

Notice of Meeting:

I hereby give notice that an ordinary Meeting of the Finance Committee will be held on:

Date: Tuesday 20 September 2016
Time: 1.30pm
Meeting Room: Council Chamber
Venue: Municipal Building, Garden Place, Hamilton

Richard Briggs
Chief Executive

Finance Committee OPEN LATE AGENDA

Membership

Chairperson	Cr R Pascoe
Deputy Chairperson	Cr G Mallett
Members	Her Worship the Mayor J Hardaker Cr G Chesterman Cr M Forsyth Cr M Gallagher Cr K Green Cr A King Cr D Macpherson Cr A O'Leary Cr L Tooman Cr E Wilson Cr P Yeung

Quorum: A majority of members (including vacancies)

Meeting Frequency: Six weekly

Becca Brooke
Committee Advisor

16 September 2016

Telephone: 07 838 6439
Becca.Brooke@hcc.govt.nz
www.hamilton.govt.nz

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Committee: Finance Committee

Date: 20 September 2016

Report Name: Recommendations from the
PricewaterhouseCoopers
review of Hamilton Zoo

Author: Debbie Lascelles

Report Status	<i>Open</i>
Strategy, Policy or Plan context	<i>Hamilton Plan, 10-Year Plan</i>
Financial status	<i>There is not budget allocated Amount \$515,000 opex</i>
Assessment of significance	<i>Having regard to the decision making provisions in the LGA 2002 and Councils Significance Policy, a decision in accordance with the recommendations is not considered to have a high degree of significance</i>

1. Purpose of the Report

1. To report the outcome of the Worksafe Prosecution.
2. To approve additional operational budget for Hamilton Zoo to implement the staffing recommendations made by PricewaterhouseCoopers.

2. Outcome of Worksafe Prosecution

3. Worksafe New Zealand (Worksafe) charged the Council on 18 March 2016. The Council entered a guilty plea at the earliest opportunity on 9 June 2016, to the charge of failing to take all practicable steps to ensure the safety of its employee Samantha Kudeweh, whilst at work.
4. The Council appeared for sentencing on 16 September. The Judge handed down a fine of \$38,250.00 and a payment for consequential loss to each of the couples two children of \$5181.80 each. Had the Council not already paid approx. \$116,000 to the family the court would have ordered \$100,000 as the appropriate level of emotional harm reparation.

5. PwC Review - Executive Summary

6. A review of Hamilton Zoo was completed by external consultants PricewaterhouseCoopers (PwC) in July 2016. The review generated a number of recommendations for improvements across the Zoo including modifications to animal enclosures and related procedures, especially those related to health and safety for keepers and the general public. Additionally, the report recommends changes to the staffing structure including increased FTE to ensure a good level of functional and leadership capacity.
7. A number of the modifications outlined in the PwC report were also identified in the internal HCC accident investigation and Worksafe NZ prosecution and were implemented in 2015/16 at a capital cost of \$210,000. Additional capital funding of \$300,000 has already been allocated in the 2016/17 Annual Plan to undertake further improvements to enclosures.

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8. Some additional staff (three Zoo keepers and one Team Leader) were recruited in 2015/16 to implement the two keeper system for tigers and chimpanzees and an associated budget of \$195,000 has been included in the 2016/17 Annual Plan.
9. PwC have recommended an additional 9.12 FTE, requiring a further \$515,000 of operational budget.
10. Additional recruitment will allow the Zoo to extend the two-keeper system to include African Wild Dogs.
11. The staff recommendation is for the Finance Committee to approve the implementation of the enhanced delivery model to ensure a high level of safety for animals, staff and the public balanced with a strong focus on animal welfare and an enjoyable experience for visitors.
12. Should staffing remain at the current levels, it is likely to result in limited resilience, inadequate cover during staff leave and an inability to implement the required level of commitment to health and safety. In the long term, this will also impact on the conservation and visitor experience purposes of the Zoo.

Recommendations from Management

- a) That the report be received
- b) That Council approves funding for an additional 9.12 FTE at Hamilton Zoo. Additional budget of \$302,000 is to be included in the Risks and Opportunities Schedule for the remainder of the 2016/17 year and \$515,000 to be allocated in the 2017/18 Annual Plan
- c) That Council considers the draft Zoo Master Plan for public consultation at the relevant Committee by April 2017.

13. Attachments

14. Attachment 1 - Zoo Report - 2013 Incident
15. Attachment 2 - PwC Hamilton Zoo Review 2016
16. Attachment 3 - Actions completed since 20 September 2015
17. Attachment 4 - Hamilton Zoo Staff Structure Including Recommended New Positions

18. Key Issues

19. Background
20. In December 2015, PricewaterhouseCoopers were commissioned to undertake an independent review of Hamilton Zoo. There were a number of factors influencing the need to complete this review, including an organisational restructure in early 2015 relocated the Zoo from the Events and Economic Development Group to the Community Group.
21. Additionally, an HCC internal safety investigation took place immediately following the tragic death of Samantha Kudeweh while working in a tiger enclosure on 20 September 2015. This raised the need to undertake a review of the Zoo and ensure a thorough investigation of corrective actions was undertaken. Senior management supported an independent review of the Zoo's broader operations to highlight any other areas that could benefit from improvement with a particular focus on health and safety when working with dangerous animals.

22. Following the receipt of Worksafe NZ v HCC – Zoo Fatality staff progress report, the Council made the following resolution at the 19 May 2016 Council meeting:
- That:
- a) The report be received; and
 - b) The Chief Executive provide a report on the incident at the Hamilton Zoo in 2013 at the same time as the PwC report is reported to Council.
23. Note the Chief Executive’s report on the 2013 incident is attached to this report (see attachment one).
24. Findings and Recommendations (see attachment two)
25. The review generated a number of recommendations for improvements across the Zoo including the Zoo’s animal enclosures, policies and procedures relating to animal management and the Zoo’s organizational structure including rostering practices, workforce planning and training.
26. Capital improvements completed include improvements to the safety railing on the Chimpanzee bridge, an additional fence around both tiger houses, repositioning of the personnel entry in the southern tiger exhibit, mechanical failsafe latches in both tiger enclosures, and an upgraded aerial to improve radio transmission (RT) signals (see attachment three).
27. Changes made to the Chimpanzee bridge mitigate the risk that parents use the safety railing to seat or stand their children on. In addition to improved signage, the safety railing has been repositioned and plastic spikes have been added to prevent this practice.
28. Fully enclosing the current bridge or adding higher screens is not possible, as the bridge was not designed to take the additional weight or added wind resistance this would create. The design of the bridge also needs to ensure it cannot be climbed by Chimpanzees. Options for redesign are currently being investigated and will be brought to the Council for further consideration.
29. Further capital improvements are currently being progressed. These include the installation of CCTV, improvements to the southern tiger exhibit and further improvements to public viewing areas.
30. There are currently 35.73 FTE employed at Hamilton Zoo. This number includes three Zoo keeper positions that were appointed to implement a two-keeper system with tigers and chimpanzees and a team leader to manage the additional staff. An Operations Manager has been approved under Chief Executive delegation and is currently under recruitment.
31. A key finding of the PwC review was that improved rostering is required to provide better cover for staff absences, an increased emphasis on leadership development, planning and time allocated to training, safety drills, audits, and the review of procedures. An additional 9.12 staff (which includes the Operations Manager, three additional keepers, permanent part-time keepers equivalent to four FTEs and a Business Support Manager) would increase the number of FTEs to 44.85 (see attachment four).
32. It should be noted, that Wellington Zoo have increased their FTEs by five staff following the 2015 incident in Hamilton and as a result of a benchmarking exercise between New Zealand Zoos to assess animal care staffing and animal to keeper ratios.
- 33. Where to from here?**
34. Staff recommend that additional budget is approved to allow implementation of the staff changes outlined in the PwC report.

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- 35. It is proposed that the operational cost of \$302,000 for new staff for the remainder of the 2016/17 FY is added to the Risks and Opportunities Schedule and \$515,000 is allocated in the 2017/18 Annual Plan.
- 36. Immediate changes to policies and procedures following the Worksafe investigation have contributed to a requirement for additional staff. Two-keeper routines were introduced for tigers as a result of a Worksafe instruction and staff have extended this to chimpanzees to ensure consistency of process across category 1 dangerous animals. Additional keepers are still required to extend the two-keeper system to African Wild Dogs.
- 37. With a renewed focus on ongoing health and safety, it is vital that new procedures are systemised and embedded properly into teams and staff have sufficient time to comply with all procedures that are in place, including regular audits and drills. There are risks associated with processes being applied inconsistently.
- 38. PwC’s analysis demonstrates the minimum requirement to fully resource the current Zoo roster. A deviation from this will compromise the Zoo’s ability to deliver a safe environment for its staff, animals and visitors.
- 39. Zoo Master Plan
- 40. The draft Zoo Master Plan was developed in 2014 by a working group of elected members and external specialists. It outlines the strategic direction for the Zoo and is yet to be approved for public consultation and adopted by Council. It is proposed that the draft Zoo Master Plan be considered at the relevant Council Committee by April 2017.

41. Financial and Resourcing Implications

- 42. The additional capital expenditure in 2015/16 was \$210,542 for changes to animal enclosures arising out of the corrective actions. This cost was managed through the Risks and Opportunities Schedule reported to the Finance Committee.
- 43. An additional \$300,000 capital budget has been allocated in the 2016/17 Annual Plan for further capital improvements. If the budget exceeds allocation, staff will report to Council for further consideration.
- 44. \$515,000 unallocated operational budget needs to be approved for additional staffing. This will result in a cost of \$302,000 of unallocated operational budget for the remainder of the 2016/17 FY which will be managed through the Risks and Opportunities Schedule and the full amount will need to be allocated in the 2017/18 Annual Plan.

45. Risk

- 46. Failure to implement recommendations for increased staffing will pose a potential risk to existing staff, given the increased workload arising from two-keeper systems and the need for a robust rostering system, as well as greater emphasis on health and safety requirements. Senior management strongly recommends that the increased staffing, other capital upgrades and procedural enhancements recommended by PwC are implemented.

Signatory

Authoriser	Lance Vervoort, General Manager Community
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Committee: Council **Date:** 29 September 2016
Report Name: Hamilton Zoo – 2013 Tiger Incident **Author:** Richard Briggs

1. **Purpose of the Report**
2. To provide information on the breach of containment of a Sumatran tiger at Hamilton Zoo in 2013.
3. **Outline of Incident**
4. A breach of containment occurred at Hamilton Zoo on 16 March 2013 when an adult Sumatran tiger escaped from a den through a door that was left open giving access from the tiger den to the service area, reserved for keepers. The tiger walked from the service area and entered into the display exhibit with a keeper. The incident did not involve the sliding gates in the tiger race. There was no incident of harm and the zoo was not required to notify Worksafe.
5. As legally required for a breach of animal containment, the Zoo Director reported the incident to MAF Biosecurity (now Ministry of Primary Industries - MPI). The report, dated 25 March 2013, is attached and provides an outline of the incident. The Zoo Director presented the report to the Senior Leadership Team on 8 April 2013 and outlined the corrective actions taken and approved by MAF.
6. The corrective actions included the implementation of a key retention system, lighting improvements, installation of a mesh gate door in the personnel service area, and a double gate safety porch personnel entry to the display exhibit. Additionally, the staff member involved was removed from working with tigers until further competency training and assessment was completed.
7. In the original staff investigation report, there was a recommendation to increase the height of the fence in the personnel service area from 1.8m to 4.7m. After further investigation, it was decided that the addition of a mesh gate in the personnel area of the den, along with the key retention system would be most effective in ensuring the tigers were contained.
8. A two keeper system was not a recommended corrective action at the time, as there was no evidence to suggest this was safer than a one keeper system. The Zoo Director was aware of the incident at Wellington Zoo in 2008 where a zoo keeper was mauled by lions after incorrectly assuming a second zoo keeper had closed a gate.
9. LGOIMA requests relating to the 2013 incident have been received from the Hamilton Press, New Zealand Herald and the Waikato Times. All information requested has been provided including investigation reports, staff and witness statements, corrective actions, and MPI approval of the actions implemented.

Events & Economic Development/Hamilton Zoo

To: Crystal Lange, MAF Biosecurity NZ
 From: Stephen Standley, Director, Hamilton Zoo
 Subject: Breach of Containment – Sumatran Tiger – 16 March 2013
 Date: 19 March 2013 File: Containment

Introduction

This is to report a breach of containment at Hamilton Zoo at approximately 12.30pm on Saturday, 16 March 2013 when an adult, hand-raised Sumatran tiger escaped from an insecure den and entered the exhibit when the keeper was present.

This incident occurred in the old tiger house and main exhibit, not the new tiger house at the north-eastern end of the exhibit, which was inspected by Crystal Lange on 3 July 2012 and approved for use on 14 July 2012. This house and a new fence splitting the main exhibit into two (approved for use on 27 February 2012) are the only alterations to this exhibit since it was inspected as part the annual containment facility audit by Mike Aitkenhead on 11 August 2008.

The 3,800m² exhibit, ENC13/13A, consists of a large, planted enclosure (split into two areas) surrounded by a 5-metre high mesh fence with 1-metre overhang plus internal power-fence lines attached to a concrete block house containing 3 dens and a keeper service area and two adjoining, fully enclosed holding areas. The house and holding areas are enclosed within a 1.8 metre high mesh fence, clad in opaque weed-matting and a vehicle gate.

Hamilton Zoo currently holds 3 Sumatran tigers:

- Male, Jaka, born 10.1.2000, arrived at Hamilton Zoo 8.3.2001.
- Female, Mencari, litter mate to male, arrived same time.
- Female, Sali, born 10.4.2008, hand-raised at Dreamworld, arrived at Hamilton Zoo on 20.8.2012.

Incident

Keeper, [REDACTED] returned to work on Saturday, 16 March 2013, following 3 weeks annual leave. She has worked with our tigers since the original ones arrived on 8 March 2001. She has signed to confirm that she has read and fully understood the Work Instruction: Keeper and Animal Safety, version 3.0, issued 23.1.2013 (attachment 1). Her signature is dated 31 January 2013.

Two tigers, Jaka and Sali, are currently using the old house but maintained separately and Mencari is using the new house and enclosure ENC13A. [REDACTED] started to service the old tiger house at 9.30am.

This involved moving Jaka into den 1 and holding area 1 from the display exhibit where he had been overnight, transferring Sali into the display exhibit and then cleaning den 3. It was a bright day so visibility was good although lighting can be poor in the old tiger house. She finished at approximately 10am but states that she had her mind on her next task, servicing the cheetahs, and apparently left the door to den 3 open – the den was empty at that time with Sali locked in the display enclosure.

At 12.20pm, [REDACTED] returned to the tiger house to set up for her keeper talk. She sorted out the radio microphone and got some meat out of the fridge and did not notice the open door to den 3, which was less than 2 metres to her right but slightly obscured by a wooden tiger bed placed in the keeper area (den 3 door (closed) in centre of photo).



The Work Instruction: Keeper and Animal Safety requires the keeper to **physically check all gates are correctly secured before letting animals back into an area when working with large and medium sized carnivores.**

These checks were not carried out. [REDACTED] let Sali into the off display area, including the insecure den, and went into the exhibit to place the meat for the talk. She was 10 metres into the exhibit when Sali ran up to her and playfully swatted at her gumboots. Sali was hand-raised and played with her handlers at Dreamworld up until her transfer to Hamilton Zoo last year. The tigress must have left den 3 via the open door, exited the house through a second insecure door, run around the outside of holding area 2 and then entered the exhibit through the open keeper gate, i.e. a sequence of three open doors (see plan, attachment 2).

[REDACTED] did not panic. She returned to the keeper gate and exited the enclosure, shutting Sali inside. She did not sustain any injuries. She allowed Sali back into the race to dens 2 and 3 and holding area 2 but then realised that she must have left the door to den 3 open and managed to secure this without allowing Sali to escape again.

[REDACTED] then continued with her keeper talk. A number of zoo visitors and two volunteer Zoo Hosts observed the keeper and tigress in the exhibit together and the two volunteers, [REDACTED] and [REDACTED] have both provided statements of what they saw. Both [REDACTED] and [REDACTED] were asked about the incident by zoo visitors and were told that Sali is hand-raised and used to people but we do not go in with her and this was a mistake.

Corrective Action

1. [REDACTED] has been taken off working with the tigers whilst she is subject to an internal review. Subject to this, her competency will be reassessed so that a decision can be made on whether she is to be allowed to work with tigers again. Assigned to Zoo Curator.
2. Safe working practices around dangerous animals was emphasized by the Zoo Director at the morning staff briefing on 18 March 2013. All tiger keepers instructed that the tiger house door is to be locked closed when exiting the building, even when servicing the exhibit. The Work Instruction: Keeper and Animal Safety to be updated if required to clarify this expectation. Further training on this Work Instruction will be provided at the next keeper meeting, scheduled for 27 March 2013. Assigned to Zoo Curator.
3. The Zoo Hazard Register to be reviewed by 31 March 2013 to identify possible improvements resulting from knowledge gained from this incident. Assigned to Zoo Director.
4. The Emergency Procedures Manual to be reviewed by 31 March 2013 to identify possible improvements resulting from knowledge gained from this incident. Assigned to Zoo Curator.
5. Two structural improvements have been identified to reduce future risk in this area:
 - a) The 1.8 metre high fence around the old tiger house will be replaced by a fully tiger-proof fence (5-metre plus 1-metre internal overhang) and Barakat Contractors Ltd are scheduled to measure up the job on 20 March 2013.
 - b) Lights in the old tiger house will be upgraded before the end of April 2013 as lighting is poor house when the external door is closed.



Stephen Standley
Zoo Director

Attachment 1: Work Instruction: Keeper and Animal Safety and keeper endorsement form.

Attachment 2: Sketch plan of exhibit showing route taken by tiger and location of keeper.

Stephen Standley

From: Stephen Standley
Sent: Wednesday, 27 March 2013 17:29
To: 'Crystal Lange'
Cc: Samantha Kudeweh
Subject: Hamilton Zoo tiger house audit
Attachments: Zoo work instruction - Keeper and animal safety.DOCX

Hi Crystal,

Many thanks for your time auditing the tiger house yesterday in response to the critical incident on 16 March.

I have revised the corrective actions in my original memo, dated 19 March 2013, to reflect yesterday's discussions as follows:

1. Animal was returned to containment and holding area was secured.
2. Incident due to keeper error/failure to comply with procedures and she will not be allowed to work with tigers for at least 12 months, during which time she will be retrained and competency reassessed.
3. The Work Instruction: Keeper and Animal Safety has been reviewed and additional measures added (revised document attached with changes highlighted). The document clarifies and expands upon the key retention system, setting out specific actions in regards to padlocks and backstop doors. This system to be extended to all carnivore and primate enclosures.
4. The Zoo Curator will sit down individually with all keeping staff and go through the revised document to ensure full understanding of its requirements (underway).
5. The Zoo Hazard Register to be reviewed by Zoo Director tomorrow to identify possible improvements resulting from knowledge gained from this incident.
6. The Emergency Procedures Manual does not require any changes following this incident.
7. It has been agreed that replacing the fence around the old tiger house is not required but a number of structural changes will be made to slides, doors and lighting to improve day-to-day operations in this area. Assigned to Zoo Director and will be implemented by the end of May 2013.
8. Staff capability and rostered duties are regularly reviewed by the Zoo Curator. Consideration will be given to the assessment of staff competency following long term leave.

Regards,

Stephen Standley
 Zoo Director | Hamilton Zoo

DDI: 07 838 6954 | Mob: 021 912 113 | Email: stephen.standley@hcc.govt.nz

Hamilton City Council | Private Bag 3010 | Hamilton 3240 | www.hamilton.co.nz
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Hamilton Zoo Review

18 August 2016

pwc

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Disclaimer and restrictions

This report has been prepared for Hamilton City Council and solely for the purposes stated herein and should not be relied upon for any other purpose. This report is strictly confidential and (save to the extent required by applicable law and/or regulation) must not be released to any third party without our express written consent which is at our sole discretion.

To the fullest extent permitted by law, PwC accepts no duty of care to any third party in connection with the provision of this report and/or any related information or explanation (together, the "Information"). Accordingly, regardless of the form of action, whether in contract, tort (including without limitation, negligence) or otherwise, and to the extent permitted by applicable law, PwC accepts no liability of any kind to any third party and disclaims all responsibility for the consequences of any third party acting or refraining to act in reliance on the Information.

We have not independently verified the accuracy of information provided to us, and have not conducted any form of audit. Accordingly, we express no opinion on the reliability, accuracy, or completeness of the information provided to us and upon which we have relied. The statements and opinions expressed herein have been made in good faith, and on the basis that all information relied upon is true and accurate in all material respects, and not misleading by reason of omission or otherwise. The statements and opinions expressed in this report are based on information available as at the date of the report.

We reserve the right, but will be under no obligation to review or amend our report, if any additional information, which was in existence on the date of this report, was not brought to our attention or subsequently comes to light.

This report is not to be copied or released to any other party, or referred to in any public forum, without our prior written consent for each party/purpose requesting its release.

This report is issued pursuant to the terms and conditions of our terms of engagement with Hamilton City Council dated 29 January 2016 and 29 April 2016.

1. Introduction

1.1 Background

At the request of Hamilton City Council (The Council), PwC has undertaken an independent Review of Hamilton Zoo (The Review) including the current staff structure, processes and animal enclosures of category 1¹ and 2² animals. The request for the Review was driven by two factors:

1. The Council restructure in 2015 which transferred the management of the Zoo from the Events and Economic Development Group to the Community Group which was designed to focus the Zoo operations around community public good, whilst providing additional opportunities to enhance cost effectiveness and efficiency through integration across the Community Group.
2. Following the incident which resulted in the fatality of a staff member in the tiger enclosure in September 2015. As well as carrying out an internal investigation of the incident, management initiated an assessment of the Zoo operation including dangerous animal enclosures, staffing structure and resourcing, and supporting processes.

PwC developed the following purpose statement of the Review to help clarify the scope of the Review:

The purpose of the Hamilton Zoo Review was to: **identify opportunities in the Hamilton Zoo operating model that will contribute towards a more sustainable, safer working environment without compromising animal welfare or visitor experience, which leverages synergies with other council Community services and supports the implementation of the draft Zoo Master Plan.**

The detailed scope included a review of:

- Physical animal enclosures with a focus on category 1 and 2 animal enclosures from a Health & Safety perspective.
- Policies, Standard Operating Procedures, relevant accountabilities and processes specific to the management of category 1 and 2 animals.
- The Zoo's organisation structure, including identifying opportunities to leverage wider Hamilton City Council capability and capacity.
- HR practices that impact on the capability and capacity of the Zoo's workforce, i.e. rostering practices, workforce planning and training.
- KPIs specifically linked to the Zoo's operations that are in scope of the Review.

The Review specifically excluded the following:

- Investigation of the fatality at the Zoo in September 2015.
- Review of the Zoo's strategic direction.
- Review and implementation of the Zoo Master Plan.
- Review of the participation in international breeding programmes.

¹ Category 1 animals are classified as: Sumatran tigers, African hunting dogs and chimpanzees.

² Category 2 animals are classified as: cheetahs, white rhinoceros, water bucks, zebras, giraffes, bison and male ostriches.

1.2 Review team

The review was carried out by a number of specialists from PwC's Management Consulting practice:

Chris Alderson who heads the Health and Safety practice for PwC's New Zealand firm. Chris has more than 25 years' experience in leading and delivering complex change and governance programmes. Chris has extensive experience in continuous improvement, business process re-engineering, business transformation, risk management, systems, governance and developing and implementing improvement frameworks for shared services, operations and health and safety.

Chris was supported by Peter Stroud, a zoo specialist and consultant, based in Australia. Chris and Peter were responsible for completing the physical assessment of the category 1 and 2 enclosures and operating procedures.

Sue Fountain who leads PwC's People and Organisation practice and has over 18 years' experience in operating model design and improvement, business and HR transformation, organisation design and alignment and organisational change management in the public and private sector.

Liz Greenwood who has over 13 years' experience working with local government in both hands on senior management roles and as a consultant. She has a broad skill set including organisation design, process improvement, human resources and change management.

Liz and Sue were responsible for reviewing the Zoo's broader operating model, including its organisation structure and rostering arrangements.

The team were supported by PwC Partners and the PwC team in the Hamilton office.

1.3 Approach

A phased approach was used for the Review:

1. Analyse in scope elements of the Zoo's operation and identify opportunities for review and prioritisation through staff workshops, meetings, interviews and observation.
2. Prepare recommendations for improvement opportunities.

Site visits were conducted at the Zoo between 1 and 6 February 2016. This included visits to each category 1 and 2 animal enclosures and on site interviews with animal keeping staff to understand current working practices, identify potential issues and identify improvement opportunities. This also included a review of the operating procedures for each animal category.

A number of workshops were held with staff and managers. These workshops focused on what participants thought was currently working well and what needed to be improved or changed to improve the overall operation of the zoo. Subsequently, recommendations were tested with the Zoo Curator and Zoo Director.

A workshop was also facilitated with the Community Group leadership team to discuss potential synergies between the group's operations, particularly in the marketing and communications of events and tourist attractions.

A benchmarking analysis of staffing numbers was undertaken across zoos using data provided by the Zoo and Aquarium Association Australasia (ZAA), and, at a more local level, information from New Zealand zoos.

Throughout the assessment PwC applied a health and safety, and risk management lens to the work that was undertaken.

1.4 Structure of this Report

This Report provides a summary of the Review context, findings and recommendations for three focus areas:

- Section 2 - Health and Safety associated with the enclosures and management of category 1 and 2 animals.
- Section 3 - Capability and capacity.
- Section 4 - Governance and sustainability.

1.5 Strengths of the Zoo identified during the Review

The Review identified a number of areas for enhancement and these were communicated to Zoo management throughout the review process. The Zoo and Council senior management have already established a programme to address key findings and associated recommendations. However, it is important to set the Review outcomes against the wider context of the organisation and elements which work well and need to be retained and leveraged. These include:

- The Zoo's focus on visitor experience.
- The current model for marketing and management of social media.
- A passion for the Zoo amongst staff and a strong sense of collegiality and collaboration.
- Appreciation by staff of the approachability of Team Leaders and the Zoo Director and the "can do" attitude of the leadership team.
- The good progress which has been made towards the development of Standard Operating Procedures.
- The quality of the presentation of public areas of the Zoo.
- The Zoo's strong relationships with other zoos and the Zoological Association and its good reputation in terms of breeding programmes and animal welfare.
- Zoo and Aquarium Association Australasia (ZAA) accreditation.
- Compliance with MPI animal containment standards.

2. Context and Recommendations – Health and Safety

2.1 The Review

Each enclosure for category 1 and 2 species was visited by PwC's Health and Safety director and the independent zoo specialist, with key members of the animal keeping staff, who demonstrated how the facilities were operated. Issues that potentially presented a risk to staff and members of the public were identified and noted. Issues identified include a number of possible scenarios, which, even if unlikely, could lead to:

- An escape of the animal from the facility.
- Unauthorised entry to a facility by a member of the public.
- Contact between an animal and any person, in any circumstances, that could lead to injury or death.
- Injury caused to any person through the normal operation of the facilities as designed and constructed.

The relevant "Zoo work instructions" including husbandry standards, work round routines and other documented operating procedures were also examined. These are important because the safe movement and securing of the animals inside facilities requires appropriate standardised procedures and practices.

When considering the effectiveness of procedures the following questions were considered:

- Are the procedures and practices for the delivery of care to the animal appropriate for the facilities in order to avoid the risk of animal contact or escape?
- Are the procedures and practices for the delivery of care appropriately documented in order to ensure they are applied consistently to maintain the required standard of safety and security?
- Are the people delivering care to the animal appropriately trained and experienced?
- Is sufficient time allowed for the proper implementation of safe procedure and practice?

2.2 Local and global standards

In New Zealand, the Ministry for Primary Industries (MPI) provides the requirements for animal containment and these are audited as part of the Zoo's regulatory requirements.

There is no international guidance on how to build zoo exhibits and zoos still largely construct animal facilities based on the knowledge and experience of zoo staff and industry experts regarding what such exhibits should deliver in terms of animal welfare and human safety. It is possible, therefore, to observe in zoos, and even within a single zoo, different approaches to the containment of a given species.

Additionally, there is no global standardised approach in zoos to the identification of risks associated with the care and presentation of captive wild animals. Zoos generally consider the following issues in identifying the risks animals present:

- The biology of the animal in question, including its size, weight and behaviour.
- The animal's capacity to inflict injury or death through natural responses to stimuli that may be presented to it, deliberately or accidentally at any time.

There is a requirement to service and maintain the spaces that are occupied by animals and therefore there is a need to move animals between secure captive spaces and to confine them so that such servicing can take place safely.

In reviewing how a zoo is managing the risks presented by dangerous animals, it is appropriate to consider the following questions:

- Do the conditions in which the animal is kept appropriately account for its biology?
- Are the facilities sufficiently secure to contain the animal at all times and to prevent its escape into the surrounding environment?
- Can appropriate care be delivered to the animal inside the facilities, without incurring a risk of it escaping or coming into direct contact with any person?

2.3 Good practices for design of enclosures and procedures

In reviewing the enclosures and procedures for category 1 and 2 animal management, and emergency procedures, good practice principles were referenced. These include:

- Critical risks are eliminated or minimised utilising engineered controls wherever reasonably practicable.
- Design of enclosures should be as simple as possible so there are clear lines of vision and so that it is possible to confirm animal whereabouts.
- Planting should be positioned to ensure clear sight lines. This needs to be balanced with animal welfare requirements for planting and aesthetic considerations for zoo visitors.
- Gates and slides should be of good ergonomic design and easy to use by keepers, while ensuring they remain inaccessible to the animals.
- Railings / viewing areas need to be of suitable height and design to reduce the risk of people entering, sitting or climbing on barriers.
- Fencing needs to be of an appropriate strength for animal containment or reinforced by an appropriate electric fencing system.
- Signage, visual cues and signals need to be present in each of the enclosures as prompts for keepers to follow the correct procedures, including systematic verification of which gates are open and closed and where animals are located. Ideally this should be through engineered controls.
- Procedures should be structured, systematic and repeatable (such as checklists).
- Emergency scenarios and plans should be drilled regularly (preferably on a monthly basis) with all staff (permanent, temporary and volunteers) to ensure everyone is competent in emergency management.
- Operational meetings should be held daily with keeping staff to support effective operational management of the zoo.

2.4 Findings and recommendations

2.4.1 Tiger enclosures

The tiger enclosure includes two exhibition areas for public viewing and a number of “off-show” areas including dens, holding pens and a race area to enable movement of the tigers between different areas of the enclosure. After applying principles of good design and a focus on health and safety, priority findings and recommendations have been identified as follows:

Finding 1: Some areas of the tiger enclosure are densely planted and tigers can at times be difficult to sight – this could lead to the keeper making incorrect assumptions as to the animal’s location.

Recommendations:

- Careful selective pruning and installation of a CCTV system to assist in location of tigers within the exhibit.
- Negative and positive checks (i.e. noting where the tigers are as well as where they are not) are to be included in work instructions.

Finding 2: The tiger enclosure (old tiger house) is complex and has 13 discrete animal spaces (including the exhibit enclosure) with the following issues identified:

- The slides (gating system in transfer race) have different coloured counter weights to differentiate them. This has led to some confusion among staff who, during the Review provided different explanations for what the colours are meant to signify, which increases risk for staff when working with the tigers.
- Currently there are two keepers in place to provide a double check on whether there is a safe combination of gates in place. This does however rely on the effectiveness of the communication between the two keepers and requires processes and protocols to support the system. Having two keepers was a requirement proposed by Worksafe following the incident in 2015. Our understanding is that there is inconsistent practice in the zoo industry around one or two keeper systems. In general, however, for safety critical operations double checks on key controls would be the norm.

Recommendations:

- Ensure all staff have clear and consistent understanding of the reason for colour coding of the counter weights system and that there are protocols around gate opening and closing.
- Implement engineering controls that prevent critical gate combinations being open allowing staff to enter into risk areas e.g. mechanical interlock system whereby a keeper cannot open the gate to the tiger enclosure without a critical slide in the transfer race being closed.
- Reduce complexity of the old tiger house to increase visibility and remove redundant slides in the transfer race.
- Our recommendation is that if a two keeper system is to be followed, then it must be consistently applied across all category 1 animals and that a robust management system supports its operation.
- There are limited documented best practice examples of, or principles for, two keeper systems in zoos. It is critical that the correct training and procedures are in place to ensure a safe and effective system. It is recommended that a system based upon aviation Crew Resource Management (CRM) training principles are utilised to address the situational awareness, interpersonal, communication and behavioural requirements of a two person system.

2.4.2 African wild dogs

There are two exhibit enclosures and holding facilities for the African wild dogs.

Finding 1: The slide gates in the wild dog enclosure are of heavy design but do not have mechanical locks and there is a chance, although unlikely, that a dog could lift a gate and bring them into contact with a keeper.

Recommendation: Add locking systems to the slide gates.

Finding 2: The current work instruction permits the keeper to clean in the presence of the female dog.

Recommendation: This practice to be discontinued and work instructions updated accordingly.

2.4.3 Chimpanzees

The Chimpanzee enclosure includes a large fenced outdoor area which can be crossed via a pedestrian bridge. There is a two storey Chimpanzee house with glassed in viewing area for the public.

Finding 1: Despite warning signs, visitors have been observed placing children on the bridge barrier in the Chimp enclosure.

Recommendation: Implement immediate measures to prevent children sitting on the railing and design a long-term solution to ensure adequate visitor barriers are in place.

Finding 2: Inside the chimp house the metal framing is welded to the outside face of the steel rather than the inside face, making the welds more vulnerable to pressure from chimps hitting the gates.

Recommendation: Ensure regular engineering checks of the metal framing in the Chimp enclosure are undertaken. This should be quarterly as a minimum and more frequently if this can be accommodated. Increase staff checks of the perimeter from weekly to daily and implement a process for immediate repair and strengthening when required.

Finding 3: The two keeper system was not in place for chimpanzees at the time of the review but PwC understands this has since been implemented following recruitment and training of additional keepers.

Recommendation: Move to a consistent systemised two keeper process for all category 1 animals – Tigers, Chimps and African Wild Dogs.

2.4.4 Overall recommendations for all category 1 and 2 animal enclosures

In addition to the above priority recommendations for enclosures, to further improve category 1 and 2 animal enclosures and their management, we recommend that the Zoo:

- Assess the need for engineering controls in all enclosures which prevent critical gate combinations being open while staff may be in danger zones.
- Implement a system for clearly indicating which gates are open in all enclosures, including enabling clear visibility of dens and pens for keepers through pruning and removing redundant fixtures (note: it is understood that a CCTV system across all category 1 and 2 enclosures is currently being scoped for implementation to improve visibility and confirmation of animal location).
- Upgrade the electrical systems and processes for animal enclosures and ensure procedures and resources are enhanced to deal with electrical outages should they occur.
- Evaluate gates and slides from an ergonomic perspective to reduce the risk of injury and to reduce the risks that animals can open them.
- Implement a consistent process for safety critical operations e.g. a task based callout system such as is used in other safety critical operations involving two workers (e.g. airline pilots).
- Complete the introduction of a two keeper system and strengthen procedural controls for all category 1 animals.
- Reduce the opportunity for members of the public to come into contact with category 1 and 2 animals by increasing barriers to enclosures.
- Improve the design of category 2 animal enclosures to reduce the reliance on animal conditioning and training.
- Use vehicles that offer increased protection for keepers inside enclosures.

- Review and implement emergency management procedures including regular drills for common scenarios, including protocols around how safe zones are to be used and the role of permanent and volunteer staff members.
- Roster a registered shooter on site during operational hours.
- Continue to hold daily operational meetings with “keeping staff” and refocus them to support operational management of the Zoo.

3. Context and recommendations – Capability and capacity

3.1 The Review - findings

3.1.1 Rostering and resourcing

Hamilton Zoo is open to the public 364 days a year, has the same opening hours year round, and requires the animals to be cared for 365 days a year.

At the time of the Review there were 14 full-time equivalent (FTEs) zoo keepers. This includes additional zoo keepers recruited after 20 September 2015 so that the two keeper system could be implemented for tigers and chimpanzees. This level of staffing requires the Curator, the three zoo keeper Team Leaders and others (like the Vet Nurse) to be rostered on to undertake zoo keeper responsibilities from time to time. This reduces the time they can dedicate to coaching their teams and supporting conservation activities.

International benchmarking undertaken of FTEs showed that the current Hamilton Zoo staff numbers are, on the face of it, within the range of expectations when compared to the global sample of 215, mainly western world, zoos. However, this comparison does not take into account the significant variation in staff required depending on variables such as size of the zoo footprint and types of animals, and therefore it is difficult to accurately calculate demand based FTE requirements due to the lack of routine and predictability for zoo keepers. Every day workload is impacted by the land area the keepers need to cover, the requirement for cooperation of animals, the influence of weather, visitor interaction and education, and managing sick animals.

As part of the analysis of the roster requirements, an assessment of the current two week 7:2, 3:2 (7 days on, 2 days off; 3 days on, 2 days off) roster pattern was undertaken. This pattern was implemented to enable rostered staff to work every second weekend, and have fixed rostered days off. The roster pattern results in there being less permanent staff available to be rostered on Thursdays to Sundays and weekends when visitor numbers are highest. Casual zoo keepers are used to address the resourcing shortfall particularly at weekends, and animal runs are adjusted to accommodate the rostering system. There is little resilience built into the roster system for when staff are on leave, during high workload periods resulting from busy visitor times, or when non-regular events such as animal births and transfers occur. Unless the seven day roster period is well-resourced staff can be stretched and this can be potentially fatiguing for them.

There are pros and cons of other roster pattern options, PwC's analysis found limited options which enable fixed and regular weekend rostered days off.

Team Leaders are currently rostered on a three week roster pattern so they can work with different people in their teams over the period.

The paid workforce is supplemented by volunteer Zoo hosts who undertake activities such as observing visitors and answering questions. They are an important resource to the Zoo and enhance the visitor experience.

3.1.2 Organisation structure

A review of the organisation structure was undertaken. At the time of the Review, the Zoo had 35.73 FTEs across management, zoo keeping, vet nursing, grounds staff, visitor experience, education and administration. The focus of the Review was on the zoo keeping positions, which included the Zoo Director, the Curator, three zoo keeper Team Leaders, as well as both full time and casual zoo keepers. There is a vet nurse on site, and veterinary services are provided through a contract for services with a local veterinary clinic. The Zoo has recently increased the number of zoo keepers to enable two keepers to be rostered onto Tiger and Chimp duties and there is an increased resourcing requirement for full implementation of the two keeper 'system', health and safety responsibilities and the visitor experience.

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PwC - Commercial in confidence

There are two programmes at the Zoo for Interns / students. One is for the University of Waikato where the zoo receives two students who are required to do research projects for which they receive a modest stipend. The other contract is with Unitec under which, students are provided with 280 hours of practical zoo keeping experience.

The marketing and education functions have not been reviewed. However it appears that the marketing function is working well but synergies with HCC (and in particular the Community Group) could be explored. Back office support services such as Communications, HR and Finance are provided by the Hamilton City Council. See Governance and Sustainability below.

3.1.3 Workforce and operational planning

Hamilton Zoo, like all other organisations, has a workforce planning requirement - from long term planning - identifying capacity and capability requirements mid-term planning - determining recruitment, training and succession needs and short term planning - via rosters and operational meetings. Rostering and resourcing requirements are outlined above. From interviews, observations and reviewing information such as training plans, it was determined that focus on long term and medium term planning could be enhanced.

Key Performance Indicators (KPIs) drive behaviour to focus on what is measured, reported and rewarded. The KPIs reported at a Council level by the Zoo, relate to visitor numbers and education statistics. There is also a need for KPIs at an operational level to assist managers and Team Leaders in leading their teams and running an efficient and effective operation, as well as “strategic level” KPIs to measure the conservation purpose of the Zoo.

Staff set operational / tactical objectives and prepare development plans as part of the annual planning process.

3.2 Good practices for workforce planning and design

In reviewing the capacity and capability of the Zoo good practices / principles were referenced. These include:

- Rosters should be based on workforce demand and health and safety requirements.
- Team Leaders need to balance leadership with hands-on operational activities.
- Part time roles should be created, to reduce the number of casual staff employed to meet resourcing shortfalls, particularly at weekends
- Accountabilities, responsibilities and delegated decision making need to be clear to all staff

3.3 Recommendations

3.3.1 Rostering and resourcing

As part of the Review, in consultation with the Acting Zoo Curator, daily demand of zoo keepers was calculated to be 15 zoo keepers per day, which equates to 210 zoo keeping shifts per fortnight (21 FTE). This was calculated using several different scenarios, and provides for the recommended two keeper system for category 1 animals, increased support in the Zoo Savannah enclosures and takes into account the size of the Zoo’s footprint. To provide additional capacity to cover leave, rostered days off and training, another 2 FTEs were added to the resourcing model.

It is recommended that:

- The number of permanent full time Zoo Keepers is increased to 17 FTEs, with two of those FTEs working in different roster patterns so there is increased continuity and capacity on Thursdays to Sundays. There has already been an increase in the number of Zoo Keepers since the Review was started.
- Permanent part time zoo keeper positions are created (4 FTE, approximately 6 – 8 people) to cover shifts where there are traditionally less zoo keepers - generally Thursdays, Fridays, Saturdays and

Sundays. These people should receive the same training as full-time staff and should be given specific responsibilities. The management of these people should be divided between the Team Leaders.

- As a result of increasing permanent full-time and part-time zoo keepers, the number of casual FTEs are reduced and are only used to fill periods of leave and unpredictable gaps.
- The permanent full time, permanent part time and casual zoo keepers should be allocated across the three zoo keeping Team Leaders based on which animals and runs are their primary responsibility.
- Team Leaders are rostered to care for animals for as few shifts as possible, retain the three week roster pattern, and are assigned to be the duty officers on the weekends they work. This means they can observe, support and coach their teams, provide greater leadership and trouble shoot any operational issues.

3.3.2 Organisation structure and responsibilities

The Zoo has already increased the number of zoo keepers so that two keepers could be rostered for Tigers and Chimpanzee animal rounds. An additional Team Leader role has also been appointed to manage the increased number of keepers. It is recommended this positive action is built on by increasing zoo keeper numbers as outlined above to extend the two keeper system to all category 1 animals (Tigers, Chimpanzees and African Wild Dogs), implement the systems and processes required for a two keeper system to be safe and effective, and move to a more demand driven rostering system.

In order to meet increased Zoo keeper demands, and the workforce and operational planning requirements it is also recommended that the following additional changes be made to the staffing structure:

- Create a new Operations Manager role with management responsibility of the zoo keepers and their Team Leaders. This will help address the pressure currently on Team Leaders and enable the Operations Manager to focus on development of zoo keepers, planning the operation more effectively and being accountable for capacity building, compliance, procedures and health and safety.
- Assign Health and Safety responsibilities to the Operations Manager, and develop a plan for more regular Health and Safety audits.
- Revise the Zoo Curator position to have a more specific focus on conservation and animal collection. The Curator role should focus on conservation and key breeding programmes, essential to continued involvement in the Zoological and Aquarium Association of Australasia (ZAA) community and refreshing the exhibits, which is key to providing a sustainable visitor experience.
- Have the interns report through to the Curator so the focus is on their development, and they are rostered onto specific runs as part of their development plans.
- Make the current fixed term Business Support Coordinator permanent – this role provides business administration support to the Zoo Director and management team and includes supporting procurement and contracts; maintaining asset registers and condition assessment schedules; reporting on KPI's, business planning and project delivery; financial reporting; health and safety data entry; contractor inductions and co-ordination of meetings, agendas and minutes; maintenance and review of procedures and processes and other record management tasks.
- Adjust the reporting line of the Education Manager to report to the Visitor Experience Manager to streamline the Management team and ensure a logical grouping of teams.

The recommended changes to the staffing structure would see an increase of FTE from 35.73 FTE to 44.85 FTE – a total of 9.12 FTE. This takes into account an increase in permanent part-time zoo keepers and less reliance on casual staff.

An estimated additional operational budget of \$515,000 per annum is required to implement the new staffing structure. It is advisable that the Operations Manager is recruited as early as possible to reduce current

pressures and constraints on staff and operations at the zoo resulting from the implementation of a range of improvements currently in progress.

Increasing the current staffing level is important to further enhance safety and wellbeing for staff, animals and visitors while ensuring effective operations, and maintaining a focus on visitor experience and conservation.

The consequence of keeping staffing at current levels is that operational efficiency will be compromised. It is likely to result in limited resilience during peak visitor periods, inadequate cover during staff leave or when there is additional workload on an ongoing basis, and inability to fully realise a commitment to health and safety, and the conservation and visitor experience purposes of the Zoo. The proposed staffing increase provides the number of staff needed to cover the current number of rosters and required tasks.

The scope of the Review did not include a review of the 2015 incident and there is no direct causal link being drawn between staffing numbers and that incident. Implementing the increased staffing levels will provide a longer term sustainable operation which will enable aspects of the operation, including health and safety, to perform more effectively.

3.3.3 Workforce and operational planning

A key finding of the review was that an increased number of staff is required at animal keeper level along with greater capacity at a leadership level. Currently, essential tasks are often juggled and re-prioritised on a daily basis. Moving to a more sustainable staffing level will allow the Zoo to optimise its essential tasks and embed sound operational processes while providing resilience to operational challenges as and when they occur.

Key drivers of increased resourcing include; management processes and systems along with the staff numbers to effectively implement the two keeper system. A two keeper system is more than simply rostering two staff members onto duties involving category 1 animals. It also includes the design, implementation and constant review of processes and protocols across these duties.

Competency of staff will also benefit from increased leadership capacity and capability with a focus on coaching, planning and time allocated to reviewing of procedures and process, audits and drills, and staff training.

It is recommended that Zoo management:

- Implement the staffing structure outlined in 3.3.2
- Develop a long term resourcing plan that addresses capability and capacity requirements, is aligned to the Master Plan and addresses the transitions required from current to future state.
- Define accountabilities, responsibilities, chain of command and capabilities for all positions, including part-time and casual staff, and update position descriptions appropriately.
- Ensure that animal conservation, Health and Safety, project management and asset management accountabilities and responsibilities are more clearly defined across the organisation.
- Develop a recruitment strategy and process, including appropriate support and coaching from HR that will enable staff to be recruited with the skills required.
- Prepare a talent map that identifies successors for key positions and, if there are no candidates within the organisation, strategies to source people from other zoos or the market.
- Define skills, knowledge and capability requirements, assess current capability and implement a strategy to increase capability.
- Define operational KPIs which then need to be visible to staff within the Zoo, and where appropriate with Council.
- Review the performance management process including goal setting and identifying learning and development needs.
- Implement a leadership development programme, including “one on one” coaching.

4. Context and recommendations— Governance and sustainability

4.1 The Review - findings

4.1.1 Support Services provided by the Council

The Council provides the Zoo with support services such as Communications, Marketing, HR, Finance and IT. A review of support services was completed in 2015 and a GM Corporate Services has recently been appointed. A key focus of the General Manager Corporate Services will be to implement recommendations from the 2015 review - working collaboratively with managers across the Council.

It was noted that the current Communications shared services model appears to work well for the Zoo's Visitor Experience team. The Visitor Experience Manager has accountability for marketing campaigns and uses central specialised communications staff for specific issues management. Management of social media is working well at the Zoo but may not be resourced sufficiently to cover absences of the Visitor Experience Manager.

The Council Community group business units each have their own marketing capability. Opportunities exist to collaborate and share resources either on a campaign basis or on a longer term basis.

4.1.2 Asset Management

There is a Council wide programme to improve asset management across the Council and a Strategic Asset Manager has been appointed to support the community groups to identify their needs in this regard.

Asset condition assessments have been carried out at the Zoo in the past and funding has been made available for this, but there is no schedule of condition assessments or specific funding identified. This is necessary to be able to identify capital budget requirements and also for planning in terms of implementation of the Zoo Master Plan, once approved by Council.

4.1.3 Funding

The majority of the Zoo's funding is from rates (61%) and gate sales (36%). To be more sustainable and reduce reliance on rates funding the Zoo would need to increase visitor numbers and find other sources of funding. Alternative sources could include: sponsorship, public / private partnerships (although governance structures may prevent or deter interest in this), and increasing use of the Zoo e.g. after hours, holiday programmes, increasing education activities. This would need to be carefully balanced with other activities across the Council also dependent on alternative funding sources, and ensure that any costs (i.e. additional staffing to resource extra activities) do not outweigh the benefits (i.e. revenue).

4.1.4 Relationships

Zoo management advised they have strong relationships with both Auckland and Wellington zoos. This was evident through input into the Draft Zoo Masterplan and support following the fatality in September 2015 from the Wellington Zoo Director. In the weeks following the fatality, Team Leaders from Auckland Zoo provided on-site support at Hamilton Zoo and shared information relating to systems and procedures. There was little evidence, however, of an ongoing formalised relationship with either of these zoos, and opportunities for strengthening ties should be explored, from further sharing of resources (e.g. training and development) through to potential governance type arrangements.

4.2 Recommendations

It is recommended that Zoo management:

- Work with the GM Support Services to ensure that the recommendations from the support services review are aligned with the Zoo's HR support requirements for now and in the future.
- Explore opportunities for units within the Community Group to work together in the marketing of tourist and recreational destinations e.g. themed programmes and education and for greater sharing of resources across the Community Group on a short (campaign) or long term basis.
- Review processes for media management (including social media) so services are still provided when the Visitor Experience Manager is absent.
- Align with the Council's asset management planning process and work with the Community Group's Strategic Asset Manager to improve the Zoo's asset management, undertaking detailed planning for the completion of asset condition assessments to an asset component level. This will be a critical input for planning the implementation of the Draft Master Plan and for prioritising repair and replacement.
- Explore other governance models for the Zoo and Council, including engaging with Auckland Zoo to explore beneficial synergies and opportunities for a more formalised relationship.

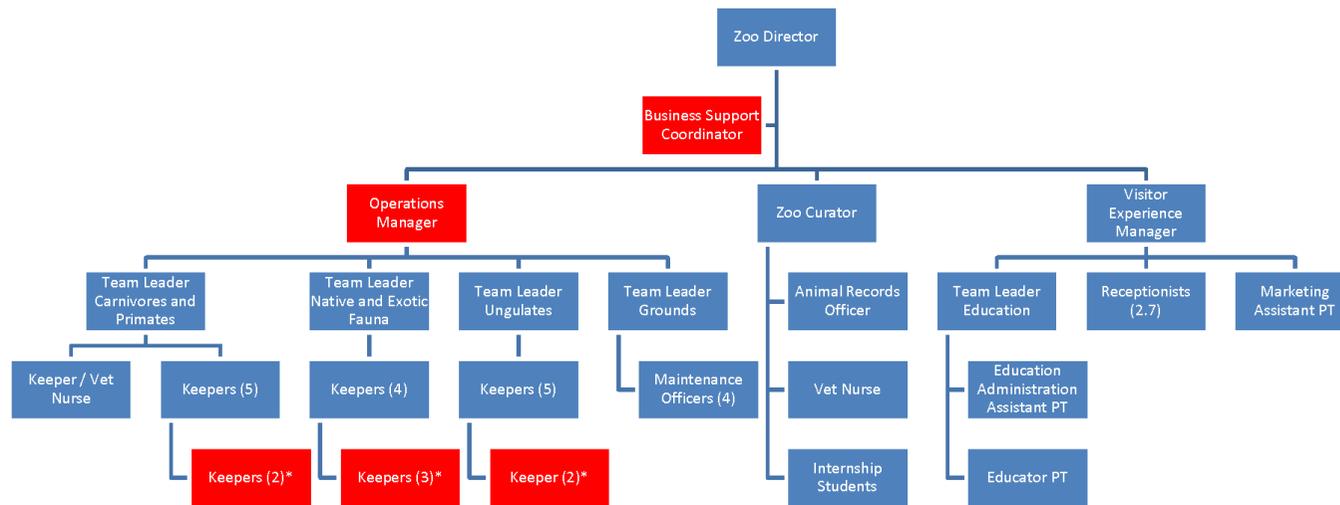
5. In closing

We would like to acknowledge the considerable assistance and support provided to us by the staff and management of the Council and the Zoo during this review. It should be noted that the findings and recommendations arising from this Review were shared as they were identified with the Zoo Director and the General Manager Community Group.

The Council has appointed a Project Manager to facilitate any changes required and priority recommendations are already being addressed. Recruitment of additional keeping staff is underway and a number of new staff were recruited during this review.

Actions completed since 20 September 2015 – Tiger enclosures	Completion dates and comments
Two-keeper system in place for tiger management (including updating work instructions)	Implemented from 21 September 2015 - training of staff and review of process ongoing
Tiger proof fences installed around both tiger house service areas and safety porches installed for vehicle access	Completed on 19 April 2016.
Mechanical interlock system installed on safety porch entry to enclosure for both tiger exhibits	Mechanical failsafes that prevent the opening of the outer door to the safety porch when the animal sliding gate between the tiger raceway and exhibit is open have been installed for ENC13 on 28 April 2016 and ENC13A on 5 May 2016.
Safety porch at Old Tiger House moved next to the animal transfer race entry to the enclosure	Completed 14 March 2016 – signed off by MPI 15 March 2015
Signage installed in tiger safety porches to warn personnel entering to check vertical slide gates are closed	Installed 1 October 2015
Lemonwood trees beside safety porch in old tiger house removed	Completed 29 September 2015
Counterweights painted bright colours to improve visibility of vertical slide gate positions from safety porch (note: all gates require physical checking)	Completed 6 October 2015
Thorny plants (Berberis) has been planted in front of visitor viewing platform next to tiger enclosure and small mesh added to enclosure frontage	Completed 6 May 2016
Actions completed since 20 September 2015 – Other	Completion dates and Comments
Masts installed on top of animal feed shed to improve radio transmission coverage	Masts installed 27 April 2016. Transmitters installed 1 June 2016
Mechanism added to lock slide gates for wild dog enclosure	Completed 26 April 2016
Two-keeper system in place for chimpanzee management (including updating work instructions)	Implemented 31 May 2016 - training of staff and review of process ongoing
Installation of higher railings on bridge across chimp enclosure with signage and plastic spikes to stop people sitting their children on it	Railings installed 13 May 2016. Signage and spikes on railings completed 8 June.
Review and communicate revised standard operating procedures, work instructions and hazards to zoo keepers	All work instructions and hazards have been reviewed and subject to ongoing review.

Hamilton Zoo Recommended Staff Structure



New Staff

*Includes fulltime and part-time staff (7FTE)