



24 February 2022

Scott

Email: [fyi-request-17423-c2aad5c2@requests.fyi.org.nz](mailto:fyi-request-17423-c2aad5c2@requests.fyi.org.nz)

Dear Scott,

### Official Information Act Request

We have received your request for information on 25 January 2022 made under section 12 of the Official Information Act 1982. This was a follow up request to our OIA sent to you on the 25 January. Your request was as follows:

- 1) *The Action plan and advise referred to here***  
***“The recommendations from the Lesson Learned report will be prioritised and an action plan submitted to FRAC in December along with advice as to how future reporting is to occur both in regards to Lessons Learned and residual activity arising from the cyber security incident”***

This is being withheld under Section 18(e) of the Official Information Act 1982 because the document that contains the information requested does not exist.

- 2) *Request a copy of the 2018 Business Case “Windows 10 Upgrade” which is referred to on the Ministry of Health website***  
This document is attached the paper

Waikato DHB supports the open disclosure of information to assist community understanding of how we are delivering publically funded healthcare. This includes the proactive publication of anonymised Official Information Act responses on our website from 10 working days after they have been released.

You have the right to request the Ombudsman investigate and review the decision to withhold the information. The Ombudsman’s postal address is:

The Ombudsman  
Office of the Ombudsmen  
P O Box 10-152  
WELLINGTON

Yours sincerely

Mike Foley  
**Executive Director Digital Enablement**





# Waikato District Health Board

## IS1712-003 Windows 10 Upgrade

### Business Case

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#### **Purpose**

A business case is used to document the justification for the undertaking of a project, based on the estimated costs against the anticipated benefits to be gained and offset by any associated risks.

This business case proposes the upgrade the operating system of all appropriate Waikato DHB desktop, laptop, and tablet computer devices, from Microsoft Windows 7 to Microsoft Windows 10.

**Business Case Owner** Geoff King  
**Group\Department** IS  
**Author** Grant Lee  
**Last Updated** 19/11/17  
**Document Name** IS1712-003 Windows 10 Upgrade  
**Version** 1.0

## Revision History

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Date	Author	Summary of Changes	Version
29/06/2017	Karen Nelson	Create first draft	0.1
31/10/17	Grant Lee	Updated version; changed timelines, assumptions, costs	0.2
19/11/17	Grant Lee	Updated version post review	1.0

## Engagement – Visible Help

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Name	Service	Date	Impact Y/N
Spark – Chris Sharpe	Vendor – services approach and estimates	22/06/2017	Y
Geoff King	Information Systems – approach, scope, and estimates	22/06/2017	Y
Mo Neville	Quality and Patient Safety – no risks logged on Datix to resolve.	22/06/2017	Y
Rory O'Donnell	Finance – provided BC number.	22/06/2017	Y
n/a	Biomedical Engineering – will the item require connection to the medical network? How will future support and maintenance be managed? Will management of hot spare equipment be required?	n/a	N
Ali Wilkinson	Learning and Development – approach, scope and estimate.	22/06/2017	Y
Alicia Lane	Procurement – approach.	22/06/2017	Y
n/a	Human Resources – will this investment also require additional staff? Changes to existing staff? Reduction in staff?	n/a	N
Mike Lane	Change Team – resource for change management aspects of the project	22/06/2017	Y
n/a	Supply Chain - will the new item have an impact on supply chain processes	n/a	N
n/a	Property & Infrastructure – is the new item heavy – will floors need reinforcing? Will it fit through doorways? Will it require some sort of mount or bracket? Are there any physical security implications?	n/a	N

## Strategic Imperative Allocation

Once you have assessed and determined the primary strategic imperative that your business case is aligned to (refer to session 2.2.1 of this document), please review the following table and ensure that the appropriate senior executives are engaged accordingly:

		Alpha	Bravo
<b>1. Health equity for high need populations</b>			
1.1	Radical Improvement in Māori health outcomes by eliminating health inequities for Māori	1. Chief Executive Officer <sup>1</sup> 2. Ex Dir – Māori Health	1. Ex Dir - Community & Clin Supt 2. Ex Dir - Mental Health 3. Ex Dir Strategy & Funding
1.2	Eliminate health inequities for people in rural communities	1. Ex Dir - Community & Clin Supt 2. Clin Dir -Strategy & Funding	1. Ex Dir – Māori Health 2. Ex Dir-Virt Care & Innovation
1.3	Remove barriers for people experiencing disabilities	1. Ex Dir - Wkt Hospital Services 2. Ex Dir - Mental Health	1. Ex Dir Strategy & Funding 2. Ex Dir - Ops & Performance 3. Ex Dir-Virt Care & Innovation
1.4	Enable a workforce to deliver culturally appropriate services	Chief Nurse & Midwifery Officer	Ex Dir – Māori Health
<b>2.Safe, quality health services for all</b>			
2.1	Deliver timely, high quality, safe care based on a culture of accountability, responsibility, continuous improvement and innovation	Dir - Quality & Patient Safety	1. Ex Dir-Virt Care & Innovation 2. Ex Dir- Ops & Performance
2.2	Prioritise fit-for-purpose care environments	Ex Dir - Facilities & Business	Chief Medical Officer
2.3	Early intervention for services in need	Commissioner	Ex Dir - Strategic Projects
2.4	Ensure appropriate services are delivered to meet the needs of our populations at all stages of their lives	Ex Dir Strategy & Funding	Ex Dir - Public Affairs
<b>3.People centred services</b>			
3.1	Utilise the expertise of communities, providers, agencies, and specialists in the design of health and care services	Ex Dir - Mental Health	Chief Nurs & Midwifery Officer
3.2	Provide care and services that are respectful and responsive to individual and whānau needs and values	Chief Nurs & Midwifery Officer	Ex Dir - Wkt Hospital Services
3.3	Enable a culture of professional cooperation to deliver services	Dir - Quality & Patient Safety	Ex Dir - Corporate Services
3.4	Promote health services and information to our diverse population to increase health literacy	Ex Dir - Public Affairs	Commissioner
<b>4.Effective and efficient care and services</b>			
4.1	Live within our means	Ex Dir - Corporate Services	Ex Dir - Ops & Performance

<sup>1</sup> Recognising that Derek may be unavailable for some meetings

4.2	Achieve and maintain a sustainable workforce	Ex Dir - Corporate Services	Ex Dir - Ops & Performance
4.3	Redesign services to be effective and efficient without compromising the care delivered	Ex Dir - Ops & Performance	1. Ex Dir Strategy & Funding 2. Commissioner
4.4	Enable a culture of innovation to achieve excellence in health and care services	Ex Dir-Virt Care & Innovation	Dir - Quality & Patient Safety
<b>5.A centre of excellence in learning, training, research and innovation</b>			
5.1	Build close and enduring relationships with local, national, and international education providers	Chief Executive Officer <sup>2</sup>	Clin Dir -Strategy & Funding
5.2	Attract doctors, nurses, and allied health staff to the Waikato through high quality training and research	Dir - Quality & Patient Safety	Clin Dir -Strategy & Funding
5.3	Cultivate a culture of innovation, research, learning, and training across the organisation	Clin Dir -Strategy & Funding	1. Dir - Quality & Patient Safety 2. Ex Dir-Virt Care & Innovation
5.4	Foster a research environment that is responsive to the needs of our population	Chief Medical Officer	CD - Primary & Integrated Care
<b>6.Productive partnerships</b>			
6.1	Incorporate te Tiriti o Waitangi in everything we do	Ex Dir – Māori Health	Ex Dir - Wkt Hospital Services
6.2	Authentic collaboration with partner agencies	Ex Dir Strategy & Funding	Ex Dir - Community & Clin Supt
6.3	Focus on effective community interventions using community development and prevention strategies	Ex Dir - Community & Clin Supt	Ex Dir - Public Affairs
6.4	Work towards integration between health and social care services	Ex Dir Strategy & Funding	Clin Dir - Primary & Integrated Care

## Review

Name	Project Role \ Title	Issue Date	Version
Marc ter Beek	*Senior User	11/11/17	0.2
Les Elliot	*Senior Supplier	11/11/17	0.1 0.2
Andrew Smith	IS Business Services Manager	11/11/17	0.1 0.2
Scott Brown	Director DevOps	11/11/17	0.2
Keith Kana	IS Infrastructure PM	11/11/17	0.2
Arna Evans	IS Customer Services Manager	11/11/17	0.2

<sup>2</sup> Recognising that Derek may be unavailable for some meetings

Name	Project Role \ Title	Issue Date	Version
Ali Wilkinson	Learning and Development	11/11/17	0.1 0.2
Andrew Darby	CIRG Chairperson	11/11/17	0.2
Russell Hemsley	Risk Manager	11/11/17	0.2
Steve McMillan	IS Architect	11/11/17	0.2
Rory O'Donnell	Finance Manager	11/11/17	0.2
Alicia Lane	Procurement	11/11/17	0.2
Mike Lane	Change Team	11/11/17	0.1 0.2
Petra Amberboy-Kiss	IS Application Lifecycle Project Coordinator	11/11/17	0.2

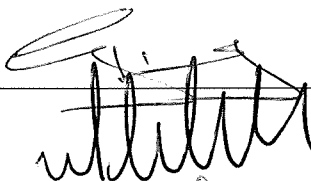
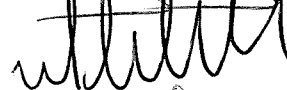
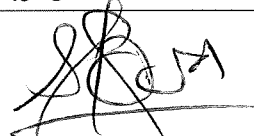
## Distribution

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Name	Title	Issue Date	Version
Stuart Murphy	Assurance Lead	11/11/17	0.2

## Approvals

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Approver	Signature	Issue Date	Version
Geoff King CIO		20/11/17	0.2 1.0
Maureen Chrystall Executive Director		20/11/17	0.2 1.0
Scott Brown Director DevOps & Project Executive		20/11/17	0.2 1.0
BRRG Members	As per BRRG Meeting Minutes		

\* Note the following role descriptions for key project board members:

- The **project executive** has ultimate responsibility for the project outputs required to achieve the ultimate project objectives. As a result, the project executive has the greatest level of accountability for the success of the project and must be at a senior management or executive level within the organisation (minimum delegation level 5).
- The **senior user** has total responsibility for accepting the outputs for a project into business as usual and represents the interests of all those who will use the project's products

- The **senior supplier** has total responsibility for delivering the identified and agreed outputs for a project and represents the interests of those designing, developing, facilitating, procuring and implementing the project's products

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## 1. Summary of Proposal

This business case recommends:

- The Waikato DHB upgrade the operating system of all appropriate Waikato DHB desktop, laptop, and tablet computer devices, from Microsoft Windows 7 to Microsoft Windows 10 by December 2018
- This project is reliant on Windows 10 compatibility across all applications available within the DHB. Availability of appropriate applications on a service by service basis will be provided as follows:
  - Application remediation of Category 1-5 applications that are not currently Windows 10 compliant will be funded by this project including any licensing costs
  - Application remediation of Category 1-2 applications that are not currently Windows 10 compliant and that are separately funded through the capital plan but will impact on deployment ability of this project will be considered dependency projects listed in Section 4.3
  - **Note:**
    1. **The DHB has, due to financial constraints, a deferred maintenance (technical debt) resulting in a number of applications not being on the current version and/or hardware not being current (as a result of the End User Device change from a 5 year to 7 year lifecycle).**
    2. **Some vendors have not made upgrades to a Windows 10 compatible version available at the time of this business case being prepared or will not be available for some time.**
    3. **A risk exists that application remediation costs will exceed estimates. See notes in the financial source section of controls to mitigate or manage this risk.**
- This upgrade will be completed over 6 phases as follows:
  - Design phase to include consideration for the deployment mechanism for patching and lifecycle management as Windows 10 forces customers into more frequent upgrade cycles
  - Application Remediation to ensure target services have appropriate applications Windows 10 certified / patched / upgraded as required
  - Hardware preparation phase to precede each pilot and deployment rollout to enable the IS dept. to prepare (as much as possible) hot swap equipment to minimise upgrade disruption. During the main migrations this will be an embedded phase within the rollout
  - Pilot deployments during May 2018 to test the ability to identify, build / upgrade and deploy the Windows 10 build across the DHB
  - Corporate user rollout during Jun – Aug 2018 (due to simplified Windows 10 remediation pathways)
  - Clinical user rollout during July – December 2018
- This upgrade will be completed over 2 Financial Years with a cost breakdown as follows:

Phase	FY 17/18	FY 18/19	Total
Windows 10 Core (Design, Hardware, Deployment Mechanism)	\$58,016		\$58,016
Hardware (including preparation)	\$215,208	\$359,528	\$574,736
Application Remediation	\$145,312	\$315,624	\$460,936
Corporate Rollout	\$108,768	\$137,056	\$245,824
Clinical Rollout		\$327,984	\$327,984
Subtotal	\$527,304	\$1,140,192	\$1,667,495
Contingency (20%)	\$105,461	\$228,038	\$333,499
<b>Total</b>	<b>\$632,765</b>	<b>\$1,368,230</b>	<b>\$2,000,994</b>

## 2. Reasons

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### 2.1. Problem statement

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In June 2017, HP advised the DHB that Windows 7 compatible desktops and laptops could no longer be supplied post October 2017 & Feb-18 respectively. Therefore only Windows 10 compatible desktops and laptops could be supplied and that non-standard desktops or laptops required post June 2017 could only be supplied as Windows 10 devices.

Whilst it has been expected that this would need to occur at some point in time, and preliminary work & planning was underway, the upgrade timescales have been brought forward from 2020 to 2017 by this decision. A number of dependency activities currently in flight under **IS1703-006 - Desktop Work Plan 16\_17** are being addressed under urgency and will ensure the supporting environment is Windows 10 ready. This includes;

- Upgrades and configuration to the SCCM infrastructure which supports and manages software deployment and reporting
- 3<sup>rd</sup> party tools to manage java and adobe patching
- AppV upgrades which enable virtual application delivery
- Flex+ to support profile management
- Active Directory preparation for Windows 10

While a Windows 10 build for the Waikato DHB has been completed for tablets only, the ability to create an automated deployment process via System Centre Configuration Manager (SCCM) is not possible until the approved SCCM upgrade has been completed. This was scheduled to be completed in December 2017.

In response to this advice from HP, procurement have clarified that the All of Government (AoG) vendors are able to provide this level of short notice as the rapid change is being driven via Intel who are no longer providing componentry that works with Windows 7 on the request and agreement with Microsoft.

Further information has also been provided, that Microsoft are very concerned about the security holes that have now been identified with their Windows 7 product - *"Today, [Windows 7] does not meet the requirements of modern technology, nor the high security requirements of IT departments,"* the company [Microsoft] wrote. – which was also exemplified by this headline in the NZ Herald on 29 June 2017 *'Windows 7 bug leads to a \$186k ransom'*, and so it is in the DHBs interest to move to Windows 10 as quickly as possible to reduce exposure to this risk that has affected so many organisations around the globe.

Windows 10 presents a significant opportunity to improve the delivery of ICT. Although with initial deployment it will provide capability similar to that of Windows 7, it provides a platform from which the DHB can modernise its IT workplace.

There are massive changes occurring globally in the way in which ICT is delivered. The methodology being presently used by the Waikato DHB with respect to infrastructure management technologies is now being referred to across the ICT industry as either "Legacy IT" or "Traditional IT", it is also rapidly becoming unsustainable in terms of resource and cost to manage large and complex ICT infrastructures using traditional methodologies, the industry is recognising this, and this has become a catalyst for change.

The focus of the ICT industry is moving towards what is referred to as "Modern IT".

'Modern IT' is all about achieving a 'modern workplace' where Enterprise mobility is key, the focus is to enable every person to achieve regardless of their location.

Management of a Modern IT environment is one where automation is leveraged to enable "computers to do what computers do best, enabling people to do what people do best".

Windows 10 is built and designed as the platform which will enable such a journey.

### 2.1.1. Mandate

While this project is not mandated by Government, Microsoft through processor manufacturers (Intel and AMD) are effectively forcing all new Microsoft desktops, laptops and tablets to be operating on Windows 10, and are advising organisations to upgrade off Windows 7 as quickly as possible so as to secure their IT environments.

The withdrawal of Windows 7 compatible devices from the All of Government catalogue effectively forces all government agencies to upgrade.

## 2.2. Objectives

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This initiative will achieve the following objectives:

- Complete the analysis required to develop detailed plans to deploy Windows 10
  - Identify all existing desktop/laptop computers that need solid-state drive (SSD) storage so as to be able to run Windows 10 with an appropriate user experience, and re-plan the asset replacement approach to target hardware that does not meet this requirement
  - Confirm/ validate that existing software will operate correctly on Windows 10, and in doing so identify the software that is not certified and/or is found not to function on Windows 10
  - Confirm/ validate all existing software packaging deploys software successfully to Windows 10
  - Confirm/ validate all applications, spreadsheets, and access data bases function on Windows 10 and in doing so identify any that do not function with Windows 10
- Prepare Windows 10 desktop, laptop, tablet builds, including ability to deploy this build electronically
- Prepare Server 2016 and SQL 2016 DHB standard builds for the underpinning infrastructure that will support software to work with Windows 10 computer devices
- Coordinate the completion of other pre-requisite work that is currently planned e.g. SCCM upgrade
- Upgrade existing desktops that don't have the required SSD disc to run Windows 10
- Replace existing desktops that are not suitable to be upgraded to support Windows 10 (budget assumes 250 devices)
- Upgrade all desktops, laptops, and tablets to Windows 10
  - Communicate, train, and educate the DHB team to adopt Windows 10
  - Upgrade departments by geographic location / application usage profiles
    - Utilise floor-walking teams to liaise with teams before, during and after the upgrade process to minimise disruption to business activities
  - In order to minimise impact to the users create a hot swap pool of like for like hardware where possible that is already upgraded and can be used to upgrade a group, team or dept. and to then recycle their equipment for the next users to be migrated
- Manage appropriate corrective actions for the areas with issues where remediating applications is resulting in delays
  - Completion of application, database or windows server upgrades to enable software to run on Windows 10 desktops/ laptops/ tablets; upgrade desktops once all pre-requisite software related upgrades have been completed
  - Secure Windows 7 devices within a dedicated virtual LAN (VLAN) where an upgrade is not possible for some time to come, or alternatively where appropriate replace with thin clients if that meets the use case required
- Enable IS support services to be able to support Windows 7/ Windows 10 computer device builds until all computer devices are running Windows 10
- Develop new operational processes for adopting future patching / upgrade cycles for windows 10
- Investigate, develop, opportunities to improve user functionality by leveraging new Windows 10 capabilities
- Investigate development of new methodologies for improving IS management of the desktop fleet by leveraging new Windows 10 capabilities
- Investigate development of enhanced security capabilities which are now provided by windows 10.

### **2.2.1. Strategic Alignment**

This project is being initiated in response to a global change in the core technology utilised by the Waikato DHB to achieve and maintain a sustainable workforce, led by the Executive Director for Corporate Services, aligning with the Strategic Imperative to provide effective and efficient care and services.

- 2 Effective and efficient care and services:
  - 2.1 Live within our means
  - 2.2 Achieve and maintain a sustainable workforce**
  - 2.3 Redesign services to be effective and efficient without compromising the care delivered
  - 2.4 Enable a culture of innovation to achieve excellence in health and care services

### 3. Business Options Considered

	Option 1: Do nothing	Option 2: Deploy Windows 10
Summary of the option:	Stop replacing existing devices and maintain the Windows 7 fleet	Undertake a 12 month project to – prepare and upgrade to Windows 10: <ul style="list-style-type: none"> <li>• Provision of supporting infrastructure and tools to enable ongoing management of Window 10</li> <li>• Deployment of Windows 10 clients</li> <li>• Support for application remediation to enable various services to upgrade</li> </ul>
Advantages of this option:	<ul style="list-style-type: none"> <li>• No cost to the DHB in the short term, (however this risks a significantly higher Opex and Capex impact in future years if the DHB does not start to address this now)</li> </ul>	<ul style="list-style-type: none"> <li>• The DHB is able to purchase new equipment in line with Microsoft Windows 10 supported chipsets</li> <li>• The DHB avoids the potential for legacy Operating System viruses and malware (the impact of the Ransomware example hit Windows XP organisations the hardest)</li> <li>• Windows 10 will deliver new capabilities, which the DHB will then be able to leverage through roadmaps toward enabling more ‘as a service’ products and methodologies. This will improve IS management efficiencies, and enable improved user functionality and efficiency.</li> <li>• Enable the journey of the DHB towards a modern IT environment less restricted by the constraints of traditional IT. Providing an environment which is user capability and patient outcome focused, providing IS capability which helps to make the DHB a more efficient, and thus desirable workplace for staff.</li> </ul>
Disadvantages of this option:	<ul style="list-style-type: none"> <li>• Risk exposure to malware increases over time as exploits are found but no patching is provided by Microsoft</li> <li>• Technical debt is accumulated into the 18/19 Financial Year and beyond that will need to be addressed once extended warranty for Windows 7 ends</li> <li>• Ultimately Option 2 will be forced on the DHB but at a higher cost</li> </ul>	<ul style="list-style-type: none"> <li>• Cost</li> </ul>

	Option 1: Do nothing	Option 2: Deploy Windows 10
Indicative Cost:		
Capital Cost:	\$ 0	Financial Year 17/18 \$ 632,765 Financial Year 18/19 \$1,368,230 Total Spend \$2,000,995
One-Off Operating Cost:	\$ 0	\$ 0
Ongoing Operational Cost:	\$ 0	\$ 0
Hard Benefits	NA	none
Indicative Timescale	NA	12 months (including MoH / Board approvals)
Stakeholder Support:	NA	Extensive Stakeholder support required across IS and each service at the point of upgrade
Option appraisal – extent to which the option solves the problem and meets the benefits	This does not meet the benefits requirement	This meets the benefit requirement
Recommendation – please provide the reasons that support the recommendation:	This is not the recommended option	This is the recommended option

## 4. Scope of Recommended Solution

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### 4.1. In Scope

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- Delivery per the Waikato Way Project Delivery Framework including project initiation, development (design, build, test), and close products
- DHB Standard build for Windows 10 – for desktops, laptops, tablets
- DHB Standard build for SQL 2016
- DHB Standard build for Windows Server 2016
- Analysis to validate software compatibility with Windows 10
  - Utilise Citrix App DNA tool to assess all current software in use for compatibility with Windows 10 – identify anything not compatible and resolve a plan to address these applications
  - Assess existing desktop/ laptop hardware in use for SSD disc compatibility
  - Assess web apps in use
  - Assess spreadsheets and access databases in use
  - Assess software packaging is still effective, and repackage if/as required
- Based on analysis findings, completed detailed planning for upgrade to Windows 10
  - Identify and agree the upgrade of Corporate users over a 3 month period
  - Identify and agree the upgrade of Clinical users over a 6 month period
  - Identify and plan how to deal with exceptions:
    - Manage upgrade of software where no capital planning funding is specifically assigned to do so
    - Coordinate with other projects the upgrade of software/databases/Windows Servers
    - Plan and implement migration of Windows 7 devices, into dedicated VLANs, if/as required, or alternatively replace with thin client devices if that is assessed as a more appropriate option.
    - Plan upgrade of spreadsheets and access databases to be Windows 10 compliant where possible, or if appropriate organise the redevelopment of these tools
- Review & enhance existing Local Admin Password Management (restricted user group)
- Develop new operational processes for adopting future patching / upgrade cycles for windows 10
- Investigate development opportunities to improve user functionality by leveraging new Windows 10 capabilities
- Investigate developing new methodologies for improving IS management of the desktop fleet by leveraging new Windows 10 capabilities
- Investigate developing enhanced security capabilities which are now provided by windows 10 including Windows defender capabilities where assessed as appropriate.
- Develop and implement Windows 10 user training materials e.g. online training
- Change Management, assisting all staff to prepare, change to, and adopt Windows
- Review and update of Profile and environment management of the Window 10 operating system utilising existing tools – Flex + and SCCM NOTE this will include reviewing creating the appropriate AD structure and Group policies
- A review and implementation of a consistent user experience between Windows 10 and the XenApp project (business case to be created) to ensure consistency of; home, desktop, applications where possible, Graphical User Interface (GUI) display, restrictions and roaming profile

### 4.2. Out of Scope

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- Upgrade of Office 2010
- Upgrade of Microsoft Windows Phones (replaced in accordance with End User Device Lifecycle policy)
- Upgrade of Apples mobile operating system (iOS) devices
- Upgrade of Citrix XenApp Farm, and related Windows Desktop (separate business case to address Citrix XenApp 6.5 end of life status).

- Upgrade or replacement of user profile management software Flex+ is currently out of scope but could be brought into scope if using Microsoft's native User Experience Virtualisation (UEV)
- Upgrade of Microsoft Application Virtualisation (AppV) software packaging solution
- The Internet Browser will be either Internet Explorer (IE) 11 or Google Chrome which is like for like with the current build. The DHB will not be implementing the Microsoft Edge Internet Browser with this implementation
- The upgrade of applications, databases, or servers to enable Windows 10 compliance where separate funding is provided. This project team will liaise and coordinate with other project teams including Application Lifecycle Upgrade and Infrastructure as a Service (IaaS) Migration projects to ensure technologies being implemented achieve the full Windows 10 objective
- Management of desktop lifecycle replacement programme, although this project will liaise with that programme of work to ensure the replacement/upgrade of hardware to meet the Windows 10 upgrade prerequisite requirements e.g. SSD Storage / RAM
- Purchase and management of a stock of Windows 7 compliant hardware to tide over the DHB until such time as this upgrade can be completed
- The upgrade or replacement of embedded XP medical modalities, that are currently isolated in a dedicated secure VLAN

#### 4.3. Assumptions

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- The Windows 10 image build can be completed rapidly, leveraging work already completed by Windows 10 build for mobile devices
- As there is no infrastructure hosting increases, there is no incremental IaaS cost
- All inflight projects will be immediately advised to review IS designs to ensure Windows 10 2016 compatibility
- Universal Print Drivers will function on Windows 10
- All web applications, putting DHB data into the cloud, are certified to be in use, and are known to IS to enable the validation that they work on Windows 10 / IE11 or Chrome
- All existing applications have an affordable upgrade path to a Windows 10 compatible version
- That a team of externally supplied resources are available and funded for to support the DHB team should it be required in this business case as a contingency
- Internal and external resources are available to work alongside DHB resources committed to other projects running parallel to ensure the DHB gets through this unusually high level of technology changes currently required, including upgrade to Windows 10 and migration to IaaS

#### 4.4. Dependencies

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- All inflight and new Lifecycle projects will ensure compatibility with Windows 10. This includes the current in flight projects:
  - **IS1703-004 Cat 1-5 In House Apps Upgrades 16\_17**
  - **IS1702-020 Cat 2 Off-the-Shelf Apps upgrades 16\_17**
  - **IS1702-011 Cat 3-5 Off-the-shelf Apps work plan 16\_17**
- The following clinical applications will be upgraded to ensure Windows 10 compatibility. This will need to occur prior to any clinical users being migrated:
  - **IS1607-002 iPM Upgrade to APAC 11**
  - PACs release 6
  - RIS Release 5
- **IS1703-006 - Desktop Work Plan 16\_17** is seen as a prerequisite to Windows 10 and needs to be completed as soon as possible. This project covers:
  - upgrades and configuration to the SCCM infrastructure which supports and manages software deployment and reporting
  - 3<sup>rd</sup> party tools to manage java and adobe patching
  - AppV upgrades which enable virtual application delivery
  - Flex+ to support profile management
  - Active Directory preparation for Windows 10



## 4.5. Change Management

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The approach to change management would follow the proven approach as undertaken in the upgrade from XP to Windows 7. That is:

- The upgrade will be managed by geographically – floor by floor, building by building
- The upgrade will be managed by a team who work with each team, in a given area, to ensure all software in use is identified, validated as compatible with Windows 10 , user training is completed, and post upgrade floor walking is supplied
- The Executive team and their direct reports were engaged throughout the upgrade to Windows 7, which was critical to the success of this upgrade. This approach would be adopted for the upgrade to Windows 10. Senior managers, managing their teams to ensure readiness and support of the upgrade is critical to the success of a rapid and smooth upgrade
- Any exceptions, where software if found not to be compatible will be dealt with by the project team on a case by case basis, liaising with other projects as required to complete pre-requisite upgrades for example. This analysis would be completed as early as possible to allow application remediation to occur.
- A key learning from the Windows 7 upgrade was that any 'plug in' functionality was difficult to upgrade. Special attention will be paid to these teams / systems.

## 5. Expected Benefits of Recommended Option

### 5.1. Hard Benefits

There are no hard benefits associated with this business case

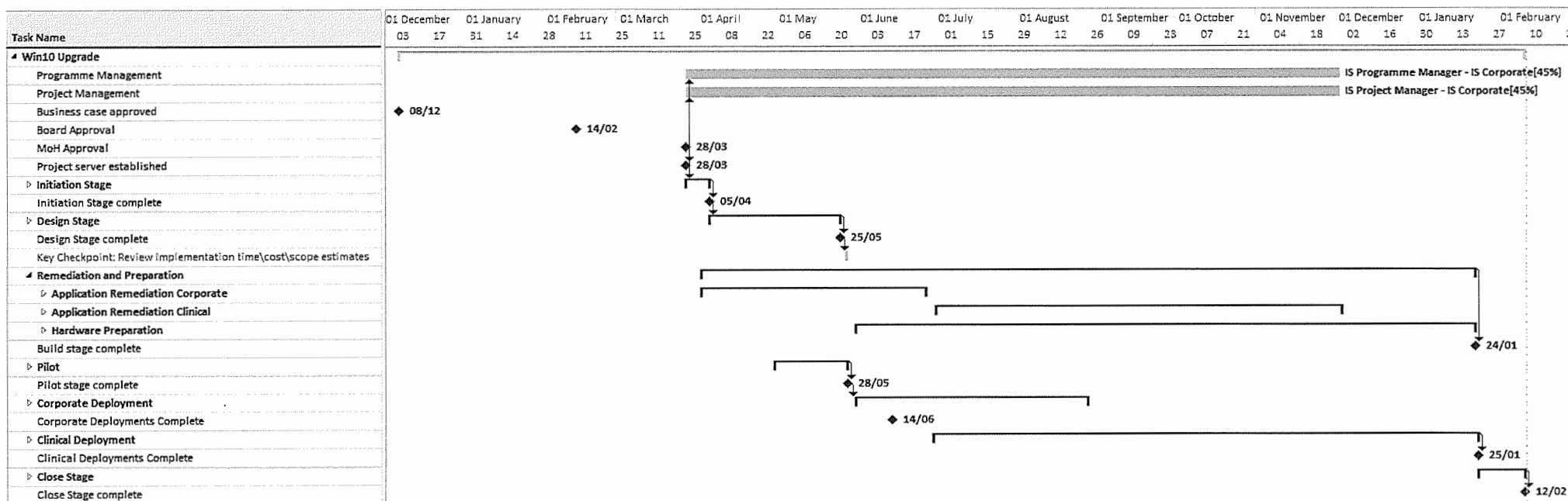
### 5.1. Measurable Soft Benefits

Benefit <What benefit will the organisation receive?>	Measure <How will you measure this?>	Baseline <What is the current level of the measure?>	Tolerance	17/18 yr1	18/19 yr2	19/20 yr3	Dependencies <Is there another initiative this is reliant on to be realised?>	Responsible	Accountable
All Microsoft computer devices – desktops, laptops, and tablets are Windows 10	SCCM audit	5%	0%	80%	100%	100%		Project Manager	Project Executive
Local administration password management in place for all desktops	SCCM audit	5%	0%	80%	100%	100%		Project Manager	Project Executive
Standards / compliant technology for new generation Windows 10 infrastructure would be developed and delivered	Windows 10	50%	0%	80%	100%	100%		Project Manager	Project Executive

## 6. Timescale

This timeline assumes:

- Analysis tools available to assess current readiness of environment rapidly e.g. utilise Citrix APP DNA toolset (that DHB is already licensed for) to validate that software in use is (or isn't) compatible to operate on Windows 10
- The Windows 10 image build can be completed quickly, leveraging work already completed by Windows 10 build for mobile devices
- Subject to approval at BRRG on the 8<sup>th</sup> December 2017, that DHB Board approval can be obtained in Feb 2018 (1<sup>st</sup> Board of 2018) and that MoH approval can be obtained in March 2018



## 7. Procurement Compliance

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Does this solution involve external parties/suppliers? <i>If the answer is <b>no</b> please move to the next section</i>	Yes
Is a current and relevant contract already in place for the <u>same</u> product/hardware/service?	Yes
If no contract in place, have you engaged with Procurement to discuss the Procurement activity required to ensure compliance with the Procurement and Contracts Policy?	Yes
Existing preferred supplier Vendor Services agreements will be leveraged to provide resources to deliver this project.	

## 8. Costs

### 8.1. Implementation Costs

IS1712-003 - Windows 10 (All Years)						
IS Professional Services Implementation Estimate						
CAPEX/OPEX	TASK	Resource	Hourly Rate	Estimated Hours	TOTAL	Notes
Capex	1.04	Analyst – Business (Apps)	\$ 60	456	\$ 27,360	
Capex	1.04	Analyst – Business (Tech)	\$ 60	512	\$ 30,720	
Capex	1.04	Analyst – Delivery	\$ 60	3040	\$ 182,400	
	1.04	Analyst – Integration	\$ 60	0	\$ -	
	1.06	Architect – Data	\$ 73	0	\$ -	
Capex	1.06	Architect – Network	\$ 73	120	\$ 8,760	
Capex	1.06	Architect – Applications	\$ 73	200	\$ 14,600	
Capex	1.06	Architect – Infrastructure	\$ 73	200	\$ 14,600	
		Cablers – Network	\$ 37	0	\$ -	
	1.05	DBA – Database Administrator	\$ 57	0	\$ -	
	1.05	Developer – Data & Reporting	\$ 47	0	\$ -	
	1.05	Developer – Software	\$ 40	0	\$ -	
	1.05	Developer – Software & Integration	\$ 40	0	\$ -	
		Field Resource		0	\$ -	
Capex	1.04	Packager	\$ 60	520	\$ 31,200	
	1.01	Programme Manager - IS Corporate	\$ 96	0	\$ -	
Capex	1.01	Programme Manager - IS Clinical	\$ 96	400	\$ 38,400	
Capex	1.04	Project Coordinator - IS Corporate	\$ 43	1200	\$ 51,600	
Capex	1.02	Project Manager - IS Corporate	\$ 67	320	\$ 21,440	
Capex	1.02	Project Manager - IS Clinical	\$ 67	1440	\$ 96,480	
	1.02	Project Manager – Network	\$ 67	0	\$ -	
	1.02	Coordinator – Network	\$ 43	0	\$ -	
	1.07	Engineer – Network	\$ 67	0	\$ -	
Capex	1.07	Engineer – Enterprise (Tech)	\$ 73	3480	\$ 254,040	
Capex		Spark Floorwalker	\$ 79	1600	\$ 126,400	
Capex		Change Team	\$ 67	149	\$ 10,000	
Opex		Training	\$ 36	1336	\$ 48,096	
Capex	1.08	Test Lead	\$ 60	1440	\$ 86,400	
		IS Professional Services Sub-Total			\$ 1,042,495	
Vendor Estimate						
		Services	\$ -	0		
		Software	\$ -	0		
Capex		Licencing - owned		0	\$ 100,000	estimate to support application remediation
Opex		Hardware	\$ -	0	\$ 275,000	SSD & Memory - One off Opex
Capex		Desktop Replacement	\$ 1,000	250	\$ 250,000	Pooled assets / PCs
		Vendor Sub-total			\$ 625,000	
		Contingency			\$ 333,499	Contingency at 20%
<b>Total Implementation Estimate</b>					<b>\$ 2,000,994</b>	

### 8.2. Ongoing operational costs

Ongoing OPEX					
		Services			
		Software			
		Licencing - subscriptions			
		Hardware			
		Vendor Sub-total			
		Contingency			
<b>Total Implementation Estimate</b>					<b>\$ -</b>

## 9. Resource Requirements

### 9.1. Resources to deliver the project

Department	Resource type, % of FTE, and Duration Required
Services	<p>All staff will be impacted by this change and will be required to invest at least 1hour of their time to upskill themselves re: using Windows 10</p> <p>On the day of upgrade, they can expect that while they can continue to work effectively, that there will be some discomfort as they on-board the new desktop 'look and feel' which would last for at least one day of work, 8 hours. A floor walking team will be available to assist staff on the day post upgrade, to minimise any discomfort this change may cause.</p>
Change Team	Project Team resources as outlined in section 8.1
IS	Project Team resources as outlined in section 8.1
Learning & Development	<p><b>Training Delivery Modes</b></p> <ol style="list-style-type: none"> <li>1. Manuals / 'What's New' <ul style="list-style-type: none"> <li>• Update existing Microsoft Windows manuals (15)</li> <li>• Create a 'What's New' document to highlight changes/new functionality</li> <li>• 296 hours over a 7.5 week period</li> </ul> </li> <li>2. E-learning modules <ul style="list-style-type: none"> <li>• Update existing Computer Orientation e-learning module to reflect changes to Win10, file management and Outlook</li> <li>• Create a new e-learning module to cover 'What's New'</li> </ul> </li> <li>3. Overview sessions <ul style="list-style-type: none"> <li>• Demonstration by Computer Application Trainer in meeting rooms to give overview of changes/new functionality and answer any questions (no longer than one hour)</li> <li>• Sessions can also be delivered at main meetings, i.e. Grand Round, team meetings/forums etc.</li> <li>• 40 hours over a 4 week period (x 10 months = 400)</li> </ul> </li> <li>4. Drop-in sessions <ul style="list-style-type: none"> <li>• Staff can attend a drop-in session to practice new functionality and have any queries answered (pre and post go live)</li> <li>• 12 hours over a 2 week period (x 20 fortnights = 240hrs)</li> </ul> </li> <li>5. Floor walking <ul style="list-style-type: none"> <li>• To assist staff week of go live to embed new changes</li> <li>• 10 hours over a 1 week period (x 40 weeks = 400hrs)</li> </ul> </li> </ol>
HR / ER	n/a

### 9.1. Ongoing FTE Impact

	Current paid FTE	Proposed paid FTE	Budgeted (Y/N)
Medical Personnel	0	0	
Nursing Personnel	0	0	
Allied Health Personnel	0	0	
Support Personnel	0	0	
Management / Admin Personnel	0	0	
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 9.2. Delivery Capability

The delivery capability is excellent given - the Waikato DHB; supported by Spark IS services resources successfully upgraded the Waikato DHB desktop/laptop fleet to Windows 7 only 3 years ago. Key resources are available to assist this upgrade. In the intervening three years, the DevOps approach has also been implemented to ensure the optimisation of project an operational team relationships and work effort, as well as new technologies have been made available to automate some tasks that were previously manual e.g. the ability to identify software that is not compatible with Windows 10.

#### EXCELLENT:

- The likely team (including any potential vendors) have a proven, successful track record relevant to the outcomes of this initiative, AND
- There are NZ reference sites and previous successful examples of similar initiatives, AND
- There is a clearly defined scope and agreement of the clinical and business benefits required, AND
- Support tools, resources and required processes are in place

## 10. Major Risks

ID#	Risk description	Risk Response	Probability	Impact
R01	The desktop lifecycle programme of work cannot rapidly ensure the replacement/upgrade of existing desktop hardware to meet the Windows 10 upgrade prerequisite requirements e.g. SSD Disc	Accept – slow the deployment timeline down to accommodate as required  Stock of Windows 7 devices in place to tide-over until upgrade to Windows 10 is complete	60% Possible	3 Moderate
R02	The Windows 10 image build cannot be completed rapidly, leveraging work already completed by Windows 10 build for mobile devices	Accept – slow the deployment timeline down to accommodate as required  Stock of Windows 7 devices in place to tide-over until upgrade to Windows 10 is complete	40% Unlikely	3 Moderate
R03	All inflight projects cannot review IS designs to ensure Windows 10 compatibility	Accept – plan subsequent lifecycle upgrades to accommodate this requirement  Stock of Windows 7 devices in place to tide-over until upgrade to Windows 10 is complete	60% Possible	3 Moderate
R04	Universal Print Drivers will not function on Windows 10	Reduce – work with Ricoh to resolve any issues with the universal print drivers in situ	40% Unlikely	3 Moderate
R05	All web applications, putting DHB data into the cloud, are NOT certified to be in use, and are NOT known to IS to enable the validation that they work on Windows 10 / IE11 or Chrome	Avoid – direct services to undertake work to enable compliance to Ministry of Health (regarding all clinical data) and DIA requirements (regarding all government data)	60% Possible	3 Moderate
R06	That a dedicated team cannot deliver this upgrade project in parallel with the other projects being undertaken by Waikato DHB	Accept – seek a higher BRRG priority rating to ensure resources do not get re prioritised to other projects	20% Rare	4 Major
R07	Internal and external resources	Accept – slow the	20% Rare	3 Moderate



ID#	Risk description	Risk Response	Probability	Impact
	are not available to work alongside DHB resources committed to other projects running parallel to ensure the DHB gets through this unusually high level of technology changes currently required, including upgrade to Windows 10 and migration to IaaS	deployment timeline down to accommodate as required		
R08	Key applications in use in the DHB have a significant expenditure to upgrade to Windows 10, and that this cost cannot be covered by assumption based planning for application remediation.	Accept – 60% Contingency exists in the capital plan across the 2 financial years to with approximately an additional \$1M set aside for Windows 10. Funds not claimed by this business case could be covered in a subsequent business case once specific details are determined	60% Possible	3 Moderate
R09	Some vendors do not currently have, or may not have, a Windows 10 compatible version of their application	Reduce – effected services to staff on Windows 7. Alternative applications to be considered (where appropriate)	80% Likely	3 Moderate
Legend:	<b>Threat:</b> Avoid, Reduce, Fallback, Transfer, Accept <b>Opportunity:</b> Exploit, Enhance, Reject	20% Rare 40% Unlikely 60% Possible 80% Likely 100% Almost Certain	1: Minimal 2: Minor 3: Moderate 4: Major 5: Extreme	

## 10.1. GCIO Risk Profile Assessment

Waikato DHB is required to perform an initial risk profile assessment for all ICT-enabled projects. The following table is a summary of the indicative risk ratings calculated for the Windows 10 Upgrade project by the GCIO Risk Profile Assessment tool:

Risk Profile Assessment		Rating
Project's Strategic Context	<ul style="list-style-type: none"> <li>Project's External Impact</li> <li>External Impacts on Project</li> </ul>	LOW
Project's Scope and Complexity	<ul style="list-style-type: none"> <li>Impact on State Sector and Agency</li> <li>Project Scope and Complexity</li> <li>Information Technology Element</li> <li>Procurement Element</li> <li>Infrastructure Element</li> </ul>	LOW
Project Delivery Capability & Approach	<ul style="list-style-type: none"> <li>Supplier and Agency Experience</li> <li>Agency's Project Management Framework and Approach</li> </ul>	LOW
<b>Overall indicative risk rating for the project:</b>		<b>LOW</b>

The full risk profile assessment is available here: [K:\Information\\_Services\aaa IM 03 Information Management Projects \(NEW\)\IS1712-003 - Windows 10 Upgrade\Management Products\01\\_Business Case\C\\_Business Case](K:\Information_Services\aaa IM 03 Information Management Projects (NEW)\IS1712-003 - Windows 10 Upgrade\Management Products\01_Business Case\C_Business Case)

## 11. Investment Appraisal

### 11.1. Funding Source

Capital Plan Line Reference	FY 17/18	FY 18/19	Total
Win 10 Upgrade (Yr 1 of 2 Yr investment. End of Sale of Win 7 devices)	\$500,000	\$1,314,230	\$1,814,230
Review & Upgrade core desktop apps (Win 10)	\$32,765		\$32,765
Windows 10 Desktop Infrastructure - Upgrade investigation	\$100,000		\$100,000
Develop Windows Server 2016 Standard Build		\$54,000	\$54,000
Total	\$632,765	\$1,368,230	\$2,000,995

This business case is drawing down \$2.0M of \$2.5M available over the 17/18 and 18/19 financial years. There is a potential requirement to remediate larger Cat 1 -2 systems and the remaining funds are reserved should this become a requirement. This is only likely to be known once the project remediation team commences work.

### 11.2. FOREX Impact

N/A

### 11.3. Net Present Value Calculations

Key Financial Information:				
Costs	\$'000	Budgeted	Key Indicators:	
<b>Capital cost:</b>	-1,678		Net Present Value	-1,924 \$'000
<b>Opex Current Year</b> (- increases deficit/ + increases surplus)			Period of NPV	1 Years
Incremental Costs \$'000	-91		Interest Rate used	6 %
Benefits \$'000	0		Payback:	No Payback Years
Net Impact on Opex \$'000	-91		Internal Rate of Return	0.0 %
<b>Opex Next Year</b> (- increases deficit/ + increases surplus)			Average Life of Assets	5.0 Years
Incremental Costs \$'000	-435		(for depreciation)	
Benefits \$'000	0		Total Impact on Opex	-2,043 \$'000
Net Impact on Opex \$'000	-435		For Period of	1 Years

NPV Calculation	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
	2017	2018	2019	2020	2021	2022	
	\$'000 (- Outflows / + Benefits)						
<b>Capital Cost</b>							
Internal Labour	-286	-708					-994
Hardware Replacements	-125	-125					-250
Licensing	-25	-75					-100
Contingency	-105	-228					-333
							0
							0
							0
							0
							0
							0
							0
<b>Total Capital Cost</b>	<b>-542</b>	<b>-1,136</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-1,678</b>
<b>Incremental Operating Cost</b>							
Training	-16	-32					-48
SSD and RAM upgrades	-75	-200					-275
							0
							0
							0
							0
							0
							0
							0
<b>Total Operating Cost</b>	<b>-91</b>	<b>-232</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-323</b>
<b>Benefits</b>							0
							0
							0
							0
							0
<b>Total Benefits</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Net Cashflows</b>	<b>-633</b>	<b>-1,368</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-2,001</b>

Impact on Operating Statement	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
	2017	2018	2019	2020	2021	2022	
	\$'000 (Incremental Change from Year 0)						
<b>Incremental Operating Cost</b>							
Training	-16	-32	0	0	0	0	-48
SSD and RAM upgrades	-75	-200	0	0	0	0	-275
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
Finance Costs		-94	-74	-54	-34	-14	-270
Depreciation		-108	-336	-336	-336	-336	-1,451
<b>Total Operating Cost</b>	<b>0</b>	<b>-91</b>	<b>-435</b>	<b>-410</b>	<b>-389</b>	<b>-369</b>	<b>-2,043</b>
<b>Benefits</b>							
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
							0
							0
<b>Total Benefits</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Over/-Under Recovery</b>	<b>0</b>	<b>-91</b>	<b>-435</b>	<b>-410</b>	<b>-389</b>	<b>-369</b>	<b>-2,043</b>

11.4. CAPEX Form

CAPEX PROJECT NUMBER: <b>IS1712-003</b>																													
ASSET/PROJECT DESCRIPTION: <b>IS1712-003 Win10 Upgrade</b>																													
UNIT/DEPARTMENT: <u>1001</u>		PROJECT LEADER: <u>Grant Lee</u>																											
TYPE OF REQUEST (circle):		DATE OF REQUEST: <u>20/11/2017</u>																											
<input checked="" type="radio"/> Capital Purchase <input type="radio"/> Lease/Rental <input type="radio"/> Grant/Donation <input type="radio"/> Emergency <input type="radio"/> Other (specify)																													
MAIN PURPOSE FOR REQUEST (circle):		Business Case Attached: <u>Yes</u>																											
<input type="radio"/> Asset Replacement <input type="radio"/> Quality/Accreditatic <input type="radio"/> Health and Safety <input type="radio"/> Increased Capacity/Revenue																													
<input type="radio"/> Legislative Compliance <input type="radio"/> Cost Reduction <input type="radio"/> New Development <input checked="" type="radio"/> Other (specify) - Infrastructure Platform																													
<b>SUMMARY OF KEY FEATURE/BENEFIT OF PROPOSAL:</b>																													
- Upgrade all Waikato DHB computer, laptop and tablet computer devices from Windows 7 to Windows 10 - Support remediation of applications to Windows 10																													
<b>PROJECT EXPENDITURE SUMMARY :</b>			<b>FINANCIAL SUMMARY (Operating Stmt) excludes benefits</b>																										
Forex (Currency @ Rate NZ\$ (excl GST))			<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Current Year \$ (excl GST)</th> <th>Full Year \$ (excl GST)</th> </tr> </thead> <tbody> <tr><td>Revenue</td><td></td><td></td></tr> <tr><td>Consumables</td><td></td><td></td></tr> <tr><td>Maintenance</td><td></td><td>\$232.0</td></tr> <tr><td>Depreciation</td><td></td><td>\$108.3</td></tr> <tr><td>Interest</td><td></td><td>\$94.2</td></tr> <tr><td>Other Costs</td><td></td><td></td></tr> <tr><td><b>Net Impact</b></td><td><b>\$0</b></td><td><b>\$435</b></td></tr> </tbody> </table>				Current Year \$ (excl GST)	Full Year \$ (excl GST)	Revenue			Consumables			Maintenance		\$232.0	Depreciation		\$108.3	Interest		\$94.2	Other Costs			<b>Net Impact</b>	<b>\$0</b>	<b>\$435</b>
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<b>Net Impact</b>	<b>\$0</b>	<b>\$435</b>																											
Equipment (Pooled Assets)	\$250,000																												
IT Expenditure (Licensing)	\$100,000																												
One off opex (Training / HW)	\$323,096																												
Installation Costs (external)	\$126,400																												
Capitalised Labour (internal)	\$867,999																												
Contingency	\$333,499																												
<b>= Total applied for</b>	<b>\$2,000,994</b>																												
Number of Quotes Obtained:	<u>NA</u>	Payback Period (years)		<u>n/a</u>																									
Budget Description & Amount (if applicable)	<u>\$2,000,994</u>	NPV @ 6 % rate																											
<b>Alternative Options Considered:</b>			<b>Details of Present Asset(s)</b>																										
N/A			Description: <u>n/a</u>																										
			Replacement Reason: _____																										
			Age: _____ years																										
			Book value (if known): _____																										
			Est Realisation value: _____																										
			What is proposed to be done with the present asset? _____																										
			Attach Technicians Report upon present asset(s)																										
<b>Post Implementation Review:</b> Who will undertake post implementation review and when:																													
<b>Approvals</b>																													
	Project Leader	Business Analyst/Accountant	IS Manager	General Manager / CIO	CFO if over \$200,000	CEO																							
Name	<u>Grant Lee</u>	<u>Rory O'Donnell</u>	<u>Scott Brown</u>	<u>Geoff King</u>	<u>Andrew McCurdie</u>	<u>Derek Wright</u>																							
Signature																													
Date	<u>20/11/17</u>	<u>20/11/17</u>	<u>20/11/17</u>	<u>20/11/2017</u>	<u>20/11/2017</u>	<u>20/11/2017</u>																							
<b>Expenditure Overrun Approval:</b>																													
Reason for overrun		\$ requested	Approved by	Date																									
1																													
2																													

*(1) Bus case review only*