changes sought are necessary, appropriate and sound resource management practice.

6. I wish to be heard in support of my submission, and if others make a similar submission, I will consider presenting a joint case with them at the hearing.

000

Rebecca Rush

Operations Manager

Tamaki Makaurau

Department of Conservation

Acting pursuant to delegated authority on behalf of Penny Nelson, Director-General of Conservation

Date: 22 November 2023

Note: A copy of the Instrument of Delegation may be inspected at the Director-General's office at Conservation House Whare Kaupapa Atawhai, 18/32 Manners Street, Wellington 6011

Address for service:

Attn: Christina Schipper, RMA Planner

cschipper@doc.govt.nz

+64 027 254 0683

Department of Conservation

Level 4, 73 Rostrevor Street, Hamilton, 3240

ATTACHMENT 1:

WARKWORTH SOUTH PRIVATE PLAN CHANGE 93 SUBMISSION BY THE DIRECTOR-GENERAL OF CONSERVATION

The Chapters that my submission relates to are set out in the table below. My submissions are set out immediately following these headings, together with the reason and the decision I seek from the Council.

The decision that has been requested may suggest new or revised wording for identified sections of the proposed plan. This wording is intended to be helpful but alternative wording of like effect may be equally acceptable. Text quoted from Proposed Plan 93 is shown in *Italics*. The wording of relief sought shows new text as <u>underlined</u> and original text to be deleted as *strikethrough*.

Unless specified in each-submission point, my reasons for supporting are that the provisions are consistent with the purposes of the Act.

PLAN PROVISION	SUPPORT/OPPOSE	REASON	RELIEF SOUGHT
General	Oppose	Long-tailed bats have a threat status under the New Zealand Threat Classification	Undertake further surveying in the PPC site to
		System as Threatened – Nationally Critical. Long-tailed bats are considered	fully understand the population size and
		absolutely protected under the Wildlife Act 1953. ¹ The NPS-IB applies to indigenous	location of long-tailed bats.
		biodiversity in the terrestrial environment and aims to maintain indigenous	
		biodiversity so there is no net loss across the country. To do so it requires that	
		indigenous biodiversity is protected and restored where degraded. Policies 3, 8, and	
		15 are specifically important due to long-tailed bats being identified as a highly	
		mobile species.	
		The disturbance from the proposed activities has the potential to result in the loss	
		of critical habitat. This includes potential maternity and other roost trees, reducing	
		the available roosting and foraging habitat, and limit the connectivity of the	
		remaining suitable bat habitat in the surrounding area potentially rendering habitat	

¹ Wildlife Act 1953, s 3.

28.

PLAN PROVISION	SUPPORT/OPPOSE	REASON	RELIEF SOUGHT
		unavailable. It is therefore critical that adequate information is gathered around the	
		use of this habitat before a decision is made on its use and development.	
		AR4 Acoustic Recording Devices (ARDs) can detect long-tailed bats up to fifty metres	
		away in all directions (360°). Therefore, the first survey (using two AR4s) covered	
		up to 1.6ha, or 0.001% of the 159ha site, and the second survey (using five AR4s)	
		covered up to 4ha, or 0.02% of the site. While it is impractical to cover the whole	
		site, the gaps in coverage are large, particularly as most of the recorders were at	
		the margins of the site. Due to the low survey coverage, long-tailed bat activity over	
		most of the site is unknown, therefore the effects of such a large change in land use	
		cannot be adequately assessed or addressed. This lack of information thus requires	
		that under the NPS-IB a precautionary approach is taken.	
		The survey was stated to be conducted in accordance with <i>Sedgeley et al</i> (2012). ²	
		Sedgeley et al (2012) does not recommend any particular number of recorders per	
		site and is largely irrelevant to the question of whether the coverage of the site is	
		adequate.	
		There is no evidence provided, other than the two surveys conducted, to support	
		the claim that bat activity beyond the Mahurangi River corridor would be low to not	
		, ,	
		at all, or that the identified activity is highly likely to be associated with forest to the	
		south-west. The second survey was more thorough in scope however bat activity	
		can vary widely over a short distance. The recorders did not cover enough of the	
		site to get an accurate understanding of where the bats are. For the large change in	
		land use that is proposed, comprehensive on-site surveys are needed rather than	
		extrapolation and speculation to ensure that adverse effects to the long-tailed bats	
		are avoided.	

² J A Sedgeley "Bats: counting away from roosts – automatic bat detectors Version 1.0 Inventory and monitoring toolbox: bats" Series DOCDM-590733, Department of Conservation, Christchurch New Zealand.

³ Department of Conservation "Protocols for minimising the risk of felling bat roosts Version 2" (October 2021).

PLAN PROVISION	SUPPORT/OPPOSE	REASON	RELIEF SOUGHT
		gathering identifies adverse effects on bats are likely the PPC will need to ensure	"National Light Pollution Guidelines
		that the AUP and NPS-IB are given effect to. It is proposed that the provisions in the	for Wildlife".
		higher order documents can be given effect to by the following:	Require that development in, and
		The proposed zoning of the bat flight corridor is Residential – Mixed Housing Urban Zone. Under the AUP, there can be up to three dwellings on a singular site as a permitted activity in the Residential – Mixed Housing Urban Zone, with four or more dwellings being a restricted discretionary activity. Having medium density housing directly adjacent to the bat flight corridor will have adverse effects on the bats due to multiple lighting and noise concerns.	 adjacent to, the bat flight corridor utilises the Department of Conservation's Protocols for minimising the risk of felling occupied bat roosts (2021). Require a prohibition in keeping domestic cats within one kilometre
		The Special Yard: Bat Flight Corridor in its entirety is inadequate to protect the long-	of the bat flight corridor.
		tailed bats from adverse effects. As written, the onus would fall on the property	
		owners to maintain their backyards to abide by the PPC when greater protection	
		would be possible if the entirety of the bat flight corridor was zoned as Open Space – Conservation.	
		The purpose of the Special Yard: Bat Flight Corridor is "to provide an unobstructed flight corridor for bats". Limiting landscaping to two metres, assuming this refers to planting, does not make sense because shrubs and trees do not obstruct flying bats. Obstructions are more likely to include buildings, light, traffic and noise. Zoning the area as Open Space – Conservation would provide a more effective buffer as it would prohibit the aforementioned activities from occurring in the zone.	
		It would be incredibly difficult to enforce lighting restrictions in the Residential – Mixed Housing Urban Zone when lighting is numerous and varied in urban areas.	
		Examples include security lighting, light spill from windows and vehicles, outside lights accidentally left on, special occasion lighting, and street lighting.	
		Recent study has shown that long-tailed bat activity is adversely affected by artificial light. The Australian Government produced National Light Pollution Guidelines for	

PLAN PROVISION	SUPPORT/OPPOSE	REASON	RELIEF SOUGHT
		Wildlife. ⁴ Lighting in the vicinity of the bat flight corridor should adhere to the best	
		practice lighting design as laid out in the guidelines.	
		Noise may additionally deter bats from using the area. While the effects on long-	
		tailed bats from noise is still an emerging area of research, the precautionary	
		approach should be taken as per required by the Act and the NPS-IB.	
		It is assumed that the Bat Flight Corridor has been proposed to enable bats to	
		continue to travel along the Mahurangi River and associated riparian vegetation.	
		The correlation between increased urbanisation and bat exclusion is well	
		understood, with bats now extinct in most urban areas. It is unknown exactly how	
		much urbanisation bats can tolerate before they are excluded, therefore a	
		cautionary approach should be followed including a 100m buffer between the Bat	
		Flight Corridor and the urban area to buffer for the effects of light and noise. Tree	
		planting in the buffer would further reduce light and noise in the Bat Flight Corridor.	
		In the Appendix 2 Urban Design Report at 5.4, there is an indicative masterplan of	
		what the proposed subdivision would look like. There is a proposed walking and	
		cycling path that is adjacent to the bat flight corridor. It is recommended that no	
		lighting be provided alongside the paths to prevent additional adverse effects.	
		Domestic and feral cats are significant predators of long-tailed bats. A prohibition	
		should be imposed on houses that are within one kilometre of the bat flight corridor	
		and the Avice Miller reserve as per the findings by Kays et al (2020). Prohibiting	
		cats would provide the best outcome to assist in avoiding adverse effects on long-	
		tailed bats that is required under the NPS-IB and the AUP.	

⁴ Department of the Environment and Energy "National Light Pollution Guidelines for Wildlife Version 1.0" January 2020.

⁵ R Kays, R R Dunn, A W Parsons, B Mcdonald, T Perkins, S A Powers, L Shell, J L McDonald, H Cole, H Kikillus, L Woods, H Tindle, and P Roetman "The small home ranges and large local ecological impacts of pet cats" (2020) 23 Animal Conservation 516.

PLAN PROVISION	SUPPORT/OPPOSE	REASON	RELIEF SOUGHT
Special Yard: Avice Miller Scenic Reserve	Oppose	The Avice Miller Scenic Reserve is Public Conservation Land administered by the Department of Conservation. The concerns that were raised in the Bat Flight Corridor have equal application to the Special Yard: Avice Miller Scenic Reserve. Similar to the bat flight corridor, there should be a prohibition on keeping domestic cats. There is already a prohibition within three meters but there is a logistical concern on enforcing the requirement on property owners.	Amend the plan to adequately cover the following issues: • Require a prohibition in keeping domestic cats within one kilometre of the Avice Miller Scenic Reserve.
		As stated earlier, Kays <i>et al</i> (2020) found that cats generally have a maximum stalking range of one kilometre. It would protection to the likely present 'At Risk' species including forest, elegant and pacific gecko, copper and ornate skink and the kauri snail at the Reserve. The failure to detect lizards does not necessarily indicate they are not present because native lizards can be hard to detect particularly at sites where they exist at low population densities due to introduced predators.	
		A flat prohibition for properties within one kilometre of the Avice Miller Scenic Reserve is necessary to give effect to the NPS-IB and AUP objectives and policies. Additionally, if long-tailed bats are found within the Avice Miller Scenic Reserve	
		after further investigations, similar restrictions should be imposed on the boundary as required by the Bat Flight Corridor as previously mentioned.	

Protocols for minimising the risk of felling bat roosts

(Bat Roost Protocols (BRP))

Version 2: October 2021 approved by the New Zealand Department of Conservation's Bat Recovery Group

The use of these protocols should be a final step in the avoid/remedy/mitigate hierarchy. Avoidance of felling bat roost trees should be the first step in any project.

Purposes of this document:

- 1. To outline why protection of roosts is important for the persistence of New Zealand bats and why removal of known and potential roosts should be avoided.
- 2. Where roost removal cannot be avoided, to set out the minimum requirements and protocols for removing trees in areas where bats are present, to minimise the risk of killing bats.

This protocol does not eliminate the risk to bats of death or injury because bats or active bat roosts can be missed. The best way to eliminate risk of felling an active roost is to **avoid** felling any known or potential roosts.

Context

The status of New Zealand bats

New Zealand's two extant bat species (pekapeka) are classified as threatened.

Long-tailed bats are classified as 'Nationally Critical' because the species is likely to have a 70% decline in numbers within three generations.

Lesser short-tailed bats comprise three subspecies. The northern subspecies is classified as 'Nationally Vulnerable' because there are 1000-5000 mature individuals and the predicted decline in numbers is 10-50% within three generations. The central subspecies is 'Declining' because there are 20 000-100 000 mature individuals, and the predicted decline is 10-50% within three generations. The southern subspecies is 'Recovering' because there are 1000-5000 individuals, and the predicted increase is >10% within three generations.

Threats to bats

This document deals specifically with roost protection; however, roost protection is only part of the wider issue of habitat loss. Habitat loss through land clearance, habitat degradation, fragmentation and disturbance and loss of roosts reduces roosting, foraging and socialising areas. Individual bats and colonies are also threatened by the local felling of individual trees.

Bats have large home ranges which can include unprotected peri-urban habitat. Protecting habitat and maintaining connectivity of vegetation are crucial for bats being able to persist and flourish in the environment.

Predation and competition by introduced predators: mustelids, rats, cats, and possums have all been implicated in the decline of bats¹.

Roosts are critical to the survival of bats

Roosts are where bats gather to shelter during the day and at night. They are used to socialise, mate, give birth, and raise young. Bats have very specific requirements when they are choosing roosts and are not just choosing any

¹ O'Donnell CFJ; Christie JE; Hitchmough RA; Lloyd B; Parsons S 2010. The conservation status of New Zealand bats, 2009. New Zealand Journal of Zoology 37: 297–311.

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tree². The specialised features of roosts make them rare and almost irreplaceable in any landscape or habitat type except over very long-time frames. People sometimes falsely suggest that "bats can just move to another tree". This is not the case, particularly where trees suitable as roosts are limited³.

Bats demonstrate high site fidelity to existing roosts and their specific roosting areas, and they move on a rotation among these. Because roost trees are likely to be rare, and are occupied to fulfil specialised requirements, felling breeding roost trees even when bats are absent will have a significant negative effect. If the number of suitable roosts and their surrounding habitat is reduced in the landscape, bats are forced to use roosts that are less thermally efficient. This means they will use more energy to survive, resulting in reductions in survival and lower reproductive success. In this way, roost removal is likely to result in higher risk of local extinction.

Bats can roost in native or exotic vegetation – therefore it should not be presumed that exotic species such as pine trees will not support bats. Roosts, including maternity roosts, have been found in many exotic species including, but not limited to, pine, poplar, oak, and acacia species, black locust, willow, eucalyptus and Tasmanian blackwoods.

Bats are at risk of being injured or killed when trees are felled

If a tree is felled with a bat in it, it is highly likely that the bat will be injured or killed, although this may not be apparent at the time because injuries, such as bruises and fractures, which would hinder bats' ability to fly well, may take time to be obvious.

The highest risk of injuring or killing bats or trapping them within their roosts is when they are heavily pregnant, when young are still dependent on the roost (late November – February) and when bats are more likely to be in torpor (May – September). Heavily pregnant bats are slower and less agile, and young bats cannot fly, so their chances to escape are reduced when roost trees are felled. Also, it is possible that if the larger female-dominated maternity roosts are cut down when females are raising their young to independence (October-March), a whole colony of bats could be destroyed at one time.

During winter bats use torpor (a type of hibernation) more often than during other times of year, so if trees are cut down in winter, bats may be unable to rouse from torpor and to fly away in time to escape. Additionally, it is significantly harder, sometimes impossible, to detect bats roosting in trees during torpor. For these reasons, trees with potential bat roost features must not be cut down in winter. Bats also use torpor for short periods during summer, for example, if the weather gets cold, so the risk of killing or injuring bats that cannot escape falling trees exists at any time of the year.

Bat roost protocols and the RMA

The occurrence of bats and bat habitat is a matter of 'significance' under Section 6(c) of the Resource Management Act (RMA). Bat roost protocols have become a standard part of bat management plans that may be required under RMA consents. Where developments require consents, and bats (a threatened species) are present, the developments should 'Avoid' impacting bats and bat habitat. Bat roost protocols only attempt to minimise the number of bats killed by tree felling, therefore implementing bat roost protocols where bats are present should be considered a last resort after following the RMA hierarchy of "avoid, remedy, mitigate, offset, compensate".

² Whilst we use the word tree frequently in this document, we acknowledge that bats also use non-tree vegetation as roosts and the terms tree and vegetation should be considered as interchangeable in the context of this document. We acknowledge that there are also non-vegetation roosts that are used and require protection. These include rocky bluffs, caves and occasionally buildings.

³ Many references available, for example, Borkin KM; Parsons S. 2011. Sex-specific roost selection by bats in clearfell harvested plantation forest: improved knowledge advises management. Acta Chiropterologica 13(2): 373-383; Borkin KM; O'Donnell CFJ; Parsons S. 2011. Bat colony size reduction coincides with clear-fell harvest operations and high rates of roost loss in plantation forest. Biodiversity and Conservation 30; Sedgeley JA; O'Donnell CFJ 1999b. Roost selection by the long-tailed bat, *Chalinolobus tuberculatus*, in temperate New Zealand rainforest and its implications for the conservation of bats in managed forests. Biological Conservation 88:261–276; Sedgeley JA; O'Donnell CFJ 2004. Roost use by long-tailed bats in South Canterbury: Testing predictions of roost site selection in a highly fragmented landscape. New Zealand Journal of Ecology 28:1-18.

This protocol has therefore been framed following the RMA hierarchy by first focusing on the avoidance of effects, helping to identify and avoid the removal of roost trees, and to minimise the risk to bats of death or injury if avoidance is not possible. This approach is usually informed by gathering data on bats in the local areas and seeking advice from a competent bat ecologist.

Identifying and protecting both active and inactive (i.e., trees used by bats at other times of year) roosts by avoiding their removal is an important step in supporting the survival and persistence of bats.

Bat roost protocols and the Wildlife Act 1953

NZ bats are absolutely protected species under the Wildlife Act 1953. It is an offence to catch alive or kill, hunt, possess, molest, or disturb bats under the Act. Any projects where tree or vegetation removal overlaps with the occurrence of bats, there is a risk of killing or injuring any bats that may be present. Following the bat roost protocols minimises the chance of killing or injuring bats.

Bat roost protocol

When and how to use the protocol

Whenever vegetation removal is proposed in areas where bats are potentially present and where their habitat may be impacted, follow the decision tree (Figure 1) below as a guide to what sort of action should be undertaken. The decision tree is designed firstly to avoid felling bat roost trees, secondarily aimed at moving roost trees, and only if unavoidable, felling roost trees (but only once vacated).

None of the methods of inspecting roosts described below eliminates the risk of failing to identify bats when they are present. Therefore, techniques such as filling in cavities with expandable foam are not supported as a tool. This is because there is a risk of trapping bats that have not been detected within cavities. In addition, this method removes roosts from the landscape that bats are dependent on.

Definitions

Competencies: a set of competencies developed by the NZ Bat Recovery Group⁴ to ensure that anyone working with bats is competent to do so. Contact bathandler@doc.govt.nz for a list of competencies and requirements to become an authorised competent bat worker.

Competencies referred to in this document:

- 2.1 Bagging storage, handling, measuring, weighing, sexing, aging, temporary marking and releasing appropriately: For long-tailed bats: 50 individuals

 For short-tailed bats: 50 individuals
 - 3. High risk activities Roost felling (all of these competencies include the understanding of what to do when bats are found during tree felling as per Appendix 6 of 'Initial veterinary care for New Zealand Bats' https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other-resources/Initial Vet Care NZ Bats.pdf)
 - 3.1 Assessing roost tree use using Automatic Bat Monitors Demonstrate correct timing, placement, and interpretation of data for 10+ times according to DOC's Tree Felling Protocols.
 - 3.2 Undertake roost watches/emergence counts at 10+ occupied roosts where the entrance is visible.
 - 3.3 In at least two different forest/habitat types, including the forest/habitat type where trees are going to be assessed: evaluate 10+ potential roost features in trees (e.g., cavities, peeling bark, epiphytes).

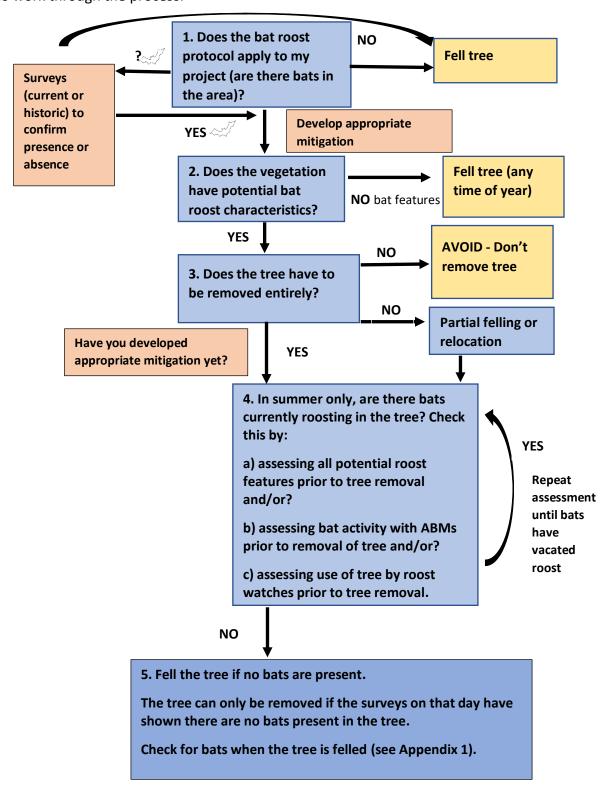
Authorised competent bat worker: A bat worker who has met the required ethical standards to be registered as a competent, authorised bat worker by the New Zealand Bat Recovery Group for the work which they are undertaking.

ABM: automated bat monitoring unit/detector

⁴ A group of bat specialists that advise on bat issues and assess bat competencies

Figure 1. Tree removal in bat areas flow chart

Each numbered step relates to a step in the Decision Tool for Tree Removal. Follow each step fully in the text to work through the process.



Mitigation/compensation

If trees are felled and habitat lost, then compensation measures should be considered to address the adverse effects. What these measures should be is beyond the scope of this document. Provision of artificial roosts in the short-term and planting for the long-term are some of the methods commonly used in development projects, but their effectiveness is untested and a future research need.

Step by step decision tool for tree removal in bat areas (to be used in conjunction with Figure 1).

Step 1. Does the bat roost protocol apply to my project?	Response	Who can make this assessment?	When?
a) Is there known bat activity within a radius of 25 km of the vegetation to be removed (see ⁵ and ⁶ notes below)?	a) If Yes, proceed to b If No, consider whether survey work needs to be done.	Evidence can come from on-the-ground surveys and reports from the national DOC database, consultants, and/or other credible sources. Evidence should be interpreted by an experienced bat ecologist.	Any time
b) Are bats present in the Project Area?	b) If Yes, go to step c If unknown, undertake comprehensive survey if bats are likely to be present. If no bats are present after comprehensive survey, you do not need to follow protocol.	If surveys are required to support the assessment, then these will need to be designed by an experienced bat ecologist to adequately cover the Project Area (see note below).	Acoustic surveys to determine presence should be undertaken when bats are most active and environmental conditions are suitable (October 1 st to April 30 th) ⁸ . Surveys undertaken at other times of year are considered less reliable for determining absence.
c) Is the tree known to provide a roost location for bats? (Previous knowledge).	c) If yes, go to step 3 If no (but bats are present in the project area), go to step 2.		

Notes for Step 1

1a) Bats are a highly mobile species. Long-tailed bats can have home ranges (the areas that they regularly use) as wide as 19km, and short-tailed bats about 24km. Three colonies of long-tailed bats in the Eglinton Valley collectively had a home range of 100km².

⁵ The largest home range span for the long-tailed bat in the Eglinton Valley was 19 km (O'Donnell 2001. J. Zool., Lond. 253, 253-264).

⁶ The largest home range span for the lesser short-tailed bat in the Eglinton Valley was 23.6 km (O'Donnell et al. 1999. New Zealand Journal of Ecology 23(1): 21-30).

⁷ Adequately covering the project area means including all habitat that are likely to be used by bats bearing in mind that the detectors most commonly used (DOC-manufactured AR4s) have an estimated 30-60m radius within which they can record bats.

⁸ Borkin K.M. 2010. Ecology of New Zealand's Long-tailed bat (*Chalinolobus tuberculatus*) in exotic plantation forest. Unpublished PhD thesis, University of Auckland.

When assessing whether bats might be present at a site you have to consider any surveys that have been done in the wider area, how long ago the surveys were done and whether more surveys are required.

1b) If you are doing a new survey then you should design the survey to cover the project area. Examples of surveys are shown in the Bat Inventory and Monitoring Toolbox (https://www.doc.govt.nz/our-work/biodiversity-inventory-and-monitoring/bats/). See 'Bats: Counting away from bat roosts: bat detectors on line transects' and 'Counting away from bat roosts: automatic bat detectors'.

Send bat data (processed csv files and GPS locations) to batdatabase@doc.govt.nz on a standard spreadsheet available by emailing this address.

Step 2. Does the vegetation proposed to be removed have potential bat roost characteristics?	Response	Who can make this assessment?	When?
a) Is the tree ≥15 cm DBH (Diameter at Breast Height) ⁹ ?	If yes, further assessment is required (2b). If no, the vegetation can be removed at any time ¹⁰ .	Anyone who can measure a tree DBH.	Any time
 b) On visual inspection, does the tree (dead or alive) have features that indicate roost potential? These features include: hollows cavities knot holes cracks flaking, peeling, and decorticating bark epiphytes broken or dead branches or trunk cavities/hollows/shelter formed by double leaders This may require climbing the tree if you can't see all the tree from the ground. 	If yes go to step 3 If unsure, further assessment is required. This may include climbing the tree. If no potential roost features are present, the vegetation can be removed at any time ¹¹ , but if upon felling you find a bat follow section 5.	Anyone that can identify these features. 12 If further assessment required, then use an approved person at Competency Level 3.3.	Visual inspections can occur at any time. If there are NO potential roost features, felling can occur at any time of year.

⁹ This diameter at breast height is based on dimensions of roosts used by south Hamilton long-tailed bats that were identified by Dekrout (2009, Unpublished PhD thesis, University of Auckland) - the smallest roosts were 15.5 cm DBH; but note that in South Canterbury Sedgeley and O'Donnell (2004, New Zealand Journal of Ecology 28(1): 1-18) found that 25% of long-tailed bat roosts were smaller than 18.8 cm DBH.

¹⁰ Note that there may be roosts that have smaller diameter at breast height (DBH). If any vegetation is suspected to have a bat roost present, then removal shall be halted immediately, and protocols reviewed.

¹¹ All surveys to assess whether trees are potential roosts shall take place within 6 months of final felling dates. If felling does not take place within this time then assessments will be repeated. This is intended to account for any changes in trees which may occur over time.

¹² It is intended that training on identifying roost features will be developed.

Step 3. Does the tree have to be removed entirely?	Response	Who can make this assessment?	When?
a) Is the only option to remove the tree entirely?	If yes, continue to step 4 If no, consider leaving the tree in place, cutting off specific limbs only or relocating the tree. If any felling, partial	Project leader	Any time
	felling (where the part to be felled has potential bat roost features) or tree relocation takes place you MUST proceed to step 4.		
	If a roost (active/inactive) is confirmed, then advice should be obtained at a project level in writing from DOC before proceeding.		

Notes for Step 3

Trees must only be relocated when bats are absent and when standard automated bat monitoring unit (ABM) weather conditions are met (see notes section 4b for appropriate weather conditions), and in consultation with an authorised bat ecologist with all competencies of level 3: 'High risk activities – Roost felling'.

Ste	p 4. Are there bats currently roosting in the tree? (Follow a or b	Response	Who can make this assessment?	When
or	c or a combination)			
a)	1 5 , 5	If yes, THE TREE MUST NOT	An approved person at	October 1 st to April 30 th when
	climber may be required to check all features (see notes for 4a	BE FELLED UNTIL BATS	Competency Level 3.3 or an	the temperature is 7°C or
	below).	HAVE VACATED IT.	experienced tree-climber (e.g., an	greater at official sunset in
	If roost is occupied repeat 4a another day until roost is vacated.	If no, the tree can be removed on the day of the	arborist) working with an approved person at Competency Level 3.3.	the South Island or 10 °C or greater in the North Island.
		tree inspection following	If the latter, the tree climber must	
		step 5.	provide information along with	
		If bats continue to use the roost, then the tree must not be cut down until the bats leave the roost. At this point re-consider again	photographs or video footage, to the approved person at Competency Level 3.3 who assesses and decides whether the tree can be removed.	

		whether this tree must be felled. Advice must be obtained at a project level in writing from DOC prior to felling the tree.	If roosts are known or confirmed through this process, then this information must be communicated to the nominated DOC bat ecologist for this project.	
b)	Is bat activity recorded at any time during two consecutive, valid survey nights preceding tree felling ¹³ ? At least two nights are required as it is possible for bats to enter or leave a roost without echolocating, or to not leave the roost for a night.	If yes (bats are detected), survey must continue on subsequent nights ¹⁴ until no bat activity is recorded for two consecutive nights (to indicate bats have left the area) prior to felling. OR roost features of each tree must be visually assessed via climbing as in 3. If bat activity is consistent in the area and 2 nights with zero bat passes cannot be obtained, Go to 4c or 4a. If no bats are detected for two consecutive nights, the vegetation can be removed on the day immediately following the survey nights using the method in 5.	An approved person at Competency Level 3.1	October 1 st to April 30 th and when conditions meet the requirements for standard ABM weather conditions (see 4b notes).
c)	Are bats observed entering the vegetation? This involves watching vegetation to identify bats returning to or exiting roosts. It should only be used in combination with previous ABM monitoring (4b) (see notes 4c for method). At	If yes (bats are seen at either watch), it is a confirmed roost. Removal of a roost should be avoided to minimise effects	An approved person at Competency Level 3.2 ¹⁵ .	Between October 1 st and April 30 th only AND when weather parameters meet

¹³ Le Roux et al (2013) found that in and around Hamilton "The longest consecutive monitoring period without bat detections at each site was three nights during winter." Le Roux et al 2013. New Zealand Journal of Zoology (2013): Spatial and temporal variation in long-tailed bat echolocation activity in a New Zealand city, New Zealand Journal of Zoology, DOI: 10.1080/03014223.2013.827125.

¹⁴ Subsequent nights may be those immediately following bat detection or later dates.

¹⁵ If more than one person is required for a roost watch at a tree, a minimum of one approved person at Competency Level 3.2 must be present on site for the duration of the roost watch to supervise.

least two nights are required as it is possible for bats to enter	of vegetation removal on	the roost watch
or leave a roost without being detected, or to not leave the	bats.	requirements.
or leave a roost without being detected, or to not leave the roost for a night.	bats. Techniques used previously to ensure previously active roosts are no longer active have included the following: Watches must continue on subsequent nights until no bats are observed entering or exiting the roost for two consecutive nights (to indicate the roost is no longer active) prior to	requirements.
	felling. If no bats are observed entering or exiting for two consecutive nights, the vegetation can be removed on the day immediately following the survey nights using the method in 5.	

Notes for Step 4.

4a) Tree climbing and inspection

Care must be taken while climbing trees to avoid disturbing, removing or destroying tree features with bat roost potential such as sections of loose bark or cavities in dead wood. Using mobile elevated platforms can be a good option. Bats are less likely to be active over colder periods, so climbing to check whether bats are present in potential roost features must take place between October 1st to April 30th when the temperature is 7 °C ¹⁶ (South Is) or 10 °C (North Is) or greater at official sunset on the night previous to inspection.

A tree climber may be required to check all potential bat roost features:

• Can bats be seen? An endoscopic camera should be available for this step and every possible corner of each potential roosting feature inspected, i.e., cavity/crack etc. Cracks, holes, and splits may lead to cavities or may be superficial. A cavity may be wet indicating no/low potential as a bat roost.

¹⁶ O'Donnell CFJ 2000. Influence of season, habitat, temperature and invertebrate availability on nocturnal activity of the New Zealand long-tailed bat (*Chalinolobus tuberculatus*). New Zealand Journal of Ecology 207-221.

- Can bats be heard? Search of tree features should be accompanied by use of a hand-held bat detector. If bats are present and not in torpor, then detection of presence listening at 25 kHz (for social calls) and 40 kHz (for echolocation calls) may help to determine if long-tailed bats are present. Short-tailed bat social calls are often audible or detected at 25-27 kHz.
- Is guano present or urine staining?

4b) ABM survey work

Bat activity is to be recorded using ABMs. Location of ABMs must provide sufficient coverage to be able to determine if bat roosts are present in one or more of the trees¹⁷. 'Valid' survey nights must have the following features:

- Begin one hour before official sunset and end one hour after official sunrise.
- Temperature 10°C or greater for the first four hours after official sunset time for the North Island and 7°C for the South Island¹⁸.
- Precipitation < 2.5 mm in the first 2 hours after official sunset, and < 5 mm in the first 4 hours after official sunset.

Prior to the commencement of surveys, ABMs must be checked for correct operation at a site where bat activity is known to be regular, or by using the DOC – Bat Recorder Tester (Tussock Innovation Ltd) phone app made for this and available from Google Play Store. Faulty or suspect ABMs must not be deployed, and ABMs must be redeployed if faults occur.

4c) Roost watches

The following weather conditions define a valid night for roost watches:

- Temperature greater than 10°C all night between official sunset and sunrise for the North Island and 7°C for the South Island.
- Precipitation < 2.5 mm for each two-hour period between official sunset and sunrise

Roost watches should include the deployment of ABMs and analysis of data for the night of the roost watch.

Emergence watches

• Each tree must be watched initially from sunset until it becomes too dark to see by sufficient people to observe all potential exit points. This must be supported by the use of handheld detectors. The aim of emergence watches is to identify potential roost locations within the vegetation. Infra-red and thermal imaging cameras may be useful in this process.

¹⁷ Department of Conservation-manufactured AR4 bat detectors are considered likely to detect long-tailed bats only over short distances i.e., up to 30-60 m distant from the detector (S. Cockburn, Department of Conservation, pers. Comm.). This is similar to detection distances of other detector types.

¹⁸ South Island temperatures are based upon O'Donnell (2000) as above. North Island temperatures are based on data collected in Kinleith plantation forest, centred around Tokoroa, Central North Island; Smith D, Borkin K. 2017. Appendix B: Influence of climate variables on long-tailed bat activity in an exotic conifer plantation forest in the central North Island. P 136-145. In: Smith, D, K Borkin, C Jones, S Lindberg, F Davies and G Eccles (2017). Effects of land transport activities on New Zealand's endemic bat populations: reviews of ecological and regulatory literature. NZ Transport Agency research report 623. 249pp.

Roost re-entry watches

The time when bats return to roosts can vary based on temperature and time of year. 19,20

- Observers must then return the next morning and watch the tree to determine whether bats return to the vegetation.
- Roost re-entry watch timing should be based on patterns of activity recorded onsite with ABMs, i.e., as a guide watches should begin two hours prior to when the last passes were recorded on the ABMs on previous nights and finish one hour after official sunrise time. Where this information is not available and at minimum, watches shall begin two hours prior to official sunrise until one hour after sunrise. Infra-red and/or thermal imaging cameras may be useful as a supplementary tool in this process.

The methods above (Climbing and inspecting; ABM use and roost watches) can be implemented as in steps 4.

If bats are sighted, or sign detected, or a roost (active/inactive) is confirmed, the approved bat ecologist, as soon as possible, shall:

- Call the tree felling supervisor to inform them which affected tree(s) cannot be felled due to detection of bat sign.
- Send an email to the site manager, and a bat ecologist representing the council and DOC detailing the results of the survey and outlining the measures for protection or relocating the roost tree.
- A record (including photos) of any vegetation containing bat roosts shall be kept detailing the date; size, location and species of tree or other vegetation; roost type, e.g., cavity, peeling bark, broken branch; detail outlining how presence of bats was confirmed; the number of bats present; and species present, if known.

Step 5. Fell the tree if no bats present	Response	Who can make this assessment?	When			
NB: Vegetation removal must take place on the day of tree inspection or the day immediately following night surveys that confirm that there are no bats present.						
a) If you have undertaken a visual inspection of the vegetation (following step 4a, then the vegetation can be removed ONLY ON THE DAY OF INSPECTION and meets the valid weather conditions (defined in notes 4c) at official sunset the day prior to inspection.		People who are familiar with the document shown in footnote ²¹ , and physically able to check/inspect tree for signs of bats once felled.	When the inspection method chosen allows.			
If you have undertaken ABM surveys or roost watches 4b or 4c the vegetation can be removed ONLY ON THE DAY IMMEDIATELY FOLLOWING SURVEY COMPLETION (i.e., if the survey ends in morning the tree can be felled the same day only).						

 $^{^{19}}$ Dekrout AS 2009. Unpublished PhD thesis. University of Auckland, New Zealand Pp 168.

²⁰ Griffiths R. 2007. Activity patterns of long-tailed bats (<u>Chalinolobus tuberculatus</u>) in a rural landscape, South Canterbury, New Zealand. New Zealand Journal of Zoology, 34:3, 247-258, DOI: 10.1080/03014220709510083.

²¹ https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Bat_Care_Advice.pdf

Trees must be inspected for signs of bats once felled and before removing from the site, if safe to do so.		
Follow Appendix 1 if bats are detected during vegetation removal.		

Appendix 1. If bats are detected during tree relocation or removal

NB: Vegetation removal must take place on the day of tree inspection or the day roost watches or two consecutive nights of ABM data have confirmed that there are no bats present. If practical, trees are to be inspected for signs of bats once felled and before removing from site. People inspecting trees should be familiar with the Bat Care Advice document shown in footnote²² and able to check/inspect tree for signs of bats once felled.

<u>If during the felling of a tree bats are detected</u>, felling of that tree must stop immediately if safe to do so, and DOC and an approved bat ecologist at Competency Level 2.1 must be consulted.

If bats do not fly away or are potentially injured/found on the ground, felling can only re-start once permission has been obtained from DOC after consultation with an approved bat ecologist at Competency Level 2.1.

<u>If bats are detected once the tree has been felled</u>, all further work must stop, and DOC and an approved bat ecologist at Competency Level 2.1 must be contacted. The felled tree must be thoroughly inspected by the approved bat ecologist for further bats.

If any bats are found on the ground or in the tree once felled, place the bat in a cloth bag in a dark, quiet place at ambient (or slightly warmer) temperature and take to a veterinarian for assessment as soon as possible. A maximum of two bats should be kept in one bag. After delivering the bat to the vet, contact an approved bat ecologist at Competency Level 2.1 in consultation with the vet and DOC (0800 DOC HOT, 0800 362 468).

Bats must be kept for three days under observation and must be kept out of torpor for this time. Additional detail is found at the links provided in this footnote²³. Vets must euthanise bats whose injuries are causing suffering and are not likely to heal sufficiently to allow rehabilitation and return to the wild. The approved bat ecologist at Competency Level 2.1 and vet must consult with DOC to consider appropriate rehabilitation options where suffering is minimal and chances of return to the wild are high.

Euthanised bats or any dead bats (or bat parts) found must be handed to DOC.

²² https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Bat_Care_Advice.pdf

²³ https://cdn.ymaws.com/www.nzva.org.nz/resource/resmgr/docs/other_resources/Initial_Vet_Care_NZ_Bats.pdf





Light Pollution Guidelines

National Light Pollution Guidelines for Wildlife

Including marine turtles, seabirds and migratory shorebirds

January 2020

Version 1.0



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National Light Pollution Guidelines

Introduction

Natural darkness has a conservation value in the same way that clean water, air and soil has intrinsic value. Artificial light at night is increasing globally by about two per cent per year¹. Animals perceive light differently from humans and artificial light can disrupt critical behaviour and cause physiological changes in wildlife². For example, hatchling marine turtles may not be able to find the ocean when beaches are lit³, and fledgling seabirds may not take their first flight if their nesting habitat never becomes dark⁴. Tammar wallabies exposed to artificial light have been shown to delay reproduction⁵ and clownfish eggs incubated under constant light do not hatch⁶.

Consequently, artificial light has the potential to stall the recovery of a threatened species. For migratory species, the impact of artificial light may compromise an animal's ability to undertake long-distance migrations integral to its life cycle.

Artificial light at night provides for human safety, amenity and increased productivity. Australian legislation and standards regulate artificial light for the purpose of human safety. These Guidelines do not infringe on human safety obligations. Where there are competing objectives for lighting, creative solutions may be needed that meet both human safety requirements for artificial light and threatened and migratory species conservation.

The Guidelines outline the process to be followed where there is the potential for artificial lighting to affect wildlife. They apply to new projects, lighting upgrades (retrofitting) and where there is evidence of wildlife being affected by existing artificial light.

The technology around lighting hardware, design and control is changing rapidly and biological responses to artificial light vary by species, location and environmental conditions. It is not possible to set prescriptive limits on lighting. Instead, these Guidelines take an outcomes approach to assessing and mitigating the effect of artificial light on wildlife.



Figure 1 Pink anemone fish and marine turtle laying eggs. Photos: Nigel Marsh and Robert Thorn.

How to use these Guidelines

These Guidelines provide users with the theoretical, technical and practical information required to assess if artificial lighting is likely to affect wildlife and the management tools to minimise and mitigate that affect. These techniques can be applied regardless of scale, from small, domestic projects to large-scale industrial developments.

The aim of the Guidelines is that artificial light will be managed so wildlife is:

- 1. Not disrupted within, nor displaced from, important habitat; and
- 2. Able to undertake critical behaviours such as foraging, reproduction and dispersal.

The Guidelines recommend:

- Always using <u>Best Practice Lighting Design</u> to reduce light pollution and minimise the effect on wildlife.
- 2. Undertaking an <u>Environmental Impact Assessment</u> for effects of artificial light on listed species for which artificial light has been demonstrated to affect behaviour, survivorship or reproduction.

Technical Appendices

The Guidelines are supported by a series of technical appendices that provide additional information about Best Practice Lighting Design, What is Light and How Wildlife Perceive it, Measuring Biologically Relevant Light, and Artificial Light Auditing. There is also a Checklist for artificial light management, and species-specific information for the management of artificial light for Marine Turtles, Seabirds and Migratory Shorebirds. The range of species covered in taxa-specific appendices will be broadened in the future.

Regulatory Considerations for the Management of Artificial Light around Wildlife

These Guidelines provide technical information to guide the management of artificial light for *Environment Protection and Biodiversity Conservation Act (1999)* (EPBC Act) listed threatened and migratory species, species that are part of a listed ecological community, and species protected under state or territory legislation for which artificial light has been demonstrated to affect behaviour, survivorship or reproduction.

Environment Protection and Biodiversity Conservation Act (1999)

The EPBC Act regulates any action that will have, or is likely to have, a significant impact on a Matter of National Environmental Significance (MNES), including listed threatened and migratory species. Any action likely to have a significant impact on a MNES must be referred to the Australian Government for assessment. Further, it is an offence under the EPBC Act to kill, injure, take or trade a listed threatened, migratory or marine species in a Commonwealth area. Anyone unsure of whether the EPBC Act applies, is strongly encouraged to seek further information.

State and territory legislation and policy

State and territory environmental legislation and policy frameworks may also have provisions for managing threats, such as light, to listed species. For example, artificial light is a form of pollution regulated for impacts on humans and the environment under the Australian Capital Territory *Environment Protection Act 1997*. Consideration should be given to the function of relevant state and territory environment and planning legislation and policy concerning the protection of wildlife from artificial light.

Local and regional government requirements

Advice should also be sought from local government as to whether specific requirements apply in the area of interest concerning artificial light and wildlife. For example, the Queensland Government Sea Turtle Sensitive Area Code provides for local governments to identify sea turtle sensitive areas within local government planning schemes. Development in these areas will need to avoid adverse effects to sea turtles from artificial lighting.

Australian standards

Australian standards provide agreed limits for various lighting scenarios, generally for the purposes of human safety and for the provision of amenity. For example, Australian Standard DR AS/NZS 1158.3.1:2018 *Lighting for roads and public spaces pedestrian area (Category P) lighting* provides minimum light performance and design standards for pedestrian areas.

Australian standards also provide for consideration of environmental concerns. Australian Standard *AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting* recognises the impact of artificial light on biota.

These Light Pollution Guidelines should be followed to ensure all lighting objectives are adequately addressed. This may require solutions to be developed, applied and tested to ensure lighting management meets the needs of human safety and wildlife conservation. The Case Studies illustrate examples of how a liquefied natural gas processing plant, a transport authority and a marine research vessel have addressed this challenge.

Associated guidance

These Guidelines should be read in conjunction with:

- EPBC Act 1999 Significant Impact Guidelines 1.1 Matters of National Environmental Significance
- EPBC Act 1999 Significant Impact Guidelines 1.2 Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies
- <u>Recovery Plans</u> and approved <u>conservation advices</u> for listed threatened species
- approved Wildlife Conservation Plans for listed migratory species
- state and territory environmental legislation, regulations, and policy and guidance documents
- up-to-date scientific literature
- local and Indigenous knowledge.

Wildlife and Artificial Light

Vision is a critical cue for wildlife to orient themselves in their environment, find food, avoid predation and communicate⁷. An important consideration in the management of artificial light for wildlife is an understanding of how light is perceived by animals, both in terms of what the eye sees and the animal's viewing perspective.

Animals perceive light differently from humans. Most animals are sensitive to ultra-violet (UV)/violet/blue light⁸, while some birds are sensitive to longer wavelength yellow/orange⁹ and some snakes, can detect infra-red wavelengths¹⁰ (Figure 2). Understanding the sensitivity of wildlife to different light wavelengths is critical to assessing the potential effects of artificial light on wildlife.

The way light is described and measured has traditionally focused on human vision. To manage light appropriately for wildlife, it is critical to understand how light is defined, described and measured and to consider light from the wildlife's perspective.

For a detailed explanation of these issues see What is Light and how do Wildlife Perceive it? The Glossary provides a summary of terms used to describe light and light measurements and notes the appropriate terms for discussing the effects of light on wildlife.

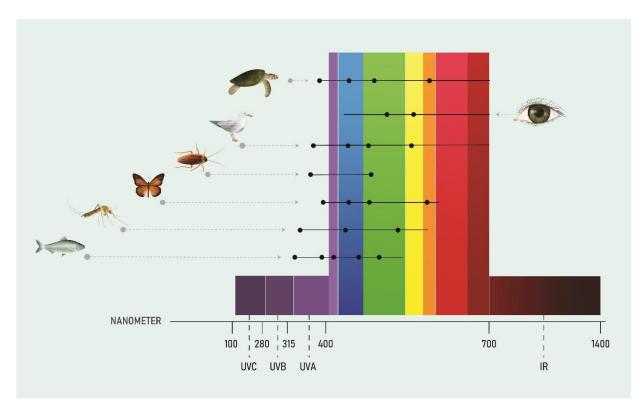


Figure 2 Ability to perceive different wavelengths of light in humans and wildlife is shown by horizontal lines. Black dots represent reported peak sensitivities. Figure adapted from Campos (2017)⁸.

How light affects wildlife

Artificial light is known to adversely affect many species^{2,11} and ecological communities^{12,13}. It can change behaviour and/or physiology, reducing survivorship or reproductive output. It can also have the indirect effect of changing the availability of habitat or food resources. It can attract predators and invasive pests, both of which may pose a threat to listed species.

Behavioural changes in wildlife have been well described for some species. Adult marine turtles may avoid nesting on beaches that are brightly lit^{14,15}, and adult and hatchling turtles can be disoriented and unable to find the ocean in the presence of direct light or sky glow^{3,15,16}. Similarly, lights can disorient flying birds, particularly during migration, and cause them to divert from efficient migratory routes or collide with infrastructure¹⁷. Birds may starve when artificial lighting disrupts foraging, and fledgling seabirds may not be able to take their first flight if their nesting habitat never becomes dark⁴. Migratory shorebirds may use less preferable roosting sites to avoid lights and may be exposed to increased predation where lighting makes them visible at night⁴.

Physiological changes have been described in the Tammar Wallaby when exposed to artificial light, resulting in delayed reproduction⁵, and clownfish eggs incubated under constant light do not hatch⁶. The stress hormone corticosterone in free living song birds has been shown to increase when exposed to white light compared with green or red light and those with high stress hormone levels had fewer offspring¹⁸. Plant physiology can also be affected by artificial light with changes to growth, timing of flowering and resource allocation. This can then have flow-on affects for pollinators and herbivores¹³.

The indirect effects of artificial light can also be detrimental to threatened species. The Mountain Pygmy Possum, for example, feeds primarily on the Bogong Moth, a long distance nocturnal migrator that is attracted to light¹⁹. Recent declines in moth populations, in part due to artificial light, have reduced the food supply for the possum²⁰. Changes in food availability due to artificial light affect other animals, such as bats²¹, and cause changes in fish assemblages²². Lighting may also attract invasive pests such as cane toads²³, or predators, increasing pressure on listed species²⁴.

The way in which light affects a listed species must be considered when developing management strategies as this will vary on a case by case basis.

These Guidelines provide information on the management of artificial light for <u>Marine Turtles</u>, <u>Seabirds</u> and <u>Migratory Shorebirds</u> in the technical appendices. Consideration should be given to the direct and indirect effect of artificial light on all listed species for which artificial light has been demonstrated to negatively affect behaviour, survivorship or reproduction.

Light Emitting Diodes (LEDs)

During the life of these Guidelines, it is anticipated that light technology may change dramatically. At the time of writing, LEDs were rapidly becoming the most common light type used globally. This is primarily because they are more energy efficient than earlier light sources. LEDs and smart control technologies (such as motion sensors and timers) provide the ability to control and manage the physical parameters of lighting, making them an integral tool in managing the effects of artificial light on wildlife.

Whilst LEDs are part of the solution, consideration should be given to some of the characteristics of LEDs that may influence the effect of artificial light on wildlife. White LEDs generally contain short wavelength blue light. Short wavelength light scatters more readily than long wavelength light, contributing more to sky glow. Also, most wildlife is sensitive to blue light (Figure 2). More detailed consideration of LEDs, their benefits and challenges for use around wildlife are provided in the Technical Appendix What is Light and how does Wildlife Perceive it?

When to Consider the Impact of Artificial Light on Wildlife?

Is Artificial Light Visible Outside?

Any action or activity that includes externally visible artificial lighting should consider the potential effects on wildlife (refer Figure 3 below). These Guidelines should be applied at all stages of management, from the development of planning schemes to the design, approval and execution of individual developments or activities, through to retrofitting of light fixtures and management of existing light pollution. Best Practice Lighting Design is recommended as a minimum whenever artificial lighting is externally visible.

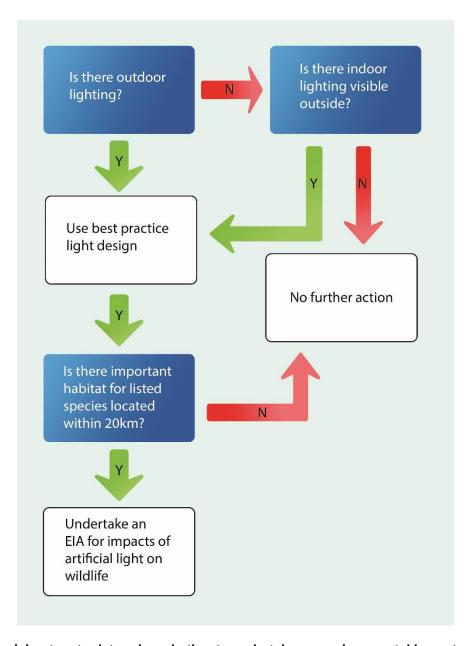


Figure 3 Decision tree to determine whether to undertake an environmental impact assessment for the effects of artificial light on wildlife.

Best practice lighting design

Natural darkness has a conservation value and should be protected through good quality lighting design and management for the benefit of all living things. To that end, all infrastructure that has outdoor artificial lighting or internal lighting that is externally visible should incorporate best practice lighting design.

Incorporating best practice lighting design into all infrastructure will not only have benefits for wildlife, but will also save energy and provide an economic benefit for light owners and managers.

Best practice lighting design incorporates the following design principles.

- 1. Start with natural darkness and only add light for specific purposes.
- 2. Use adaptive light controls to manage light timing, intensity and colour.
- 3. Light only the object or area intended keep lights close to the ground, directed and shielded to avoid light spill.
- 4. Use the lowest intensity lighting appropriate for the task.
- 5. Use non-reflective, dark-coloured surfaces.
- 6. Use lights with reduced or filtered blue, violet and ultra-violet wavelengths.

Figure 4 provides an illustration of best practice light design principles. For a detailed explanation see Technical Appendix <u>Best Practice Lighting Design</u>.

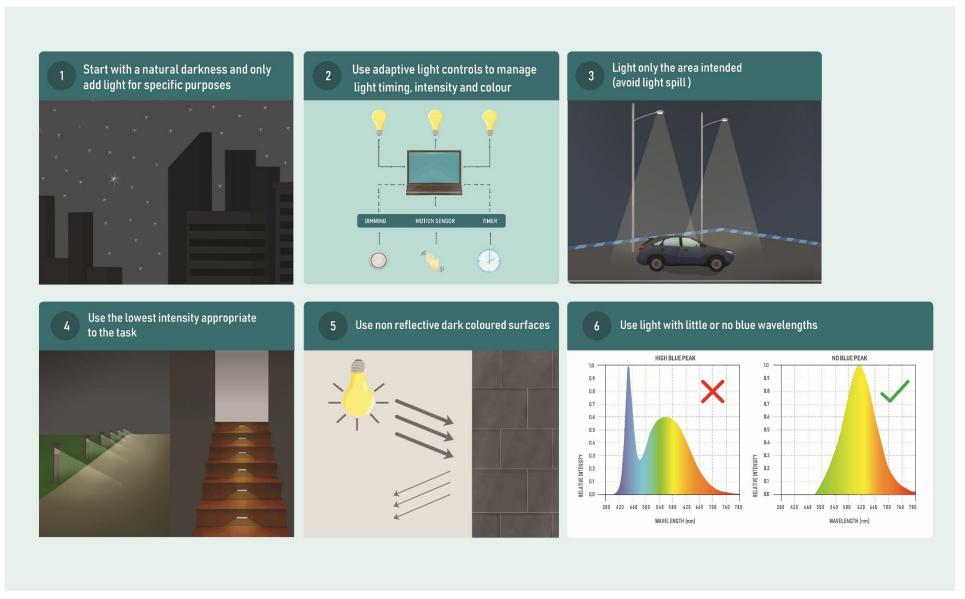


Figure 4 Principles for best practice lighting design.

Is there Important Habitat for Listed Species Located within 20km?

Important habitats are those areas necessary for an ecologically significant proportion of a listed species to undertake important activities such as foraging, breeding, roosting or dispersal. This might include areas that are of critical importance for a particular life stage, are at the limit of a species range or habitat, or where the species is declining. They may also be a habitat where the presence of light pollution may cause a significant decline in a listed threatened or migratory species.

Important habitat will vary depending on the species. For some species, areas of importance have been designated through recovery plans, conservation advice, and under planning regulations (for example <u>Queensland Sea Turtle Sensitive Areas</u>). Important habitat would include those areas that are consistent with 'habitat critical to the survival' of a threatened species and 'important habitat' for listed migratory species as described in the <u>EPBC Act Significant Impact Guidelines</u>²⁵. Important habitat may include areas designated as <u>Biologically Important Areas</u> (BIAs), or in the case of migratory shorebirds, Internationally Important or Nationally Important Habitat. Consideration should be given to the ecological characteristics of Ramsar sites and the biological and ecological values of National and World Heritage Areas.

Species specific descriptions of important habitat can be found in Technical Appendices relating to <u>Marine Turtles</u>, <u>Seabirds</u> and <u>Migratory Shorebirds</u>. For other listed species see relevant information available in <u>Associated guidance</u> and <u>Desktop Study of Wildlife</u>.

Where there is important habitat for listed species that are known to be affected by artificial light within 20 km of a project, species specific impacts should be considered through an Environmental Impact Assessment (EIA) process.

The 20 km threshold provides a precautionary limit based on observed effects of sky glow on marine turtle hatchlings demonstrated to occur at 15-18 km^{26,27} and fledgling seabirds grounded in response to artificial light 15 km away²⁸. The effect of light glow may occur at distances greater than 20 km for some species and under certain environmental conditions. The 20 km threshold provides a nominal distance at which artificial light impacts should be considered, not necessarily the distance at which mitigation will be necessary. For example, where a mountain range is present between the light source and an important turtle nesting beach, further light mitigation is unlikely to be needed. However, where island infrastructure is directly visible on an important turtle nesting beach across 25 km of ocean in a remote location, additional light mitigation may be necessary.

Managing existing light pollution

The impact of artificial light on wildlife will often be the result of the effect of all light sources in the region combined. As the number and intensity of artificial lights in an area increases there will be a visible, cumulative increase in sky glow. Sky glow is the brightness of the night sky caused by the reflected light scattered from particles in the atmosphere. Sky glow comprises both natural and artificial sky glow. As sky glow increases so does the potential for adverse impacts on wildlife.

Generally, there is no one source of sky glow and management should be undertaken on a regional, collaborative basis. Artificial light mitigation and minimisation will need to be addressed by the community, regulators, councils and industry to prevent the escalation of, and where necessary reduce, the effects of artificial light on wildlife.

The effect of existing artificial light on wildlife is likely to be identified by protected species managers or researchers that observe changes in behaviour or population demographic parameters that can be attributed to increased artificial sky glow. Where this occurs, the population/behavioural change should be monitored, documented and, where possible, the source(s) of light identified. An <u>Artificial Light Management Plan</u> should be developed in collaboration with all light owners and managers to mitigate impacts.

Environmental Impact Assessment for Effects of Artificial Light on Wildlife

There are five steps involved in assessing the potential effects of artificial light on wildlife, and the adaptive management of artificial light requires a continuing improvement process (Figure 5). The amount of detail included in each step depends on the scale of the proposed activity and the susceptibility of wildlife to artificial light. The first three steps of the EIA process should be undertaken as early as possible in the project's life cycle and the resulting information used to inform the project design phase.

<u>Marine Turtle</u>, <u>Seabird</u> and <u>Migratory Shorebird</u> Technical Appendices give specific consideration to each of these taxa. However, the process should be adopted for other protected species affected by artificial light.

Qualified personnel

Lighting design/management and the EIA process should be undertaken by appropriately qualified personnel. Management plans should be developed and reviewed by appropriately qualified lighting practitioners in consultation with appropriately qualified wildlife biologists or ecologists.

Step 1: Describe the project lighting

Describe existing light environment. Document the number, type, layout and purpose of proposed outdoor lighting. Define <u>lighting</u> <u>objectives</u>.

Step 2: Describe wildlife

Undertake a desktop study of wildlife and where necessary conduct field surveys to describe population and behaviour. Define lighting objectives in terms of wildlife.

Step 3: Risk assessment

Using project light information, wildlife biological and ecological information, and proposed mitigation and light management, assess the risk of impact of artificial light to wildlife.

Step 4: Artificial light management plan

Document information collated through Steps 1-3. Describe lighting management and mitigation. Develop and describe compliance and auditing scope, and schedule and triggers for revisiting Step 3.

Step 5: Biological and artificial light monitoring and auditing

Monitor wildlife behaviour and audit on-site light to ensure compliance with <u>artificial</u> <u>light management plan</u>(Step 4).

Figure 5 Flow chart describing the environmental impact assessment process.

Step 1: Describe the project lighting

Describe the existing light environment and characterise the light likely to be emitted from the site. Information should be collated, including (but not limited to): the location and size of the project footprint; the number and type of lights; their height, orientation and hours of operation; site topography and proximity to wildlife and/or wildlife habitat. This information should include whether lighting will be directly visible to wildlife or contribute to sky glow; the distance over which this artificial light is likely to be perceptible; shielding or light controls used to minimise lighting; and spectral characteristics (wavelength) and intensity of lights.

Project specific lighting should be considered in the context of the existing light environment and the potential for cumulative effects of multiple light sources. The information collected should be sufficient to assess the likely effects of artificial light on wildlife given the biology and ecology of species present (Step 2).

Where there will be a need to monitor the effectiveness of artificial light mitigation and management strategies (Step 5), baseline monitoring will be necessary. Measurements of the existing light environment should recognise and account for the biologically relevant short (violet/blue) and long (orange/red) wavelengths of artificial lighting (see Measuring Biologically Relevant Light).

Lighting objectives

During the planning phase of a project the purpose of artificial lighting should be clearly articulated, and consideration should be given as to whether artificial light is required at all. Lighting objectives should be specific in terms of location and times for which artificial light is necessary, whether colour differentiation is required and whether some areas should remain dark. The objectives should include the wildlife requirements identified in Step 2 and be consistent with the aims of these Guidelines.

For more information about developing lighting objectives see Best Practice Lighting Design.

Step 2: Describe wildlife

Describe the biology and ecology of wildlife in the area that may be affected by artificial light (species identified during the screening process, Figure 3). The abundance, conservation status and regional significance of wildlife will be described, as will the location of important habitat. Recognise biological and ecological parameters relevant to the assessment, particularly how artificial light will be viewed by an animal. This includes an animal's physiological sensitivity to wavelength and intensity, and its visual field.

Depending on the availability of information, scale of the activity and the susceptibility of wildlife to artificial light, this step may only require a desktop analysis. Where there is a paucity of information or the potential for effects is high, field surveys may be necessary. Where there will be a need to monitor the effectiveness of lighting mitigation and management strategies (Step 5), baseline monitoring will be necessary.

Desktop study of wildlife

A review of the available government databases, scientific literature and unpublished reports should be conducted to determine whether listed or protected wildlife that are susceptible to the effects of artificial light could be present. Tools to identify species or Important Habitat that may occur within 20 km of the area of interest include (but are not limited to):

- Protected Matters Search Tool
- National Conservation Values Atlas
- State and territory protected species information
- Scientific literature
- Local and Indigenous knowledge

To assess the risks to a species, an understanding of the animal's susceptibility to the effects of light should be evaluated, as well as the potential for artificial light to affect the local population.

The species conservation status should be identified and relevant population demographic and behavioural characteristics that should be considered include population size, life stages present and normal behaviour in the absence of artificial light. This step should also identify biological and ecological characteristics of the species that will be relevant to the assessment. This may include understanding the seasonality of wildlife using the area; behaviour (i.e. reproduction, foraging, resting); migratory pathways; and life stages most susceptible to artificial light. Consideration should also be given to how artificial light may affect food sources, availability of habitat, competitors or predators.

Field surveys for wildlife

Where there are insufficient data available to understand the actual or potential importance of a population or habitat it may be necessary to conduct field surveys. The zone of influence for artificial lighting will be case and species specific. Surveys should describe habitat, species abundance and density on a local and regional scale at a biologically relevant time of year.

Baseline monitoring

Where it is considered likely that artificial lighting will impact on wildlife, it may be necessary to undertake baseline monitoring to inform mitigation and light management (Step 5).

Field survey techniques and baseline monitoring needs will be species specific and detailed parameters and approaches are described in the <u>Marine Turtles</u>, <u>Seabirds</u> and <u>Migratory</u> <u>Shorebirds</u> Technical Appendices. Guidance from species experts should be sought for other species.

Step 3: Risk assessment

Using information collated in steps one and two, the level of risk to wildlife should be assessed. Risk assessments should be undertaken on a case by case basis as they will be specific to the wildlife involved, the lighting objectives and design, and the prevailing environmental conditions. Assessments should be undertaken in accordance with the *Australian Standard Risk Management – Guidelines (AS ISO 31000:2018)* (or superseding equivalent), which provides for adaptive management and continuous improvement. The scale of the assessment is expected to be commensurate with the scale of the activity and the vulnerability of the wildlife present.

In general, the assessment should consider how important the habitat is to the species (e.g. is this the only place the animals are found), the biology and ecology of wildlife, the amount and type of artificial light at each phase of development (e.g. construction/operation) and whether the lighting scenario is likely to cause an adverse response. The assessment should take into account the artificial light impact mitigation and management that will be implemented. It should also consider factors likely to affect an animal's perception of light; the distance to the lighting source; and whether light will be directly visible or viewed as sky glow. The process should assess whether wildlife will be disrupted or displaced from important habitat, and whether wildlife will be able to undertake critical behaviours such as foraging, reproduction, and dispersal.

Where a likely risk is identified, either the project design should be modified, or further mitigation put in place to reduce the risk.

If the residual risk is likely to be significant, consideration should be given as to whether the project should be referred for assessment under the EPBC Act and/or relevant state or territory legislation.

Step 4: Artificial light management plan

The management plan will document the EIA process. The plan should include all relevant information obtained in Steps 1-3. It should describe the lighting objectives; the existing light environment; susceptible wildlife present, including relevant biological characteristics and behaviour; and proposed mitigation. The plan should clearly document the risk assessment process, including the consequences that were considered, the likelihood of occurrence and any assumptions that underpin the assessment. Where the risk assessment deems it unlikely that the proposed artificial light will effect wildlife and an artificial light management plan is not required, the information and assumptions underpinning these decisions should be documented.

Where an artificial light management plan is deemed necessary, it should document the scope of monitoring and auditing to test the efficacy of proposed mitigation and triggers to revisit the risk assessment. This should include a clear adaptive management framework to support continuous improvement in light management, including a hierarchy of contingency management options if biological and light monitoring or compliance audits indicate that mitigation is not meeting the objectives of the plan.

The detail and extent of the plan should be proportional to the scale of the development and potential impacts to wildlife.

A toolbox of species specific options are provided in the <u>Marine Turtles</u>, <u>Seabirds</u> and <u>Migratory Shorebirds</u> Technical Appendices. Guidance from species experts should be sought for other species.

Step 5: Biological and light monitoring and auditing

The success of the impact mitigation and artificial light management should be confirmed through monitoring and compliance auditing. Light audits should be regularly undertaken and biological and behavioural monitoring should be undertaken on a timescale relevant to the species present. Observations of wildlife interactions should be documented and accompanied by relevant information such as weather conditions and moon phase. Consideration should be given to monitoring control sites. Monitoring should be undertaken both before and after changes to artificial lighting are made at both the affected site and the control sites. The results of monitoring and auditing are critical to an adaptive management approach, with the results used to identify where improvements in lighting management may be necessary. Audits should be undertaken by appropriately qualified personnel.

Baseline, construction or post construction artificial light monitoring, wildlife biological monitoring and auditing are detailed in Measuring Biologically Relevant Light, Light Auditing and Seabirds and Migratory Shorebirds Technical Appendices.

Review

Once light audits and biological monitoring have been completed, a review of whether the lighting objectives have been met should be conducted. The review should incorporate any changing circumstances and make recommendations for continual improvement. The recommendations should be incorporated through upgraded mitigations, changes to procedures and renewal of the light management plan.

Case Studies

Unlike many forms of pollution, artificial light can be removed from the environment. The following case studies show it is possible to balance the requirements of both human safety and wildlife conservation.

Gorgon Liquefied Natural Gas Plant on Barrow Island, Western Australia

The Chevron-Australia Gorgon Project is one of the world's largest natural gas projects. The liquefied natural gas (LNG) processing facility is on Barrow Island a Western Australian Class A nature reserve off the Pilbara Coast known for its diversity of fauna, including important nesting habitat for flatback turtles²⁹.

The LNG plant was built adjacent to important turtle nesting beaches. The effect of light on the turtles and emerging hatchlings was considered from early in the design phase of the project and species-specific mitigation was incorporated into project planning²⁹. Light management is implemented, monitored and audited through a light management plan and turtle population demographics and behaviour through the *Long Term Marine Turtle Management Plan*³⁰.

Lighting is required to reduce safety risks to personnel and to maintain a safe place of work under workplace health and safety requirements. The lighting objectives considered these requirements while also aiming to minimise light glow and eliminate direct light spill on nesting beaches. This includes directional or shielded lighting, the mounting of light fittings as low as practicable, louvered lighting on low level bollards, automatic timers or photovoltaic switches and black-out blinds on windows. Accommodation buildings were oriented so that a minimal number of windows faced the beaches and parking areas were located to reduce vehicle headlight spill onto the dunes.

Lighting management along the LNG jetty and causeway adopted many of the design features used for the plant and accommodation areas. LNG loading activity is supported by a fleet of tugs that were custom built to minimise external light spill. LNG vessels are requested to minimise non-essential lighting while moored at the loading jetty.

To reduce sky glow, the flare for the LNG plant was designed as a ground box flare, rather than the more conventional stack flare. A louvered shielding wall further reduced the effects of the flare.

Lighting reviews are conducted prior to the nesting season to allow time to implement corrective actions if needed. Workforce awareness is conducted at the start of each turtle breeding season to further engage the workforce in the effort to reduce light wherever possible.



Figure 6 Liquefied natural gas plant on Barrow Island. Photo: Chevron Australia.

The *Long Term Marine Turtle Management Plan*³⁰ provides for the ongoing risk assessment of the impact of artificial light on the flatback turtles nesting on beaches adjacent to the LNG plant, including mitigation measures to minimise the risk from light to turtles. The plan also provides for an ongoing turtle research and monitoring program. The <u>plan</u> is publicly available.

Phillip Island

Victoria's Phillip Island is home to one of the world's largest colonies of listed migratory Short-tailed Shearwaters (*Ardenna tenuirostris*). It supports more than six per cent of the global population of this species²⁸. Shearwaters nest in burrows and are nocturnally active at their breeding colonies. Fledglings leave their nests at night. When exposed to artificial light fledglings can be disoriented and grounded. Some fledglings may reach the ocean, but then be attracted back toward coastal lighting. Fledglings are also vulnerable to collision with infrastructure when disoriented and once grounded become vulnerable to predation or road kill⁴ (Figure 7).

Phillip Island also attracts over a million visitors a year during peak holiday seasons to visit the Little Penguin (*Eudyptula minor*) ecotourism centre, the Penguin Parade[®]. Most visitors drive from Melbourne across a bridge to access the island. The increase in road traffic at sunset during the Easter break coincides with the maiden flight of fledgling shearwaters from their burrows²⁸.

In response to the deaths of fledglings, Phillip Island Nature Parks has an annual shearwater rescue program to remove and safely release grounded birds²⁸. In collaboration with SP Ausnet and Regional Roads Victoria, road lights on the bridge to the island are turned off during the fledgling period³¹. To address human safety concerns, speed limits are reduced and warning signals put in place during fledgling season^{31,32}. The reduced road lighting and associated traffic controls and warning signals, combined with a strong rescue program, have reduced the mortality rate of shearwaters²⁸.



Figure 7 Short-Tailed Shearwater (*Ardenna tenuirostris*) fledgling grounded by artificial light, Phillip Island. Photo: Airam Rodriguez.

Raine Island research vessel light controls

The Queensland Marine Parks primary vessel *Reef Ranger* is a 24 m catamaran jointly funded by the Great Barrier Reef Marine Park Authority and the Queensland Parks and Wildlife Service under the Field Management Program (FMP). The *Reef Ranger* is often anchored at offshore islands that are known marine turtle nesting sites and is regularly at Raine Island, one of the world's largest green turtle nesting sites³³ and a significant seabird rookery.

Vessels often emit a lot of artificial light when at anchor and the FMP took measures to minimise direct lighting spillage from the vessel. A lights-off policy around turtle nesting beaches was implemented, where the use of outdoor vessel lights was limited, except for safety reasons.

The original fit out of the vessel did not include internal block-out blinds (Figure 8A). These were installed before the 2018-19 Queensland turtle nesting season. The blinds stop light being emitted from inside the vessel, therefore limiting light spill around the vessel (Figure 8B). This can make an important difference at remote (naturally dark) sites such as Raine Island.

Anecdotal evidence suggests hatchlings previously attracted to, and captured in, light pools around the vessel are no longer drawn to the *Reef Ranger*.

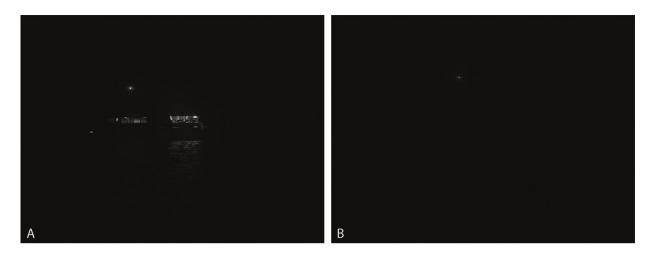


Figure 8 Vessel lighting management at Raine Island A. Vessel with decking lights, venetian blinds down and anchor light on; and B. Vessel with outside lights off, and block-out blinds installed (note the white anchor light is a maritime safety requirement).

Photo: Queensland Parks and Wildlife Service.

Appendix A – Best Practice Lighting Design

Natural darkness has conservation value in the same way as clean water, air and soil and should be protected through good quality lighting design.

Simple management principles can be used to reduce light pollution, including:

- 1. Start with natural darkness and only add light for specific purposes.
- 2. Use adaptive light controls to manage light timing, intensity and colour.
- 3. Light only the object or area intended keep lights close to the ground, directed and shielded to avoid light spill.
- 4. Use the lowest intensity lighting appropriate for the task.
- 5. Use non-reflective, dark-coloured surfaces.
- 6. Use lights with reduced or filtered blue, violet and ultra-violet wavelengths.

The application of best practice lighting design for all outdoor lighting is intended to reduce sky glow and minimise the effects of artificial light on wildlife.

Lighting Objectives

At the outset of a lighting design process, the purpose of artificial lighting should be clearly stated and consideration should be given as to whether it is required at all.

Exterior lighting for public, commercial or industrial applications is typically designed to provide a safe working environment. It may also be required to provide for human amenity or commerce. Conversely, areas of darkness, seasonal management of artificial light, or minimised sky glow may be necessary for wildlife protection, astronomy or dark sky tourism.

Lighting objectives will need to consider the regulatory requirements and Australian standards relevant to the activity, location and wildlife present.

Objectives should be described in terms of specific locations and times for which artificial light is necessary. Consideration should be given to whether colour differentiation is required and if some areas should remain dark – either to contrast with lit areas or to avoid light spill. Where relevant, wildlife requirements should form part of the lighting objectives.

A lighting installation will be deemed a success if it meets the lighting objectives (including wildlife needs) and areas of interest can be seen by humans clearly, easily, safely and without discomfort.

The following provides general principles for lighting that will benefit the environment, local wildlife and reduce energy costs.

Principles of Best Practice Lighting Design

Good lighting design incorporates the following design principles. They are applicable everywhere, especially in the vicinity of wildlife.

1. Start with natural darkness

The starting point for all lighting designs should be natural darkness (Figure 9). Artificial light should only be added for specific and defined purposes, and only in the required location and for the specified duration of human use. Designers should consider an upper limit on the amount of artificial light and only install the amount needed to meet the lighting objectives.



Figure 9 Start with natural darkness.

In a regional planning context, consideration should be given to designating 'dark places' where activities that involve outdoor artificial light are prohibited under local planning schemes.

2. Use adaptive controls

Recent advances in smart control technology provide a range of options for better controlled and targeted artificial light management (Figure 10). For example, traditional industrial lighting should remain illuminated all night because the High-Pressure Sodium, metal halide, and fluorescent lights have a long warm up and cool down period. This could jeopardise operator safety in the event of an emergency. With the introduction of smart controlled LED lights, plant lighting can be switched on and off instantly and activated only when needed, for example, when an operator is physically present within the site.

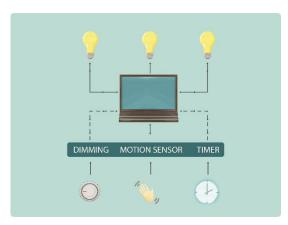


Figure 10 Use adaptive controls to manage light timing, intensity and colour.

Smart controls and LED technology allow for:

- remotely managing lights (computer controls)
- instant on and off switching of lights
- control of light colour (emerging technology)
- dimming, timers, flashing rate, motion sensors well defined directivity of light.

Adaptive controls should maximise the use of latest lighting technology to minimise unnecessary light output and energy consumption.

3. Light only the intended object or area - keep lights close to the ground, directed and shielded

Light spill is light that falls outside the area intended to be lit. Light that spills above the horizontal plane contributes directly to artificial sky glow while light that spills into adjacent areas on the ground (also known as light trespass) can be disruptive to wildlife in adjacent areas. All light fittings should be located, directed or shielded to avoid lighting anything but the target object or area (Figure 11). Existing lights can be modified by installing a shield.



Figure 11 Lights should be shielded to avoid lighting anything but the target area or object. Figure adapted from Witherington and Martin (2003)³.

Lower height lighting that is directional and shielded can be extremely effective. Light fixtures should be located as close to the ground as possible and shielded to reduce sky glow (Figure 12).

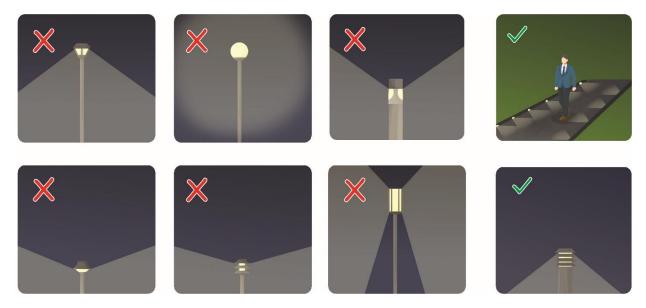


Figure 12 Walkway lighting should be mounted as low as possible and shielded. Figure adapted from Witherington and Martin (2003)³.

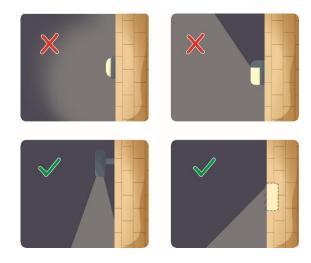


Figure 13 Lighting should be directed to ensure only the intended area is lit. Figure adapted from Witherington and Martin (2003)³.

Artificial light can be prevented from shining above the horizontal plane by ensuring the luminaire is mounted horizontally relative to the ground and not at an angle, or mounted on a building so that the structure prevents the light shining above the horizontal plane, for example recess a light into an overhanging roof eave. When determining angle of the mounting, consideration should be given to the reflective properties of the receiving environment.

If an unshielded fitting is to be used, consideration should be given to the direction of the light and the need for some form of permanent physical opaque barrier that will provide the shielding requirement. This can be a cover or part of a building (Figure 13). Care should be taken to also shield adjacent surfaces, if they are lightly coloured, to prevent excessive reflected light from adding to sky glow.

Consideration should also be given to blocking light spill from internal light sources. This should include block-out blinds or shutters for transparent portions of a building, including sky lights, and use of glass in windows and balconies with reduced visible light transmittance values.

4. Use appropriate lighting

Lighting intensity should be appropriate for the activity. Starting from a base of no lights, use only the minimum number and intensity of lights needed to provide safe and secure illumination for the area at the time required to meet the lighting objectives. The minimum amount of light needed to illuminate an object or area should be assessed during the early design stages and only that amount of light installed. For example, Figure 14 provides options from best to worst for lighting for a parking lot.



Figure 14 Lighting options for a parking area. Figure adapted from Witherington and Martin (2003)³.

Off-the-shelf lighting design models

Use of computer design engineering packages that do not include wildlife needs and only recommend a standard lighting design for general application should be avoided or modified to suit the specific project objectives, location and risk factors.

Consider the intensity of light produced rather than the energy required to make it

Improvements in technology mean that new bulb types produce significantly greater amount of light per unit of energy. For example, LED lights produce between two and five times the amount of light as incandescent bulbs. The amount of light produced (lumen), rather than the amount of energy used (watt) is the most important consideration in ensuring that an area is not over lit.

Consider re-evaluating security systems and using motion sensor lighting

Technological advances mean that techniques such as computer managed infra-red tracking of intruders in security zones is likely to result in better detection rates than a human observer monitoring an illuminated zone.

Use low glare lighting

High quality, low glare lighting should always be a strong consideration regardless of how the project is to be designed. Low glare lighting enhances visibility for the user at night, reduces eye fatigue, improves night vision and delivers light where it is needed.

5. Use non-reflective, dark coloured surfaces

Light reflected from highly polished, shiny or light-coloured surfaces such as white painted infrastructure, polished marble or white sand can contribute to sky glow. For example, alternatives to painting storage tanks with white paint to reduce internal heating should be explored during front-end engineering design. In considering surface reflectance, the need to view the surface should be taken into consideration as darker surfaces will require more light to be visible. The colour of paint or material selected should be included in the Artificial Light Management Plan.

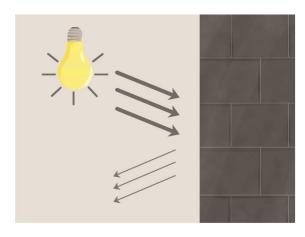


Figure 15 Use non-reflective dark coloured surfaces.

6. Use lights with reduced or filtered out blue, violet and ultraviolet wavelengths

Short wavelength light (blue) scatters more readily in the atmosphere and therefore contributes more to sky glow than longer wavelength light. Further, most wildlife are sensitive to short wavelength (blue/violet) light (for detailed discussion see What is Light and how do Wildlife Perceive it?). As a general rule, only lights with little or no short wavelength (400 – 500 nm) violet or blue light should be used to avoid unintended effects. Where wildlife are sensitive to longer wavelength light (e.g. some bird species), consideration should be given to wavelength selection on a case by case basis.

When determining the appropriate wavelength of light to be used, all lighting objectives should be taken into account. If good colour rendition is required for human use, then other mitigation measures such as tight control of light spill, use of head torches, or timers or motion sensors to control lights should be implemented.

It is not possible to tell how much blue light is emitted from an artificial light source by the colour of light it produces (see <u>Light Emitting Diodes</u>). LEDs of all colours, particularly white, can emit a high amount of blue light and the <u>Colour Correlated Temperature</u> (CCT) only provides a proxy for the blue light content of a light source. Consideration should be given to the spectral characteristics (spectral power distribution curve) of the lighting to ensure short wavelength (400 – 500 nm) light is minimised.

Appendix B – What is Light and how does Wildlife Perceive it?

A basic understanding of how light is defined, described and measured is critical to designing the best artificial light management for the protection of wildlife.

Humans and animals perceive light differently. However, defining and measuring light has traditionally focused exclusively on human vision. Commercial light monitoring equipment is calibrated to the sensitivity of the human eye and has poor sensitivity to the short wavelength light that is most visible to wildlife. Impacts of artificial light on wildlife vary by species and should be considered on a case by case basis. These issues should be considered when describing, monitoring and designing lighting near important wildlife habitat.

What is Light?

Light is a form of energy and is a subset of the electromagnetic spectrum that includes visible light, microwaves, radio waves and gamma rays (Figure 16). In humans, visible light ranges from 380 nm to 780 nm - between the violet and red regions of the electromagnetic spectrum. In animals, visible light ranges from 300 nm to greater than 700 nm, depending on the species. White light is a mixture of all wavelengths of light ranging from short wavelength blue to long wavelength red light.

The perception of different wavelengths as 'colour' is subjective and is described and characterised by how the human eye perceives light, ranging from red (700 nm), orange (630 nm), yellow (600 nm), green (550 nm), blue (470 nm), indigo (425 nm) and violet (400 nm) (Figure 16). Generally, this is not how animals see light (Figure 2).

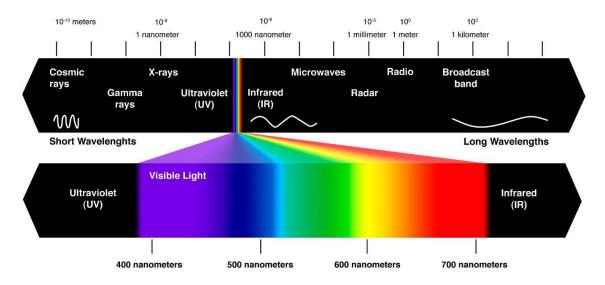


Figure 16 The electromagnetic spectrum. The 'visible light spectrum' occurs between 380-780 nm and is the part of the spectrum that the human eye can see. Credit: Mihail Pernichev³⁴.

Artificial light

Artificial light at night has many positive attributes. It can enhance human safety and provide for longer periods of work or recreation. However, it can also have a negative effect. For example, it can cause:

- physiological damage to retinal cells in human and animal eyes³⁵
- disruption of the circadian cycles in vegetation, animals and humans^{2,13,36}
- changes in animal orientation, feeding or migratory behaviour^{19,37-39}.

The biological mechanisms that cause these effects vary. It is necessary to understand some basic light theory and language in order to assess and manage the effect of light on wildlife. Some basic principles are briefly described in this section.

Vision in Animals

Vision is a critical cue for animals to orient themselves in their environment, find food, avoid predation and communicate⁷. Humans and wildlife perceive light differently. Some animals do not see long wavelength red light at all, while others see light beyond the blue-violet end of the spectrum and into the ultraviolet (Figure 17).

Both humans and animals detect light using photoreceptor cells in the eye called cones and rods. Colour differentiation occurs under bright light conditions (daylight). This is because bright light activates the cones and it is the cones that allow the eye to see colour. This is known as photopic vision.

Under low light conditions (dark adapted vision), light is detected by cells in the eye called rods. Rods only perceive light in shades of grey (no colour). This is known as scotopic vision and it is more sensitive to shorter wavelengths of light (blue/violet) than photopic vision.

The variation in the number and types of cells in the retina means animals and humans do not perceive the same range of colours. In animals, being 'sensitive' to light within a specific range of wavelengths means they can perceive light at that wavelength, and it is likely they will respond to that light source.

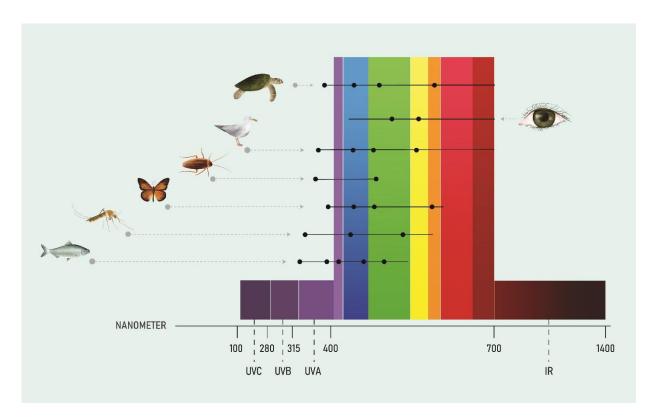


Figure 17 Ability to perceive different wavelengths of light in humans and wildlife is shown by horizontal lines. Black dots represent reported peak sensitivity. Note the common sensitivity to short wavelength light across all wildlife. Figure adapted from Campos (2017)⁸.

Sensitivity to blue light

Sensitivity to high energy, short wavelength UV/violet/blue light is common in wildlife (Figure 17). This light is strongly detected under scotopic (dark adapted) vision, particularly in nocturnal species. Short wavelength light at the blue end of the spectrum has higher energy than longer wavelength light at the red end of the spectrum. This is important to understanding the physical impact that the short wavelength, high energy UV/blue light has on damaging photoreceptor cells in the human eye⁴⁰. Although not well described in wildlife, it is not unreasonable to expect that at high intensities blue light has the potential to damage photoreceptors in wildlife.

In addition to the potential for physical damage to the eye from exposure to blue light (400 - 490 nm), there is mounting evidence that exposure to these wavelengths at night may affect human and wildlife physiological functions. This is because a third type of photoreceptor cell has recently been identified in the retina of the mammalian eye – the photosensitive retinal ganglion cells (pRGCs). The pRGCs are not involved in image-forming vision (this occurs in the rods and cones), but instead are involved in the regulation of melatonin and in synchronising circadian rhythms to the 24-hour light/dark cycle in animals⁴¹. These cells are particularly sensitive to blue light⁴². Melatonin is a hormone found in plants animals and microbes. Changes in melatonin production can affect daily behaviours such as bird waking⁴³, foraging behaviour and food intake⁴⁴ and seasonal cues such as the timing of reproduction in animals, causing off-spring to be born during non-optimal environmental conditions⁵.

Factors Effecting Perception of Light

Factors affecting how wildlife perceive light include the type of cells being employed to detect light (photopic vs scotopic vision); whether the light is viewed directly from the source or as reflected light; how the light interacts with the environment; and the distance from the light source. These influences are discussed below.

Perspective

Understanding an animal's perception of light will include consideration of the animal's visual field. For instance, when flying, birds will generally be looking down on artificial light sources, whereas turtles on a nesting beach will be looking up. Further, some birds' field of view will stretch around to almost behind their head.

Bright vs dim light

Understanding photopic and scotopic vision is important when selecting the colour (wavelength) and intensity of a light. In animals scotopic (dark adapted) vision allows for the detection of light at very low intensities (Figure 18). This dark adaption may explain why nocturnal wildlife are extremely sensitive to white and blue light even at low intensities.

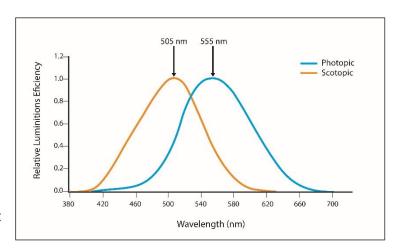


Figure 18 Scotopic and photopic luminosity functions in humans. Data source: <u>Luminosity functions</u>.

Direct vs reflected

Understanding the difference between light direct from the source (luminance) and how much incident light illuminates a surface (illuminance) is important when selecting methods for measuring and monitoring light. Equipment used to measure illuminance and luminance is not interchangeable and will lead to erroneous conclusions if used incorrectly.

Luminance describes the light that is emitted, passing through or reflected from a surface that is detected by the human eye. The total amount of light emitted from a light is called luminous flux and represents the light emitted in all directions (Figure 19). Luminance is quantified using a Spectroradiometer or luminance meter.

Illuminance measures how much of the incident light (or luminous intensity) illuminates a surface. Illuminance is quantified using an Illuminance spectrophotometer or Lux meter.

The total amount of light emitted by a bulb is measured in lumens and is different to watts, which are a measure of the amount of power consumed by the bulb. Lumens, not watts, provide information about the brightness of a bulb.

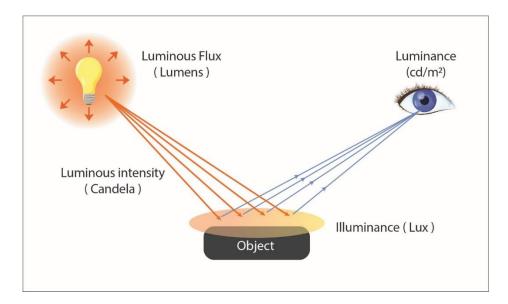


Figure 19 Luminous flux, luminance and illuminance.

Visibility of light in the environment

The physical properties of light include reflection, refraction, dispersion, diffraction and scattering. These properties are affected by the atmosphere through which light travels. Short wavelength violet and blue light scatters in the atmosphere more than longer wavelength light such as green and red, due to an effect known as Rayleigh scattering⁴⁵.

Scattering of light by dust, salt and other atmospheric aerosols increases the visibility of light as sky glow while the presence of clouds reflecting light back to earth can substantially illuminate the landscape⁴⁶. Hence the degree of overhead sky glow is a function of aerosol concentration and cloud height and thickness.

Direct light vs sky glow

Light may appear as either a direct light source from an unshielded lamp with direct line of sight to the observer, or as sky glow (Figure 20). Sky glow is the diffuse glow caused by source light that is screened from view, but through reflection and refraction the light creates a glow in the atmosphere. Sky glow is affected by cloud cover and other particles in the air. Blue light scatters more in the atmosphere compared with yellow-orange light. Clouds reflect light well adding to sky glow.



Figure 20 Sky glow created by lights shielded by a vegetation screen (circled left) and point sources of light directly visible (circled right).

Distance from light source

The physical properties of light follow the inverse square law which means that the visibility of the light, as a function of its intensity and spatial extent, decreases with distance from the source (Figure 21). This is an important factor to consider when modelling light or assessing the impact of light across different spatial scales, for example across landscape scales compared to within development footprint.

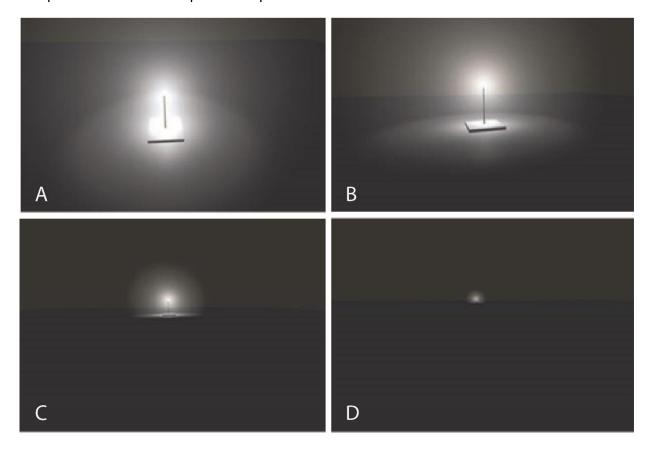


Figure 21 Modelled changes in the visibility of an unshielded 1000 W white LED viewed from A. 10 m; B. 100 m; C. 1 km and D. 3 km.

Measurement of Light

Light has traditionally been measured photometrically or using measurements that are weighted to the sensitivity of the human eye (peak 555 nm). Photometric light is represented by the area under the Commission International de l'Eclairage (CIE) curve, but this does not capture all light visible to wildlife (Figure 22).

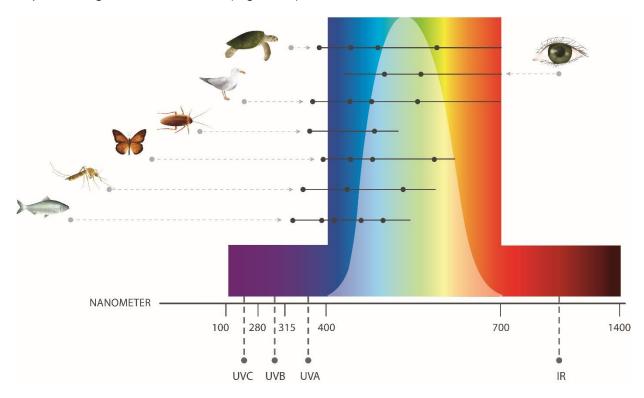


Figure 22 Photometric light represented by the area under the CIE curve (white area) compared with ability to perceive different wavelengths (black lines) and reported peak sensitivity (black dots) in humans and wildlife. Note the area under the CIE curve does not include much of the violet and ultra-violet light visible to many animals. Figure adapted from Campos (2017)⁸.

Light can also be measured radiometrically. Radiometric measurements detect and quantify all wavelengths from the ultra-violet (UV) to infrared (IR). The total energy at every wavelength is measured. This is a biologically relevant measure for understanding wildlife perception of light. Terminology, such as radiant flux, radiant intensity, irradiance or radiance all refer to the measurement of light across all wavelengths of the electromagnetic spectrum.

Understanding the difference between photometry (weighted to the sensitivity of the human eye) and radiometry (measures all wavelengths) is important when measuring light since many animals are highly sensitive to light in the blue and the red regions of the spectrum and, unlike photometry, the study of radiometry includes these wavelengths.

Photometric measures (such as, illuminance and luminance) can be used to discuss the potential impact of artificial light on wildlife, but their limitations should be acknowledged and taken into account as these measures may not correctly weight the blue and red wavelengths to which animals can be sensitive.

Spectral curve

White light is made up of wavelengths of light from across the visible spectrum. A spectral power curve (Figure 23) provides a representation of the relative presence of each wavelength emitted from a light source. A lighting design should include spectral power distribution curves for all planned lighting types as this will provide information about the relative amount of light emitted at the wavelengths to which wildlife are most susceptible.

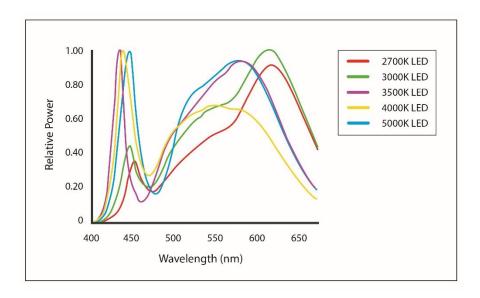


Figure 23 Spectral curves showing the blue content of white 2700-5000 K LED lights. Note the difference in relative power output in the blue (400 - 500 nm) wavelength range. Figure courtesy of lan Ashdown.

Light Emitting Diodes (LEDs)

Light emitting diodes are rapidly becoming the most common light type globally as they are more energy efficient than previous lighting technology. They can be smart controlled, are highly adaptable in terms of wavelength and intensity, and can be instantly turned on and off.

Characteristics of LED lights that are not found in older types of lamps, but which should be considered when assessing the impacts of LEDs on wildlife, include:

- With few exceptions, all LED lights contain blue wavelengths (Figure 23 and Figure 24).
- The wattage of an LED is a measure of the electrical energy needed to produce light and is not a measure of the amount or intensity of light that will be produced by the lamp.
- The output of light produced by all lamps, including LEDs, is measured in lumens (lm).
- LED lamps require less energy to produce the equivalent amount of light output. For example, 600 lm output of light requires 40 watts of energy for an incandescent light bulb and only 10 watts of energy for a LED lamp. Another was to look at this is that a 100 W incandescent bulb will produce the same amount of light as a 20 W LED. Consequently, it is important to not replace an old-style lamp with the equivalent wattage LED.

- Different LED lights with the same correlated colour temperature (CCT) can have very different blue content (Figure 24) yet can appear, to the human eye, to be a similar colour. As the colour temperature of a white LED increases so can the blue content (Figure 23). Little or none of this increase in blue wavelength light is measured by photometric equipment (i.e. lux meter, luminance, illuminance meter, Sky Quality Meter see Measuring Biologically Relevant Light).
- LED technology allows for tuneable RGB colour management. This has the potential to allow for species specific management of problematic wavelengths (e.g. blue for most wildlife, but also yellow/orange).

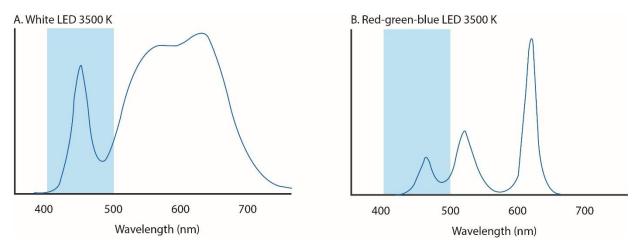


Figure 24 A comparison of the blue wavelength spectral content of two LED lights with the same CCT (3500k). The blue band shows the blue region of the visible spectrum (400–500 nm). The light in A has a much greater blue light content than B yet the two appear to the human eye as the same colour. For animals with differing sensitivities to light wavelength from humans, they may appear very different. Figure courtesy of lan Ashdown.

Correlated colour temperature (CCT)

This describes the colour appearance of a white LED. It is expressed in degrees Kelvin, using the symbol K, which is a unit of measure for absolute temperature. Practically, colour temperature is used to describe light colour and perceived "warmth"; lamps that have a warm yellowish colour have low colour temperatures between 1000K and 3000K while lamps characterised by a cool bluish colour have a colour temperature, or CCT, over 5000K (Figure 25).

Correlated colour temperature does not provide information about the blue content of a lamp. All LEDs contain blue light (Figure 23) and the blue content generally increases with increased CCT. The only way to determine whether the spectral content of a light source is appropriate for use near sensitive wildlife is to consider the spectral curve. For wildlife that are sensitive to blue light, an LED with low amounts of short wavelength light should be chosen, whereas for animals sensitive to yellow light⁹ LEDs with little or no light at peak sensitivity should be used⁴⁷.

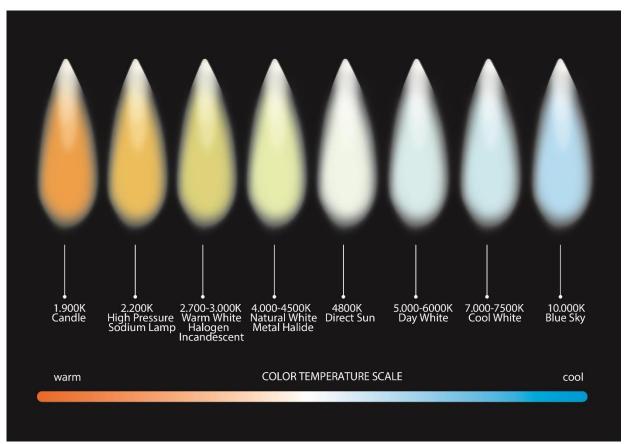


Figure 25 Correlated colour temperature (CCT) range from warm 1,000 K to cool 10,000 K.

Appendix C - Measuring Biologically Relevant Light

Animals and humans perceive light differently. Commercial light monitoring instruments currently focus on measuring the region of the spectrum most visible to humans. It is important to recognise and account for this fact when monitoring light for wildlife impact assessment purposes.

Commercial light modelling programs also focus on light most visible to humans and this should also be recognised and accounted for in the impact assessment of artificial light on wildlife.

Information critical to monitoring the effects of artificial light on wildlife include:

- Spatial extent of sky glow
- Bearings and intensity of light sources along the horizon
- Visibility of light (direct and sky glow) from wildlife habitats
- · Spectral distribution of lights sources.

Describing the Light Environment

When describing the light environment consideration should be given to how wildlife is likely to perceive artificial light. Light measurements should be obtained from within important habitat and taken from a biologically relevant perspective (i.e. close to the ground/from the sky/under water). Consideration should also be given to elevation from the horizon, the spatial extent of sky glow and the wavelength distribution (spectrum) of light present.

It is important that light measurements are taken at appropriate times. This may include biologically relevant times (e.g. when wildlife is using the area). Baseline measurements should be taken when the moon is not in the sky and when the sky is clear of clouds and in the absence of temporary lighting (e.g. road works). Conditions should be replicated as closely as possible for before and after measurements.

Measuring Light for Wildlife

Measuring light to assess its effect on wildlife is challenging and an emerging area of research and development. Most instruments used to measure sky glow are still in the research phase with only a few commercial instruments available. Further, the wide range of measurement systems and units in use globally makes it difficult to choose an appropriate measurement metric and often results cannot be compared between techniques due to variations in how the light is measured. There is currently no globally recognised standard method for monitoring light for wildlife.

Radiometric vs photometric measurement techniques

Radiometric instruments detect and quantify light equally across the spectrum (see Measurement of Light) and are the most appropriate instruments for monitoring and measuring light for wildlife management. However, while the techniques to measure radiometric light are well developed in physics, astronomy and medicine, they are less well developed in measurement of light in the environment. The instruments currently being developed are largely the result of academic and/or commercial research and development, are expensive, and require specialised technical skills for operation, data analysis, interpretation and equipment maintenance.

The majority of both commercial and research instruments quantify photometric light, which is weighted to the sensitivity of the human eye, as per the CIE luminosity function curve described in Measurement of Light. Due to many photometers being modified with filters to mimic human vision, they do not accurately represent what an animal with high sensitivity to the blue (400 - 500 nm) or the red (650 - 700 nm) regions of the spectrum will see (Figure 22). In these cases, the sensitivity to this additional light must be accounted for when reporting results.

When using photometric instruments for monitoring light this insensitivity to the short and long wavelength regions of the spectrum should be recognised and accounted for in the assessment of impact. Information on the spectral power distribution of commercial lights is readily available from manufacturers and suppliers and should be used to inform any artificial light impact assessment or monitoring program. An example of the spectral power distribution curves for various light sources is shown in Figure 26, along with an overlay of the CIE curve that represents the light that is measured by all commercial photometric instruments.

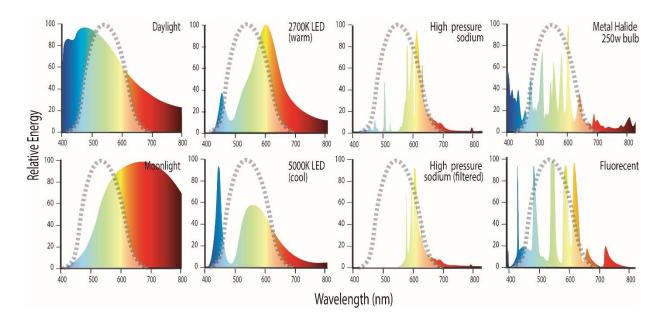


Figure 26 Photometric instruments only quantify light that is within the CIE curve (area under grey dashed line). This is shown in comparison with the spectral curves of a range of different light sources.

Recognising that light monitoring instruments for wildlife are in the developmental stage and that there is a lack of agreed methods and measurement units, monitoring programs should aim to measure relevant short and long wavelengths (if possible). The measurement methods should be clearly described including the region of the spectrum measured, and where not measures, how the short and long wavelength regions are being accounted for. Methods to do this might include a visual assessment of the colour of light in the sky from direct observation or imagery, where orange glow is typically associated with long wavelength rich lights (High Pressure Sodium, HPS, Low Pressure Sodium, LPS, PC Amber LED or Amber LED) and white glow is associated with white light sources rich in short wavelength blue light (white LEDs, halogens, fluorescents, metal halide etc.).

Alternatively photometric instruments can be used under conditions where the majority of light sources are the same, for example street lighting or industrial facilities. Monitoring results can be compared for measurements taken of the same light types (e.g. comparing two HPS sources, spatially or temporally), but in the context of wildlife monitoring cannot be used to compare light from an HPS and an LED since they have different wavelength distributions. This limitation must be taken into account when using photometric instruments to measure cumulative sky glow, which may include light from multiple sources and light types. Detailed qualitative spectral information on light types can also be collected to ground truth and confirm light types contributing to sky glow.

A light monitoring program might therefore include the collection of a range of different characteristics of light (e.g. colour, light type, areal extent, spectral power distribution, and intensity) using various instruments and techniques. These methods and techniques, including all of the limitations and assumptions, should be clearly stated and considered when interpreting results. A review of various instrumental techniques for monitoring light is provided below.

In selecting the most appropriate measuring equipment to monitor the biological impacts of light on wildlife, it is important to decide what part of the sky is being measured: horizon, zenith (overhead) or whole sky. For example, marine turtles view light on the horizon between 0° and 30° vertically and integrate across 180° horizontally⁴⁸, so it is important to include measurement of light in this part of the sky when monitoring for the effects on hatchling orientation during sea-finding. In contrast, juvenile shearwaters on their first flight view light in three dimensions (vertically, from below and above) as they ascend into the sky. Overhead sky glow (zenith) measurements are important when the observer is trying to avoid glare contamination by point sources of light low on the horizon. Quantifying the whole of sky glow is important when measuring the effects of cloud cover, which can reflect light back to illuminate an entire beach or wetland.

The effect of light on wildlife is a function of the animal's sensitivity and response to light, and the cues it uses during orientation, dispersal, foraging, migrating etc. Most wildlife appear to respond to high intensity short wavelength light, point sources of light, sky glow and directional light. Consequently, the information likely to be needed to monitor light for wildlife includes:

- The brightness of the entire sky from horizon to horizon.
- The bearing to, intensity of and spectrum of light (point sources and sky glow) on the horizon. This will dictate the direction in which wildlife can be disoriented.

- The spatial extent of glow near the horizon. A large area of glow on the horizon is likely to be more visible and disruptive to wildlife than a small area of glow.
- Presence or absence of clouds. Clouds reflect light from distant sources very well, making an inland source highly visible on the coast, for example. Sky glow is a function of cloud height, albedo and thickness.
- Qualitative information on the light visible to wildlife. An image of light pollution visible
 from wildlife habitat can show the spatial extent of light in the sky and direction
 (see Figure 20) and in some cases provide information on the light source type
 (e.g. orange sky glow will be caused by HPS lights or amber LEDs).
- Emission spectra (colour) of the light. It is particularly important to identify light in the UV-blue region of the visible spectrum (<500 nm) since this is the light commonly visible and disruptive to wildlife.

Measurement Techniques

Currently, there are no generally agreed methods for measuring biologically relevant light for wildlife or for quantifying sky glow⁴⁹. This is because most conventional methods of measuring light are photometric, quantifying only the light under the CIE curve that is most relevant to the human perception of light. Further, they do not consider the entire night sky.

There is a need to develop reasonably priced, easily accessible and deployable, repeatable methods for monitoring biologically relevant light that captures the whole visual field to which wildlife may be exposed (generally horizon to horizon)⁴⁹. These methods should be capable of quantifying all wavelengths of light equally (radiometric) including at least 380 – 780nm, or capable of being calibrated over the range of wavelengths of relevance for the species of interest. Optimal methods will have a sensitivity to detect and measure change at the low light levels represented by artificial light sky glow and must have the ability to differentiate between individual point sources of light (on a local scale) and sky glow on a landscape scale (i.e. over tens of kilometres).

It should be noted that measurements needed to assess the impact of sky glow to wildlife may need to be different from the measurements required to assess light for human safety.

Recognising that techniques to monitor biologically meaningful light are expected to continuously develop and improve, this section summarises the state of the science as of 2020 as an example of current techniques. It is anticipated novel methods will be developed with time that will meet the objectives of monitoring biologically meaningful light and where that occurs, the methods and techniques, including all of the limitations and assumptions, should be clearly stated for all monitoring programs.

Recent reviews have considered various commercial and experimental instrumental techniques used around the world for quantifying sky glow^{49,50}. The reviews assessed the benefits and limitations of the various techniques and made recommendations for measuring light pollution. Some of these instruments, their benefits and limitations are discussed below and summarised in Table 1.

Light can be measured in different ways, depending on the objective, landscape scale and point of view and include:

- · remote sensing
- one dimensional (single channel) instruments
- calibrated all-sky imagery (numerical and imaging)
- spectroscopy/spectroradiometry.

Remote sensing

The upward radiance of artificial light at night can be mapped via remote sensing using satellite or aerial imagery and optical sensors. This information has been used as a socioeconomic indicator to observe human activity, and increasingly as a tool to consider the impacts of artificial light on ecosystems⁵¹. Examples are:

- The New World Atlas of Artificial Night Sky Brightness
- Light Pollution Map

<u>Benefits</u>: The images are useful as broad scale indicators of light pollution and for targeting biological and light monitoring programs. This technique may be a good starting point to identify potentially problematic areas for wildlife on a regional scale. Images collected via drones or aircraft maybe useful for consideration of artificial light impacts on bird and bat migrations.

<u>Limitations</u>: Maps derived from satellite collected information have limited value in quantifying light for wildlife. The images are a measure of light after it has passed though the atmosphere and been subject to scattering and absorption. They do not give an accurate representation of the light visible to wildlife at ground level. The annual composite images are made from images collected under different atmospheric conditions and therefore they cannot be used to confidently quantify light within or between years. The most commonly used instrument (VIIRS DNB) is not sensitive to blue light, so light in this part of the spectrum is under sampled. As satellite with more sophisticated sensors are launched it is expected the value of this technique to biological monitoring will improve.

Application to wildlife monitoring programs: Whilst remote sensing tools may provide a good starting point for identifying artificial light that is problematic for wildlife on a regional scale, they are currently not an appropriate approach for measuring light as part of a wildlife monitoring program as they do not accurately quantify light as observed from the ground, they underestimate the blue content of light, and results are not repeatable due to environmental conditions. Images collected via aircraft or drone may have application for monitoring impacts on airborne wildlife.

One dimensional (single channel) instruments

These instruments measure sky glow using a single channel detector, producing a numerical value to represent sky glow, typically at the zenith. They are generally and portable and easy to use. They measure sky glow, but cannot derive point source information unless they are close enough such that most of the light detected is emitted from those sources. Examples of single channel instruments are discussed below.

Sky Quality Meter (SQM)

This is a small handheld unit that quantifies the light in an area of sky (normally directly overhead at the zenith). Early models had a field of view of around 135° with the more recent SQM-L model having a narrower 40° diameter field of view. It measures photometric light in units of magnitudes/arcsec² at relatively low detection limits (i.e. it can measure sky glow). Instrument accuracy is reported at ±10 per cent though a calibration study on a group of SQM instruments in 2011 found errors ranging from -16 per cent to +20 per cent⁵². Long term stability of SQMs has not been established.

Reviewers suggest that the first 3-4 measurements from a handheld SQM should be discarded, then the average of four observations should be collected by rotating the SQM 20° after each observation to obtain a value from four different compass directions so that the effects of stray light can be minimised or identified⁵⁰. If the measurements vary by more than 0.2 mag/arcsec² the data should be discarded and a new location for measurements selected. Data should not be collected on moonlit nights to avoid stray light contaminating the results.

<u>Benefits</u>: The SQM is cheap, easy to use and portable. Some versions have data-logging capabilities that enable autonomous operation in the field. The sensitivity of the SQM is sufficient to detect changes in overhead night time artificial lighting under a clear sky.

<u>Limitations</u>: SQMs cannot be used to resolve individual light sources a distance, identify light direction nor can they measure light visible to many wildlife species. The precision and accuracy of the instrument can vary substantially and an intercalibration study is recommended to quantify the error of each instrument. Although the SQM is designed to have a photopic response, it is generally more sensitive to shorter wavelengths (i.e. blue) than a truly photopic response, but this will depend on the individual instrument. It is not very sensitive to longer (orange/red) wavelengths⁵⁰. The SQM should not be used to measure light within 20° of the horizon as the detector is designed to measure a homogeneous sky (such as occurs at the zenith) and does not produce valid data when point at a heterogeneous field of view as observed at the horizon.

Application to wildlife monitoring programs: A sky quality meter can be used to measure sky glow directly overhead (zenith) at the wildlife habitat, however, it is important to recognise its limitations (such as the absence of whole of sky information and inability to measure point sources of light on the horizon) and follow methods recommended by Hänel et al (2018)⁵⁰ to ensure repeatability.

Dark Sky Meter

This is an iPhone app that uses the phone camera to collect light and generate a sky brightness value.

Benefits: It's cheap and easy to use.

<u>Limitations</u>: The Dark Sky Meter is a photometric instrument. It's restricted to Apple iPhones. It will not work on models older than the 4S and cannot be used to resolve individual lights or identify light direction. It is relatively imprecise and inaccurate⁵⁰ and cannot reliably measure light on the horizon.

Application to wildlife monitoring programs: The Dark Sky Meter app is not an appropriate tool for monitoring light impacts on wildlife as it doesn't measure biologically relevant light. It doesn't provide whole of sky information, it isn't able to resolve individual light sources and it is relatively imprecise and inaccurate. The Dark Sky Meter should be considered more of an educational tool than a scientific instrument.

Lux Meters and Luminance Meters

Lux meters are commercially available instruments commonly used to measure individual light sources at close range (i.e. over metres rather than landscape scale). However, the inverse square law can be used to calculate the illuminance if the distance is known. Lux and luminance meters measure photometric light. Lux meters measure the light falling on a surface and luminance meters measure the light incident from a specific solid angle.

Benefits: Both can be cheap (with more expensive models available) and easy to use.

<u>Limitations</u>: Both types of devices are photometric, but measurements are weighted to human perception rather than wildlife. Depending on the sensitivity of equipment, detection limits may not be low enough to measure typical night sky brightness or illuminance and therefore cannot measure sky glow for wildlife monitoring purposes. Lux meters have no angular resolution and luminance meter are coarse so they cannot be used to measure distant light sources at the horizon precisely.

Application to wildlife monitoring programs: Commercial lux and luminance meters are not appropriate for the measurement of light in wildlife monitoring programs because they have low sensitivity and low accuracy at low light levels. Expensive tailored devices with enhanced sensitivity may exist, but are still not applicable to wildlife monitoring as they do not measure biologically relevant light and are not appropriate for use on a landscape scale.

Calibrated all-sky imagery

These instruments map and measure sky brightness by analysing photographic images of the whole sky. The images are processed to derive a luminance value for all or parts of the sky. One of the advantages of two dimensional (wide angle) imaging is that models of natural sources of light in the night sky can be subtracted from all sky imagery to detect anthropogenic sources⁵³. Some examples of devices and techniques to map and measure night sky brightness using wide-angle images are discussed below.

All-Sky Transmission Monitor (ASTMON)

This charge-coupled device (CCD) astronomical camera with fish-eye lens has been modified by the addition of a filter wheel to allow collection of data through four photometric bands in the visible spectrum. The spectral range of the instrument is dependent on the sensitivity of the detector and the filters used, but has the advantage of being accurately calibrated on stars.

<u>Benefits</u>: The ASTMON was designed for outdoor installation and the Lite version is portable with a weather-proof enclosure allowing it to remain outdoors operating robotically for weeks. It reports data in magnitudes/arcsec² for each band and has good precision and accuracy⁵⁰. Once the system is calibrated with standard stars, it can provide radiometric data for the whole night sky as well as resolve individual light sources.

<u>Limitations</u>: The ASTMON is expensive and requires specialised knowledge to operate and interpret data. The software provided is not open source and so cannot be modified to suit individual requirements. The ASTMON may no longer be commercially available. The CCD cameras used also have a limited dynamic range.

<u>Application to wildlife monitoring programs</u>: The ASTMON is appropriate for monitoring artificial light for wildlife as it provides whole night sky measurements that can be calibrated to give biologically relevant information that is accurate and repeatable.

Digital Camera Equipped with Wide Angle and Fisheye Lenses

This approach is similar to the ASTMON, except using a commercial digital camera with an RGB matrix rather than a CCD camera with filter wheel, making the system cheaper and more transportable. This system provides quantitative data on the luminance of the sky in a single image^{54,55}.

<u>Benefits</u>: The cameras are easily accessible and portable. When precision is not critical, the directional distribution of night sky brightness can be obtained. At the very least, the use of a digital camera with a fisheye lens allows for qualitative imagery data to be collected and stored for future reference and data analysis. If standard camera settings are used consistently in all surveys, it is possible to compare images to monitor spatial and temporal changes in sky brightness. This system also provides multi-colour options with red green and blue spectral bands (RGB).

<u>Limitations</u>: Cameras must be calibrated before use and this, together with the specific camera model, will dictate the precision of the measurements. Calibration for data processing requires lens vignetting (also known as flat fielding), geometric distortion, colour sensitivity of the

camera, and sensitivity function of the camera. Specialised knowledge is required to process and interpret these images. Also, like CCD cameras, the detectors in digital cameras have a limited dynamic range which can easily saturate in bright environments. In addition, fisheye systems often produce the poorest quality data at the horizon where the distortion due to the lens is the greatest.

Calibrating the camera is difficult and standard methods have not been developed. Laboratory or astronomical photometric techniques are generally used which require specialist knowledge and expertise. A precision of ~10 per cent can be achieved using this technique. Standard commercial cameras are calibrated to the human eye (e.g. photometric), however, the ability to obtain and process an image allows for qualitative assessment of light types (based on the colour of sky glow), which provides additional data for interpreting the biological relevance of the light.

Application to wildlife monitoring programs: A digital camera equipped with wide angle or fisheye lenses is appropriate for measuring light in wildlife monitoring programs as it provides horizon to horizon information with enough sensitivity and accuracy to detect significant changes in low light environments. Images allow for detection of both sky glow, light source type, and point source information. When data is manually processed biologically relevant measurements can be obtained. Because the system is fast, dynamics of sky glow and direct light can be monitored⁵⁶.

All Sky Mosaics

This technique was developed by the US National Parks Service and provides an image of the whole of the sky by mosaicking 45 individual images. The system comprises a CCD camera, a standard 50 mm lens, an astronomical photometric Bessel V filter with IR blocker and a computer controlled robotic telescope mount. Data collection is managed using a portable computer, commercial software and custom scripts.

<u>Benefits</u>: The angular resolution, precision and accuracy of the system is good, and it is calibrated and standardised on stars. The images produced have high resolution. The system is best suited for long term monitoring from dark sky sites. However, with the addition of a neutral density filter, the luminance or illuminance of a near-by bright light source can be measured. Also, other photometric bands can be measured with the use of additional filters.

<u>Limitations</u>: The system is expensive and requires specialised knowledge to operate the system, analyse and interpret the data. These cameras are calibrated to the human eye with the inclusion of a visible filter, however the ability to obtain and process an image allows for qualitative assessment of light types in the (based on the colour of sky glow), which provides additional data for interpreting the biological relevance of the light. Measurement procedures are time consuming and require perfect clear sky conditions and single spectral band, or repeated measurements are required.

<u>Application to wildlife monitoring programs</u>: All sky mosaics would be an appropriate tool for monitoring of artificial light for wildlife. They provide whole of sky images with high resolution and with appropriate filters can be used to measure biologically relevant wavelength regions.

Spectroscopy/spectroradiometry

Different light types produce a specific spectral signature or spectral power distribution (for example Figure 26). Using a spectrometer it is possible to separate total sky radiance into its contributing sources based on their spectral characteristics. Being able to assess the impacts of different light sources is of relevance during this time of transition in lighting technology.

Where wildlife sensitivity to particular wavelength regions of light is known, being able to capture the spectral power distributions of artificial light and then predict how the light will be perceived by wildlife will be of particular benefit in assessing the likely impacts of artificial light.

This type of approach has been utilised in astronomy for a long time, but only recently applied to measurement and characterisation of light pollution on earth. An example of a field deployable spectrometer - the Spectrometer for Aerosol Night Detection (SAND) is described below.

Spectrometer for Aerosol Night Detection (SAND)

SAND uses a CCD imaging camera as a light sensor coupled with a long slit spectrometer. The system has a spectral range from 400 – 720 nm and is fully automated. It can separate sampled sky radiance into its major contributing sources.

<u>Benefits</u>: This approach can quantify light at specific wavelengths across the spectrum (radiometric) so it can measure light visible to wildlife. It can also be used to 'fingerprint' different light types.

<u>Limitations</u>: Calibration, collection and interpretation of these data requires specialist knowledge and equipment and is expensive. SAND does not provide whole sky information.

Application to wildlife monitoring programs: The use of a portable spectrometer that can identify light types based on their spectral power distribution or measure light at specific wavelengths of interest would be a useful contribution to a wildlife monitoring program. Unfortunately, the prototype SAND instrument is no longer in operation. However, this instrument exemplifies the type of approaches that will be of benefit for measuring light for wildlife in the future.

Most appropriate instrument for measuring biologically relevant light

The most appropriate method for measuring light for wildlife will depend on the species present and the type of information required. In general, an appropriate approach will quantify light across the whole sky, across all spectral regions, differentiating point light sources from sky glow and it will be repeatable and easy to use.

At the time of writing, the digital camera and fisheye lens technique was recommended by Hänel et al (2018) and Barentine (2019) as the best compromise between cost, ease-of-use and amount of information obtained when measuring and monitoring sky glow. Hänel et al (2018) did, however, recognise the urgent need for the development of standard software for calibration and displaying results from light monitoring instruments⁵⁰. In the future, hyperspectral cameras with wide field of view might become available combining the advantages of spectroradiometry and all-sky imagery. However, such devices do not currently exist.

It should be noted that this field is in a stage of rapid development and this Technical Appendix will be updated as more information becomes available.

Table 1 Examples of instrumental light measurement techniques (modified from Hänel et al, 2018⁵⁰). Abbreviations: Num. val. = Numerical value; Spec. Knowl. = Specialist Knowledge required; Req. calibration = requires calibration.

Instrument	Measurement Units	Detect Sky Glow	Data Type	Spectrum measured	Scale	Measures biologically relevant light	Commercially Available	Data Quality	Price#
Remote sensing:									
Satellite imagery	Various	Yes*	lmages + num. val.	Single band	Landscape	No	Yes	Mod-high	Some datasets free
One dimensional:									
Sky Quality Meter (SQM)	magsqм/arcsec ²	Yes	Num. val.	Single band	Overhead	No§	Yes	Mod	< \$300
Dark Sky Meter (iPhone)	~mag _{SQM} /arcsec	Yes	Num. val.	Single band	Overhead	No	Yes	Low	\$0
Luxmeter	lux	No	Num. val.	Single band	Metres	No	Yes	Low	< \$300
Two dimensional:									
ASTMON	mag _v /arcsec ²	Yes	lmage + num. val.	Multi band filter wheel	Whole sky	Req. calibration	No	High	>\$15,000
DSLR + fisheye	~cd/m², ~mag _v /arcsec²	Yes	lmage + num. val	Multi band RGB	Whole sky	Req. calibration	Yes	Mod-high	>\$2,500
All sky mosaic	cd/m², mag _v /arcsec²	Yes	lmage + num. val	Single band	Whole sky	Req. calibration	No	High	~ \$20,000
Spectroradiometry:			_						
SAND¥	W/(m²nm sr)	Yes	Spectral power curve	Multi band hyperspectral	Landscape	Yes	No	Mod-high	\$7,000

[#] Price as at 2018.

^{*} Via modelling

[§] Some sensitivity to short (blue) wavelengths, but not long (orange red) wavelengths.

^{*} Spectrometer for Aerosol Night Detection (SAND).

Modelling Predicted Light

Available commercial light models

Most modelling software that is currently available is problematic as the models are weighted towards a human perception of light as represented by the CIE/photometric curve and do not account for the light to which wildlife are most sensitive. For example, most wildlife is sensitive to short wavelength violet and blue light (Figure 17), but little or none of this light is measured by commercial instruments and consequently it is not accounted for in current light models.

A second limitation of many light models for biology is the inability to accurately account for environmental factors, such as: atmospheric conditions (moisture, cloud, rain, dust); site topography (hills, sand dunes, beach orientation, vegetation, buildings); other natural sources of light (moon and stars); other artificial sources of light; the spectral output of luminaires; and the distance, elevation, and viewing angle of the observing species. Such a model would involve a level of complexity that science and technology has yet to deliver.

A final major limitation is the lack of biological data with which to confidently interpret a model outcome. Therefore, it is not possible to objectively estimate how much artificial light is going to cause an impact on a particular species, or age class, over a given distance and under variable environmental conditions.

Recognising these limitations, it can still be valuable to model light during the design phase of new lighting installations to test assumptions about the light environment. For example, models could test for the potential for light spill and line of sight visibility of a source. These assumptions should be confirmed after construction.

Development of modelling tools that can take account of broad spectral data and environmental conditions are in the early stages of development but rapidly improving⁴⁹.

Appendix D - Artificial Light Auditing

Industry best practice requires onsite inspection of a build to ensure it meets design specifications. An artificial light audit should be undertaken after construction to confirm compliance with the artificial light management plan.

An artificial light audit cannot be done by modelling of the as-built design alone and should include a site visit to:

- Confirm compliance with the artificial light management plan
- · Check as-built compliance with engineering design
- Gather details on each luminaire in place
- Conduct a visual inspection of the facility lighting from the wildlife habitat
- · Review the artificial light monitoring at the project site
- Review artificial light monitoring at the wildlife habitat.

Following completion of a new project or modification/upgrade of the lighting system of an existing project, the project should be audited to confirm compliance with the artificial light management plan.

Step-by-Step Guide

The steps to carry out an artificial light audit include:

- Review of the artificial light management plan
- Review of best practice light management or approval conditions
- Review of as-built drawings for the lighting design
- Check for compliance with the approved pre-construction (front end) lighting design;
- Conduct a site inspection both during the day and at night to visually check and measure the placement, number, intensity, spectral power output, orientation, and management of each lamp and lamp type. Where possible this should be done with the lighting in operation and with all lighting extinguished.
- Measurements should be taken in a biologically meaningful way. Where there are limitations in measurements for wildlife these should be acknowledged.
- Record, collate and report on the findings and include any non-conformances. This
 should consider any differences between baseline and post construction observations.
 Where lighting outputs were modelled as part of the design phase, actual output should
 be compared with modelled scenarios.
- Make recommendations for any improvements or modifications to the lighting design that will decrease the impact on wildlife.

The audit should be conducted by an appropriately qualified environmental practitioner/technical specialist during a site visit. The audit should also include:

- A visual inspection of the facility lighting from the location of the wildlife habitat and where feasible the perspective of the wildlife (i.e. sand level for a marine turtle)
- Artificial light monitoring at the project site
- Artificial light monitoring at the wildlife habitat.

A post-construction site visit is critical to ensure no previously unidentified lighting issues are overlooked.

Appendix E – Artificial Light Management Check List

Table 2 provides a check list of issues to be considered during the environmental assessment of new infrastructure involving artificial light, or upgrades to existing artificial lighting for both proponents and assessors. Table 3 provides a check list of issues to be considered for existing infrastructure with external lighting where listed species are observed to be impacted by artificial light. Relevant sections of the Guidelines are provided for each issue.

Table 2 Checklist for new developments or lighting upgrades.

Issue to be considered	Light owner or manager	Regulator	Further information
Pre-development			
What are the regulatory requirements for artificial light for this project?	Is an environmental impact assessment required? What other requirements need to be addressed?	What information should be sought from the proponent as part of the assessment process?	Regulatory considerations for the management of artificial light
Does the lighting design follow principles of best practice?	What is the purpose of the artificial light for this project?	Does the project use the principles of best practice light design?	Best practice light design
What wildlife is likely to be affected by artificial light?	Review species information within 20 km of the proposed development.	Assess species information.	Wildlife and artificial light
What light management and impact mitigation will be implemented?	What light mitigation and management will be most effective for the affected species?	Is the proposed management and mitigation likely to reduce the effect on listed species?	Species specific technical appendices and species expert guidance
How will light be modelled?	Is light modelling appropriate? How will the model be used to inform light management for wildlife?	Are the limitations of light modelling for wildlife appropriately acknowledged?	Modelling predicted light
Have all lighting-relevant considerations been included in the light management plan?	Have all steps in the EIA process been undertaken and documented in the light management plan?	Does the light management plan comprehensively describe all steps in the EIA process?	Environmental impact assessment for effects of artificial light on wildlife Light Management Plan
How will continuous improvement be achieved?	How will light management be evaluated and adapted?	Is a continuous review and improvement process described?	Light Management Plan

Issue to be considered	Light owner or manager	Regulator	Further information			
Post development	Post development					
How will lighting be measured?	What is the most appropriate technique(s) for measuring biologically relevant light and what are the limitations?	Ensure appropriate light measurement techniques are used and limitations of the methods recognised.	Measuring biologically relevant light			
How will lighting be audited?	What is the frequency and framework for in-house light auditing?	How will the results of light audits feedback into a continuous improvement process?	Artificial light auditing			
Is artificial light affecting wildlife?	Does the biological monitoring indicate an effect of artificial light on fauna and what changes will be made to mitigate this impact?	Is there a process for addressing monitoring results that indicate there is a detectable light impact on wildlife, and is it appropriate?	Wildlife and artificial light Light Management Plan Managing existing light pollution			
What adaptive management can be introduced?	How will the results of light audits and biological monitoring be used in an adaptive management framework, and how will technological developments be incorporated into artificial light management?	What conditions can be put in place to ensure a continuous improvement approach to light management?	Light Management Plan			

Table 3 Checklist for existing infrastructure

Consideration	Light owner or manager	Regulator	Further information
Are wildlife exhibiting a change in survivorship, behaviour or reproduction that can be attributed to artificial light?	What listed species are found within 20 km of light source? Are there dead animals or are animals displaying behaviour consistent with the effects of artificial light?	Is there evidence to implicate artificial light as the cause of the change in wildlife survivorship, behaviour or reproductive output? Review existing environmental approvals.	Describe wildlife Wildlife and artificial light Regulatory considerations for the management of light Species expert advice
Is lighting in the area best practice?	Are there modifications or technological upgrades that could be made to improve artificial light management?	Are there individual light owners or managers who can be approached to modify current lighting?	Principles of best practice light management
Is the light affecting wildlife	Are there multiple stakeholders that	Is there a role for government to facilitate	Managing existing light pollution
from a single source or multiple sources?	need to come together to address the cumulative light pollution?	collaboration between light owners and managers to address light pollution?	Light Management Plan
Can appropriate monitoring be undertaken to confirm the role of artificial light in wildlife survivorship, behavioural or reproductive output changes?	How much light is emitted from my property and is it affecting wildlife?	Facilitate wildlife monitoring.	Field surveys for wildlife Measuring biologically relevant light Species expert advice
How will artificial light be audited?	What is the frequency and framework for in-house light auditing?	Can a light audit be undertaken on a regional scale?	Artificial light auditing
What adaptive light management can be introduced?	Are there improvements in lighting technology that can be incorporated into existing lighting?	What changes can be implemented in response to biological monitoring and light audits?	Specialist lighting engineer advice

Appendix F - Marine Turtles

Marine turtles nest on sandy beaches in northern Australia. There is a robust body of evidence demonstrating the effect of light on turtle behaviour and survivorship. Light is likely to affect the turtles if it can be seen from the nesting beach, nearshore or adjacent waters.

Adult females may be deterred from nesting where artificial light is visible on a nesting beach. Hatchlings may become misoriented or disoriented and be unable to find the sea or successfully disperse to the open ocean. The effect of light on turtle behaviour has been observed from lights up to 18 km away.

The physical aspects of light that have the greatest effect on turtles include intensity, colour (wavelength), and elevation above beach. Management of these aspects will help reduce the threat from artificial light.

Six species of marine turtles are found in Australia: the green (*Chelonia mydas*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*), olive ridley (*Lepidochelys olivacea*), flatback (*Natator depressus*) and leatherback (*Dermochelys coriacea*) turtles.

Light pollution was identified as a high-risk threat in the *Recovery Plan for Marine Turtles in Australia (2017)* because artificial light can disrupt critical behaviours such as adult nesting and hatchling orientation, sea finding and dispersal, and can reduce the reproductive viability of turtle stocks⁵⁷. A key action identified in the Recovery Plan was the development of guidelines for the management of light pollution in areas adjacent to biologically sensitive turtle habitat.



Figure 27 Loggerhead turtle. Photo: David Harasti.

Conservation Status

Marine turtles in Australia are protected under international treaties and agreements including the Convention on the Conservation of Migratory Species of Wild Animals (CMS, Bonn 1979), the Convention on International Trade in Endangered Species of Flora and Fauna (CITES, Washington 1973), and the CMS Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-east Asia (IOSEA, 2005). In Australia, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) gives effect to these international obligations.

All six species are listed under the EPBC Act as threatened, migratory and marine species. They are also protected under state and territory legislation.

The *Recovery Plan for Marine Turtles in Australia* (2017) identifies threats to marine turtles and actions required to recover these species⁵⁷. To ensure the maintenance of biodiversity, the Plan considers marine turtles on a genetic stock basis rather than the species level. The Plan found light pollution to be a high-risk threat to five of 22 genetic stocks of marine turtles. The development and implementation of best practice light management guidelines was identified as a key action for promoting the recovery of marine turtles⁵⁷.

Distribution

Turtle nesting habitats include sub-tropical and tropical mainland and offshore island beaches extending from northern New South Wales on the east coast around northern Australia to Shark Bay in Western Australia. The extent of the known nesting range for each genetic stock can be found on the Department of the Environment and Energy's <u>Species Profile and Threats Database</u> and in the <u>Recovery Plan</u>⁵⁷.

Timing of nesting and hatching

Marine turtles nesting in the far north, between the Kimberley and Cape York, typically nest year round, but have a peak during the cooler winter months, while summer nesting is favoured by turtles nesting from the Central Kimberley south in Western Australia and along the Pacific coast of Queensland and Northern New South Wales. Specific timing of nesting and hatching seasons for each stock can be found in the <u>Recovery Plan</u>⁵⁷.

Important habitat for marine turtles

The effect of artificial lights on turtles is most pronounced at nesting beaches and in the nearshore waters, which might include internesting areas, through which hatchlings travel to reach the ocean. For the purposes of these Guidelines, Important Habitat for turtles includes all areas that have been designated as **Habitat Critical to Survival of Marine Turtles** and **Biologically Important Areas (BIAs)**, or in Queensland areas identified under local planning schemes as **Sea Turtle Sensitive Areas**.

Habitat Critical to the Survival of Marine Turtles was identified for each stock as
part of the development of the <u>Recovery Plan for Marine Turtles in Australia (2017)</u>.
Nesting and internesting areas designated as Habitat Critical to the Survival of Marine
Turtles can be found in the Recovery Plan or through the Department of the
Environment and Energy's <u>National Conservation Values Atlas</u>.

- Biologically Important Areas (BIAs) are areas where listed threatened and migratory species display biologically important behaviour such as breeding, foraging, resting and migration. BIAs of highest relevance for the consideration of light impacts are nesting and internesting BIAs for each species. Marine turtle BIAs can be explored through the Department of the Environment and Energy's National Conservation Values Atlas.
 - The presence of a BIA recognises that biologically important behaviours are known to occur, but the absence of such a designation does not preclude the area from being a BIA. Where field surveys identify biologically important behaviour occurring, the habitat should be managed accordingly.
- Sea Turtle Sensitive Areas have been defined in local government planning schemes in accordance with the Queensland Government Sea Turtle Sensitive Area Code. These may be shown in local government biodiversity of coastal protection overlay maps in the planning scheme.

Effects of Artificial Light on Marine Turtles

The effect of artificial light on turtle behaviour has been recognised since 1911⁵⁸ and since then a substantial body of research has focused on how light affects turtles and its effect on turtle populations - for review see Witherington and Martin (2003)³; Lohmann et al (1997)⁴⁸; and Salmon (2003)⁵⁹. The global increase in light pollution from urbanisation and coastal development⁶⁰ is of particular concern for turtles in Australia since their important nesting habitat frequently overlaps with areas of large-scale urban and industrial development⁶¹, which have the potential to emit a large amount of light, including direct light, reflected light, sky glow and gas flares^{62,63}. Nesting areas on the North West Shelf of Western Australia and along the south-eastern coast of Queensland were found to be at the greatest risk from artificial light⁶¹.

Effect of artificial light on nesting turtles

Although they spend most of their lives in the ocean, females nest on sandy tropical and subtropical beaches, predominantly at night. They rely on visual cues to select nesting beaches and orient on land. Artificial night lighting on or near beaches has been shown to disrupt nesting behaviour³. Beaches with artificial light, such as urban developments, roadways, and piers typically have lower densities of nesting females than dark beaches^{59,64}.

Some light types do not appear to affect nesting densities (Low Pressure Sodium, LPS¹⁵, and filtered High Pressure Sodium, HPS), which excludes wavelengths below 540 nm)⁶⁵. On beaches exposed to light, females will nest in higher numbers in areas that are shadowed^{14,66}. Moving sources of artificial light may also deter nesting or cause disturbance to nesting females (e.g. flash photography)⁶⁷.

Effect of artificial light on hatchlings emerging from the nest

Most hatchling turtles emerge at night⁶⁸ and must rapidly reach the ocean to avoid predation⁶⁹. Hatchlings locate the ocean using a combination of topographic and brightness cues, orienting towards the lower, brighter oceanic horizon and away from elevated darkened silhouettes of dunes and/or vegetation behind the beach^{37,48,70}. They can also find the sea using secondary cues such as beach slope⁴⁸.

Sea finding behaviour may be disrupted by artificial lights, including flares⁶², which interfere with natural lighting and silhouettes^{3,26,37}. Artificial lighting may adversely affect hatchling sea finding behaviour in two ways: disorientation - where hatchlings crawl on circuitous paths; or misorientation - where they move in the wrong direction, possibly attracted to artificial lights^{3,39}. On land, movement of hatchlings in a direction other than the sea often leads to death from predation, exhaustion, dehydration, or being crushed by vehicles on roads⁶⁹.

Wavelength, intensity and direction

Brightness is recognised as an important cue for hatchlings as they attempt to orient toward the ocean. Brightness refers to the intensity and wavelength of light relative to the spectral sensitivity of the receiving eye³. Both field and laboratory-based studies indicate that hatchlings have a strong tendency to orient towards the brightest direction. The brightest direction on a naturally dark beach is typically towards the ocean where the horizon is open and unhindered by dune or vegetation shadows⁷⁰.

The attractiveness of hatchlings to light differs by species ^{63,71,72}, but in general, artificial lights most disruptive to hatchlings are those rich in short wavelength blue and green light (e.g. metal halide, mercury vapour, fluorescent and LED) and lights least disruptive are those emitting long wavelength pure yellow-orange light (e.g. high or low pressure sodium vapour)^{63,73}. Loggerhead turtles are particularly attracted to light at 580 nm⁷⁴, green and flatback turtles are attracted to light <600 nm with a preference to shorter wavelength light over longer wavelength light^{63,73}, and many species are also attracted to light in the ultra violet range (<380 nm)^{72,73}.

Although longer wavelengths of light are less attractive than shorter wavelengths, they can still disrupt sea finding^{37,63,75}, and if bright enough can elicit a similar response to shorter wavelength light⁷⁶⁻⁷⁸. Hence, the disruptive effect of light on hatchlings is also strongly correlated with intensity. Red light must be almost 600 times more intense than blue light before green turtle hatchlings show an equal preference for the two colours⁷⁶. It is therefore important to consider both the wavelength and the intensity of the light.

Since the sun or moon may rise behind the dunes on some nesting beaches, hatchlings attracted to these point sources of light would fail to reach the ocean. Hatchlings orientate themselves by integrating light across a horizontally broad (180° for green, olive ridley and loggerhead turtles) and vertically narrow ("few degrees" for green and olive ridleys, and 10° - 30° for loggerheads) "cone of acceptance" or "range of vision". This integration ensures that light closest to the horizon plays the greatest role in determining orientation direction, so it is important to consider the type and direction of light that reaches the hatchling⁴⁸.

As a result of these sensitivities, hatchlings have been observed to respond to artificial light up to 18 km away during sea finding²⁶.

Shape and form

Horizon brightness and elevation are also important cues for hatchling orientation. In laboratory and field studies hatchlings move away from elevated dark horizons and towards the lowest bright horizon^{70,79}. However, in situations where both cues are present, hatchlings are more responsive to the effects of silhouettes and darkened horizon elevation than to differences in brightness. On a natural beach this behaviour would direct the hatchlings away from dunes and vegetation and towards the more open horizon over the ocean.

This hypothesis has been supported by field experiments where hatchling sea finding was significantly less ocean oriented when exposed to light at 2° elevation compared with 16° elevation, emphasising the importance of horizon elevation cues in hatchling sea-finding³⁷.

Effect of artificial light on hatchlings in nearshore waters

Artificial lights can also interfere with the in water dispersal of hatchlings⁷². Hatchlings leaving lit beaches spend longer crossing near shore waters and can be attracted back to shore^{80,81}. At sea, hatchlings have been reported swimming around lights on boats^{33,82} and in laboratory studies lights have attracted swimming hatchlings⁸³. Recent advances in acoustic telemetry technology has allowed hatchlings to be passively tracked at sea, demonstrating that hatchlings are attracted to lights at sea and spend longer in the nearshore environment when lights are present^{16,84}. This attraction can divert hatchlings from their usual dispersal pathway, causing them to linger around a light source, or become trapped in the light spill⁸⁴. Hatchlings actively swim against currents to reach light, which is likely to reduce survival either from exhaustion and/or predation. An additional problem is that light sources are associated with structures that also attract fish (such as jetties), as there will be increased predation²⁴.

Environmental Impact Assessment of Artificial Light on Marine Turtles

Infrastructure with artificial lighting that is externally visible should implement Best Practice
Lighting Design as a minimum. Where there is important habitat for turtles within 20 km of a project, an EIA should be undertaken. The following sections step through the EIA process with specific consideration for turtles.

The 20 km buffer for considering important habitat is based on sky glow approximately 15 km from the nesting beach affecting flatback hatchling behaviour²⁶ and light from an aluminium refinery disrupting turtle orientation 18 km away²⁷.

Where artificial light is likely to influence marine turtle behaviour, consideration should be given to employing mitigation measures as early as possible in a project's life cycle and used to inform the design phase.

Associated guidance

- Recovery Plan for Marine Turtles in Australia (2017)
- <u>Single Species Action Plan for the Loggerhead Turtle (Caretta caretta) in the South</u> <u>Pacific Ocean</u>
- Queensland Government Sea Turtle Sensitive Area Code

Qualified personnel

Lighting design/management and the EIA process should be undertaken by appropriately qualified personnel. Light management plans should be developed and reviewed by appropriately qualified lighting practitioners who should consult with an appropriately qualified marine biologist or ecologist.

People advising on the development of a lighting management plan, or the preparation of reports assessing the impact of artificial light on marine turtles should have relevant qualifications equivalent to a tertiary education in marine biology or ecology, or equivalent experience as evidenced by peer reviewed publications in the last five years on a relevant topic, or other relevant experience.

Step 1: Describe the project lighting

Information collated during this step should consider the <u>Effects of Light on Marine Turtles</u>. Turtles are susceptible to the effect of light on beaches and in the water, so the location and light source (both direct and sky glow) should be considered. Turtles are most sensitive to short wavelength (blue/green) light and high intensity light of all wavelengths. Hatchlings are most susceptible to light low on the horizon. They orient away from tall dark horizons so the presence of dunes and/or a vegetation buffer behind the beach should be considered at the design phase.

Step 2: Describe marine turtle population and behaviour

The species and the genetic stock nesting in the area of interest should be described. This should include the conservation status of the species; stock trends (where known); how widespread/localised nesting for that stock is; the abundance of turtles nesting at the location; the regional importance of this nesting beach; and the seasonality of nesting/hatching.

Relevant species and stock specific information can be found in the <u>Recovery Plan for Marine Turtles in Australia (2017)</u>, <u>Protected Matters Search Tool</u>, <u>National Conservation Values Atlas</u> state and territory listed species information; scientific literature and local/Indigenous knowledge.

Where there is insufficient data to understand the population importance or demographics, or where it is necessary to document existing turtle behaviour, field surveys and biological monitoring may be necessary.

Biological monitoring of marine turtles

Any monitoring associated with a project should be developed, overseen and results interpreted by appropriately <u>qualified personnel</u> to ensure reliability of the data.

The objectives of turtle monitoring in an area likely to be affected by artificial light are to:

- understand the size and importance of the population;
- describe turtle behaviour before the introduction/upgrade of light; and
- assess nesting and hatchling orientation behaviour to determine the cause of any existing or future misorientation or disorientation.

The data will be used to inform the EIA and assess whether mitigation measures are successful. Suggested minimum monitoring parameters (what is measured) and techniques (how to measure them) are summarised in Table 4.

As a minimum, qualitative descriptive data on visible light types, location and directivity should also be collected at the same time as the biological data. Handheld-camera images can help describe the light. Quantitative data on existing sky glow should be collected, if possible, in a biologically meaningful way, recognising the technical difficulties in obtaining these data. See Measuring Biologically Relevant Light for a review.

Table 4 Recommended minimum biological information necessary to assess the importance of a marine turtle population and existing behaviour, noting that the risk assessment will guide the extent of monitoring (e.g. a large source of light visible over a broad spatial scale will require monitoring of multiple sites whereas a smaller localised source of light may require fewer sites to be monitored).

Target Age Class	Survey Effort	Duration	Reference
Adult Nesting	Daily track census over 1–1.5 internesting cycles at peak ⁵⁷ of the nesting season (14–21 days). If the peak nesting period for this population/at this location has not been defined, then a study should be designed in consultation with a qualified turtle biologist to determine the temporal extent of activity (i.e. systematic monthly surveys over a 12-month period).	Minimum two breeding seasons	Eckert et al (1999) ⁸⁵ Pendoley et al (2016) ⁸⁶ Queensland Marine Turtle Field Guide NWSFTCP Turtle Monitoring Field Guide Ningaloo Turtle Monitoring Field Guide SWOT Minimum Data Standards for Sea Turtle Nesting Beach Monitoring
Hatchling Orientation	Minimum of 14 days over a new moon phase about 50 days* after the peak of adult nesting. Beach: Hatchling fan monitoring. In water: Hatchling tracking	Minimum two breeding seasons	Pendoley (2005) ⁶³ Kamrowski et al (2014) ²⁶ Witherington (1997) ⁸⁷ Thums et al (2016) ¹⁶

^{*}Incubation time will be stock specific. Consult the Recovery Plan for Marine Turtles in Australia for stock specific information.

To understand existing hatchling behaviour, it will be necessary to undertake monitoring (or similar approach) to determine hatchling ability to locate the ocean and orient offshore prior to construction/lighting upgrades.

A well-designed monitoring program will capture:

- hatchling behaviour^{26,63,87} at the light exposed beach and a control/reference beach
- hatchling behaviour before project construction begins to establish a benchmark to measure against possible changes during construction and operations
- hatchling behaviour on a new moon to reduce the influence of moonlight and capture any worst case scenario effects of artificial light on hatching orientation
- hatchling behaviour on full moon nights to assess the relative contribution of the artificial light to the existing illuminated night sky.

Ideally, survey design will have been set up by a quantitative ecologist/biostatistician to ensure that the data collected provides for meaningful analysis and interpretation of findings.

Step 3: Risk assessment

The <u>Recovery Plan</u> states that management of light should ensure turtles are not displaced from habitat critical to their survival and that anthropogenic activities in important habitat are managed so that the biologically important behaviour can continue. These consequences should be considered in the risk assessment process. The aim of these Guidelines is that light is managed to ensure that at important nesting beaches females continue to nest on the beach, post nesting females return to the ocean successfully, emerging hatchlings orient in a seaward direction and dispersing hatchlings can orient successfully offshore.

Consideration should be given to the relative importance of the site for nesting. For example, if this is the only site at which a stock nests, a higher consequence rating should result from the effects of artificial light.

In considering the likely effect of light on turtles, the risk assessment should consider the existing light environment, the proposed lighting design and mitigation/management, and the behaviour of turtles at the location. Consideration should be given to how the turtles will perceive light. This should include wavelength and intensity information as well as perspective. To assess how/whether turtles are likely to see light, a site visit should be made at night and the area viewed from the beach (approximately 10 cm above the sand) as this will be the perspective of the nesting turtles and emerging hatchlings. Similarly, consideration should be given to how turtles (both adults and hatchlings) will see light when in nearshore water.

Using this perspective, the type and number of lights should be considered to assess whether turtles are likely to be able to perceive light and what the consequence of the light on their behaviour is likely to be. The risk assessment should take into account proposed mitigation and management.

Step 4: Light management plan

A light management plan for marine turtles should include all relevant project information (Step 1) and biological information (Step 2). It should outline proposed mitigation. For a range of specific mitigation measures see the Mitigation Toolbox below. The plan should also outline the type and schedule for biological and light monitoring to ensure mitigation is meeting the objectives of the plan and triggers for revisiting the risk assessment phase of the EIA. The plan should outline contingency options if biological and light monitoring or compliance audits indicate that mitigation is not meeting the objectives of the plan (e.g. light is visible on the nesting beach or changes in nesting/hatchling behaviour are observed).

Step 5: Biological and light monitoring and auditing

The success of risk mitigation and light management should be confirmed through monitoring and compliance auditing. The results should be used to inform continuous improvement.

Relevant biological monitoring is described in Step 2: Describe marine turtle population and behaviour above. Concurrent light monitoring should be undertaken and interpreted in the context of how turtles perceive light and within the limitations of monitoring techniques described in Measuring Biologically Relevant Light. Auditing as described in the light management plan should be undertaken.

Review

The EIA should incorporate a continuous improvement review process that allows for upgraded mitigations, changes to procedures and renewal of the light management plan.

Marine Turtle Light Mitigation Toolbox

Appropriate lighting design/lighting controls and light impact mitigation will be site/project and species specific. Table 5 provides a toolbox of options for use around important turtle habitat. These options would be implemented in addition to the six Best Practice Light Design principles. Not all mitigation options will be relevant for every situation. Table 6 provides a suggested list of light types appropriate for use near turtle nesting beaches and those to avoid.

Two of the most effective approaches for management of light near important nesting beaches is to ensure there is a tall dark horizon behind the beach such as dunes and/or a natural vegetation screen and to ensure there is no light on or around the water through which hatchlings disperse.

Table 5 Light management options specific to marine turtle nesting beaches.

Management Action	Detail
Implement light management actions	Peak nesting season for each stock can be found in
during the nesting and hatching season.	the Recovery Plan for Marine Turtles in Australia ⁵⁷ .
Avoid direct light shining onto a nesting beach or out into the ocean adjacent to a nesting beach.	Adult turtles nest in lower numbers at lit beaches ¹⁴ .
Maintain a dune and/or vegetation screen	Hatchlings orient towards the ocean by crawling away
between the nesting habitat and inland	from the tall, dark horizon provided by a dune line
sources of light.	and/or vegetation screen.
Maintain a dark zone between turtle	Avoid installing artificial light within 1.5 km of an
nesting beach and industrial infrastructure	industrial development ⁷⁸ .
Install light fixtures as close to the ground as practicable.	Any new lighting should be installed close to the ground and reduce the height of existing lights to the extent practicable to minimise light spill and light glow.
Use curfews to manage lighting.	Mange artificial lights using motion sensors and timers around nesting beaches after 8 pm.
Aim lights downwards and direct them away from nesting beaches.	Aim light onto the exact surface area requiring illumination. Use shielding on lights to prevent light spill into the atmosphere and outside the footprint of the target area.
Use flashing/intermittent lights instead of fixed beam.	For example, small red flashing lights can be used to identify an entrance or delineate a pathway.
Use motion sensors to turn on lights only when needed.	For example, motion sensors could be used for pedestrian areas near a nesting beach.
Prevent indoor lighting reaching beach.	Use fixed window screens or window tinting on fixed windows, skylights and balconies to contain light inside buildings.
Limit the number of beach access areas or construct beach access such that artificial light is not visible through the access point.	Beach access points often provide a break in dune or vegetation that protects the beach from artificial light. By limiting the number of access points or making the access path wind through the vegetation, screen light spill can be mitigated.
Work collectively with surrounding industry/private land holders to address the cumulative effect of artificial lights.	Problematic sky glow may not be caused by any one light owner/manager. By working with other industry/stakeholders to address light pollution, the effect of artificial light may be reduced more effectively.

Management Action	Detail
Manage artificial light at sea, including on vessels, jetties, marinas and offshore infrastructure.	Hatchlings are attracted to, and trapped by, light spill in the water.
Reduce unnecessary lighting at sea.	Extinguish vessel deck lights to minimum required for human safety and when not necessary. Restrict lighting at night to navigation lights only. Use block-out blinds on windows.
Avoid shining light directly onto longlines and/or illuminating baits in the water.	Light on the water can trap hatchlings or delay their transit through nearshore waters, consuming their energy reserves and likely exposing them to predators.
Avoid lights containing short wavelength violet/blue light.	Lights rich in blue light can include: metal halides, fluorescent, halogens, mercury vapour and most LEDs.
Avoid white LEDs.	Ask suppliers for an LED light with little or no blue in it or only use LEDs filtered to block the blue light. This can be checked by examining the spectral power curve for the luminaire.
Avoid high intensity light of any colour.	Keep light intensity as low as possible in the vicinity of nesting beaches. Hatchlings can see all wavelengths of light and will be attracted to long wavelength amber and red light as well as the highly visible white and blue light, especially if there is a large difference between the light intensity and the ambient dark beach environment.
Shield gas flares and locate inland and away from nesting beach.	Manage gas flare light emissions by: reducing gas flow rates to minimise light emissions; shielding the flame behind a containment structure; elevating glow from the shielded flare more than 30° above hatchling field of view; containing pilot flame for flare within shielding; and scheduling maintenance activity requiring flaring outside of turtle hatchling season.
Industrial/port or other facilities requiring intermittent night-time light for inspections should keep the site dark and only light specific areas when required.	Use amber/orange explosion proof LEDs with smart lighting controls and/or motions sensors. LEDs have no warmup or cool down limitations so can remain off until needed and provide instant light when required for routine nightly inspections or in the event of an emergency.
Industrial site/plant operators to use head torches.	Consider providing plant operators with white head torches (explosion proof torches are available) for situations where white light is needed to detect colour correctly or when there is an emergency evacuation.
Supplement facility perimeter security lighting with computer monitored infra-red detection systems.	Perimeter lighting can be operated if night-time illumination is necessary, but remain off at other times.
No light source should be directly visible from the beach.	Any light that is directly visible to a person on a nesting beach will be visible to a nesting turtle or hatchling and should be modified to prevent it being seen.

Management Action	Detail
Manage light from remote regional sources (up to 20km away).	Consider light sources up to 20 km away from the nesting beach, assess the relative visibility and scale of the night sky illuminated by the light e.g. is a regional city illuminating large area of the horizon and what management actions can be taken locally to reduce the effect i.e. protect or improve dune systems or plant vegetation screening in the direction of the light.

Table 6 Where all other mitigation options have been exhausted and there is a human safety need for artificial light, this table provides commercial luminaire types that are considered appropriate for use near important marine turtles nesting habitat and those to avoid.

Light type	Suitability for use near marine turtle habitat
Low Pressure Sodium Vapour	✓
High Pressure Sodium Vapour	✓
Filtered* LED	\checkmark
Filtered* metal halide	\checkmark
Filtered* white LED	✓
Amber LED	~
PC Amber	✓
White LED	×
Metal halide	×
White fluorescent	×
Halogen	×
Mercury vapour	×

^{* &#}x27;Filtered' means LEDs can be used *only* if a filter is applied to remove the short wavelength (400 - 500 nm) light.

Appendix G - Seabirds

Seabirds spend most of their lives at sea, only coming ashore to nest. All species are vulnerable to the effects of lighting. Seabirds active at night while migrating, foraging or returning to colonies are most at risk.

Fledglings are more affected by artificial lighting than adults due to the synchronised mass exodus of fledglings from their nesting sites. They can be affected by lights up to 15 km away.

The physical aspects of light that have the greatest impact on seabirds include intensity and colour (wavelength). Consequently, management of these aspects of artificial light will have the most effective result.

Seabirds are birds that are adapted to life in the marine environment (Figure 28). They can be highly pelagic, coastal, or in some cases spend a part of the year away from the sea entirely. They feed from the ocean either at or near the sea surface. In general, seabirds live longer, breed later and have fewer young than other birds and invest a great deal of energy in their young. Most species nest in colonies, which can vary in size from a few dozen birds to millions. Many species undertake long annual migrations, crossing the equator or circumnavigating the Earth in some cases⁸⁸.

Artificial light can disorient seabirds and potentially cause injury and/or death through collision with infrastructure. Birds may starve as a result of disruption to foraging, hampering their ability to prepare for breeding or migration. High mortality of seabirds occurs through grounding of fledglings as a result of attraction to lights⁴ and through interaction with vessels at sea.



Figure 28 Flesh-footed Shearwater at sunset. Photo: Richard Freeman.

Conservation Status

Migratory seabird species in Australia are protected under international treaties and agreements including the *Convention on the Conservation of Migratory Species of Wild Animals* (CMS, Bonn Convention), the *Ramsar Convention on Wetlands*, the *Agreement on the Conservation of Albatrosses and Petrels* (ACAP), and through the East Asian - Australasian Flyway Partnership (the Flyway Partnership). The Australian Government has bilateral migratory bird agreements with Japan (Japan-Australia Migratory Bird Agreement, JAMBA), China (China-Australia Migratory Bird Agreement, CAMBA), and the Republic of Korea (Republic of Korea-Australia Migratory Bird Agreement, ROKAMBA). In Australia the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) gives effect to these international obligations. Many seabirds are also protected under state and territory environmental legislation.

An estimated 15.5 million pairs of seabirds, from 43 species, breed at mainland and island rookeries⁴. Of the 43 species, 35 are listed as threatened and/or migratory under the EPBC Act. Of the 35 EPBC Act listed species, 90 per cent are Procellariiformes (petrels, shearwaters, storm petrels, gadfly petrels and diving petrels) that breed in burrows, only attend breeding colonies at night⁸⁹, and are consequently most at risk from the effects of artificial light. Short-tailed Shearwaters comprise 77 per cent (11.9 million pairs) of the total breeding seabird pairs.

Distribution

Seabirds in Australia belong to both migratory and residential breeding species. Most breeding species include both temperate and tropical shearwaters and terns that undergo extensive migrations to wintering areas outside Australia's Exclusive Economic Zone (EEZ). However, there are significant numbers of residential species that remain within the EEZ throughout the year and undergo shorter migrations to non-breeding foraging grounds within the EEZ.

Timing of habitat use

Most seabird breeding occurs during the austral spring/summer (September-January), but may extend in some species to April/May. The exceptions are the austral winter breeders, a handful of species largely comprised of petrels that may commence nesting in June. Breeding occurs almost exclusively on many of the offshore continental islands that surround Australia. Seabirds spend most of their time flying, at sea, and so are usually found on breeding islands only during the breeding season, or along mainland coastal sand bars and spits or island shorelines when roosting during their non-breeding period.

Important habitat for seabirds

Seabirds may be affected by artificial light at breeding areas, while foraging and migrating. For the purposes of these Guidelines, Important Habitat for seabirds includes all areas that have been designated as Habitat Critical to the Survival of Seabirds and Biologically Important Areas (BIAs) and those areas designated as important habitat in wildlife conservation plans and in species specific conservation advice.

- The <u>National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016</u>* provides designated Habitat Critical to the Survival of these species. Where a recovery plan is not in force for a listed threatened species, please see relevant approved conservation advice.
- Actions in Antarctica should consider <u>Important Bird Areas in Antarctica</u>⁹⁰.
- Biologically Important Areas (BIAs) are areas where listed threatened and migratory species display biologically important behaviour, such as breeding, foraging, resting and migration. Seabird BIAs can be explored through the Department of the Environment and Energy's National Conservation Values Atlas.
 - The presence of a BIA recognises that biologically important behaviours are known to occur, but the absence of such a designation does not preclude the area from being a BIA. Where field surveys identify biologically important behaviour occurring, the habitat should be managed accordingly.

Effects of Artificial Light on Seabirds

Seabirds have been affected by artificial light sources for centuries. Humans used fire to attract seabirds to hunt them for food⁹¹ and reports of collisions with lighthouses date back to 1880⁹². More recently artificial light associated with the rapid urbanisation of coastal areas has been linked to increased seabird mortality⁹³ and today, 56 petrel species worldwide are known to be affected by artificial lighting^{4,31}. Artificial light can disorient seabirds causing collision, entrapment, stranding, grounding, and interference with navigation (being drawn off course from usual migration route). These behavioural responses may cause injury and/or death.

All species active at night are vulnerable as artificial light can disrupt their ability to orient towards the sea. Problematic sources of artificial light include coastal residential and hotel developments, street lighting, vehicle lights, sporting facility floodlights, vessel deck and search lights, cruise ships, fishing vessels, gas flares, commercial squid vessels, security lighting, navigation aids and lighthouses^{31,93,99}. Seabirds, particularly petrel species in the Southern Ocean, can be disoriented by vessel lighting and may land on the deck, from which they are unable to take off. The effect of artificial light may be exacerbated by moon phase⁹⁶, wind direction and strength^{28,100}, precipitation, cloud cover and the proximity of nesting sites or migrating sites to artificial light sources¹⁰¹⁻¹⁰³. The degree of disruption is determined by a combination of physical, biological and environmental factors including the location, visibility, colour and intensity of the light, its proximity to other infrastructure, landscape topography, moon phase, atmospheric and weather conditions and species present.

^{*} This legislative instrument is in force until 2021.

Seabirds that are active at night while migrating, foraging or returning to colonies and are directly affected include petrels, shearwaters, albatross, noddies, terns and some penguin species. Less studied are the effects of light on the colony attendance of nocturnal Procellariiformes, which could lead to higher predation risks by gulls, skuas or other diurnal predators, and the effects on species that are active during the day, including extending their activities into the night as artificial light increases perceived daylight hours.

High rates of fallout, or the collision of birds with structures, has been reported in seabirds nesting adjacent to urban or developed areas^{4,104,105} and at sea where seabirds interact with offshore oil and gas platforms^{106,107}. A report on interactions with oil and gas platforms in the North Sea identified light as the likely cause of hundreds of thousands of bird deaths annually. It noted that this could be a site specific impact¹⁰⁸.

Gas flares also affect seabirds. One anecdote describes 24 burnt carcasses of seabirds (wedge-tailed shearwaters) in and around an open pit gas flare. The birds were likely to have been attracted to the light and noise of the flare and as they circled the source, became engulfed, combusting in the super-heated air above the flame (pers. obs. K Pendoley, 1992).

Mechanisms by which light affects seabirds

Most seabirds are diurnal. They rest during dark hours and have less exposure to artificial light. Among species with a nocturnal component to their life cycle, artificial light affects the adult and fledgling differently.

Adults are less affected by artificial light. Many Procellariiformes species (i.e. shearwaters, storm petrels, gadfly petrels) are vulnerable during nocturnal activities, which make up part of the annual breeding cycle. Adult Procellariiformes species are vulnerable when returning to and leaving the nesting colony. They may leave or enter to re-establish their pair bonds with breeding partners, repair nesting burrows, defend nesting sites or to forage. Adults feed their chick by regurgitating partially digested food¹⁰⁹. A recent study shows artificial light disrupts adult nest attendance and thus affects weight gain in chicks¹¹⁰.

Fledglings are more vulnerable due to the naivety of their first flight, the immature development of ganglions in the eye at fledging and the potential connection between light and food^{104,111}. Burrow-nesting seabirds are typically exposed to light streaming in from the burrow entrance during the day. The young are fed by parents who enter the burrow from the entrance creating an association between light and food in newly fledged birds³¹. Much of the literature concerning the effect of lighting upon seabirds relates to the synchronised mass exodus of fledglings from their nesting sites^{96,98,101,102,112,113}. Fledging Procellariiformes leave the nesting colony for the sea at night⁸⁹, returning to breed several years later. In Australia, the main fledgling period of shearwaters occurs in April/May¹¹⁴.

Emergence during darkness is believed to be a predator-avoidance strategy¹¹⁵ and artificial lighting may make the fledglings more vulnerable to predation¹¹³. Artificial lights are thought to override the sea-finding cues provided by the moon and star light at the horizon¹¹⁶ and fledglings can be attracted back to onshore lights after reaching the sea^{28,105}. It is possible that fledglings that survive their offshore migration cannot imprint their natal colony, preventing them from returning to nest when they mature⁹⁸. The consequences of exposure to artificial light on the viability of a breeding population of seabirds is unknown¹¹⁷.

Eye structure and sensitivities

Seabirds, like most vertebrates, have an eye that is well adapted to see colour. Typically, diurnal birds have six photoreceptor cells which are sensitive to different regions of the visible spectrum¹¹⁸. All seabirds are sensitive to the violet – blue region of the visible spectrum (380 - 440 nm)¹¹⁹. The eyes of the Black Noddy (*Anous minutus*) and Wedge-tailed Shearwaters (*Puffinus pacificus*) are characterised by a high proportion of cones sensitive to shorter wavelengths¹²⁰. This adaptation is likely due to the need to see underwater, and the optimum wavelength for vision in clear blue oceanic water is between 425 and 500 nm. There is no ecological advantage to having many long-wavelength-sensitive photoreceptors in species foraging in this habitat¹²⁰.

Many diurnal birds can see in the UV range (less than 380 nm^{121}), however, of the 300 seabird species, only 17 have UV sensitive vision¹¹⁹. In all seabirds, their photopic vision (daylight adapted) is most sensitive in the long wavelength range of the visible spectrum (590 - 740 nm, orange to red) while their scotopic (dark adapted) vision is more sensitive to short wavelengths of light (380 - 485 nm, violet to blue).

Petrel vision is most sensitive to light in the short wavelength blue (400 - 500 nm), region of the visible spectrum. Relative to diurnal seabirds, such as gulls and terns, petrels have a higher number of short wavelength sensitive cones. This is thought to be an adaptation that increases prey visibility against a blue-water foraging field favoured by petrels¹²⁰.

Little has been published on vision in penguins. Penguins are visual foragers with the success of fish capture linked directly to the amount of light present¹²². The eyes of the Humbolt Penguin (*Spheniscus humboldti*) are adapted to the aquatic environment, seeing well in the violet to blue to green region of the spectrum, but poorly in the long wavelengths (red)¹²³.

Wavelength, intensity and direction

The intensity of light may be a more important cue than colour for seabirds. Very bright light will attract them, regardless of colour⁹⁸. There are numerous, although sometimes conflicting, reports of the attractiveness of different wavelengths of artificial light to seabirds. White light has the greatest effect on seabirds as it contains all wavelengths of light^{7,96,124}. Seabirds have reportedly been attracted to the yellow/orange colour of fire⁹¹, while white Mercury Vapour and broad-spectrum LED is more attractive to Barau's Petrel (*Pterodroma baraui*) and Hutton's Shearwater (*Puffinus huttoni*) than either Low or High-Pressure Sodium Vapour lights⁹⁶. Bright white deck lights and spot lights on fishing vessels attract seabirds at night, particularly on nights with little moon light or low visibility^{95,97,104}.

A controlled field experiment on Short-tailed Shearwaters at Phillip Island tested the effect of metal halide, LED and HPS lights on fledging groundings³². The results suggested the shearwaters were more sensitive to the wider emission spectrum and higher blue content of metal halide and LED lights relative than to HPS light. The authors strongly recommended using HPS, or filtered LED and metal halide lights with purpose designed LED filtered to remove short wavelength light for use in the vicinity of shearwater colonies³².

The first studies of penguins exposed to artificial light at a naturally dark site found they preferred lit paths over dark paths to reach their nests¹²⁵. While artificial light might enhance penguin vision at night, reducing predation risk and making it easier for them to find their way, the proven attraction to light could attract them to undesirable lit areas. This study concluded

that the penguins were habituated to artificial lights and were unaffected by a 15 lux increase in artificial illumination¹²⁵. However, the authors were unable to rule out an effect of artificial light on penguin behaviour due natural differences between the sites; potential complexity of penguin response to the interaction between artificial light and moonlight; and probable habituation of penguins to artificial lights.

Environmental Impact Assessment of Artificial Light on Seabirds

As a minimum, infrastructure with artificial lighting that is externally visible should have Best Practice Lighting Design implemented. Where there is important habitat for seabirds within 20 km of a project, an EIA should be undertaken. The following sections step through the EIA process with specific consideration for seabirds.

The 20 km buffer for considering important seabird habitat is based on the observed grounding of seabirds in response to a light source at least 15 km away²⁸.

The spatial and temporal characteristics of migratory corridors are important for some seabird species. Species typically use established migratory pathways at predictable times and artificial light intersecting with an overhead migratory pathway should be assessed in the same way as ground-based populations.

Where artificial light is likely to affect seabirds, consideration should be given to mitigation measures at the earliest point in a project development and used to inform the design phase.

Associated guidance

- National Recovery Plan for Threatened Albatrosses and Giant Petrels 2011-2016[†]
- EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species

Qualified personnel

Lighting design/management and the EIA process should be undertaken by appropriately qualified personnel. Light management plans should be developed and reviewed by appropriately qualified lighting practitioners who should consult with appropriately trained marine ornithologists and/or ecologists. People advising on the development of a lighting management plan, or the preparation of reports assessing the effect of artificial light on seabirds, should have relevant qualifications equivalent to a tertiary education in ornithology, or equivalent experience as evidenced by peer reviewed publications in the last five years on a relevant topic, or other relevant experience.

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[†] Please note that this legislative instrument is in force until 2021.

Step 1: Describe the project lighting

The type of information collated during this step should consider the biological Impact of Light on Seabirds. Seabirds are susceptible when active at night while migrating, foraging or returning to colonies. The location and light source (both direct and sky glow) in relation to breeding and feeding areas should be considered. Seabirds are sensitive to both short wavelength (blue/violet) and long (orange/red)⁹ light with some species able to detect UV light. However, the intensity of lights may be more important than colour.

Step 2: Describe seabird population and behaviour

The species, life stage and behaviour of seabirds in the area of interest should be described. This should include the conservation status of the species; abundance of birds; how widespread/localised is the population; regional importance of the population; and seasonality of seabirds utilising the area.

Relevant seabird information can be found in the, <u>National Recovery Plan for Threatened</u>
<u>Albatrosses and Giant Petrels 2011-2016</u>; <u>Protected Matters Search Tool; National</u>
<u>Conservation Values Atlas;</u> relevant conservation advice; relevant wildlife conservation plans; state and territory listed species information; scientific literature; and local/Indigenous knowledge.

Where there are insufficient data available to understand the population importance or demographics, or where it is necessary to document existing seabird behaviour, field surveys and biological monitoring may be necessary.

Biological monitoring of seabirds

Any biological monitoring associated with a project should be developed, overseen and results interpreted by an appropriately qualified biologist or ornithologist to ensure reliability of the data.

The objectives of monitoring in an area likely to be affected by light are to:

- understand the habitat use and behaviour of the population (e.g. migrating, foraging, breeding)
- understand the size and importance of the population
- describe seabird behaviour prior to the introduction/upgrade of light.

The data will be used to inform the EIA process and assess whether mitigation measures are successful. Suggested minimum monitoring parameters (what is measured) and techniques (how to measure them) are summarised in Table 7.

Table 7 Recommended minimum biological information necessary to assess the importance of a seabird population. Note: the information in this table is not prescriptive and should be assessed on a case-by-case basis.

Target Age Class	Survey Effort	Duration	Reference
Adult Nesting	In colonial nesting burrow or surface nesting species with fixed or transient nesting sites, a single survey timed to coincide with predicted peak laying period. • A minimum of three sampling areas (transects/quadrats) appropriate for nest density to capture ~100 nests per transect. Status of nests recorded (used/unused-chick stage). Transient surface nesting species estimate of chicks in crèches using aerial or drone footage. • A minimum of three sampling areas (transects/quadrats) appropriate for nest density to capture ~100 nests per transect. Status of nests recorded (used/unused- egg or chick).	Minimum of two breeding seasons	Henderson and Southwood (2016) ¹²⁶ Surman and Nicholson (2014) ¹²⁷ Survey Guidelines for Australia's Threatened Birds ¹²⁸
Fledging	In colonial nesting burrow or surface nesting species with fixed nesting sites, a single survey timed to coincide with predicted max fledging period.	Minimum of two breeding seasons	Henderson and Southwood (2016) ¹²⁶ Surman and Nicholson (2014) ¹²⁹

Additional seabird monitoring

- Monitor fledging behaviour before a project begins to establish a benchmark for assessing changes in fledging behaviour during construction and operations.
- Monitor fallout by assessing breeding colonies prior to fledging to assess annual breeding output/effort and measure against fallout (expecting greater fallout in years with higher reproductive output).
- Install camera traps at key locations to monitor fallout.
- Conduct nightly assessments of target lighting/areas to identify and collect grounded birds.
- Conduct observations post-dusk and pre-dawn with night vision goggles to assess activity/interactions.
- Track movement using land-based radar to determine existing flightpaths⁹⁸.

As a minimum, qualitative descriptive data on visible light types, location and directivity should also be collected at the same time as the biological data. Handheld camera images can help to describe the light. Quantitative data on existing sky glow should be collected, if possible, in a biologically meaningful way, recognising the technical difficulties in obtaining these data. See Measuring Biologically Relevant Light for a review.

Step 3: Risk assessment

The objective is that light should be managed in a way that seabirds are not disrupted within, or displaced from, important habitat, and they are able to undertake critical behaviours, such as foraging, reproduction and dispersal. These consequences should be considered in the risk assessment process. The aim of the process is to ensure that at important seabird rookeries, burrow usage remains constant, adults and fledglings are not grounded, and fledglings launch successfully from the rookery.

In considering the likely effect of light on seabirds, the assessment should consider the existing light environment, the proposed lighting design and mitigation/management, and behaviour of seabirds at the location. Consideration should be given to how the birds perceive light. This should include both wavelength and intensity information and perspective. To discern how/whether seabirds are likely to see light, a site visit should be made at night and the area viewed from the seabird rookery. Similarly, consideration should be given to how seabirds will see light when in flight.

Using this perspective, the type and number of lights should be considered/modelled to determine whether seabirds are likely to perceive light and what the consequence of the light on their behaviour is likely to be.

Step 4: Light management plan

This should include all relevant project information (Step 1) and biological information (Step 2). It should outline proposed mitigation. For a range of seabird specific mitigation measures please see the Seabird Mitigation Toolbox below. The plan should also outline the type and schedule for biological and light monitoring to ensure mitigation is meeting the objectives of the plan and triggers for revisiting the risk assessment phase of the EIA. The plan should outline contingency options if biological and light monitoring or compliance audits indicate that mitigation is not meeting objectives (e.g. light is visible in seabird rookeries or fallout rates increase).

Step 5: Biological and light monitoring and auditing

The success of the impact mitigation and light management should be confirmed through monitoring and compliance auditing and the results used to facilitate an adaptive management approach for continuous improvement.

Relevant biological monitoring is described in Step 2: Describe the Seabird Population above. Concurrent light monitoring should be undertaken and interpreted in the context of how seabirds perceive light and within the limitations of monitoring techniques described in Measuring Biologically Relevant Light. Auditing, as described in the light management plan, should be undertaken.

Review

The EIA should incorporate a continuous improvement review process that allows for upgraded mitigations, changes to procedures and renewal of the light management plan.

Seabird Light Mitigation Toolbox

Appropriate lighting design/lighting controls and mitigating the effect of light will be site/project and species specific. Table 8 provides a toolbox of management options relevant to seabirds. These options should be implemented in addition to the six Best Practice Light Design principles. Not all mitigation options will be practicable for every project. Table 9 provides a suggested list of light types appropriate for use near seabird rookeries and those to avoid.

A comprehensive review of the effect of land based artificial lights on seabirds and mitigation techniques found the most effective measures were:

- turning lights off during the fledgling periods
- · modification of light wavelengths
- removing external lights and closing window blinds to shield internal lights
- shielding the light source and preventing upward light spill
- reducing traffic speed limits and display of warning signs
- implementing a rescue program for grounded birds⁴.

Additional mitigation measures listed, but not assessed for effectiveness were:

- using rotating or flashing lights because research suggests that seabirds are less attracted to flashing lights than constant light
- keeping light intensity as low as possible. Most bird groundings are observed in very brightly lit areas⁴.

Table 8 Light management options for seabirds.

Management Action	Detail
Implement management actions during the breeding season.	Most seabird species nest during the Austral spring and summer. Light management should be implemented during the nesting and fledgling periods.
Maintain a dark zone between the rookery and the light sources.	Avoid installing lights or manage all outdoor lighting within three kilometres of a seabird rookery ¹⁰² . This is the median distance between nest locations and grounding locations. Avoiding the installation of lights in this zone would reduce the number of grounding birds by 50 per cent.
Turn off lights during fledgling season.	If not possible to extinguish lights, consider curfews, dimming options, or changes on light spectra (preferably towards lights with low blue emissions). Fledglings can be attracted back towards lights on land as they fly out to sea.
Use curfews to manage lighting.	Extinguish lights around the rookery during the fledgling period by 7 pm as fledglings leave their nest early in the evening.
Aim lights downwards and direct them away from nesting areas.	Aim light onto only the surface area requiring illumination. Use shielding to prevent light spill into the atmosphere and outside the footprint of the target area. This action can reduce fallout by 40 per cent ⁴ .
Use flashing/intermittent lights instead of fixed beam.	For example, small red flashing lights can be used to identify an entrance or delineate a pathway.
Use motion sensors to turn lights on only when needed.	Use motion sensors for pedestrian or street lighting within three kilometres of a seabird rookery.
Prevent indoor lighting reaching outdoor environment.	Use fixed window screens or window tinting on fixed windows and skylights to contain light inside buildings.
Manage artificial light on jetties, wharves, marinas, etc.	Fledglings and adults may be attracted to lights on marine facilities and become grounded or collide with infrastructure.
Reduce unnecessary outdoor, deck lighting on all vessels and permanent and floating oil and gas installations in known seabird foraging areas at sea.	Extinguishing outdoor/deck lights when not necessary for human safety and restrict lighting at night to navigation lights. Use block-out blinds on all portholes and windows.

Management Action	Detail
Night fishing should only occur with minimum deck lighting. Avoid shining light directly onto fishing gear in the water. Ensure lighting enables recording of any incidental catch, including by electronic monitoring systems.	Night is between nautical dusk and nautical dawn (as defined in the Nautical Almanac tables for relevant latitude, local time and date). Light on the water at night can attract seabirds to deployed fishing gear increasing the risk of seabird bycatch (i.e. killing or injuring birds). Minimum deck lighting should not breach minimum standards for safety and navigation. Record bird strike or incidental catch and report these data to regulatory authorities.
Avoid shining light directly onto longlines and/or illuminating baits in the water.	Light on the water can attract birds and facilitate the detection and consumption of baits, increasing bycatch in fisheries (i.e. killing or injuring birds). Record bird strike or incidental catch and report these data to regulatory authorities.
Vessels working in seabird foraging areas during breeding season should implement a seabird management plan to prevent seabird landings on the ship, manage birds appropriately and report the interaction.	For example, see the International Association of Antarctica Tour Operators (IAATO) Seabirds Landing on Ships information page.
Use luminaires with spectral content appropriate for the species present.	Consideration should be given to avoid specific wavelengths that are problematic for the species of interest. In general this would include avoiding lights rich in blue light, however, some birds are sensitive to yellow light and other mitigation may be required.
Avoid high intensity light of any colour.	Keep light intensity as low as possible in the vicinity of seabird rookeries and known foraging areas.
Shield gas flares and locate inland and away from seabird rookeries.	Manage gas flare light emissions by: reducing gas flow rates to minimise light emissions; shielding the flame behind a containment structure; containing the pilot flame for flare within shielding; and scheduling maintenance activity requiring flaring outside of shearwater breeding season or during the day.
Minimise flaring on offshore oil and gas production facilities.	Consider reinjecting excess gas instead of flaring, particularly on installations on migratory pathways.

Management Action	Detail
In facilities requiring intermittent night-time inspections, turn on lights only during the time operators are moving around the facility.	Use appropriate wavelength explosion proof LEDs with smart lighting controls. LEDs have no warmup or cool down limitations so can remain off until needed and provide instant light when required for routine nightly inspections or in the event of an emergency.
Ensure industrial site/plant operators use head torches.	Consider providing plant operators with white head torches (explosion proof torches are available) for situations where white light is needed to detect colour correctly or in an emergency.
Supplement facility perimeter security	Perimeter lighting can be operated when
lighting with computer monitored infrared	night-time illumination is necessary but
detection systems.	otherwise remain off.
Tourism operations around seabird colonies	Consideration should be given to educational
should manage torch usage so birds are	signage around seabird colonies where
not disturbed.	tourism visitation is generally unsupervised.
	This will not prevent birds grounding, but it is
Design and implement a rescue program for grounded birds.	an important management action in the
	absence of appropriate light design. Rescue
	programs have proven useful to reducing
	mortality of seabirds. The program should
	include documentation and reporting of data
	about the number and location of rescued
	birds to regulatory authorities.

Table 9 Where all other mitigation options have been exhausted and there is a human safety need for artificial light, this table provides commercial luminaires recommended for use near seabird habitat and those to avoid.

Light type	Suitability for use near seabird habitat
Low Pressure Sodium Vapour	\
High Pressure Sodium Vapour	V
Filtered* LED	✓
Filtered* metal halide	✓
Filtered* white LED	/
LED with appropriate spectral properties for species present	✓
White LED	×
Metal halide	×
White fluorescent	×
Halogen	×
Mercury vapour	×

^{* &#}x27;Filtered' means this type of luminaire can be used *only* if a filter is applied to remove the problematic wavelength light.

Appendix H - Migratory Shorebirds

There is evidence that night-time lighting of migratory shorebird foraging areas may benefit the birds by allowing greater visual foraging opportunities. However, where nocturnal roosts are artificially illuminated, shorebirds may be displaced, potentially reducing their local abundance if the energetic cost to travel between suitable nocturnal roosts and foraging sites is too great.

Artificial lighting could also act as an ecological trap by drawing migratory shorebirds to foraging areas with increased predation risk. Overall the effect of artificial light on migratory shorebirds remains understudied and consequently any assessment should adopt the precautionary principle and manage potential effects from light unless demonstrated otherwise.

Shorebirds, also known as waders, inhabit the shorelines of coasts and inland water bodies for most of their lives. Most are from two taxonomic families, the Sandpipers (*Scolopacidae*) and the Plovers (*Charadriidae*). They are generally distinguished by their relatively long legs, often long bills, and most importantly, their associations with wetlands at some stages of their annual cycles¹³⁰.

At least 215 shorebird species have been described¹³¹ and their characteristics include long life-spans, but low reproductive output, and they are highly migratory¹³². Many species have special bills for feeding on different prey in wetlands. Their bills contain sensory organs to detect the vibrations of prey inside the substrate. Shorebirds are often gregarious during the non-breeding season, which is perhaps a mechanism to reduce individual predation risk¹³³ and increase the chance of locating profitable feeding patches¹³². About 62 per cent of shorebird species migrate. Some are transoceanic and transcontinental long-distance migrants capable of flying up to eight days non-stop, with examples of individuals covering distances up to 11.500 km¹³⁴.



Figure 29 Curlew Sandpipers. Photo: Brian Furby.

Conservation Status

Migratory shorebird species in Australia are protected under international treaties and agreements including the *Convention on the Conservation of Migratory Species of Wild Animals* (CMS, Bonn Convention), the Ramsar Convention on Wetlands, and through the East Asian - Australasian Flyway Partnership (the Flyway Partnership). The Australian Government has bilateral migratory bird agreements with Japan (Japan-Australia Migratory Bird Agreement, CAMBA), and the Republic of Korea (Republic of Korea-Australia Migratory Bird Agreement, ROKAMBA). In Australia, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) gives effect to these international obligations. Many species are also protected under state and territory environmental legislation.

There are 37 species listed as threatened and/or migratory species under the EPBC Act and are hence Matters of National Environmental Significance (MNES) in Australia. At least 56 trans-equatorial species belonging to three families: Pratincoles (*Glareolidae*), Plovers (*Charadriidae*) and Sandpipers (*Scolopacidae*) have been recorded in Australia¹³⁵. Of these, 36 species and one non-trans-equatorial species are listed under the EPBC Act. Three species (and one subspecies) of migratory shorebird are listed as "Critically Endangered", two species as "Endangered" and one species (and one subspecies) as "Vulnerable" under the EPBC Act.

These Guidelines should be read in conjunction with EPBC Act <u>Policy Statement 3.21 Industry</u> <u>guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory</u> shorebird species¹³⁶.

Distribution

Migratory shorebirds are found in all states and territories, and are found in Australia throughout the year. Peak abundance occurs between August and April, however, sexually immature birds defer their northward migration for several years and can be found in Australia during the Austral winter months.

They are predominantly associated with wetland habitats including estuaries and intertidal wetlands, coastal beaches, saltmarsh, mangrove fringes, wet grasslands, and ephemeral freshwater and salt lakes in inland Australia. Shorebirds are also opportunists and exploit artificial habitats such as pastures, tilled land, sewage treatment plants, irrigation canals, sports fields and golf courses. Of 397 internationally recognised sites considered important for migratory shorebirds along the East Asian–Australasian Flyway, 118 are found in Australia¹³⁷.

Important habitat for migratory shorebirds

For the purposes of these Guidelines, Important Habitat for migratory shorebirds includes all areas that are recognised, or eligible for recognition as nationally or internationally important habitat. These habitats are defined in *EPBC Act Policy Statement 3.21 Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* ¹³⁶ and the *Wildlife Conservation Plan for Migratory Shorebirds (2015)* ¹³⁸.

- Internationally important habitat are those wetlands that support one per cent of the individuals in a population of one species or subspecies; or a total abundance of at least 20 000 waterbirds.
- Nationally important habitat are those wetlands that support 0.1 per cent of the flyway population of a single species; 2000 migratory shorebirds; or 15 migratory shorebird species.

Effects of Artificial Light on Migratory Shorebirds

Artificial light can disorient flying birds, affect stopover selection, and cause their death through collision with infrastructure¹³⁹. Birds may starve as a result of disruption to foraging, hampering their ability to prepare for breeding or migration. However, artificial light may help some species, particularly nocturnally foraging shorebirds as they may have greater access to food^{140,141}.

Annual cycle and habitat use in migratory shorebirds

Migratory shorebird species listed on the EPBC Act breed in the northern hemisphere, except the Double-banded Plover (*Charadrius bicinctus*), which breeds in New Zealand. Many of the northern hemisphere breeders nest in the arctic or sub-arctic tundra during the boreal summer (May – July) and spend the non-breeding season (August – April) in Australia or New Zealand. They usually spend five to six months on the non-breeding grounds, where they complete their basic (non-breeding plumage) moult, and later commence a pre-alternate (breeding plumage) moult prior to their northward migration. While undergoing their pre-alternate moult, shorebirds also consume an increased amount of prey to increase their fat storages, permitting them to travel greater distances between refuelling sites. Shorebirds refuel in East Asia during their northward migration, but during southward migration, some individuals travel across the Pacific, briefly stopping on islands to refuel. Shorebirds migrating across the Pacific typically have non-breeding grounds in Eastern Australia and New Zealand. Shorebirds returning to non-breeding grounds in Western and Northern Australia, once again pass through East Asia on their southward journey.

A common feature for many birds is their reliance on inland or coastal wetland habitats at some stages in their annual life-histories. In many migratory shorebirds, despite the vast distances they cover every year, they spend most of their time on coastal wetlands except for the two months of nesting when they use the tundra or taiga habitats. However, productive coastal wetland is localised, which means large proportions, or even entire populations, gather at a single site during stopover or non-breeding season. The Great Knot and Greater Sand Plover, is an example, with 40 per cent and 57 per cent respectively of their entire flyway population spends their non-breeding season at Eighty-Mile Beach in Western Australia¹³⁷. Wetlands commonly used include coastal mudflats and sandflats, sandy beaches, saltmarsh and mangrove fringes, ephemeral freshwater wetlands and damp grasslands.

The coastal intertidal wetlands favoured by many migratory shorebirds are a dynamic ecosystem strongly influenced by the tidal cycle. This is part of the critical transition zones between land, freshwater habitats, and the sea. Throughout the East Asian-Australasian Flyway, intertidal wetlands have been susceptible to heavy modification for the development of farmlands, aquaculture, salt mining, ports and industry.

Daily activity pattern and habitat use of migratory shorebirds

The daily activity pattern of shorebirds at coastal wetlands is not only determined by daylight, but also tidal cycle¹³¹. They feed on the exposed tidal wetland during low tide and roost during high tide as their feeding areas are inundated. The birds feed during both the day and night, especially in the lead-up to migration^{142,143}.

Roost site selection can vary between day and night. Shorebirds often use diurnal roosts nearest to the intertidal feeding area and may travel further to use safer nocturnal roosts – but at greater energetic cost^{144,145}. Roosting habitat can also vary between day and night. For example, the Dunlin (*Calidris alpina*), in California, had a greater use of pasture at night (which tended to be less affected by artificial light and disturbances) and relied less on their diurnal roosts of islands and artificial structures such as riprap and water pipes¹⁴⁶.

Foraging behaviours differ between day and night, and between seasons^{143,147}. Shorebirds typically show a preference for daytime foraging, which occurs over a greater area, and at a faster rate, than nocturnal foraging¹⁴³. Increased prey availability, avoidance of daytime predation and disturbance are some reasons for nocturnal foraging¹⁴⁷. Two basic types of foraging strategies have been described: visual and tactile (touch-based) foraging, with some species switching between these strategies. Tactile feeders such as sandpipers can use sensory organs in their bills to detect prey inside the substrate in the dark and can switch to visual foraging strategy during moonlit nights to take advantage of the moonlight¹⁴⁷. Visual feeders such as plovers, have high densities of photo receptors, especially the dark adapted rods, which allow foraging under low light conditions^{147,148}. Plovers have been shown to employ a visual foraging strategy during both the day and night, whereas sandpipers can shift from visual foraging during the day, to tactile foraging at night, likely due to less efficient night vision¹⁴³.

Vision in migratory shorebirds

There is a dearth of literature on light perception in migratory shorebirds with most studies confined to the role of vision in foraging and nothing on the physiology of shorebirds' eyes or their response to different wavelengths of light.

Birds in general are known to be attracted to, and disoriented by, artificial lights. This could be a result of being blinded by the intensity of light that bleaches visual pigments and therefore failing to see visual details¹⁴⁹ or interference with the magnetic compass used by the birds during migration¹⁵⁰. An attraction to conventional artificial night lightings may lead to other adverse consequences such as reducing fuel stores, delaying migration, increasing the chance of collision and thereby, injury and death¹⁵¹.

Gulls and terns (*Anous minutus, Anous tenuirostris* and *Gygis alba*) share visual pigments that give them vision in the short wavelength ultraviolet region of the spectrum in addition to the violet (blue) region of the spectrum. However, this sensitivity to very short wavelength light is rare in seabirds, which are characterised by photopic vision (daylight adapted) sensitivity in the mid to long wavelength range of the visible spectrum (590 – 740 nm, orange to red) while their

scotopic (low light, dark adapted) vision is more sensitive to short wavelengths of light (380 - 485 nm, violet – blue)¹¹⁹.

Biological impacts on migratory shorebirds

The exponential increase in the use of artificial light over the past decade means ecological light pollution has become a global issue⁶⁰. Although the extent to which intertidal ecosystems are being affected is unclear¹⁵², several studies have assessed both the positive and negative aspects of light pollution on migratory shorebirds.

Artificial lighting has been shown to influence the nocturnal foraging behaviour in shorebirds^{141,153}. Santos et al (2010) demonstrated three species of plover (Common Ringed Plover *Charadrius hiaticula*, Kentish Plover *Charadrius alexandrina* and Grey Plover *Pluvialis squatarola*) and two species of sandpiper (Dunlin *Calidris alpina* and Common Redshank *Tringa totantus*) improved foraging success by exploiting sites where streetlights provided extra illumination¹⁵³.

Similarly, Dwyer et al (2013) showed artificial light generated from a large industrial site significantly altered the foraging strategy of Common Redshanks within an estuary. The greater nocturnal illumination of the estuary from the industrial site allowed the birds to forage for extended periods using a visual foraging strategy, which was deemed a more effective foraging behaviour when compared to tactile foraging¹⁴¹.

Although shorebirds may be attracted to foraging areas with greater nocturnal illumination, artificial light near nocturnal roosting sites may displace the birds. Rogers et al (2006) studied the nocturnal roosting habits of shorebirds in north-western Australia, and suggested nocturnal roost sites with low exposure to artificial lighting (e.g. streetlights and traffic) were selected, and where the risk of predation was perceived to be low¹⁴⁰. The study also found nocturnal roosts spatially differed from diurnal roosts and required increased energetic cost to access as the distance between nocturnal roosts and foraging areas was greater than the distance between diurnal roost sites and the same foraging areas¹⁴⁵. The overall density of shorebirds in suitable foraging areas is expected to decline with increased distance to the nearest roost, due to the greater energetic cost travelling between areas^{144,145}. The artificial illumination (or lack thereof) of nocturnal roost sites is therefore likely to significantly influence the abundance of shorebirds in nearby foraging areas.

Intermittent or flashing lights could flush out the shorebirds and force them to leave the area, especially if the light is persistent (Choi pers. obs. 2018, Straw pers. comm. 2018).

Artificial light can affect birds in flight. Not only can bright light attract airborne migrants¹⁵⁴, but artificial light can also affect stop-over selection in long distance migrators which can impact on successful migration and decrease fitness¹³⁹. Similarly, Roncini et al (2015) reported on interactions between offshore oil and gas platforms and birds in the North Sea and found these were likely to include migratory shorebirds. The review estimated that hundreds of thousands of birds were killed each year in these interactions and light was the likely cause. The review recognised the gaps in monitoring and concluded that impacts are likely to be region, species and platform specific¹⁰⁸.

Environmental Impact Assessment of Artificial Light on Migratory Shorebirds

As a minimum, <u>Best Practice Lighting Design</u> should be implemented on infrastructure with externally visible artificial lighting. Where there is important habitat for migratory shorebirds within 20 km of a project, consideration should be given as to whether that light is likely to have an effect on those birds. The following sections step through the framework for managing artificial light, with specific consideration for migratory shorebirds. The 20 km buffer is based on a precautionary approach that sky glow can cause a change in behaviour in other species up to 15 km away²⁸.

Where artificial light is likely to affect migratory shorebirds, consideration should be given to mitigation measures at the earliest point in a project and used to inform the design phase.

It is important to recognise the spatial and temporal characteristics of migratory corridors for some migratory shorebird species. Species typically use established migratory pathways at predictable times and artificial light intersecting with an overhead migratory pathway should be assessed in the same way as for ground-based populations.

Associated guidance

- Wildlife Conservation Plan for Migratory Shorebirds (2015)
- Approved conservation advice

Qualified personnel

Lighting design/management and the EIA process should be undertaken by appropriately qualified personnel. Plans should be developed and reviewed by appropriately qualified lighting practitioners who should consult with an appropriately trained marine ornithologist or ecologist. People advising on the development of a lighting management plan, or the preparation of reports assessing the effect of artificial light on migratory shorebirds, should have relevant qualifications equivalent to a tertiary education in ornithology, or equivalent experience as evidenced by peer reviewed publications in the last five years on a relevant topic, or other relevant experience.

Step 1: Describe the project lighting

The information collated during this step should consider the biological <u>impact of light on migratory shorebirds</u>. They can be affected by light when foraging or migrating at night. Artificial light at night may also affect their selection of roost site. The location and light source (both direct and sky glow) in relation to feeding and resting areas should be considered, depending on whether the birds are active or resting at night. Shorebirds are sensitive to short wavelength (blue/violet) light with some species able to detect UV light. However, the intensity of lights may be more important than colour.

Step 2: Describe the migratory shorebird population and behaviour

The species, and behaviour of shorebirds in the area of interest should be described. This should include the conservation status of the species; abundance of birds; how widespread/localised is the population; the migratory corridor location and timing or usage; the regional importance of the population; the number of birds in the area in different seasons; and their night-time behaviour (resting or foraging).

Relevant shorebird information can be found in the *EPBC Act Policy Statement 3.21 Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*¹³⁶, *Wildlife Conservation Plan for Migratory Shorebirds (2015)*¹³⁸, the Protected Matters Search Tool, the National Conservation Values Atlas, state and territory listed species information, scientific literature, and local/Indigenous knowledge.

Where there is insufficient data to understand the population importance or demographics, or where it is necessary to document existing shorebird behaviour, field surveys and biological monitoring may be necessary.

Biological monitoring of migratory shorebirds

Monitoring associated with a project should be developed, overseen and results interpreted by appropriately <u>qualified biologists</u> to ensure reliability of the data.

The objective is to collect data on the abundance of birds and their normal behaviour. Please see Survey guidelines for Australia's threatened birds¹²⁸.

The data will be used to inform the EIA and assess whether mitigation measures are successful. Suggested minimum monitoring parameters (what is measured) and techniques (how to measure them) are summarised in Table 10.

Table 10 Recommended minimum biological information necessary to assess the importance of a migratory shorebird population. Note: the information in this table is not prescriptive and should be assessed on a case-by-case basis.

Target Age Class	Survey Effort	Duration	Reference
Adult	Four surveys of roosting birds (one in December, two in January and one in February), with an additional three to four surveys within the same neap-spring tide cycle is recommended.	Two hours before and after predicted high tide.	Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species ¹³⁶
Immature	One to two surveys on roosting birds between mid-May and mid-July.	Two hours before and after predicted high tide.	

Monitoring migratory shorebird populations

- Monitor the population (during different seasons) to establish a benchmark for assessing abundance before, during and after construction, and during operations to detect projectrelated change.
- Quantify the diurnal and nocturnal habitat use and movement in relation to tidal cycle (both high and low tides during the neap and spring tide cycles) in the area under baseline conditions to compare with light-affected conditions during construction and operations.
- Measure nocturnal light levels at foraging sites and nocturnal roost sites before and after the construction period of a project.
- Monitor nocturnal roost sites using acoustic recording devices and/or infrared cameras to determine nocturnal roost site use following the introduction of artificial light.

As a minimum, qualitative descriptive data on visible light types, location and directivity should also be collected at the same time as the biological data. Handheld camera images can help to describe the light. Quantitative data on existing sky glow should be collected, if possible, in a biologically meaningful way, recognising the technical difficulties in obtaining these data. See Measuring Biologically Relevant Light for a review.

Step 3: Risk assessment

The objective of these Guidelines is that light should be managed so that shorebirds are not disrupted within or displaced from important habitat and are able to undertake critical behaviours such as foraging, roosting and dispersal. These consequences should be considered in the risk assessment process. At important shorebird habitats, roosting and foraging numbers should remain constant and foraging birds should not be startled or at increased risk from predators as a result of increased illumination.

The assessment should consider the existing light environment, the proposed lighting design and mitigation/management, the behaviour of shorebirds at the location, and how the birds perceive light. This should include wavelength and intensity information and perspective. To understand how/whether shorebirds are likely to see light, a site visit should be made at night and the area viewed from the intertidal flats and roosting areas. Similarly, consideration should be given to how shorebirds will see light when in flight and along flyways during migration periods.

The type and number of artificial lights should then be considered to assess whether the birds are likely to perceive the light, and the possible consequences of light on their behaviour.

Step 4: Light management plan

This plan should include all relevant project information (Step 1) and biological information (Step 2). It should outline proposed mitigation. For a range of shorebird specific mitigation measures see the Migratory Shorebird Light Mitigation Toolbox below. The plan should also outline the type and schedule for biological and light monitoring to ensure mitigation is meeting the objectives of the plan and triggers for revisiting the risk assessment phase of the EIA. The plan should outline contingency options if biological and light monitoring or compliance audits indicate that mitigation is not meeting the objectives of the plan (e.g. light is visible on intertidal flats, shorebirds cease using resting areas, or birds are grounding or colliding with fixed or floating infrastructure, or migrating birds cease using a migratory corridor).

Step 5: Biological and light monitoring and auditing

The success of the plan should be confirmed through monitoring and compliance auditing. The results should be used to facilitate an adaptive management approach for continuous improvement.

Biological monitoring is described in <u>Step 2: Describe the Migratory Shorebird Population</u>. Concurrent light monitoring should be undertaken and interpreted in the context of how the birds perceive light and within the limitations of monitoring techniques described in <u>Measuring Biologically Relevant Light</u>. <u>Auditing</u>, as described in the plan, should be undertaken.

Review

The EIA should incorporate a continuous improvement review process that allows for upgraded mitigations, changes to procedures and renewal of the light management plan.

Migratory Shorebird Light Mitigation Toolbox

All projects should incorporate the <u>Best Practice Light Design Principles</u>. Appropriate lighting controls and light impact mitigation will be site/project and species specific. Table 11 provides a toolbox of options that would be implemented in addition to the six Best Practice Light Design principles. Not all mitigation options will be relevant for all situations. Table 12 provides a suggested list of light types appropriate for use near rookeries or roosting sites and those to avoid.

Table 11 Light management actions specific to migratory shorebirds.

Management Action	Detail
Implement actions when birds are likely to be present. This includes peak migration periods (flyway locations).	Birds are found in Australia year-round. Major movements along coastlines take place between March and April, and August and November. Between August and April, shorebird abundance peaks. Smaller numbers are found from April to August.
No light source should be directly visible from foraging or nocturnal roost habitats, or from migratory pathways.	Any light that is directly visible to a person standing in foraging or nocturnal roost habitats will potentially be visible to a shorebird and should be modified to prevent it being seen. Similarly, lights should be shielded such that they are not visible from the sky.
Do not install fixed light sources in nocturnal foraging or roost areas.	Installing light sources (e.g. light poles) within shorebird habitat may permanently reduce the available area for foraging or roosting and provide vantage points for predators (e.g. raptors) during the day.

Management Action	Detail
Prevent mobile light sources shining into nocturnal foraging and roost habitat.	The light from mobile sources such as mobile lighting towers, head torches or vehicle headlights should be prevented from aiming into nocturnal foraging or roost areas, as this can cause immediate disturbance.
Maintain a natural barrier (e.g. dune and/or vegetation screen) between nocturnal foraging and roost areas, and sources of artificial light.	Reducing the exposure of shorebirds to artificial light will reduce the risk of predation and disturbance.
Maintain a dark zone between nocturnal foraging and roost habitats and sources of artificial lights.	Creating a dark zone between artificial lights and shorebird habitat will reduce disturbances to shorebirds.
Use curfews to manage lighting near nocturnal foraging and roosting areas in coastal habitats. For example, manage artificial lights using motion sensors and timers from 7pm until dawn.	Curfews should also consider the tidal cycle if the artificial lighting is located coastally, e.g. extinguish lighting from two hours before high tide, until two hours after high tide, while shorebirds are potentially roosting.
Use of flashing/intermittent lights instead of fixed beam.	For example, small red flashing lights can be used to identify an entrance or delineate a pathway. The timing of when lights flash must follow a predictable, well-spaced pattern.
Use motion sensors to turn lights on only when needed.	For example, installing motion-activated pedestrian lighting within 500 m of nocturnal foraging or roost areas may reduce the amount of time the habitat is exposed to artificial light.
Manage artificial light on jetties and marinas.	Shorebirds will often roost on breakwaters and jetties, so allowing dark areas in such places may provide a safe area for shorebirds to roost.
Reduce deck lighting to minimum required for human safety on vessels moored near nocturnal foraging and roost areas, and those operating offshore.	Extinguish deck lights when not necessary and restrict lighting at night to navigation lights only. Offshore vessels should direct light inwards, particularly during the migration periods when shorebirds are potentially overhead. Record bird strike or incidental capture and
	report these interactions to regulatory authorities.

Management Action	Detail
Minimise night-time flaring on offshore oil and gas production facilities.	Consider reinjecting excess gas instead of flaring. Schedule maintenance flaring during daylight hours.
	Record bird strike or incidental capture and report these interactions to regulatory authorities.
Use luminaires with spectral content appropriate for the species present.	Consideration should be given to avoid specific wavelengths that are problematic for the species of interest. In general this would include avoiding lights rich in blue light, however, some birds are sensitive to yellow light and other mitigation may be required.
Avoid high intensity light of any colour.	Keeping light intensity as low as possible in the vicinity of nocturnal foraging and roost areas will minimise impact.
Prevent indoor lighting reaching migratory shorebird habitat.	Use fixed window screens or window tinting on fixed windows and skylights to contain light inside buildings.
In facilities requiring intermittent night inspections, turn lights on only during the time operators are moving around the facility.	Use appropriate wavelength, explosion proof LEDs with smart lighting controls and/or motions sensors. LEDs have no warmup or cool down limitations so can remain off until needed and provide instant light when required for routine nightly inspections or in the event of an emergency.
Industrial site/plant operators to use personal head torches.	Consider providing plant operators with white head torches (explosion proof torches are available) for situations where white light is needed to detect colour correctly, or in the event of an emergency. Operators should avoid shining light across nocturnal foraging or roost areas as this can cause disturbance.
Supplement facility perimeter security lighting with computer monitored infrared detection systems.	Perimeter lighting can be operated when night- time illumination is necessary but remain off at other times.

Table 12 Where all other mitigation options have been exhausted and there is a human safety need for artificial light, the following table provides commercial luminaires recommended for use near migratory shorebird habitat and those to avoid.

Light type	Suitability for use near migratory shorebird habitat
Low Pressure Sodium Vapour	
High Pressure Sodium Vapour	\
Filtered* LED	✓
Filtered* metal halide	✓
Filtered* white LED	✓
LED with appropriate spectral properties for species present	✓
White LED	×
Metal halide	×
White fluorescent	×
Halogen	×
Mercury vapour	×

^{* &#}x27;Filtered' means this type of luminaire can be used *only* if a filter is applied to remove the problematic wavelength light.

Glossary

ACAP is the Agreement on the Conservation of Albatrosses and Petrels.

ALAN is Artificial Light At Night and refers to artificial light outside that is visible at night.

Artificial light is composed of visible light as well as some ultraviolet (UV) and infrared (IR) radiation that is derived from an anthropogenic source.

Artificial sky glow is the part of the sky glow that is attributable to human-made sources of light (see also **sky glow**).

Baffle is an opaque or translucent element to shield a light source from direct view, or to prevent light reflecting from a surface like a wall.

Biologically Important Area (BIA) is a spatially defined area where aggregations of individuals of a species are known to display biologically important behaviour, such as breeding, feeding, resting or migration.

Biologically relevant is an approach, interpretation or outcome that considers either the species to which it refers, or factors in biological considerations in its approach.

Brightness is the strength of the visual sensation on the naked eye when lit surfaces are viewed.

Bulb is the source of electric light and is a component of a luminaire.

CAMBA is the *China-Australia Migratory Bird Agreement*.

Candela (cd) (photometric term) is a photometric unit of illumination that measures the amount of light emitted in the range of a (three-dimensional) angular span. Luminance is typically measured in candela per square meter (cd/m2).

Charge Coupled Device (CCD) is the sensor technology used in digital cameras. It converts captured light into digital data (images) which can be processed to produce quantifiable data.

CIE is the Commission Internationale de l'Eclairage (International Light Commission), which sets most international lighting standards.

CMS is the *Convention on the Conservation of Migratory Species of Wild Animals* or the Bonn Convention.

Colour temperature is the perceived colour of a light source ranging from cool (blue) to warm (yellow), measured in Kelvin (K). A low correlated colour temperature such as 2500K will have a warm appearance while 6500K will appear cold.

Correlated Colour Temperature (CCT) is a simplified way to characterize the spectral properties of a light source and is correlated to the response of the human eye. Colour temperature is expressed in Kelvin (K).

Cumulative light refers to increased sky brightness due to light emissions contributions from multiple light producers. Measured as **sky glow**.

Disorientation refers to any species moving in a confused manner e.g. a turtle hatchling circling and unable to find the ocean.

EEZ is the Australian Exclusive Economic Zone.

EIA is an environmental impact assessment process.

Electromagnetic radiation is a kind of radiation including visible light, radio waves, gamma rays, and X-rays, in which electric and magnetic fields vary simultaneously.

EPBC Act is the Commonwealth Environment Protection and Biodiversity Act 1999.

Fallout refers to birds that collide with structures when disoriented.

Footcandle (fc or ftc) (photometric term) is a unit of light intensity used in America, it is based on the brightness of one candle at a distance of one foot. Measured in lumens per square foot, one ftc is equal to approximately 10.7639 lux. This is not an appropriate measure for understanding how animals perceive light.

FMP refers to the Field Management Program.

Genetic stock is a discrete grouping of a species by genetic relatedness. Management of the species may be undertaken on a genetic stock basis because each genetic stock represents a unique evolutionary history, which if lost cannot be replaced.

Grounding refers to events where birds fail to take their first flight from the nest or collide with a structure (adults and juveniles) and are unable to launch back into the air.

Habitat critical to the survival of the species is an area defined in a Recovery Plan for a listed threatened species that provides for the recovery of the species.

Horizontal plane, in relation to the light fitting, means the horizontal plane passing through the centre of the light source (for example the bulb) of the light fitting.

HPS is a high-pressure sodium lamp that produces a characteristic wavelength near 589 nm.

IAATO is the International Association of Antarctica Tour Operators.

Illuminance is a **photometric** measure of the total luminous flux incident on a surface, per unit area. It is a measure of how much the incident light illuminates the surface, wavelength-weighted to correlate with human brightness perception. Illuminance is measured in **lux** (lx) or equivalently in **lumens** per square metre (lm/m²).

Important habitats are those areas that are necessary for an ecologically significant proportion of a listed species to undertake important activities such as foraging, breeding, roosting or dispersal. Important habitats will be species specific and will depend on their listing status. It will include areas that have been designated as **Habitat Critical to Survival** of a threatened species.

Incandescent bulb is a bulb that provides light by a filament heated to a high temperature by electric current.

Intensity is the amount of energy or light in a given direction.

Internationally important refers to wetland habitat for migratory shorebirds that support one per cent of the individuals in a population of one species or subspecies; or a total abundance of at least 20 000 waterbirds.

IR is infrared radiation and represents a band of the electromagnetic spectrum with wavelength from 700 nm to 1 mm.

Irradiance (**radiometric term**) is a measurement of radiant flux at or on a known surface area, W/m². This measure is appropriate for understanding animal perception of light.

IUCN is the International Union for the Conservation of Nature.

JAMBA is the Japan-Australia Migratory Bird Agreement.

Kelvin (K) is the absolute unit for temperature and is equal in magnitude to one degree Celsius. Kelvin is typically used to describe **Correlated Colour Temperature (CCT)**.

Lamp is a generic term for a source of optical radiation (light), often called a "bulb" or "tube". Examples include incandescent, fluorescent, high-intensity discharge (HID) lamps, and low-pressure sodium (LPS) lamps, as well as light-emitting diode (LED) modules and arrays.

LED is a light-emitting diode, or a semiconductor light source that emits light when current flows through it.

Light fitting (luminaire) is the complete lighting unit. It includes the bulb, reflector (mirror) or refractor (lens), the ballast, housing and the attached parts.

Light is the radiant energy that is visible to humans and animals. Light stimulates receptors in the visual system and those signals are interpreted by the brain making things visible.

Light pollution is the brightening of the night sky caused by **artificial light**.

Light spill is the light that falls outside the boundaries of the object or area intended to be lit. Spill light serves no purpose and if directed above the horizontal plane, contributes directly to **artificial sky glow**. Also called spill light, obtrusive light or light trespass.

Lighting controls are devices used for either turning lights on and off, or for dimming.

Listed species are those species listed under the **EPBC Act**, or under relevant state or territory environment/conservation legislation. Species may be listed as threatened, migratory or part of a listed threatened ecological community.

LNG is liquefied natural gas.

LPS is a low pressure sodium lamp that produces a characteristic wavelength near 589 nm.

Luminaire refers to the complete lighting unit (fixture or light fitting), consisting of a lamp, or lamps and ballast(s) (when applicable), together with the parts designed to distribute the light (reflector, lens, diffuser), to position and protect the lamps, and to connect the lamps to the power supply.

Luminous flux is the total light emitted by a bulb in all directions which is measured in lumen.

Lumen (Im) (photometric term) is the unit of **luminous flux**, a measure of the total quantity of visible light emitted by a source per unit of time. This is a **photometric** unit, weighted to the

sensitivity of the human eye. If a light source emits one **candela** of luminous intensity uniformly across a solid angle of one steradian, the total **luminous flux** emitted into that angle is one lumen.

Luminance (cd/m²) is a **photometric** measure of the luminous intensity per unit area of light travelling in a given direction, wavelength-weighted to correlate with human brightness perception. Luminance is measured in candela per square metre (cd/m²). Luminance and **illuminance** ("**Lux**") are related, in the sense that luminance is a measure of light emitted from a surface (either because of reflection or because it's a light-emitting surface), and illuminance is a measure for light hitting a surface.

Lux (Ix) is a **photometric** measure of illumination of a surface. The difference between lux and **candela** is that lux measures the illumination of a surface, instead of that of an angle. This is not an appropriate measure for understanding how animals perceive light.

Magnitudes per square arc second (magnitudes/arcsec²) (radiometric term) is a term used in astronomy to measure sky brightness within an area of the sky that has an angular area of one second by one second. The term magnitudes per square arc second means that the brightness in magnitudes is spread out over a square arcsecond of the sky. Each magnitude lower (numerically) means just over 2.5 times more light is coming from a given patch of sky. A change of 5 magnitudes/arcsec² means the sky is 100x brighter.

Misorientation occurs when a species moves in the wrong direction, e.g. when a turtle hatchling moves toward a light and away from the ocean.

MNES are Matters of National Environmental Significance as defined by the **EPBC Act** and include listed threatened and listed migratory species.

Mounting height is the height of the fitting or bulb above the ground.

Nationally important habitat are those wetlands that support 0.1 per cent of the flyway population of a single species of migratory shorebird; or 2 000 migratory shorebirds; or 15 migratory shorebird species.

Natural sky glow is that part of the **sky glow** that is attributable to radiation from celestial sources and luminescent processes in the Earth's upper atmosphere.

Outdoor lighting is the night-time illumination of an area by any form of outside light fitting (luminaire).

Outside light fitting means a light fitting (luminaire) that is attached or fixed outside or on the exterior of a building or structure, whether temporary or permanent.

Photocells are sensors that turn lights on and off in response to natural light levels. Some advanced mode can slowly dim or increase the lighting (see also **smart controls**).

Photometric terms refer to measurements of light that are weighted to the sensitivity of the human eye. They are not include the shortest or the longest wavelengths of the visible spectrum and so are not appropriate for understanding the full extent of how animals perceive light.

Photometry is a subset of radiometry that is the measurement of light as it is weighted to the sensitivity of the human eye.

Point source is light from an unshielded lamp (i.e. directly visible).

Radiance (radiometric term) is a measure of radiant intensity emitted from a unit area of a source, measured in W/m².

Radiant flux/power (radiometric term) is expressed in watts (W). It is the total optical power of a light source. It is the radiant energy emitted, reflected, transmitted or received, per unit time. Sometimes called radiant power, and it can also be defined as the rate of flow of radiant energy.

Radiant intensity (radiometric term) is the amount of flux emitted through a known solid angle, W/steradian, and has a directional quantity.

Radiometric terms refer to light measured across the entire visible spectrum (not weighted to the human eye). These are appropriate for understanding how animals perceive light.

Radiometry is the measurement of all wavelengths across the entire visible spectrum (not weighted to the human eye).

Reflected light is light that bounces off a surface. Light coloured surfaces reflect more light than darker coloured surfaces.

ROKAMBA is the *Republic of Korea-Australia Migratory Bird Agreement*.

Sensitive receptor is any living organism that has increased sensitivity or exposure to environmental contaminants that may have adverse effects.

Shielded light fitting is a physical barrier used to limit or modify the light paths from a luminaire.

Sky glow is the brightness of the night sky caused by the cumulative impact of reflected radiation (usually visible light), scattered from the constituents of the atmosphere in the direction of observation. Sky glow comprises two separate components: natural sky glow and artificial sky glow (see also **natural sky glow** and **artificial sky glow**).

Smart controls are devices to vary the intensity or duration of operation of lighting, such as motion sensors, timers and dimmers used in concert with outdoor lighting equipment.

Spectral power curve provides a representation of the relative presence of each wavelength emitted from a light source.

Task lighting is used to provide direct light for specific activities without illuminating the entire area or object.

Upward Light Ratio (ULR) is the proportion of the light (flux) emitted from a **luminaire** or installation that is emitted at and above the horizontal, excluding reflected light when the luminaire is mounted in its parallel position. ULR is the upward flux/total flux from the luminaire.

UV is ultraviolet light and represents a band of the electromagnetic spectrum with wavelength from 10 nm to 400 nm.

Visible light transmittance is the proportion of light transmitted by window glass which is recorded as either TVw (visible transmittance of the window) and is reported as a

dimensionless value between 0 and 1, or 0 and 100%. A low TVw (e.g. < 30%) indicates little light is transmitted through the glass while higher TVw values are associated with increasing light transmittance. While the VLT/Tvw rating varies between 0 and 1, most double glazed windows rate between 0.3 and 0.7, which means that between 30% and 70% of the available light passes through the window.

W/m² is a measure of radiance, the radiant intensity emitted from a unit area of a source (see **radiance**). This is an appropriate measure for understanding how animals perceive light.

Wattage is the amount of electricity needed to light a bulb. Generally, the higher the wattage, the more **lumens** are produced. Higher wattage and more lumens give a brighter light.

Wavelength as light travels through space it turns a wave with evenly spaces peaks and troughs. The distance between the peaks (or the troughs) is called the wavelength of the light. Ultraviolet and blue light are examples of short wavelength light while red and infrared light is long wavelength light. The energy of light is linked to the wavelength; short wavelength light has much higher energy than long wavelength light.

Zenith is an imaginary point directly above a location, on the imaginary celestial sphere.

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Form 5

Submission on notified proposal for policy statement or plan, change or variation, Resource Management Act 1991

To: Auckland Council

Name of submitter: Te Tāhuhu o te Mātauranga | Ministry of Education ('the

Ministry')

Address for service: Eden 5, Level 3/12-18

Normanby Road Mount Eden Auckland 1011

Attention: Vicky Hu

Phone: 09 301 3772

Email: <u>vicky.hu@beca.com</u> AND <u>moe.submissions@beca.com</u>

This is a submission from the Ministry of Education on the Proposed Plan Change 93 – Warkworth South.

The Ministry is the Government's lead advisor on the New Zealand education system, shaping direction for education agencies and providers and contributing to the Government's goals for education. The Ministry assesses population changes, school roll fluctuations and other trends and challenges impacting on education provision at all levels of the education network to identify changing needs within the network so the Ministry can respond effectively.

The Ministry has responsibility for all education property owned by the Crown. This involves managing the existing property portfolio, reviewing plan changes, upgrading and improving the portfolio, purchasing and constructing new property to meet increased demand, identifying and disposing of surplus State school sector property and managing teacher and caretaker housing.

The Ministry is therefore a considerable stakeholder in terms of activities that may impact on existing and future educational facilities and assets in the Auckland region.

The Ministry's submission is:

The Proposed Plan Change 93 (PPC) is seeking to rezone approximately 159 hectares of land on either side of the current State Highway 1, south of Warkworth, from Future Urban and Rural – Rural Production Zone to a combination of:

- Residential Terrace Housing and Apartment Building Zone;
- Residential Single House Zone;
- Residential Mixed Housing Urban Zone;

- Residential Large Lot Zone;
- Business Local Centre Zone;
- Rural Mixed Rural Zone; and
- Open Space Conservation Zone.

The PPC also seeks to apply two new Precincts ('Waimanawa' and 'Morrison Heritage Orchard') across the plan change area. The proposed plan change will provide development capacity of approximately 1600 additional residential lots and apartment units, supported by a local centre. It is noted that the rezoning of some of this land was anticipated as much of it is Future Urban zoned (sequencing plans for Warkworth South is scheduled to be released in 2028 – 2032 according to the Future Urban Land Supply Strategy¹, and 2045+ according to the recently adopted Future Development Strategy²). Notwithstanding this, the PPC would enable significant development capacity of approximately 1,600 additional residential units, thereby potentially increasing the demand on the local school network in Warkworth.

The Ministry acknowledges that the PPC will contribute to providing additional housing within the wider Auckland Region. This may, however, require additional capacity in the local school network to cater for this growth as the area develops and potentially drives the need for a new school in the community in the future.

The Ministry understands that the Council must meet the requirements under the National Policy Statement on Urban Development 2020 (NPS-UD) to provide development capacity for housing and business. The Ministry wishes to highlight that Policy 10 of the NPS-UD states that local authorities should engage with providers of development infrastructure and additional infrastructure (of which schools are a part) to achieve integrated land use and infrastructure planning. In addition to this, subpart 3.5 of the NPS-UD states that local authorities must be satisfied that the additional infrastructure to service the development capacity is likely to be available.

The Ministry therefore has an interest in:

- making sure the Precinct provisions specifically acknowledge and provide for educational facilities.
 This is critical given schools are an essential piece of social and community infrastructure.
- how safe walking and cycling infrastructure around educational facilities will be provided.

The Ministry's position on the Plan Change:

The Ministry supports the following objectives and policies in the PPC that enable the development of educational facilities:

Objective 8: Subdivision and development is coordinated with the delivery of infrastructure (including transportation, stormwater, potable water, wastewater and future **education infrastructure**) and services required to provide for development within the precinct and future community requirements.

Policy 12: Require subdivision and development to provide stormwater, wastewater, potable water, electricity, communication services and **educational infrastructure** in a coordinated manner.

The Ministry notes that the growth enabled by this plan change and other Future Urban zoned areas results in the requirement for a new primary school to serve the future growth in this area. The Ministry therefore

¹ Future Urban Land Supply Strategy, 2017

² Future Development Stratey, 2023

supports the enabling objective and policy wording in the precinct provisions for the Ministry to establish a future school to support the community in this area.

The Ministry requests that the wording of the objectives and policies is amended to 'educational facilities' instead of 'educational infrastructure', to be consistent with the wording and definition within the National Planning Standards. This will enable more consistent interpretation and application of the objectives and policies in the proposed precinct plan.

It is noted that educational facilities 'within the existing former Ransom Vineyard Building' site has been specifically identified as a permitted activity in the Mixed Housing Urban Zone within the proposed precinct plan. The Ministry has not yet selected a preferred site for the development of a school in the area, however the Ransom Vineyard Building has been confirmed to be not fit for purpose for a future educational facility. The Ministry is neutral if another educational provider wishes to establish a school within the building.

The Ministry also generally supports the objectives and policies in the plan change that seek to provide safe access to, from and within the precinct for all modes, including walking and cycling. This includes a local road network that provides walking and cycling connections internally and to the wider Warkworth urban area. These provisions will also enable access to and from the two schools nearby to the plan change area: Mahurangi College and Warkworth School.

The Ministry acknowledges engagement efforts undertaken by the Applicant to date. The Ministry has identified that there is an operational need for a school to be established in the area to support communities, and discussions with landowners on potentially suitable sites for a future school have been advanced. This progress and need for a school in the area has been communicated with the Applicant.

Moving forward, the Ministry requests regular ongoing engagement with the Applicant and Auckland Council to keep up to date with the housing typologies being proposed, staging and timing of this development so that the integration of a school within the proposed development area can be planned for accordingly. The key Ministry contact email is Resource.Management@education.govt.nz.

Decision sought:

Overall, the Ministry supports the PPC if the following relief can be accepted.

The relief sought is shown in red underscore for additions and red strikethrough for deletions.

- Objectives:
 - (10) Subdivision and development is coordinated with the delivery of infrastructure (including transportation, stormwater, potable water, wastewater and future education infrastructure educational facilities) and services required to provide for development within the precinct and future community requirements.
- Policies:
 - (12) Require subdivision and development to provide stormwater, wastewater, potable water, electricity, communication services and educational infrastructure educational facilities in a coordinated manner.

The Ministry wishes to be heard in support of its submission.

29.1

20.2

Vicky Hu

Planner – Beca Ltd

(Consultant to the Ministry of Education)

Date: 23 November 2023

From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - GW Boyes

Date: Thursday, 23 November 2023 3:15:29 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: GW Boyes

Organisation name:

Agent's full name:

Email address: gcwboyes@xtra.co.nz

Contact phone number:

Postal address: PO Box 140 Leigh 0947

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

The changes to the Auckland Unitary Plan proposed by KA Waimanawa LTD Partnership & Stepping Towards Far Ltd in relation to 160 hectares south of Warkworth.

Property address:

Map or maps:

Other provisions:

The proposed housing is too dense and not enough infrastructure. A school shouldn't be a "possibility". it should be required as all area schools are overcrowded already. Where's the water going to come from?

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

Too much congestion without enough infrastructure is already happening in the area. No one except developers and Auckland want so much growth.

I or we seek the following decision by council: Decline the plan change

Submission date: 23 November 2023

Attend a hearing

30.1

Do you wish to be heard in support of your submission? No

Declaration

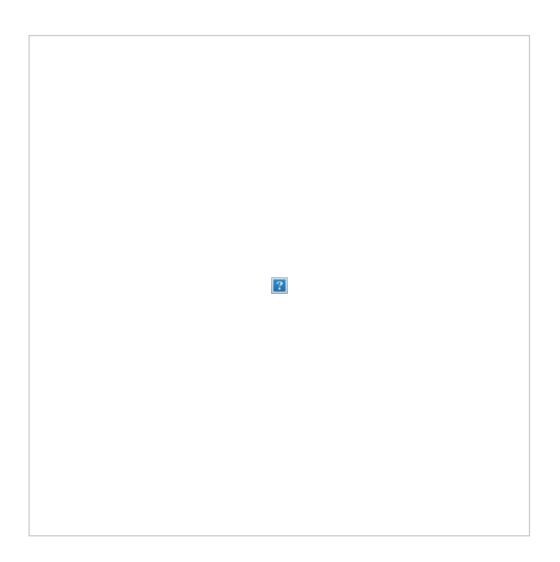
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

Yes

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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FORM 5

Submission on a notified proposal for Plan Change 93 - Warkworth South under Clause 6 of Schedule 1 Resource Management Act 1991

23 November 2023

Auckland Council Plans and Places Private Bag 92300 Auckland 1142

Email: unitaryplan@aucklandcouncil.govt.nz

Name of submitter: The New Zealand Transport Agency

This is a submission on Private Plan Change 93 - Warkworth South (**Plan Change**) to the Auckland Unitary Plan (Operative in Part).

The New Zealand Transport Agency (Waka Kotahi) could not gain an advantage in trade competition through this submission.

Waka Kotahi role and responsibilities

Waka Kotahi is a Crown Entity established by Section 93 of the Land Transport Management Act 2003 (LTMA). Waka Kotahi's objective is to undertake its functions in a way that contributes to an effective, efficient, and safe land transport system in the public interest. Waka Kotahi's roles and responsibilities include:

- Managing the State Highway system, including planning, funding, designing, supervising, constructing, maintaining and operating the system;
- Managing funding of the land transport system, including auditing the performance of organisations receiving land transport funding;
- Managing regulatory requirements for transport on land and incidents involving transport on land; and
- Issuing guidelines for and monitoring the development of regional land transport plans.

The Plan Change relates to land which is close to both the existing State Highway 1 (which is in the process of being revoked) and Ara Tūhono – Pūhoi to Warkworth. Waka Kotahi interest in the Plan Change stems from its role as:

 A transport investor to maximise effective, efficient and strategic returns for New Zealand;

- A planner of the land transport network to integrate one effective and resilient network for customers;
- Provider of access to and use of the land transport system to shape smart efficient, safe and responsible transport choices; and
- The manager of the State Highway system and its responsibility to deliver efficient, safe and responsible highway solutions for customers.

Government Policy Statement on Land Transport.

Waka Kotahi also has a role in giving effect to the Government Policy Statement on Land Transport (GPS). The GPS is required under the LTMA and outlines the Government's strategy to guide land transport investment over the next 10 years. The four strategic priorities of the GPS 2021 are safety, better travel options, climate change and improving freight connections. A key theme of the GPS is integrating land use, transport planning and delivery. Land use planning has a significant impact on transport policy, infrastructure and services provision, and vice versa. Once development has happened, it has a long-term impact on transport. Changes in land use can affect the demand for travel, creating both pressures and opportunities for investment in transport infrastructure and services, or for demand management. Likewise, changes in transport can affect land use.

Waka Kotahi gives effect to the GPS through a number of strategic plans including:

- Arataki our ten-year view of the step changes and actions needed to deliver on the government's current priorities and long-term outcomes for the land transport system;
- Toitu Te Taiao Our sustainability action plan. This notes two big challenges around reducing greenhouse gases and improving public health;
- Keeping Cities Moving our national mode shift plan based around shaping urban form, making shared and active modes more attractive and influencing travel demand and transport choices.

Decision sought

Waka Kotahi is neutral with regard to the proposed Plan Change but seeks further information and/or amendments to ensure that all relevant matters are considered and effects of the development are managed.

Decisions that Waka Kotahi seeks on the Plan Change are set out in its submissions contained in Table 1. Waka Kotahi also seeks any consequential changes to the Plan Change required to give effect to the relief described in Table 1.

Hearings

Waka Kotahi wishes to be heard in support of its submission. If others make a similar submission, Waka Kotahi will consider presenting a joint case with them at a hearing.

Signature of person authorised to sign on behalf of Submitter:

Evan Keating

Principal Planner, Waka Kotahi

Com P.

Address for Service of person making submission:

NZ Transport Agency

Contact Person: Evan Keating Email: evan.keating@nzta.govt.nz

Table 1: NZ Transport Agency Submission on Auckland Unitary Plan (OIP) Plan Change 93 – Warkworth South

Sub #	Provision Number	Reason for Submission	Relief Sought
1	Whole of plan change	Since the Plan change was lodged, Auckland Council has adopted its Future Development Strategy (FDS). Under Clause 3.17(1)(a) of the National Policy Statement on Urban Development, local authority decision makers must have regard to a relevant FDS when changing planning documents. Waka Kota participated in the preparation of the FDS and supports the outcomes it seeks to achieve. Based on the information in the notified documents, it appears that while the bulk infrastructure identified in the FDS may be provided by this development, the timing of the release of this land is much earlier than identified in the FDS. Waka Kotahi seeks certainty that all required infrastructure will be in place and to understand if there would be any adverse effects due to this land being brought forward for development.	Provide an assessment of the proposal relative to the Future Development Strategy
2	Whole of plan change	The planning assessment submitted with the proposal does not address the Emissions Reduction Plan (ERP) which is a requirement for assessment under section 74(2)(d) of the RMA.	Provide an assessment of the proposal relative to the Emissions Reduction Plan
3	Transport mitigation	It is noted that the ITA provides an assessment of the mitigation required and these mitigations are included in the precinct provisions. However, it appears that not all of the mitigation has been identified and/or some mitigation is ambiguous. Examples of this include the walking and cycling connection on SH1 which only extends to McKinney Road where there is no footpath to connect to and the uncertainty around what form of intersection upgrade may be required for Valerie Close or when it would be needed.	Update the ITA and planning provisions to include all required upgrades, including walking and cycling connections to existing paths in the urban area and clarify the extent of intersection upgrades required, including at Valerie Close.
4	Pedestrian crossings of SH1	The ITA assesses the need for upgrades of SH1 and walking and cycling connections along it but does not assess the need for crossings of it. Although the detail of such crossings may not be required for a plan change, an assessment of the overall level of crossings and indicative locations for them should be provided. The results of which may need to be included within the precinct provisions either as triggers related to development and/or identified on the precinct plans. This issue is particularly	Provide an assessment of the number and location of pedestrian crossings of SH1 required to service this development and update the precinct provisions to reflect the outcomes of this assessment.

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		relevant as the re-alignment of the Wider Warkworth Link Road has removed a controlled intersection on SH1.	
5	New planning provisions to address road noise	Waka Kotahi seeks to ensure that new noise sensitive activities that choose to locate close to established noise generating activities such as roads are designed to ensure the health of the future residents and to avoid future reverse sensitivity issues. Although SH1 will be revoked prior to the development of the land, Waka Kotahi has an interest in ensuring that such effects are considered in all plan changes. Such provisions have been incorporated in numerous precincts in the AUP(OIP) through recent plan changes and should be incorporated in this one also. Waka Kotahi staff have experience in drafting provisions for this matter across number district plans and are available to assist in this regard.	Amend the precinct provisions to include objectives, policies and rules to manage effects of road traffic noise on future sensitive receivers in the plan change area.



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Auckland Council
Unitary Plan Private Bag 92300
Auckland 1142

Attn.: Planning Technician

unitaryplan@aucklandcouncil.govt.nz

TO: Auckland Council

SUBMISSION ON: Plan Change 93 (Private): Warkworth South

FROM: Watercare Services Limited

ADDRESS FOR SERVICE: planchanges@water.co.nz

DATE: 23 November 2023

Watercare could not gain an advantage in trade competition through this submission.

1. WATERCARE'S PURPOSE AND MISSION

- 1.1. Watercare Services Limited ("Watercare") is New Zealand's largest provider of water and wastewater services. Watercare is a council-controlled organisation under the Local Government Act 2002 and is wholly owned by the Auckland Council ("Council").
- 1.2. As Auckland's water and wastewater services provider, Watercare has a significant role in helping Auckland Council achieve its vision for the Auckland region. Watercare's mission is to provide reliable, safe, and efficient water and wastewater services to Auckland's communities.
- 1.3. Watercare provides integrated water and wastewater services to approximately 1.7 million people in Auckland. Watercare collects, treats, and distributes drinking water from 12 dams, 26 bores and springs, and two river sources. On average, 400 million litres of water is treated each day at 16 water treatment plants and distributed via 89 reservoirs and 94 pump stations to 470,000 households, hospitals, schools, commercial and industrial properties.
- 1.4. Watercare's water distribution network includes more than 9,400 km of pipes. The wastewater network collects, treats, and disposes of wastewater at 18 treatment plants and includes 8,300 km of sewers.
- 1.5. Watercare is required to manage its operations efficiently with a view to keeping overall costs of water supply and wastewater services to its customers (collectively) at minimum levels, consistent with the

effective conduct of its undertakings and the maintenance of the long-term integrity of its assets. Watercare must also give effect to relevant aspects of the Council's Long Term Plan, and act consistently with other plans and strategies of the Council, including the Auckland Unitary Plan (Operative in Part) and the Auckland Future Urban Land Supply Strategy 2017¹.

2. SUBMISSION

General

- 2.1. This is a submission on a change proposed by KA Waimanawa Limited Partnership and Stepping Towards Far Limited ("Applicant") to the Auckland Unitary Plan (Operative in Part) that was publicly notified on 26 October 2023 ("Plan Change").
- 2.2. The Applicant proposes to rezone approximately 159ha of Future Urban, Open Space Conservation and Rural Rural Production zoned land to a mix of residential, business, open space, and rural zones on either side of the old State Highway One, south of Warkworth. The request also seeks to introduce two new precincts "Waimanawa" and "Morrison Heritage Orchard". The proposal also includes the introduction of the SMAF1 Overlay and an amendment to the Rural Urban Boundary to the south of Warkworth.
- 2.3. Watercare neither supports nor opposes the Plan Change. The purpose of this submission is to highlight and address a number of technical feasibility issues of the proposed water and wastewater servicing to ensure that the effects on Watercare's existing and planned water and wastewater network are appropriately considered and managed in accordance with the Resource Management Act 1991.
- 2.4. In making its submission, Watercare has considered the relevant provisions of the Auckland Plan 2050, Te Tahua Pūtea Tau 2021-2031 / The 10-year Budget 2021-2031, the Auckland Future Urban Land Supply Strategy 2017, the Water Supply and Wastewater Network Bylaw 2015, the Water and Wastewater Code of Practice for Land Development and Subdivision and the Watercare Asset Management Plan 2021 2041. It has also considered the relevant RMA documents including the Auckland Unitary Plan (Operative in Part) and the National Policy Statement on Urban Development 2020 which (among other matters) requires local authorities to ensure that at any one time there is sufficient housing and business development capacity which:
 - a) in the short term, is feasible, zoned and has adequate existing development infrastructure (including water and wastewater);
 - b) in the medium term, is feasible, zoned and either:
 - i. serviced with development infrastructure, or
 - the funding for the development infrastructure required to service that development capacity must be identified in a Long Term Plan required under s93 of the Local Government Act 2002; and
 - c) in the long term, is feasible, identified in relevant plans and strategies by the local authority for future urban use or urban intensification, and the development infrastructure required to service

¹ Local Government (Auckland Council) Act 2009, s58.

- it is identified in the relevant authority's infrastructure strategy required under the Local Government Act 2002².
- 2.5. Watercare has also considered the Auckland Future Development Strategy 2023-2053 which was adopted by Auckland Council on 2 November 2023 and will replace the Future Urban Land Supply Strategy once published.

Specific parts of the Plan Change

- 2.6. The specific parts of the Plan Change that this submission relates to are:
 - a) the effects of the Plan Change on Watercare's existing and planned water and wastewater network; and
 - b) the proposed Precinct provisions for water supply and wastewater.

Sequencing and density of growth in Warkworth's Future Urban Areas

- 2.7. The Auckland Future Urban Land Supply Strategy 2017 (FULSS) informs Watercare's asset planning and infrastructure funding priorities and sequencing.
- 2.8. The FULSS categorises and sequences the Warkworth Future Urban Areas as:
 - a) Warkworth North (development ready from 2022),
 - b) Warkworth South (development ready from 2028-2032), and
 - c) Warkworth North East (development ready from 2033-2037).
- 2.9. The FULSS provides anticipated dwelling capacities as:
 - a) Warkworth North 2,300 dwellings
 - b) Warkworth South 3,700 dwellings, and
 - c) Warkworth North East 1,600 dwellings.
- 2.10. The Warkworth Structure Plan 2019 sets out a pattern of land use and the supporting infrastructure network for the Future Urban zoned land around Warkworth. The Warkworth Structure Plan projects the total Warkworth population to grow to 25,000-30,000 over a 30 year period, with the Future Urban Areas anticipated to contribute approximately 7,500 additional dwellings equivalent to 20,000 people.
- 2.11. Watercare's understanding of the proposed development of the live zoned portion of the Warkworth North Future Urban Area is that approximately 5,400 development unit equivalents (DUEs)³ are proposed over ~200ha. This is more than double the 2,300 dwellings anticipated by the FULLS for the total Warkworth North Future Urban Area, and almost three quarters of the total 7,500 dwellings anticipated by the FULLS for the total Future Urban Area of Warkworth.

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² National Policy Statement on Urban Development 2020, subpart 1, 3.2 to 3.4.

³ A Development Unit Equivalent (DUE) is the unit of demand used to calculate IGCs. For water supply, one DUE is 220 kilolitres of water use per year. For wastewater, one DUE is 209 kilolitres of wastewater discharge per year.

- 2.12. For the purpose of water and wastewater planning, this anticipated 5,400 DUEs is equivalent to a population of 16,200. This represents a substantial portion of the 20,000 people proposed to be accommodated in the entire of the Warkworth Future Urban Areas⁴.
- 2.13. If this density of development in the Warkworth North Future Urban Area is realised, existing and planned bulk infrastructure capacity will be taken up earlier than anticipated.
- 2.14. The Auckland Future Development Strategy 2023-2053 (FDS) has been adopted and will replace the FULSS imminently. The FDS revises the categorisation, timing, and sequencing of the Warkworth Future Urban Areas.
- 2.15. The FDS states that bulk infrastructure delivery for the Warkworth Future Urban Areas is not planned to support development until the following timeframes:
 - a) Warkworth North (remainder) 2035+
 - b) Warkworth West (remainder) 2040+
 - c) Warkworth North-East 2045+
 - d) Warkworth South-central -2040+
 - e) Warkworth South-east 2045+
 - f) Warkworth South-west 2045+
- 2.16. Watercare notes that the FDS has delayed timing of development in Warkworth South to 2040+ 2045+.
- 2.17. Watercare's bulk infrastructure capacity is currently planned to enable development of the Warkworth Future Urban Area in accordance with the FULSS sequencing. Watercare's bulk infrastructure planning will need to be reviewed to align with the FDS sequencing and new Long Term Plan 2024-2034.
- 2.18. In order to provide for the out of sequence development proposed by the Plan Change, Watercare's water and wastewater asset management planning would require considerable review and rescheduling, which may compromise Watercare's ability to give effect to Auckland Council's Long Term Plan and be consistent with the FDS, statutory requirements under the Local Government (Auckland Council) Act 2009.

Wastewater servicing

Wastewater treatment plant

2.19. The existing Warkworth Wastewater Treatment Plant at Alnwick Street, Warkworth has reached capacity and therefore cannot accept any new connections. This existing treatment plant and associated discharge consent are being replaced with a new discharge consent and new wastewater treatment plant at Snell's Beach.

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⁴ As anticipated by the 2019 Warkworth Structure Plan.

- 2.20. The new discharge consent was granted for servicing the combined Warkworth, Snells Beach and Algies Bay communities in April 2017. The discharge consent provides sufficient capacity for a population of approximately 30,000. The associated Warkworth Wastewater Scheme includes:
 - New Warkworth Street Pump Station located at Lucy Moore Memorial Park,
 - New transfer pipeline between Warkworth and Snells Beach,
 - New Snells Beach Wastewater Treatment Plant with a capacity for a population of 18,000, expandable to 30,000 (future project), and
 - New outfall from the Snells Beach Wastewater Treatment Plant to the Hauraki Gulf.
- 2.21. The Warkworth Wastewater Scheme is currently anticipated to be operational by late 2025.
- 2.22. Development from the Plan Change area cannot connect to the public wastewater network until the Warkworth Wastewater Scheme is operational.
- 2.23. If the anticipated density of development in the Warkworth North Future Urban live zoned areas is realised in the short to medium term, the additional population from the Plan Change area will not be able to be accommodated in the first phase of the Warkworth Wastewater Scheme which is designed to provide for a population of 18,000 people.
- 2.24. If the combined Warkworth, Snells Beach and Algies Bay population connected to the Snells Beach Wastewater Treatment Plant reaches 18,000 prior to the future Wastewater Treatment Plant expansion being completed (the expansion project is not programmed in the current Watercare Asset Management Plan), development from the Plan Change area will be significantly delayed.

Wastewater networks

- 2.25. There is currently no existing public wastewater infrastructure servicing the Plan Change area. The Applicant is required to fund and construct all the wastewater infrastructure necessary to connect the Plan Change area to the new Warkworth Street Wastewater Pump Station located at Lucy Moore Memorial Park.
- 2.26. The Applicant's proposed bulk wastewater network servicing has been discussed with Watercare and has been accepted as a viable alternative to the Warkworth Wastewater Servicing Conceptual Design prepared in 2018⁵.
- 2.27. All bulk and local network pipelines collecting and conveying wastewater from the Plan Change area must be sized to meet the proposed development yield. All new pipelines shall consider the upstream and downstream development potential, including the wider Warkworth South Future Urban area, when being designed and constructed.
- 2.28. The Plan Change states that a small portion of the Plan Change area will be serviced via the existing pressure sewer system (PSS) in Mason Heights. This proposal will need to be assessed by Watercare at the resource consent stage.

⁵ Warkworth Wastewater Servicing – Conceptual Design, prepared for Watercare by Beca 6 Nov 2018.

2.29. All wastewater infrastructure, including local reticulation and pump station design, will be required to comply with Watercare's Code of Practice for Land Development and Subdivision. The Applicant will need to work with Watercare in advance of lodging resource consents for subdivision to confirm the requirement for any local and bulk wastewater infrastructure upgrades. Final design of the proposed wastewater network can be confirmed at resource consent stage.

Water supply servicing

Water treatment plant

- 2.30. The new Warkworth Wells Water Treatment Plant and associated groundwater abstraction bores has been operational since 2019.
- 2.31. The groundwater take consent granted in 2012 provides for a three-step staged allocation, with increased amounts being taken from the groundwater bore over the consent period as follows:
 - a) from the date of commencement of the consent until 31 December 2025: a maximum annual abstraction volume of 750,000m3 with a maximum daily volume of 3,025m3;
 - b) from 1 January 2026 until 31 December 2035: a maximum annual abstraction volume of 915,000m3 with a maximum daily volume of 4,250m3; and
 - c) from 1 January 2036 until 30 June 2044: a maximum annual abstraction volume of 1,200,000m3 with a maximum daily volume of 4,320m3.
- 2.32. The consented upper volume annual limit of 1,200,000m3 caters for a population of approximately 11,000⁶ 15,000⁷.
- 2.33. Staged upgrades to increase the treatment capacity of the water treatment plant are planned in line with the stepped consent, with feasibility for the first upgrade, to increase the maximum annual abstraction volume to 915,000m³, planned to start in 2026. This first upgrade will cater for a total population of approximately 8,410⁶ 11,395⁷.
- 2.34. A future water source will need to be found to provide water beyond the current abstraction consent limit to provide for the long-term projected growth of Warkworth. Planning for the future water source (Warkworth Water Supply Capacity Upgrade) is currently scheduled in Watercare's Asset Management Plan for the decade 2043-2053.
- 2.35. The Warkworth Water Treatment Plant 2021 Water Supply Demand Management Plan (Water Demand Plan)⁸ sets out historical demand and estimates future demand. Average daily demand between 2018-2021 was 1664m³, supplying a population of 5,586 (based on the 2018 census), equating to 298 L/p/d⁹ consumption.
- 2.36. The Water Demand Plan estimates that the annual demand will reach 911,000 m3 per annum by 2026 assuming a 50% increase on the average historic daily demand, based on a 50% increase in

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⁶ As calculated using the historic daily demand of 298L/p/day

⁷ As calculated using the Water and Wastewater Code of Practice for Land Development and Subdivision Chapter 6: Water. Section 6.3.5.6 Minimum water demand shall be based on daily consumption of 220L/p/day.

⁸ Warkworth Water Treatment Plant 2021 (2020) Water Supply Demand Management Plan Review, Final – November 2021.

⁹ Litres per person per day

- population to 8,379. As of November 2023, Watercare's population model indicates the current Warkworth population has already reached 7,635.
- 2.37. The projected 2026 requirement is ahead of the demand plan timeline listed in the water take consent. Condition 60 of the consent allows Watercare to review the stepped take limits in a Water Allocation Progress Report. If the rate of growth continues ahead of the stepped limits in the consent, Watercare may need to fast-track this report, which is otherwise due in January 2025.
- 2.38. The water treatment plant has provision for future capacity extensions to cater for the projected long term growth subject to the confirmation of a supplementary water source.
- 2.39. If the anticipated density of development in the Warkworth North Future Urban live zoned areas is realised in the short to medium term, the additional population from the Plan Change area will not be able to be accommodated in the existing water take consent and associated water treatment plant upgrades.
- 2.40. If the Warkworth population connected to the water treatment plant results in water demand that meets the upper limit of the existing resource consent (~11,000-15,000 population) prior to the future water source being consented and associated water treatment plant upgrades are complete, development from the Plan Change area will be significantly delayed.

Water supply networks

2.41. The 2019 Warkworth Water Supply Concept Reticulation Report¹⁰ (Water Supply Report) proposes a concept water supply solution to meet the growth of Warkworth as outlined in the Warkworth Structure Plan. The Water Supply Report divides the Warkworth area into six pressure zones. The Plan Change area is located within the Southern Pressure Zone and is proposed to be supplied from the future Southern Reservoir, which is supplied via booster pump from the future Western Reservoir. The Western reservoir is proposed to be supplied directly from the water treatment plant. Figure 1 below shows the proposed water supply network.

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¹⁰ Prepared for Watercare by Beca, 4 July 2019

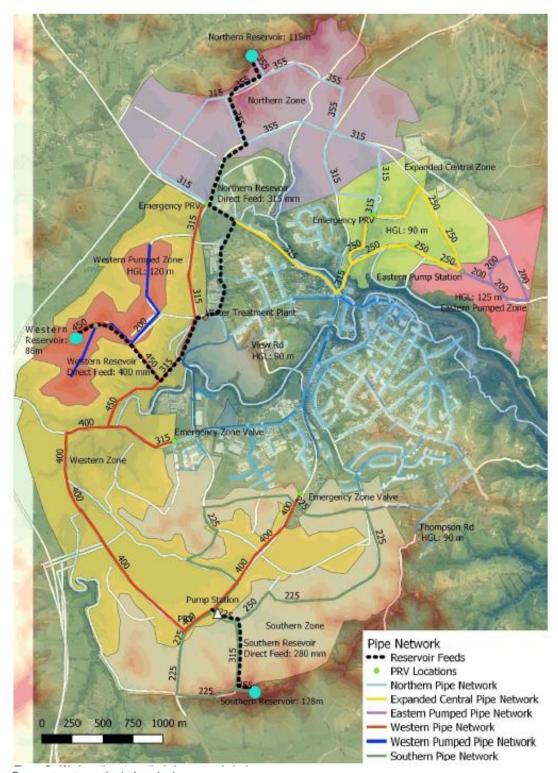


Figure 1 - Concept water reticulation design

- 2.42. In order to supply the Plan Change area, according to the Water Supply Report, the following physical works will need to be completed:
 - The Warkworth water treatment plant is upgraded to supply the Western Reservoir
 - The connection from the water treatment plant to the Western Reservoir

- The Western Reservoir
- The connection between the Western Reservoir and the Southern Reservoir
- The boost pump station to supply the Southern Reservoir from the Western Reservoir
- The Southern Reservoir
- 2.43. This water supply solution is currently programmed in Watercare's Asset Management Plan for 2031.
- 2.44. The Plan Change proposes to construct the Southern Reservoir and the associated boost pump station in alignment with the Water Supply Report, but instead of feeding water from the Western Reservoir, the proposal is to feed the Southern Reservoir from the existing water supply network utilising both View Road and Thompson Road reservoirs via extensions to the current water mains in State Highway 1 and McKinney Road.
- 2.45. The Plan Change proposes that the bulk supply main will be upgraded to 450mm OD south of McKinney Road and extended to the Plan Change area via SH1 to connect to the proposed Southern Reservoir located within the south east of the Plan Change area. The water supply main will be progressively extended west as development takes place along the Wider Western Link Road corridor.
- 2.46. If the Applicant can demonstrate that this alternative is viable for feeding the Southern Reservoir, then this will be considered by Watercare. The proviso is that the Applicant will be required to fund all necessary upgrades of the existing system as well as all and any new infrastructure required. Any alternative shall not detrimentally impact the proposed or future servicing strategy or network plan for the wider area.
- 2.47. Bulk and local network pipelines providing water to the Plan Change area must be sized to meet the proposed development yield. All new pipelines shall consider the upstream and downstream development potential when being designed and constructed.
- 2.48. All water infrastructure will be required to comply with Watercare's Code of Practice for Land Development and Subdivision. The Applicant will need to work with Watercare in advance of lodging resource consents for subdivision to confirm the requirement for any local and bulk water supply infrastructure upgrades. Final design of the proposed water supply network can be confirmed at resource consent stage.

Funding

Bulk infrastructure

- 2.49. The bulk water and wastewater infrastructure required to service the Plan Change area needs to be confirmed by Watercare.
- 2.50. The Applicant is required to fund all of the bulk potable water and wastewater infrastructure required to service the Plan Change area.
- 2.51. If upgrades to Water Treatment Plants and/or Wastewater Treatment Plants, including obtaining of new resource consents, are required to be brought forward to service the Plan Change area full cost for bringing forward these upgrades shall be funded by the Applicant.

- 2.52. Watercare agrees that there are significant opportunistic works for upgrading and/or upsizing of bulk infrastructure required to service the wider Warkworth South Future Urban catchment areas.
- 2.53. An infrastructure funding agreement between the Applicant and Watercare setting out the cost share for these opportunistic works has yet to be formalised and may prove unworkable given the significant misalignment in the timing between the Plan Change and Watercare's planned works referred to above.
- 2.54. Watercare will work with the Applicant to consider such an agreement.
- 2.55. Therefore, Watercare recommends that:

Wastewater:

- The Applicant shall give consideration to all the land within the wider Warkworth South future urban area that may naturally drain, or most logically pump to, the proposed pumping stations.
- The Applicant shall provide sufficient appropriately located land to be vested to Watercare to ensure that each proposed pumping station can be fully upgraded to provide sufficient capacity for all of the wider Warkworth South future urban area that may drain, or be pumped to, the proposed pumping stations.
- The Applicant shall consider future proofing of infrastructure if providing this infrastructure at a later date causes unreasonable disruption to the wider Warkworth area. For example, by laying sufficient rising mains from the pumping stations to cater for future flows and by installing pumping station infrastructure sized for the ultimate flows (does not include mechanical and electrical equipment).
- The applicant engages with Watercare to consider the timing and funding of the upgrades needed at the new Snells Beach Wastewater Treatment Plant to service this Plan Change area

Water:

- The Applicant shall give consideration to the entire area that the future proposed Southern Reservoir is likely to service.
- The Applicant shall ensure that sufficient appropriately located land is provided for vesting to Watercare to fully upgrade the Southern Reservoir for servicing the wider Warkworth South future urban area.
- The Applicant shall ensure that the water supply pipe from the existing Watercare water supply network to the Southern Reservoir, as well as any necessary booster pumping station, is sized to cater for the wider Warkworth South future urban area.
- The Applicant shall consider future proofing of infrastructure if providing this infrastructure at a later date causes unreasonable disruption to the wider Warkworth area. For example, by laying sufficient water supply mains to the Southern Reservoir to cater for future demand and by installing reservoir infrastructure sized for the ultimate demand.
- The applicant engages with Watercare to consider the timing and funding of the upgrades needed at the Warkworth Water Treatment Plant to service this Plan Change area and additional Water supply and abstraction consents.

Local infrastructure

- 2.56. Funding of the local water supply and wastewater infrastructure necessary to service the Plan Change area is at the cost of the Applicant.
- 2.57. As per Watercare's Code of Practice for Land Development and Subdivision, the local networks must be sized to accommodate the future development potential at the developers cost.

Precinct Provisions

- 2.58. Watercare strongly supports precinct provisions that require subdivision and development to be coordinated with the provision of adequate water supply and wastewater infrastructure.
- 2.59. Watercare supports an activity status of non complying for any subdivision or development that precedes the provision of adequate water supply and wastewater infrastructure.
- 2.60. Watercare supports Standard 1XXX.6 Wastewater and Potable Water Connections clauses (1) and (2) which require all lots except for those in Residential Large Lot and Open Space Conservation zones to be connected to a reticulated wastewater network and potable water network.
- 2.61. Watercare supports Standard 1XXX.6 Wastewater and Potable Water Connections clause (3) which requires development to be connected to a functioning water and wastewater network prior to the issue of a s224(c) certificate, subject to the following amendment to ensure that the network also has the capacity to serve the proposed development.
 - Ixxx.6.9 Wastewater and Potable Water Connections
 - (3) Prior to the issue of s224(c), the development shall be connected to a functioning water and wastewater network with sufficient capacity to service the proposed development.
- 2.62. To ensure that the precinct description is consistent with the requirements of Standard 1XXX.6 Wastewater and Potable Water Connections and the amendments proposed by Watercare, Watercare seeks the following amendments to the precinct description.

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The development controls for the precinct recognise that development of residential lots can occur concurrently with the provision of infrastructure but prior to the issuing of s224(c) certification for subdivision. However, the development controls do require that development is connected to a functioning water and wastewater network with sufficient capacity to service the proposed development prior to the issuing of s224(c) certification for subdivision.

2.63. To ensure there is strong and directive policy support for the non-complying activity classification for development and subdivisions that do not comply with Standard 1XXX.6 Wastewater and Potable Water Connections, Watercare seeks the inclusion of the following new policy.

IXXX.3 Policies

(XX) Avoid subdivision and development progressing ahead of the provision of a functioning water and wastewater network with sufficient capacity to service the proposed development.

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3. DECISION SOUGHT

- 3.1. Watercare seeks a decision that ensures that the water and wastewater capacity and servicing requirements of the Plan Change will be adequately met, such that the water and wastewater related effects are appropriately managed.
- 3.2. Watercare seeks the inclusion of the proposed amendments to the precinct provisions as set out in section 2 above or similar provisions that will achieve the same outcomes.

4. HEARING

4.1. Watercare wishes to be heard in support of its submission

23 November 2023

Mark Iszard

Mark Iszard

Head of Major Developments

Watercare Services Limited

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Email: Planchanges@water.co.nz

Page 12 of 12

From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Caroline Barrett

Date: Thursday, 23 November 2023 8:45:41 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Caroline Barrett

Organisation name:

Agent's full name:

Email address: carolinebarrett1@mac.com

Contact phone number: 021 917 745

Postal address: 39 Beach Street Sandspit Warkworth Auckland 0982

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Total Plan Change 93 (Private)

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

- 1. The Plan Change is premature.
- 2. Growth strategy does not allow for growth until 2028-2032 (or 2040+ if proposed Future Development Strategy is approved by Auckland Council).
- 3. Infrastructure of major arterial roads, sewerage, etc, should be in place first before any development takes place.
- 4. Terraced Housing in Warkworth South is not appropriate.
- 5. Terraced Housing usually requires a small town centre which may not be financially viable. The existing commercial centre of Warkworth should be the only centre for the Warkworth area.

33.1

6. The area of the proposed Plan Change is more suited to Large Lot Zoning and Single Family Dwelling Zoning.

I or we seek the following decision by council: Decline the plan change

Submission date: 23 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission? Yes

I accept by taking part in this public submission process that my submission (including personal

Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

details, names and addresses) will be made public.

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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Pete Sinton

Date: Thursday, 23 November 2023 9:00:24 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Pete Sinton

Organisation name:

Agent's full name:

Email address: petesinton@townplanner.co.nz

Contact phone number: 021 637 772

Postal address: 49 Beach Street Sandspit Warkworth Auckland 0982

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Total Plan Change 93 (Private)

Property address:

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we oppose the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

- 1. The Plan Change is premature.
- 2. Growth strategy does not allow for growth until 2028-2032 (or 2040+ if proposed Future Development Strategy is approved by Auckland Council).
- 3. Infrastructure of major arterial roads, sewerage, etc, should be in place first before any development takes place.
- 4. Terraced Housing in Warkworth South is not appropriate.
- 5. Terraced Housing usually requires a small town centre which may not be financially viable. The existing commercial centre of Warkworth should be the only centre for the Warkworth area.

6. The area of the proposed Plan Change is more suited to Large Lot Zoning and Single Family Dwelling Zoning.

I or we seek the following decision by council: Decline the plan change

34.1

Submission date: 23 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission? Yes

Declaration

Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Bevan Morrison

Date: Thursday, 23 November 2023 9:30:27 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Bevan Morrison

Organisation name:

Agent's full name:

Email address: bevanmorrison75@gmail.com

Contact phone number: 0220350582

Postal address: 1829 state highway 1

RD3

Warkworth 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Full plan change proposal

Property address: 1829 SH1, Warkworth

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The plan change is well thought out and will bring huge amenity value to South Warkworth where we live. They are investing millions of dollars in infrastructure that the council would not otherwise have the capacity to deliver for decades to come. The plan change which includes Morrison Heritage orchard will provide certainty for developers to plan and provide a beautiful space for the broader community.

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 23 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission? Yes

Declaration

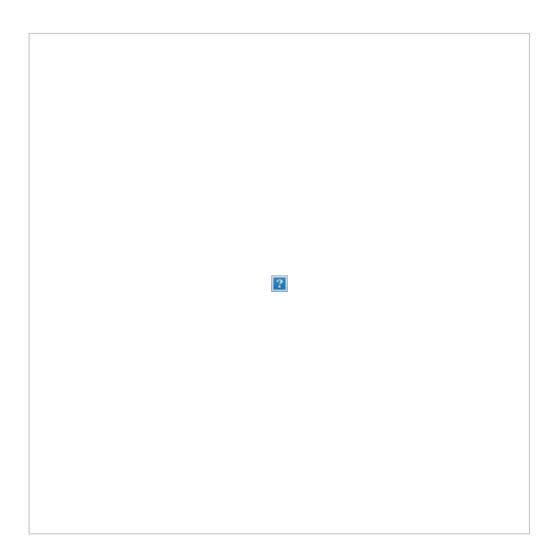
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: Unitary Plan

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Bevan Morrison

Date: Thursday, 23 November 2023 9:30:31 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Bevan Morrison

Organisation name: Red Bluff investment Itd

Agent's full name:

Email address: bevanmorrison75@gmail.com

Contact phone number: 0220350582

Postal address: 1829 SH1 RD3

Warkworth 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules: Full submission

Property address: Unit G 9 Gumfield Drive, Warkworth

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

The plan change will bring online more housing and construct a large portion of the Wider Western Link Road as well as foot path up to McKinney Rd which will be a great thing for those working in the industrial area but living in south Warkworth, giving us a safe option to walk or ride to work.

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 23 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? Yes

Would you consider presenting a joint case at a hearing if others have made a similar submission? Yes

Declaration

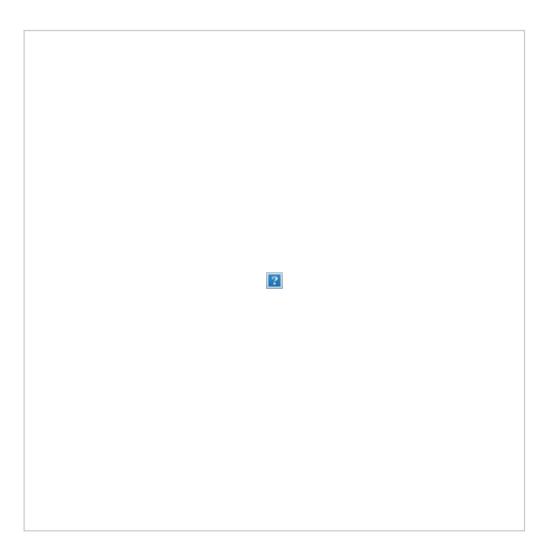
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Robyn Morrison

Date: Thursday, 23 November 2023 9:30:32 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Robyn Morrison

Organisation name: Gumfield Property Ltd

Agent's full name:

Email address: tdrj.morrison@xtra.co.nz

Contact phone number:

Postal address: 1791 Old SH1 Warkworth Auckland 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

Property address: 5/9 Gumfield Drive, 4/9 Gumfield Drive, 21 Gumfield Drive

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

We support the application for rezoning of 159 Ha of rural and future urban land on the Old SH1 south of Warkworth. This will facilitate some of Warkworth's future housing needs in an integrated community structure.

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 23 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

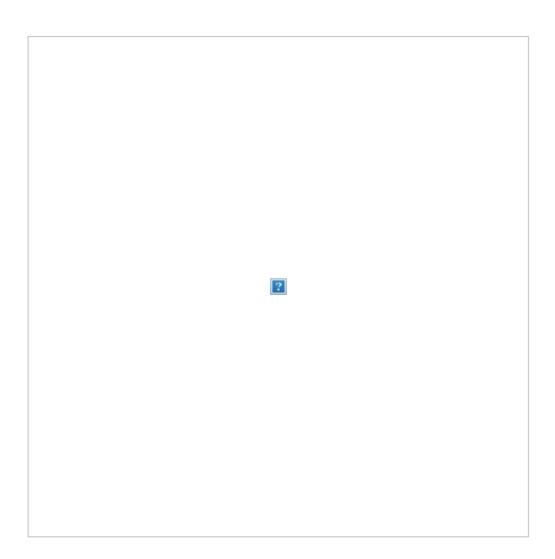
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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From: <u>UnitaryPlanSubmissionForm@donotreply.aucklandcouncil.govt.nz</u>

To: <u>Unitary Plan</u>

Subject: Unitary Plan Publicly Notified Submission - Plan Change 93 - Robyn Morrison

Date: Thursday, 23 November 2023 9:45:24 pm

The following customer has submitted a Unitary Plan online submission.

Contact details

Full name of submitter: Robyn Morrison

Organisation name: Kenilworth Orchards

Agent's full name: Robyn Morrison

Email address: tdrj.morrison@xtra.co.nz

Contact phone number:

Postal address: 1791 Old SH1 Warkworth Auckland 0983

Submission details

This is a submission to:

Plan change number: Plan Change 93

Plan change name: PC 93 (Private): Warkworth South

My submission relates to

Rule or rules:

The rezoning of 159 HA of rural and future urban land on the Old SH1 south of Warkworth

Property address: 1773 Old SH1

Map or maps:

Other provisions:

Do you support or oppose the provisions you have specified? I or we support the specific provisions identified

Do you wish to have the provisions you have identified above amended? No

The reason for my or our views are:

We support the application for rezoning of 159 Ha of rural and future urban land on the Old SH1 south of Warkworth. And also the establishment of the precinct for the Morrison Heritage Orchard. This is part of the history of the Warkworth area and will be a permanent green space focusing on the production of fresh fruit, vegetables and other local produce.

I or we seek the following decision by council: Approve the plan change without any amendments

Details of amendments:

Submission date: 23 November 2023

Attend a hearing

Do you wish to be heard in support of your submission? No

Declaration

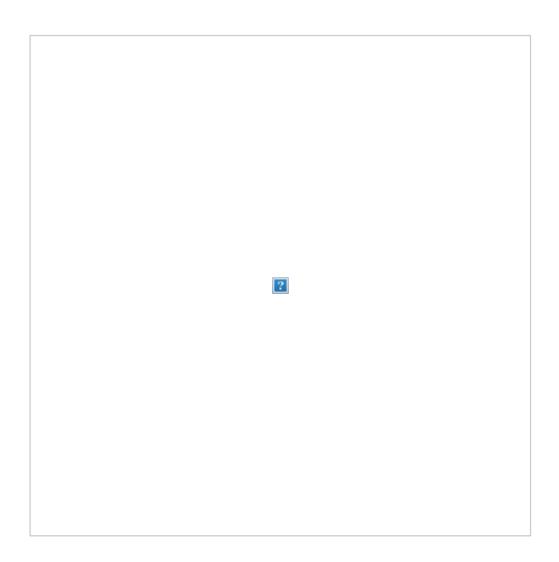
Could you gain an advantage in trade competition through this submission? No

Are you directly affected by an effect of the subject matter of this submission that:

- · Adversely affects the environment; and
- Does not relate to trade competition or the effects of trade competition.

No

I accept by taking part in this public submission process that my submission (including personal details, names and addresses) will be made public.



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Submission on Proposed Private Plan Change 93 – Warkworth South - Waimanawa

Clause 6 of Schedule 1, Resource Management Act 1991 (Form 5)

To: Auckland Council

1. SUBMITTER DETAILS

Name of Submitter(s): **Thompson Road Residents**

This is a submission on Proposed Private Plan Change 93 ("PPC93") to the Auckland Unitary Plan – ("AUP").

Thompson Road Residents could not gain an advantage in trade competition through this submission.

The Submitter's own properties on Thompson Road, Warkworth A map showing the location of Thompson Road in relation to the Plan Change area is **Attachment A**.

The Submitter's **SUPPORT** the Proposed Plan Change Request in principle, subject to the matters stated in this submission being addressed and for the reasons stated.

2. The Plan Change Request

PPC93 – Warkworth South - Waimanawa seeks a comprehensive rezoning and the introduction of Precinct provisions for Waimanawa (comprising of Waimanawa Valley and Waimanawa Hills) and the Morrison Orchard areas. The stated purpose of PPC93 is:

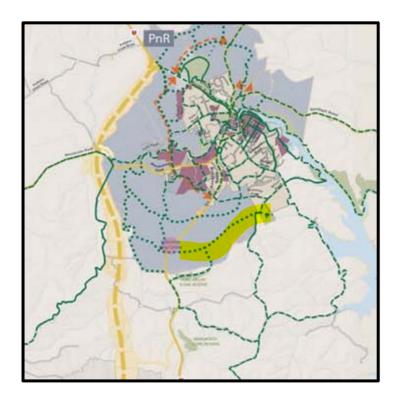
The purpose of the plan change is to re-zone land in Warkworth South to:

- (a) Provide for the continuation and expansion of the Morrison Heritage Orchard and further development of this site with supporting activities and limited residential development.
- (b) Enable the urban development of the remainder of the area (referred to as Waimanawa) to proceed generally in accordance with the outcomes sought through the Warkworth Structure Plan.

SCOPE OF SUBMISSION

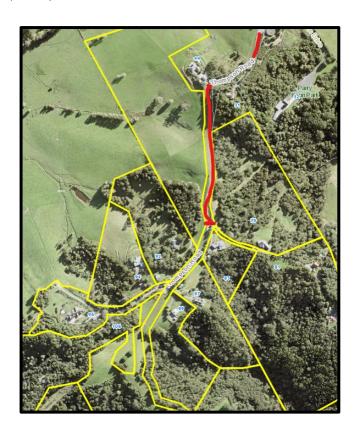
3. SUBMISSION

PPC93 Waimanawa – Precinct Plan 1 – Spatial provisions shows Indicative Off-Road Greenways Routes. There is a proposed route connecting through the existing native bush at the south-eastern end of 1768 State Highway 1 (the north-eastern most property included in PPC93) to the north. These indicative greenways appear to align with the networks shown on Rodney Greenways | Paths and Trails Plan – Pūhoi to Pakiri May 2017 maps – set out below:



It is unclear where the trail will connect to the north but the Pūhoi to Pakiri Trail indicates the trail traversing over private land.

Thomspon Road Residents consider it is more likely the trail will at some point in time, connect to Thompson Road. The formed part of Thompson Road – indicated with the red line below, is metal formation and in very poor condition. There are relatively high traffic volumes – traffic counted in May 2023 was approximately 60 vehicles in each direction per day which is almost double the previous traffic count in 2016 which was 38 vehicles in each direction per day.



Thompson Road Residents consider that given various issues, such as access over private property, kauri die back and the fact there is legal road in the vicinity, that is more likely than not, the trail will be directed to Thompson Road.

Walking and cycling access is supported in principle but it needs to be safe and functional. Future connections from the PPC93 area need to ensure that access on roads is safe and therefore road upgrades need to be planned accordingly.

Whilst outside of the matters that can be secured in the Plan Change the submission seeks to highlight wider infrastructure issues that will arise and need to be properly planned for to achieve outcomes indicated in the Plan Change documentation. The Agencies – Auckland Transport, Watercare and Auckland Council need to be aware of the flow on effects of the proposed plan change and make appropriate plans to achieve the effective and efficient integration of the infrastructure and urban development. The flow on effects should not be left with local residents and communities to manage.

3.3 Decisions Sought

Thompson Road Residents seek that PPC93 – Warkworth South plan change be **approved** with changes to provisions to address the matters raised in this submission.

It is sought that a note be added to Precinct Plan 1 – Spatial Provisions to indicate that the Trail to the north of 1768 State Highway is indicative and planned upgrades of Thompson Road to facilitate the trail will be required.

Thompson Road Residents wish to be heard in support of this submission.

If others make a similar submission, the Submitters will consider presenting a joint case at the hearing.

Yours sincerely

Burnette O'Connor Director | Planner

The Planning Collective Limited

Rustle O'Genor

Ph: +64 021 422 346

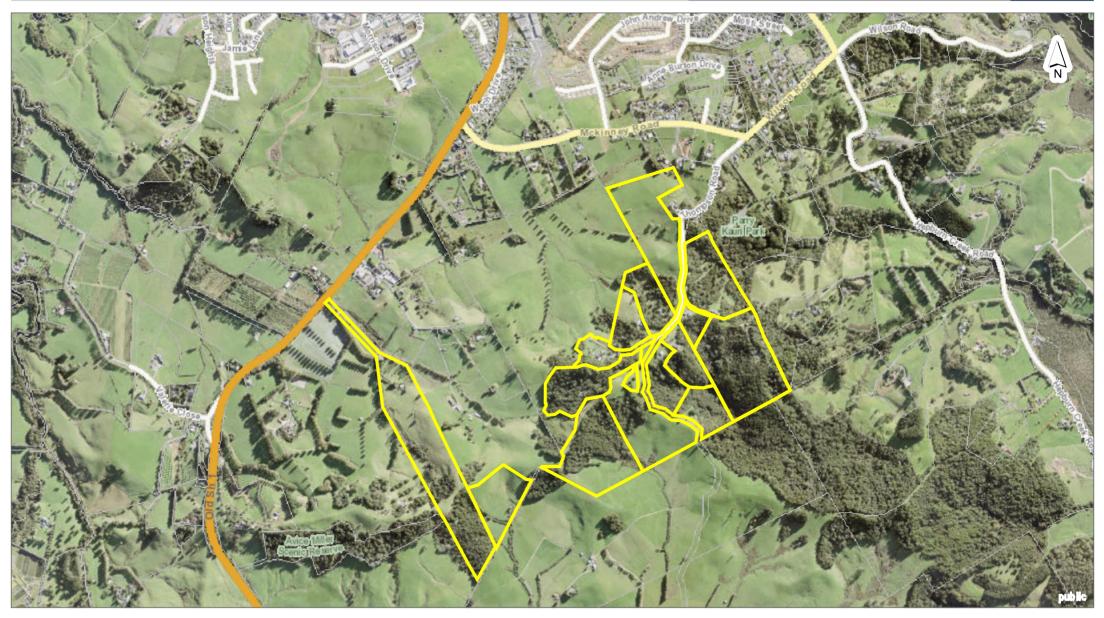
Email: burnette@thepc.co.nz

Attachment A – Thompson Road Location Map

Page 3 of 4

39.1

Auckland Council # 39 Map



DISCLAIMER:

This map/plan is illustrative only and all information should be independently verified on site before taking any action. Copyright Auckland Council. Land Parcel Boundary information from LINZ (Crown Copyright Reserved). Whilst due care has been taken, Auckland Council gives no warranty as to the accuracy and plan completeness of any information on this map/plan and accepts no liability for any error, omission or use of the information. Height datum: Auckland 1946.





From: <u>Murray Wilson</u>
To: <u>Unitary Plan</u>

Subject: Plan Change 93 Private) - Warkworth South Submission

Date: Friday, 24 November 2023 4:08:23 pm

Hi

I appreciate the formal submission date closed at midnight last night. This is an oversight on my part, so would appreciate your support in taking this submission into consideration. Specifically we have no objection to the above Plan Change 93 (Private), provided that there will be no further degradation of telecoms and Internet / broadband supply to our property as a result of the increase in residential and commercial premises within this defined zone i.e. the contention ratio, must be taken into consideration, inclusive of the nearby properties with the proposal.

Thanking you in advance for the support Kind regards M A & MG Wilson 120 Perry Road RD3 Warkworth 0983 Auckland

Form 5 Submission on notified proposal for policy statement or plan, change or variation

Clause 6 of Schedule 1, Resource Management Act 1991

To Auckland Council unitaryplan@aucklandcouncil.govt.nz

Submission No: Receipt Date:

Attn: Planning Technician Auckland Council Level 16, 135 Albert Street Private Bag 92300 Auckland 1142

Name of submitter: R and T Morrison, D Morrison

Submitter details

Full Name or Name of Agent (if applicable)

Terra Nova Planning Ltd (Contact: Shane Hartley)

Organisation Name (if submission is made on behalf of Organisation)

n/a

Address for service of Submitter

Terra Nova Planning, PO Box 466, Orewa

Telephone: 021 159 3240 **Email:** shanehartley@tnp.co.nz

Contact Person: Shane Hartley; Terra Nova Planning Ltd

Scope of submission

This is a submission on the following proposed plan change / variation to an existing plan:

Plan Change/Variation Number PC 93 (Private)

Plan Change/Variation Name: Warkworth South

The specific provisions that my submission relates to are:

(Please identify the specific parts of the proposed plan change / variation)

<u>Plan provision(s):</u> The Plan Change generally, and specifically the activity rules for the Part C Morrison Heritage Orchard Precinct

Or

Property Address:

Or

Map:

Other (specify):

Submission

My submission is: (Please indicate whether you support or oppose the specific provisions or wish to have them amended and the reasons for your views)

I support the specific provisions identified above

I wish to have the provisions identified above amended

X

The reasons for my views are:

- (a) We support the plan change in general.
- (b) We seek amendment to the activity table and standards relating to the Morrison Heritage Orchard Precinct as sought in the **Attachment** to this submission, or such alternative wording as may be appropriate. The amendments sought will provide greater clarity and certainty than the notified provisions.

I seek the following decision by Council:

Accept the proposed plan change / variation

Accept the proposed plan change / variation with amendments as outlined below

X

Decline the proposed plan change / variation

If the proposed plan change / variation is not declined, then amend it as outlined below.

Refer Attachment with amendments sought.

I wish to be heard in support of my submission

X

I do not wish to be heard in support of my submission

If others make a similar submission, I will consider presenting a joint case with them at a hearing

Χ

Shane Hartley

Signature of Submitter

Date: 28 November 2023 (Lodged online 23 November 2023)

(or person authorised to sign on behalf of submitter)

Notes to person making submission:

If you are making a submission to the Environmental Protection Authority, you should use Form 16B. Please note that your address is required to be made publicly available under the Resource Management Act 1991, as any further submission supporting or opposing this submission is required to be forwarded to you as well as the Council.

If you are a person who could gain an advantage in trade competition through the submission, your right to make a submission may be limited by clause 6(4) of Part 1 of Schedule 1 of the Resource Management Act 1991.

I could /could not gain an advantage in trade competition through this submission.

If you could gain an advantage in trade competition through this submission please complete the following:

I am / am not directly affected by an effect of the subject matter of the submission that:

- (a) adversely affects the environment; and
- (b) does not relate to trade competition or the effects of trade competition.

Table XXX.X.1 Activity table

	Activity status				
Visitor Activities and Accommodation					
(A1)	A maximum of four dwellings in Activity Area A as o				
	[INSERT OPERATIVE PLAN CHANGE DATE] or a single				
	site comprising Activity Area A.				
(A2)	One dwelling per site in Activity Areas A, B and C				
	other than as permitted in (A1) above and (A12) of				
	this Table.				
(A3)	Camping ground	Р			
(A4)	Garden centre	Р			
(A5)	Market s	Р			
(A6)	One minor dwelling per principal dwelling, excluding	Р			
	dwellings established under (A12) of this Table.				
(A7)	Produce sales	Р			
(A8)	Restaurant and café	Р			
(A9)	Rural commercial services	Р			
(A10)	Rural tourist and visitor activities	Р			
(A11)	Visitor accommodation	Р			
(A12)	Workers' accommodation	Р			
(A13)	Weddings and functions	Р			
(A14)	.4) Activities (A1) to (A13) not complying with the				
	standards in Rule XXX.6 below				
Development					
(A15)	New buildings or additions up to 250m ² GFA in all	Р			
	Precinct Activity Areas				
(A16)	16) New buildings or additions 250m ² GFA <u>or greater</u> in				
	all Precinct Activity Areas.				
Subdivision					
(A17)	Subdivision complying with Standard XXX.6.11.	RD			
(A18)	Subdivision not complying with Standard XXX.6.11.	D			

XXX.5. Notification

- (1) An application for resource consent for a restricted discretionary activity listed in Table XXX.X.1 above will be considered without public or limited notification or the need to obtain written approval from affected parties unless the Council decides that special circumstances exist under section 95A(4) of the Resource Management Act 1991.
- (2) When deciding who is an affected person in relation to any activity for the purposes of section 95E of the Resource Management Act 1991 the Council will give specific consideration to those persons listed in Rule C1.13(4).

41.1

41.14

41.2

XXX.6. Standards

The overlay, zone and Auckland-wide standards apply in this precinct unless otherwise specified below.

All activities listed as permitted, restricted discretionary in (A16) and subdivision in (A17) in **Table XXX.X.1** Activity table must comply with the following standards.

XXX.6.1 General access and traffic generation standard

- (1) All activities shall obtain access to State Highway One in accordance with the Approved Entry Point (AEP) shown on the Precinct Plan.
- (2) Activities A3 to A13, excluding produce sales (A7), listed in Table XXX.X.1 above do not either singularly or cumulatively exceed a trip generation threshold of 100 v/hr (any hour).

XXX.6.2. Camping grounds within Precinct PlanActivity Areas A and B

- (1) Camping ground(s) for a maximum of 50 sites with in each either of Activity Areas A and B.
- (2) <u>Camping ground sites shall not cumulatively exceed 100 sites over both Activity Areas A</u> and B

XXX.6.3. Garden Centre within Precinct Plan Activity Areas A and B

- (1) The maximum area of a garden centre in including building and outdoor sales and storage areas is 750m².
- (2) Only one garden centre may be established in either Activity Area A or B, but not both.

XXX.6.4. Markets

- (1) The location of the market shall be located within Activity Area B.
- (2) A-The market shall have a maximum of 100 stalls.
- (3) The trading hours of markets are limited to 7.00am until to 11.00pm.
- (4) Any other activities associated with the market must not occur between midnight and 6.00am.
- (5) Stalls involved in the markets are limited to the sale of food and beverages or items produced by the stall holder which may include fresh and processed goods, small holding livestock, artwork, crafts and pottery and includes locally made products. This includes shops with an operational function (e.g. cheese making).

41.4

41.5

*1*1 6

XXX.6.5. Produce sales

- (1) The location of the Orchard produce sales shop shall be located within Activity Area B of the Precinct plan.
- (2) A The produce shop shall have a maximum of 450m² including building and outdoor sales for the display and sale of produce.
- (3) The type of produce offered for sale on the site must be confined to the following:
 - (a) fruit, vegetables, plants, eggs, flowers, honey, dairy products, meat, beer, wine, juices.
 - (b) produce or products from on-site primary produce manufacturing.
 - (c) produce and handcrafts not grown or produced on the site or on a site in the locality, shall not exceed 10 % of the GFA produce display and sales area.

XXX.6.6. Restaurant and cafe

- (1) One restaurant and one café may be established in Activity Area B.
- (2) A restaurant or café shall <u>each provide have maximum</u> seating for a <u>maximum of 120</u> people.
- (3) The hours of operation of both a restaurant or and café are limited to 7.00am to midnight.

XXX.6.7. Rural tourist and visitor activities

(1) Rural tourist and visitor activities for a maximum of 500 people <u>cumulatively</u> in Activity Areas A and B.

XXX.6.8 Visitor accommodation

- (1) Visitor accommodation (including manager's accommodation) for a maximum of 25 units or 100 people (whichever is greater) within either or both each of Activity Areas A and B.
- (2) <u>Visitor accommodation shall not cumulatively exceed 50 units or 200 people (whichever is greater)</u> over both Activity Areas A and B.

XXX.6.9 Weddings and functions

- (1) Wedding and function activities may occur within either or both Activity Areas A and B.
- (2) The activity may include use of an existing restaurant / café on the site and temporary or semi-permanent marquees.

XXX.6.10. Workers accommodation

- (1) Workers accommodation with a maximum of 10 dwellings in total in either or both within each of Activity Areas A and B complying with the following:
 - (a) Dwellings shall comply with all the relevant yard setbacks and height standards for buildings in the Zone.

41.8

41.9

41.10

41.11

41.12

- (b) Dwellings shall have a maximum floor area of 120m² excluding decks and garaging. The floor area may include a dormitory or individual rooms.
- (c) The accommodation may accommodate seasonal workers.
- (2) Workers accommodation shall not cumulatively exceed 20 dwellings over both Activity Areas A and B.