Housing Systems Blueprint

Reading Borough Council

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1 Executive Summary

1.1 Introduction

Reading Borough Council (the Council) has commissioned NCC Group to undertake an independent review and soft market test to consider the strengths and weaknesses of current and possible providers and solutions to support the business requirements across the Council's Housing Service.

The scope of the review has covered Housing Management, Reactive Repairs and Planned and Cyclical Maintenance, Asset Management and Enterprise Content Management. The solutions being reviewed have also provided opportunities to be explored for mobile working and self-serve by customers.

Strategically, RBC should be focusing on the following:

- Move to NPS Housing, Northgate's 'flagship' Housing Management System (HMS);

- Expansion of TotalMobile across RBC using the Software as a Service (SaaS) model;

- Implementation of SharePoint as the corporate Enterprise Content Management (ECM) solution.

The latter two are dependent upon other service areas adopting these approaches and the undertaking of significant upfront data cleansing and integrity checking for ECM.

However, to ensure affordability and achievability and to move RBC's Housing Service forward in line with its proposed future path, this blueprint positions the future direction by:

- Implementing NPS Housing as an upgrade to OHMS;

- Commencing content cleansing over time by introducing a fresh instance of Information@Work;

- Reviewing processes and making full use of its current TotalMobile capabilities.

In the case of asset management, the growing trend is to move this capability into the core housing system due to the close alignment with core property management functions. Hence RBC should wait for NPS Housing to introduce the new asset module, which is planned for 2019, and review its capabilities at that time. It may be possible that this module will be available in time for RBC's upgrade to NPS Housing.

The extent to which each option considered supports the key drivers of the Housing Service's Target Operating Model (TOM) are highlighted in Table 1, where:

(B)lue indicates a small, tactical improvement over the current level of delivery for the TOM driver.

(A)mber highlights a noticeable improvement in terms of supporting delivery of the TOM driver.

(G)reen indicates a significant improvement towards fully meeting the TOM driver.

Target Operating Model (TOM) Drivers	Housing Implement NPS Housing	MMR Do Minimum	Asset Do Minimum	ECM Do Minimum
Personalised portal	G	B	B	B
Consistent interaction across services	G	B	B	B
Digital by default, yet facilitating digital inclusion	G	A	B	B
Mobile first for housing and maintenance staff	G	A	B	A
Facilitates channel migration	G	B	B	B
Front office integration	G	N/A	A	A
Single version of the truth	G	B	A	A
Back office 'specialist' interaction layer	G	N/A	A	B
Real-time reporting dashboard / client	G	A	N/A	N/A
Data segregation / client	G	N/A	B	A
Drives business efficiencies through automation and standard ways of working	G	A	B	A

Table 1 – Overall TOM Alignment across all Preferred Options

Table 2 summarises the selection of the preferred option across the viable options considered for each in-scope system review.

Housing Management (Section 3)

- **Option 1**: Do Minimum - Enhance/extend current system usage and provide training
- **Option 2:** Implement NSP Housing as OHMS upgrade
- **Option 3:** Approach market and seek OHMS replacement

Maintenance Management (Section 4)

- **Option 1:** 1:Do Minimum - Operate with current solutions in short to medium term
- **Option 2:** Expand use of the TotalMobile solutions suite
- **Option 3:** Formally approach and review market for most economical and viable solution

Asset Management (Section 5)

- **Option 1:** Do Minimum - Enhance/extend current system usage and provide training
- **Option 2:** Approach market and seek Codeman replacement

ECM (Section 6)

- **Option 1:** 1:Do Minimum - Operate with current solutions in short to medium term
- **Option 2:** Implement Microsoft SharePoint Online as replacement for non-core systems content repositories
- **Option 3:** Formally approach and review market for most economical and viable solution

Table 2 – Selection of Preferred Option across Viable Options Considered

1.2 Further Considerations

1.2.1 Introduction

NCC Group presented its findings and recommendations contained in this report on two occasions to RBC's stakeholders:

- 10th December 2018: to the IT programme board;

- 4th February 2019: to the maintenance and asset management stakeholder group.

It is clear that RBC must be pragmatic when it comes to moving forward with its housing systems strategy and not be too over optimistic in terms of what it feels can be achieved from an affordability, capability and capacity perspective.

1.2.2 Affordability

Table 3 summarises the total cost of ownership which is estimated at around £2M if RBC considered the enhanced maintenance option (option 2) and selected and implemented a replacement for its asset management solution (option 2).

Cost Element	Housing Implement NPS Housing	Maintenance Option 2 Enhancement	Asset Option 2 Replacement	ECM Do Minimum
Capital costs – including hardware, software and external consultancy	£382,000	£141,000	£252,500	£80,000 (1)
Annual costs – including annual subscriptions, maintenance & support	£75,000	£43,534	£32,500	£12,000 (1)
Total cost of ownership over 5 years – excluding internal costs	£757,000	£358,670	£415,000	£140,000 (1)
Internal resource costs for implementation	£138,375	£68,625	£58,500	£60,000 (1)
Total cost of ownership over 5 years including Internal resource costs	**£895,375**	**£427,295**	**£473,500**	**£200,000 (1)**

Notes:
(1) Cost quoted are thumbnail estimates

Total Capital £1.7M   Total TCO £2.0M

Table 3 – Budgetary Requirements across Further Options

1.2.3 Resource Capacity and Capability

If RBC agrees to adopt NCC Group's recommendations across all options, then Table 4 aims to summarise the level of resource commitments across a number a generic implementation roles: Programme Board, Programme Manager, Module Leader, Module Team, Data Architect and Technical/Security. The table also aims to provide some specific assumptions that help to shape the level of resource commitments that have been proposed.

Internal Resource	Assumptions	Assigned Resource	Commitment/ Resource
Programme Board	Senior management representing Finance, Housing Services, Maintenance and Corporate IT	4	0.25 to 0.5 day/week
Programme Manager	On average 3 days/week commitment – can rise to full time across key periods of the programme	1	3 days/week
Module Leader	5 module leaders across core modules: rents, maintenance, housing options, asset management, content management	5	1.5 to 2.0 days/week
Module Team	5 teams with 2 members attending workshops, supporting the configuration of modules, training, transformational change	10	3.0 to 4.0 days/week
Data Architect	Single point of contact for data cleansing and migration – ensures data quality controls implemented	1	2.0 days/week
Technical/Security	Providing key technical responsibilities: interface development, reporting, workflow development, ICT infrastructure set up, cyber security controls enabled (ideally resources assigned from Corporate IT)	2	No less than 1.5 days/week

Table 4 – Estimated Internal Resource across Proposed Programme

RBC should note the following:

(1) Resources should be committed across 12 to 14 month period;

(2) RBC would need to multiply the above resource figures by **at least 30% across all the above roles** in Table 4 in order to embrace the other options for Maintenance (option 2) and Asset Management (option 2);

(3) The 'Rule of Thumb' is that RBC should plan for committing internal resources at a ratio of around eight for every one external implementation resource assigned due to the assisted build process that is adopted by Northgate.

1.3   Structure of the Report

The references to sections in Table 2 above relate to the sections in this blueprint.

The specific details underpinning NCC Group's recommendations are contained in the relevant sections of this blueprint, namely:

- Section 2: introduces the Target Operating Model for RBC's Housing Service;

- Section 3: specifies the options appraisal for the housing management system solution;

- Section 4: specifies the options appraisal for the maintenance management system solution;

- Section 5: specifies the options appraisal for the asset management system solution;

- Section 6: specifies the options appraisal for the ECM system solution.

- Appendix A: summarises the consultation sessions that were convened.

1.4 Acknowledgements

NCC Group would like to thank all those stakeholders from RBC who took part in the consultation sessions and those who have subsequently reviewed this housing systems blueprint.

1.5 Limitations

The options appraisals contained within the blueprint are reliant on the management and technical information provided to NCC Group by all stakeholders, the Council or their agents being complete and accurate.

NCC Group is an independent organisation and does not endorse any 3rd party supplier or solution provider.

2 RBC Housing Service Target Operating Model

2.1 Introduction

Given RBC's current position and its vision for customer service delivery it must therefore realign its organisation to deliver the required services using solutions that facilitate and fully support the achievement of these strategic objectives.

The diagram in Figure 1 provides an illustration of the proposed organisational and alignment of solutions to deliver the services to RBC's housing customers and fully achieve its strategic business objectives.

A customer-centric approach where a full range of front line services are provided will facilitate consistency of customer interaction and, where possible, offer contact and service delivery through the customer's channel of choice.

Where possible, a fully integrated suite of housing-related systems will help to develop and deliver services through standard corporate-focused processes to improve consistency and efficiency, yet maintaining current flexibility and responsiveness.
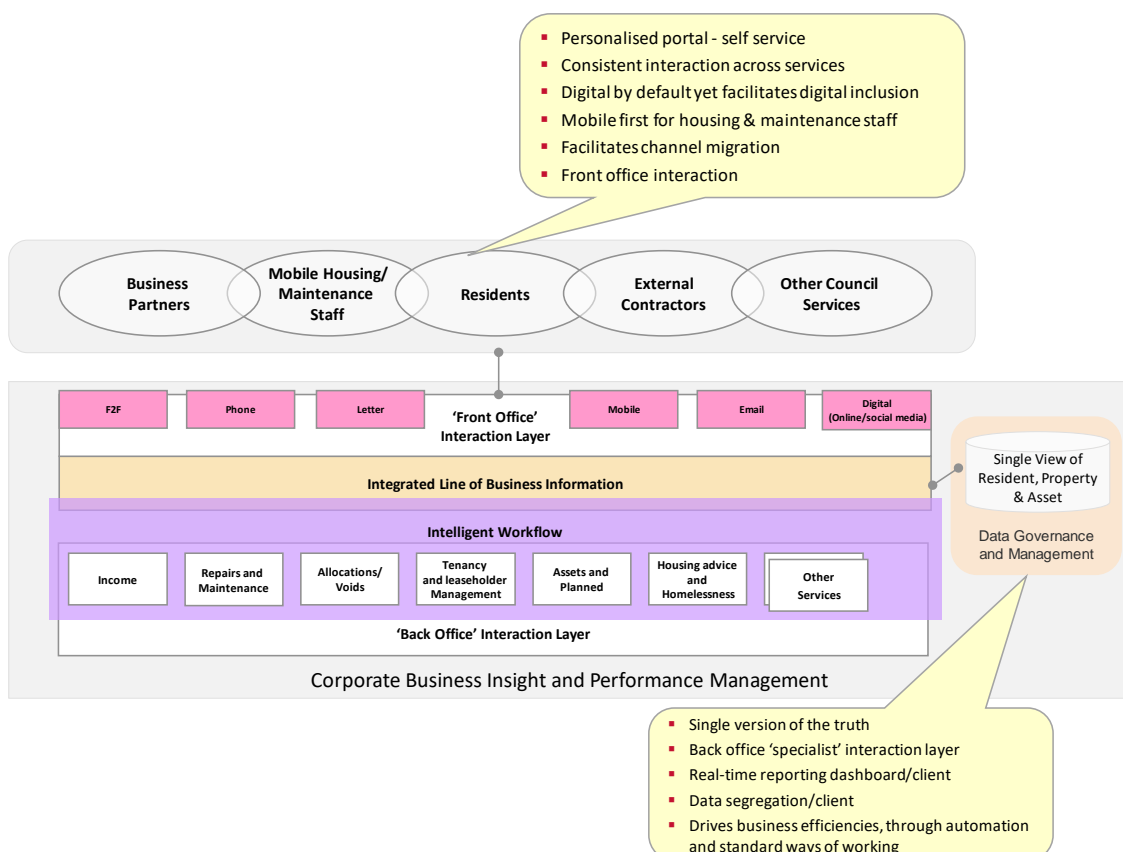
Figure 1 – Customer Service Delivery Vision

The customer's expectations will be managed through conformance to the agreed customer access strategy and service level agreement.

Process improvements will be made, as necessary, to deliver better customer service.

The functionality and capability of RBC's front office service delivery will be extended and supported through the implementation of corporate systems such as Customer Relationship Management (CRM), contact management, intelligent workflow and Electronic Content Management (ECM). Contact management will enable all contact with customers to be captured in an efficient manner potentially through solutions capabilities such as Computer Telephony Integration (CTI).

RBC Housing Service will strive for continuous service improvement through benefits-led business process transformation; success will also fully reflect alignment to its Key Performance Indictors (KPIs) in order to demonstrate that lessons learned have resulted in refined processes and changes to policy and procedure.

3 Housing Management Systems Options Appraisal

3.1 Introduction

This section provides a high-level appraisal of the systems options available for housing management functions within the Reading Borough Council (RBC) Housing Management service.

NCC Group has developed a set of viable options for this appraisal and will be presenting them using the following categories:

- **Functional description:** a summary of the functionality and business requirements that are to be made available through the implementation of the option. NCC Group has provided RBC with an indication of a minimum option (option 1) that will provide a baseline against which to compare the other viable options.

- **Strengths, benefits and weaknesses:** the benefits and weaknesses of the option.

- **Risk:** a high-level risk analysis and assessment for the option.

- **Impact analysis:** a high-level assessment of the impact or effect on the user, the technology and the organisation and the relationships that RBC has with its residents and business partners.

- **Implementation plan:** a high-level implementation plan for the option.

- **Assumptions:** any underlying assumptions that have been made when developing the cost model and implementation plan.

- **Indicative costs:** a high-level summary of the costs of the option. **Please note these costs should only be regarded as thumbnail approximations at this stage and are based on a significant number of assumptions. As a result, the costs should not be used as a serious input to any funding request or more detailed cost benefit analysis.** Although these costs will be thumbnail approximations, they will be at an accuracy that will enable RBC to compare options from a financial perspective**.**

3.2 Current Housing Management System Summary

3.2.1 Introduction

The review of Northgate OHMS revealed that there were a number of issues and concerns raised by system users and managers:

- Northgate OHMS is a reasonably stable legacy system with a steady, but slowly declining client base;

- Northgate has continued to announce that support for the OHMS system will be limited and that full support will be removed over time. RBC has had it confirmed that Northgate will provide support for the system until 2021;

- OHMS is not considered particularly intuitive/usable and users have to visit multiple screens to gain any form of consistent view;

- Due to the number of tactical solutions employed, multiple data repositories and poor variable data quality there is no 'holistic' view of data and no one version of the truth, leading to silo-based, inconsistent and inefficient working. This is particularly significant in the areas of tenancy management, Right to Buy (RTB) and leaseholder management;

- Many key operational processes supported by OHMS are protracted, inefficient, inconsistent and essentially manual;

- Upgrades and system changes can be protracted, time-consuming with some functionality disappearing after system changes applied;

- A large volume of free text fields, no enforced standard address entry format and the fact that notes are not handled in a consistent way can lead to varying data quality resulting in wasted time checking and reconciling details, which ultimately can lead to poor decision making;

- Northgate maintenance can inhibit the services requirements to operate in a more agile manner. Functionality such as daily debits are not possible due to the constraints imposed by the current support regime;

- Where interfaces do exist between systems, they are generally limited in terms of direction (some only one way), content (subsets of information) and timeliness (end of day or weekly batch updates in some cases). This leads to considerable duplication of information, disparity in information content between systems, overall uncertainty as to the accuracy and quality of information held across the systems, inhibits joined up working and proliferates data duplication;

- Core OHMS functionality is heavily underpinned by tactical solutions to deliver key functional controls such as task management and reporting. This results in a lack of operational control and visibility;

- RBC's implementation of OHMS lacks the capability of offering flexible and proactive reporting. This leads to managers and users reacting to situations as they occur instead of being able to resolve them more proactively before they become real issues;

- There is a significant level of manual documentation being maintained by users e.g. diaries to support and provide manual alerts;

- Currently there are no significant digital links enabled between OHMS and RBC's key stakeholders: residents, contractors and trusted business partners. This means that RBC is currently not able to fully exploit more efficient and cost effective communication channels;

- In conclusion, many of the issues associated with the OHMS implementation are the result of it being a legacy solution which has had little recent investment made in it by Northgate.

3.2.2   Detailed Assessment of OHMS Implementation

In order to assess its effectiveness, NCC Group has identified a number of performance attributes i.e. accuracy and auditability against which RBC's OHMS system has been measured. For each performance attribute, NCC Group has considered fundamental measures associated with these performance attributes and provided, for each attribute, an overall assessment rating as illustrated in Table 5.

Unacceptable	Poor	Average	Good	Excellent
0 – 20%	21 – 40%	41 – 60%	61 – 80%	81 – 100%

Table 5 – Performance Rating

The results of the analysis are documented in Table 6.

Figure 2 illustrates the summary assessment across the key performance evaluation criteria.
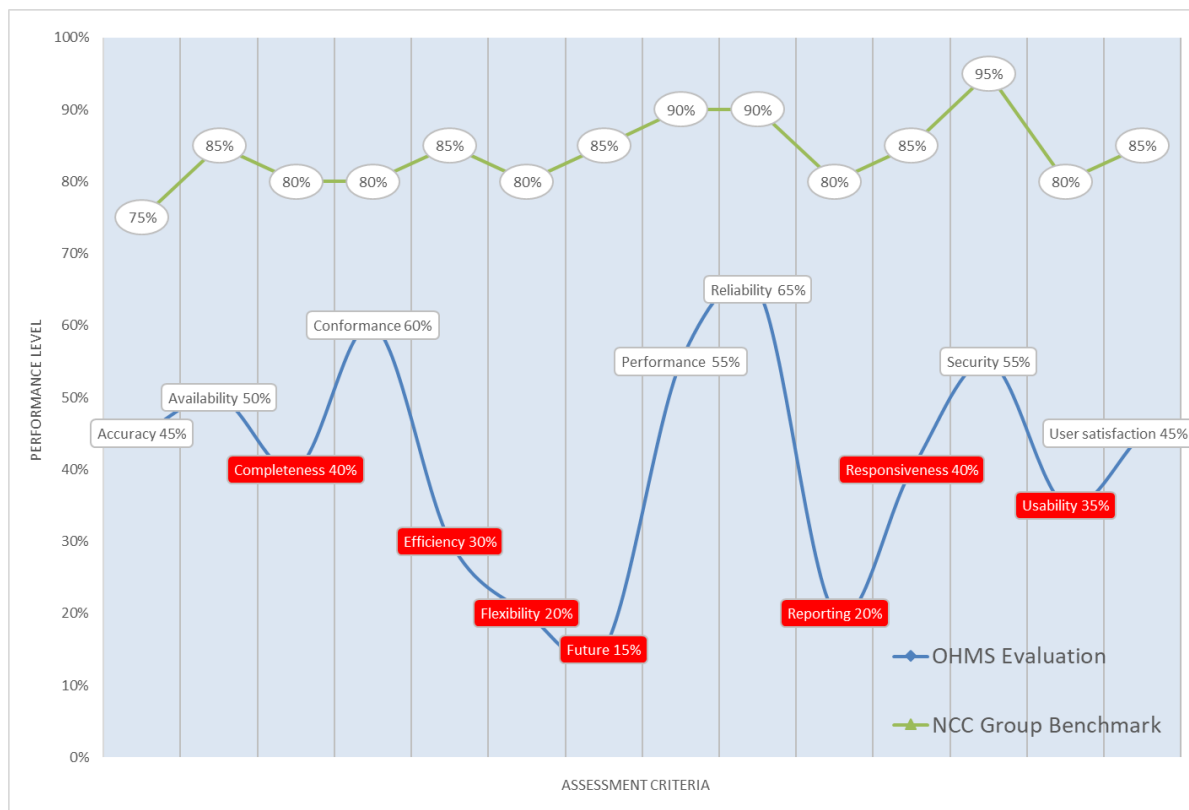
Figure 2 – Overall Benchmark Assessment of OHMS

Performance Attribute	Description	Overall Assessment
Accuracy	System's ability to deliver a service that is free from errors	Average
Availability	Ability of the system to deliver a service to users within agreed service times	Average
Completeness	Extent to which the system meets the needs and requirements of the business	Poor
Conformance	Demonstration of conformance with standards as required by the business	Average
Flexibility	Ability of the system to accommodate changes in requirements & circumstances	Unacceptable
Efficiency	Ability to facilitate business efficiency and agility	Poor
Future	Ability of the system to meet future needs	Unacceptable
Performance	Ability of the system to handle the required workload or volumes	Average
Reliability	Ability to provide a service with required functionality which is available as needed	Good
Reporting	Ability of the system to support the reporting requirements of the business	Unacceptable
Responsiveness	Ability to react to a single event in time	Poor
Security/audit	Ability to resist security threats and maintain security and confidentiality	Average
Usability	Ability of users to exploit the facilities of the system easily and productively	Poor
User satisfaction	Extent to which users are satisfied with the system they use	Average

Table 6 – OHMS Benchmark Assessment

An average figure of c40% was achieved across all performance criteria. Although there is no industry benchmark equivalent, NCC Group would recommend that this figure indicates that a significant level of remedial action is required to address the issues of the overall performance of the OHMS system.

OHMS is also significantly lacking across key criteria as shown in Figure 2, such Completeness (40%), Efficiency (30%), Flexibility (20%), Future (15%), Reporting (20%), Responsiveness (40%) and Usability (35%).

This analysis enforces the view that RBC must move away from OHMS as a matter of urgency.

3.3 Required Position

This section provides a benchmark summary of the type of 'best of breed' housing management system solution that RBC would require to meet its current and future business vision and associated strategy.

The solution has been divided into a number of key areas:

- 360° enabled business through full integration, see section 3.3.1;

- Workflow, process automation and task management, see section 3.3.2;

- Flexible and proactive reporting, see section 3.3.3;

- Mobile and location independent access, see section 3.3.4;

- Digital links to business partners and housing customers, see section 3.3.5;

- Extended core system support, see section 3.3.6;

- Customer relationship management, see section 3.3.7.

3.3.1   360° Enabled Business through Full Integration

Full integration of data and functionality will enable RBC to operate as a 'joined up' housing service enabling events occurring in one area of the business to be fully visible in real-time to other areas of the business. Full integration between system modules and associated systems will ensure that key data is stored and managed only once. This has been termed by some suppliers as having 'one version of the truth'.

The housing management and maintenance system solution should be underpinned by a central tenant/property database that will provide a 360° view of RBC's business.

An example of 360° business within RBC would be where a new asset is procured and made available to housing management. The asset becomes an asset on the system and automatically becomes available for allocation. The system automatically allocates a rent and service charge figure to the asset based on clearly defined business rules. Following successful allocation of the asset to a tenant, the system automatically sets up a rent account. Following receipt of the tenant's rent; RBC's financial accounts are automatically and appropriately updated. Repairs on the property are then efficiently progressed through the repairs facility by the repairs service.

3.3.2   Workflow, Process Automation and Task Management

The core housing management system should also operate within a fully integrated workflow environment to ensure that the management and control of processes is handled as required by the business. For example, the system should automatically alert the appropriate manager with details of a rent arrears case where the value owed by a tenant exceeds a specified level.

The manager can then proactively manage the situation through the system by informing the tenant of the arrears and closely monitoring the situation to ensure that it does not get further out of control. Full integration with the benefits and sundry debtor systems will ensure that debt can be managed more corporately than is the case currently.

Workflow facilities will support the definition, modelling, implementation and execution of key business processes and business rules and will enable staff to become more proactive in the activities that they are expected to undertake through the use of auto-alerts arising from diary and work tray task entries. This level of automation is in no way intended to reduce the skills requirements of the staff. If used correctly, it will provide the staff with tools to determine actions and timescales, enabling staff to make more effective use of their time.

The fully integrated workflow environment should support the management and control of business-related tasks, cases and situations. For example, the system should automatically alert the appropriate manager with details of a rent arrears case where the value owed by a tenant exceeds a specified level of debt. It should then support the progression of the rent arrears case that can be managed through a defined set of statuses, triggering the issue of standard letters and key events, as appropriate. The manager can then proactively manage the situation through the system by informing the tenant of the arrears and closely monitor the situation to ensure that it does not get further out of control.

The workflow solution should also facilitate 'joined up working' with key business partners for example the Council's housing benefit departments and external contractors, as appropriate.

3.3.3   Flexible and Proactive Reporting

The standard reporting facilities within the core system coupled with a suitable data analysis solution should provide management and users alike with the tools they need to proactively manage their business responsibilities more effectively.

Reporting facilities must provide:

- Standard/off-the-shelf reporting for periodic management and Key Performance Indicator (KPI) reporting. In all cases, these reports should be generated from core system data. The level of external manipulation should be minimal;

- Reporting against business-specified norms, proactively alerting management when exceptional circumstances and tolerances are exceeded;

- Ad hoc/DIY reporting where there is ease of information access and presentation. RBC operates a wide-range of initiatives that must be effectively managed. These initiatives change over time and vary in size and reporting requirements. The opportunity to develop ad hoc reports must be provided directly to business managers;

- 'What-if' and 'drill through' capabilities via dashboards available to managers to enable exceptions to be explored and resolved.

3.3.4 Mobile Working and Location Independent Access

Suitable technologies, when deployed appropriately, can facilitate efficiencies across the housing service and deliver against RBC's housing strategy. The specific components covered in this section are:

- Mobile working: the ability for locally-based housing management staff to transact work out in the field using suitable mobile devices such as Personal Data Access (PDAs) devices, laptops and tablets;

- Location independent access: the ability of staff and other stakeholders to access systems and data, where appropriate, irrespective of their location. This will apply to RBC's core systems, email, shared diaries, and specific project data.

The housing management system **must effectively support and manage** all staff who operate remotely e.g. housing officers and surveyors, by providing them with the capability and opportunity to readily gain access to core system data and information. This access should enable them to undertake their business with confidence, accuracy and efficiency.

Providing mobile capabilities will facilitate the opportunity of two-way communication where remote-based staff can initiate and record inspections, initiate/log repairs and provide key information to the system i.e. asset details, void statuses, tenant feedback etc.

To drive through efficiencies and to address the work life balance and flexible working agendas, managers and key staff should be able to gain location independent access to systems and information. The access they receive should be fit for purpose.

3.3.5 Digital links to Business Partners and Housing Customers

RBC should be able to provide a more effective service to its residents (tenants and leaseholders) by enabling a direct digital link to the organisation and its systems via the Internet. This will provide the resident with the opportunity to log any repairs, view his/her rent account, potentially pay his/her rent etc., providing information and receiving feedback.

RBC will also be able to build relationships with its key business partners such as suppliers, contractors, Registered Social Landlord and Housing Association partners and regulatory bodies. This will help gain economies of scale, maintain visibility of service across organisational boundaries and ensure that data enquiry and update can be achieved directly by trusted 3rd party partners.

3.3.6 Extended Core System Support

RBC, over time, has become very reliant upon tactical database solutions developed in applications such as Microsoft Excel and Access. Any tactical developments must be avoided, if at all possible, and only considered following the development and agreement of a business case that clearly indicates a case for tactical development. The preferred option is always to ensure that all housing services are adequately supported by core system functionality.

The housing management system should support all business functions and be readily flexible and extendible into new areas that become requirements over the next three to five years.

This requires a solution that is extendible and supported by a supplier who appreciates the changing business environment of housing management and maintenance and proactively canvasses relevant Government and regulatory bodies such as the Ministry of Housing, Communities and Local Government (MCLG), Homes England and the Regulator of Social Housing.

3.3.7 Customer Relationship Management

Complimentary Customer Relationship Management (CRM) functionality, either integrated with the core housing management system or provided through RBC's CRM solution integrated with the housing management system should be available to provide improved customer service levels through the building and on-going management of customer relationships.

RBC's business should be supported by this level of functionality and associated technologies to deliver, and where appropriate, automate and streamline communication with the organisation's customers through the use of a combination of tools e.g. graphical repairs ordering facility, knowledge bases with intuitive search capability, automated email and the support for multiple access channels.

3.4 Proposed Options

To facilitate and deliver the required position, three options are considered, namely:

- **Option 1: Do Minimum - Enhance/extend current system usage and provide training.** This is essentially a do minimum option which will involve working with OHMS's supplier Northgate to review its current usage in more detail, and where appropriate, for RBC to invest in the take-up of additional functionality that is not currently part of the core configuration. The option will also involve the implementation of a programme of business-focused training to help address the shortfalls in the awareness of how to get the best from OHMS. It should be stated that this is seen as a short to medium term option as eventually RBC would need to move away from OHMS as Northgate will discontinue to support OHMS in the longer term. This option will act as a key comparator for the other options;

- **Option 2: Implement NSP Housing as an Upgrade to OHMS.** This option will involve engaging with Northgate through the most appropriate Government procurement framework underpinned by the strategic partnership arrangements that both RBC and Northgate have in place. The implementation will follow a transitional approach and could commence once contractual arrangements have been finalised;

- **Option 3: Approach market via the Government Procurement Framework and seek replacement for OHMS.** This option will enable RBC to consider the procurement of a replacement housing management system solution. This option will enable RBC to market test NSP Housing against its direct competition: Civica, Aareon, Capita, Orchard, Castleton and MIS. The option will also include the commissioning of a suitable range of implementation services as required to successfully deliver the preferred solution in line with RBC's requirements.

For each of the options, it is essential to be cognisant of other ongoing change initiatives within Housing and the overall RBC corporate environment, and the impact they may have on the Maintenance and Repair services.

Each option is now explored in more detail.

3.5 Option 1: Enhance/extend current system usage and provide training

3.5.1 Functional Description

This is essentially a do minimum option which will involve working with OHMS's supplier, Northgate professional services team to review its current usage in more detail, and where appropriate, for RBC to invest in the take-up of additional functionality that is not currently part of the core configuration.

The option will also involve the implementation of a programme of business-focused training to help address the shortfalls in the awareness of how to get the best from OHMS. It should be stated that this is seen as a short to medium term option as eventually RBC will need to move away from OHMS as Northgate will discontinue to support OHMS in the longer term. This option will involve addressing some of the key shortfalls within the current OHMS implementation and ICT support arrangements, but essentially remain 'as is' with only tactical improvements being made.

This option will focus on getting better usage from the system, training and data quality will be a key area requiring improvement. On completion, a post implementation review will be undertaken to determine the completeness and effectiveness of the project, and to ensure follow-on training, support arrangements and awareness processes and plans have been fully established and are delivering business value.

Option 1 will act as a key comparator for the other options.

3.5.2 Strengths and Benefits

The strengths and benefits associated with this option are:

- This is the lowest cost option.

- The level of disruption to the business will be minimal.

- Assessing current usage of the systems against best practice will provide a clearer view as to the long-term viability and positioning of the solutions.

- Prioritising and addressing specific quick win opportunities will deliver benefits in terms of data quality, enhanced system capabilities and process improvement. Benefits will start to be realised in a short timeframe i.e. 3+ months.

- Raising awareness and training within the functional teams will yield further on-going benefits.

3.5.3 Weaknesses

The key weaknesses associated with this option are:

- New workarounds will have to be developed to manage all functional core system shortfalls.

- Although tactical issues may be addressed, more significant faults and issues will not be addressed including impact of efficiency.

- As there is little capacity for any enhancements of future development, OHMS offers limited scope for process enhancement and operational change particularly in respect of fully embracing digital capabilities such as mobile working and customer self-service.

- Savings and cashable benefits opportunities are potentially the lowest for this option, although they will be realised quicker than the other options.

- Some level of investment in terms of cost, time and resource (internal and external) will be required, albeit low in comparison to the other options.

- It will not fully address many of the key fundamental issues around lack of functionality and systems integration.

- This option will not enable RBC to formally review the market which would provide an opportunity to gain an appreciation of the scope and capability of housing management systems available.

- The review of RBC's Housing Services strategic and operational requirements has strongly indicated that OHMS will not meet the future demands.

3.5.4   Risks

There are a number of risks associated with this option, including:

- OHMS is a legacy system for Northgate and whilst it is currently supported, it is unlikely that this will continue indefinitely, therefore presenting a business risk to the Council.

- Continuing to use OHMS in its current form is a significant risk for RBC due to the limited support and premium charged for any work required by Northgate.

- Not all of the existing faults and issues will be fully addressed.

- There is the potential for new business and technical workarounds, rather than structured managed processes, to be introduced to manage system functionality shortfalls.

- Success and benefits will be compromised if the right blend of Northgate professional services and Housing resources are not assigned to the project.

- There will be an additional dependency on key internal staff to deliver and maintain process and system change on an ongoing basis.

- Unavailability of key RBC resources to work with Northgate will negatively impact the return from the consultancy investment.

- Motivating staff is a challenge when delivering limited process improvements below aspiration and expectation levels.

- There is a high risk that the Housing Services will not efficiently comply with the legislative requirements across key services.

- This option will leave RBC in an unsupported state in the longer term.

3.5.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** little short term business impact although longer term business will be impacted due to ineffective functional fit and issues with compliance to legislative requirements.

- **Other Council Services:** there is likely to be some minor impact on other Council services who receive or provide information from/to the Housing Service functions.

- **Resident:** the impact on the resident will be low initially, although, longer term the inability to readily offer digital solutions to meet resident needs will have an adverse impact.

- **Client:** there will be low levels of impact on client organisations who contract RBC to provide housing, maintenance and repair services. Minor modifications to existing integrations and/or reporting mechanisms may be introduced.

- **Contractor:** some minor working process changes may be required, and contractors will be expected to adopt and adhere to them.

- **Systems and Service Providers:** Northgate will be integral to the success of the project. For others, there is unlikely to be any significant impact on the current integrations.

- **Technology:** there is likely to be little impact with regards to the technical environment although longer term, the ability to transition OHMS to the cloud will not be easily undertaken if this is the direction RBC wishes to go strategically.

3.5.6 Implementation Plan

Although this is a "do minimum" option, a formal implementation plan is still required, albeit not on the same scale as for the other more expansive options. Resourcing on this option will be a combination of internal and Northgate Professional Services (PS) staff, and timings will have to align with the prevailing business priorities. The identification and implementation of the tactical improvements are likely to take circa 4-6 months and will include the following phases:

- Set up, resource and plan the programme of work with the assistance of Northgate. Include representatives from Corporate Improvement and Corporate ICT.

- Define, prioritise and deliver an ongoing data quality and cleansing activity and introduce data governance processes to maintain data quality at an appropriate level.

- Conduct a focused operational review in conjunction with Northgate PS consultants. Identify systems and process improvement opportunities.

- Where applicable, discuss process change, impact and integration requirements with all affected parties.

- Plan, develop and implement the improvement opportunities, either in a phased or big bang approach depending on scale, disruption impact, resource demands and availability.

- Undertake training and conduct robust testing of functionality as part of the implementation.

- Perform a post implementation review.

Business focused training should be an integral part of the overall implementation.

3.5.7   Assumptions

The key assumptions made when formulating this option are:

- Northgate continues to support OHMS in the medium term and, as a minimum, continues to maintain the level of resource they are providing currently for support and maintenance.

- Housing staff will be available to work on the project.

- Suitably experienced Northgate PS consultants will be assigned to the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

3.5.8   Indicative Costs

NCC Group's experience and discussions with Northgate have provided an indication of the typical level of support they have provided similar clients with to enhance their use of the product suite. The following costs are based on these discussions and experience.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£40,000**
Annual costs – including annual subscriptions, maintenance & support	**£7,000**
Total cost of ownership over 5 years – excluding internal costs	**£75,000**
Internal resource costs for implementation	**£13,050**
Total cost of ownership over 5 years including Internal resource costs	**£88,050**

It is important to note that these costs:

- Are based on current resource usage levels.

- Include a small element of contingency for external consultancy services and additional software.

- Assume only Northgate external resources will be procured, with all other activities undertaken by incumbent Housing and Council resources.

- Are predominantly incurred during the implementation period, with a very low incremental annual cost uplift.

3.6 Option 2: Implement NSP Housing as an Upgrade to OHMS

3.6.1 Functional Description

This option will involve engaging with Northgate through the most appropriate Government procurement framework and, where relevant, leverage the strategic partnership arrangements that both RBC and Northgate have in place in relation to the managed service. The implementation will follow a transitional approach and could commence once contractual arrangements have been finalised.

RBC is in a relatively unique position whereby the implementation of NSP Housing can be legitimately viewed as an upgrade to OHMS and can be procured through the existing contractual arrangements between Northgate and RBC without significant risk of supplier challenge.

3.6.2 Strengths and Benefits

The strengths associated with this option include:

- Delivers well against strategic requirements and Target Operating Model (TOM) as defined in section 2.

- Provide an opportunity to embrace core functionality across all services and address many of the functional issues and shortfalls with the current OHMS system.

- Ability to efficiently comply with legislative requirements.

- Where, relevant, current tactical databases and bespoke out of core systems and workarounds will be reduced, preferably eliminated.

- Increased efficiency and accuracy of information as all the information relating to a person or property will be held in one place rather than dispersed over a number of disparate systems.

- Enable the option to drive through transformational change of current processes and procedures to leverage the greatest benefit from the core system.

- Achieve significant ongoing savings in time, cost and effort by minimising the need for re-keying data as the system will enable core data to be stored only once.

- Offer a fully integrated solution with appropriate interfacing which facilitates total and consistent visibility of the business.

- Enable RBC to leverage the existing Northgate arrangements e.g. consolidated support model and improved integration opportunities with other Northgate systems such as Codeman and Information@Work.

- No market test/procurement will be required, saving between 5 and 7 months.

- Disruption to the business can be better controlled than in Option 1 as RBC will be able to adopt a more formal programme of work.

- The expanded functionality will address major weaknesses within the current environment and offer more management and control.

- Upgrading the housing management system will become a key driver for addressing the data quality issues and through extensive data cleansing routines, data duplication will reduce.

- Northgate will be able to fully and effectively support the upgrade from OHMS to NPS Housing. The transition is well proven and the supplier has a number of standard data loaders that should be effectively exploited.

- NPS Housing is the leading system across local authorities and housing associations and as such is expected to continue to develop and grow in line with the market.

- Northgate has partnership arrangements in place with the leading HMS suppliers and is aligned with their functional and technical requirements.

- This is a more cost-effective option than going to market, providing wholesale change is not expected across the Housing systems environment.

- Although commercial negotiations will be required with Northgate, initial dialogue has indicated that RBC will be able to consider a 'like for like' cost for those core modules where there is a direct correlation between OHMS and NPS Northgate.

- The current NPS Northgate solution can be deployed and accessed as a totally cloud-based solution. Anchor Trust, for example, has recently opted for this deployment.

- RBC will be able to review and embrace the additional functionality that is offered by NSP Housing. For example, Northgate NSP is due to be expanded to include an integrated asset management capability which can offer RBC a viable alternative to Codeman.

- Provides opportunity through agreeing contract terms to facilitate working relationships with incumbent suppliers such as TotalMobile.

3.6.3   Weaknesses

- Although the implementation of NPS Housing will be viewed as an upgrade, data migration will still be required and is likely to require a significant level of resources to deal with not only the migration, but also the associated cleansing of the data. Within RBC's implementation of OHMS there are certain data compromises that have been made where data is being stored in fields for which it was not designed.

- Implementation duration will be extensive (12-14 months) and will have an impact on service delivery that will need to be carefully managed.

- The Total cost of Ownership (TCO) for this option will be significant, but is likely to be less than option 3.

- Due to the level of investment required, RBC will be tied into the Northgate suite of products for the medium term i.e. minimum 3 years.

3.6.4   Risks

The risks associated with this option include:

- NSP Housing cannot fully support RBC's requirements, either directly or in partnership with other related systems.

- The level of expenditure and resource commitments results in the business case and associated benefits not being realised.

- The level of resource commitment cannot be secured resulting in an unsuccessful implementation.

- The ability of Northgate to manage a successful implementation.

- There is a dependency on key internal staff to deliver and maintain process and system change.

- Legacy data quality and duplication issues will remain a concern and may impact the targeted benefits.

3.6.5   Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** significant impact on the business in terms of service delivery and the resources required to implement the solution – the contract with Northgate will need to be reviewed and refined to better reflect the new proposition.

- **Other Council Services:** there will be varying levels of impact on other Council services who receive or provide information from/to the Housing Management functions.

- **Resident:** the impact on the resident will be significant and must be carefully managed as working practices, service levels and expectations will undoubtedly change.

- **Client:** there will be varying levels of impact on client organisations who contract with RBC to provide housing and other related services. Changes may include the introduction of new, or modifications to existing, integrations.

- **Systems and Service Providers:** revised, enhanced and/or new integrations and working practices will have to be discussed and agreed with the providers who interact directly with the housing management systems. The level of impact will vary by provider.

- **Technology:** the mobile device portfolio will require refresh and expansion to cater for new features and expanded functionality. Interfaces between core systems will require enhancements or redevelopment. The potential need to introduce cloud-based web services to support contractor mobile working will also have to be supported.

3.6.6 Implementation Plan

The estimated implementation timeframe for this option is circa 12-14 months and will include the following key stages:

- Define and specify the functional and operational requirements.

- Undertake commercial negotiation and acceptance of terms with Northgate.

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Undertake business process review across all impacted service areas in line with proposed system scope.

- Discuss integration requirements with all affected parties – systems and service providers, material suppliers and contractors.

- Undertake specification and phased enhancement and implementation of interfaces and integrations.

- Undertake specification and development of reports.

- Undertake extensive data cleansing and migration exercise.

- Assess the current technical infrastructure for servers, mobile working and cloud services against the new environment requirements and initiate upgrades where needed.

- Conduct phased system implementation in line with business process dependencies, and include robust testing of functionality, security and access control.

- Undertake formal acceptance and comprehensive training.

- Switchover to new housing management system and switch old solution to read only mode and provide look up access.

- Perform a post implementation review.

3.6.7 Assumptions

The key assumptions made when formulating this option are:

- The necessary budget can be secured for both the procurement of additional modules and system enhancements and to implement the solution as a controlled and well managed project.

- Suitable contractual and commercial arrangements can be secured with Northgate.

- Suitably experienced Northgate PS consultants will be assigned to the project.

- Resources will be made available within the Housing teams to fully support the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- It is assumed that the deployment to the cloud will be a longer term aspiration, hence additional hardware will be required, including servers and end user mobile devices.

- New and revised integrations are technically feasible and can be delivered within the stated timeframes.

- All 3rd party clients will support and align with the changes in working practices.

3.6.8 Indicative Costs

NCC Group's experience and discussions with Northgate have provided an indication of the typical level of support they have provided similar clients with to enhance their use of the product suite. The following costs are based on these discussions and experience.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£382,000**
Annual costs – including annual subscriptions, maintenance & support	**£75,000**
Total cost of ownership over 5 years – excluding internal costs	**£757,000**
Internal resource costs for implementation	**£138,375**
Total cost of ownership over 5 years including Internal resource costs	**£895,375**

It is important to note that these costs:

- Include a relatively significant element of contingency for external consultancy services, hardware and additional software.

- Additional licences need to be purchased to support the further required functionality.

- Assume only Northgate external resources will be procured, with all other activities undertaken by existing Housing and Council resources.

- Are predominantly incurred during the implementation period, with only a relatively small incremental annual cost uplift compared to current costs.

3.7 Option 3: Approach market and seek replacement for OHMS

3.7.1 Functional Description

This option will enable RBC to consider the procurement of a replacement housing management system solution. This option will enable RBC to market test NSP Housing against its direct competition: Civica, Aareon, Capita, Orchard, Castleton and MIS.

The option will also include the commissioning of a suitable range of implementation services as required to successfully deliver the preferred solution in line with RBC's requirements.

3.7.2 Strengths and Benefits

The strengths and benefits associated with this option are:

- Potential to deliver well against strategic requirements and Target Operating Model (TOM) as defined in section 2.

- Provides RBC will real choice and gives the Housing Service the opportunity to benchmark its current suppliers and solutions against the open market.

- Engages all key stakeholders within Housing to facilitate shared ownership of the procured solution.

- Enables Housing to take advantage of the benefits offered by RBC's new strategic ICT direction, including flexibility in deployment options such as Software as a Service (SaaS), externally hosted and/or Cloud services etc.

- Provides RBC with the opportunity to introduce a commercially innovative contract e.g. risk and reward, shared benefit, performance focused etc.

- Offers the opportunity for Housing to re-engineer its business processes and eliminate bad practices such as manual workarounds and bespoke in-house solutions.

- Will enable RBC to review the market in detail and ensure that costs of eventual solution remain extremely competitive.

3.7.3 Weaknesses

The key weaknesses of going to the market include:

- Although RBC is able to exploit a Government procurement framework, the procurement process will be more time consuming than the other options, adding a minimum 5-7 elapsed months to the timeframe.

- Likely to be the highest cost option when internal costs are considered.

- Integration across other core solutions will be more of a challenge than option 2.

- Decommissioning the incumbent solution will require existing systems integrations to be redeveloped if moving away from Northgate.

- Current equipment may have to be decommissioned if no longer suitable to support the new solution, and this may result in a loss of investment.

- Cleansing and migration of data to the new solution will be time consuming and likely to be costly, particularly if the selected solution is not Northgate.

- The overall project timeframe is likely to be in the order of 15-18 months.

- Potentially the Housing Services staff will be working with a new housing system supplier.

3.7.4 Risks

Notable risks associated with this option are:

- Although stakeholders will be actively involved in the selection of the solution they do not embrace it as expected and benefits are not realised.

- Key suppliers qualify out of the procurement process.

- Increased resource demands of a full system replacement.

- May not be possible to achieve the same level of integration as per the current systems.

- Ability to align implementation and contract termination timeframes across all systems.

- Learning curve for new solution and its potential impact on performance.

- Ability to maintain the level of service for the solutions to be retired.

- Solution switchover management, timing and communication.

- Working relationship with Northgate if another housing system supplier is selected.

3.7.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** significant impact on the business in terms of service delivery and the resources required to implement the solution – a new contract with the housing management system supplier will need to be drawn up to better reflect the new proposition.

- **Other Council Services:** there will be varying levels of impact on other Council services who receive or provide information from/to the Housing Management functions.

- **Resident:** the impact on the resident will be significant and must be carefully managed as working practices, service levels and expectations will undoubtedly change.

- **Client:** there will be varying levels of impact on client organisations who contract with RBC to provide housing and other related services. Changes may include the introduction of new, or modifications to existing, integrations.

- **Systems and Service Providers:** revised, enhanced and/or new integrations and working practices will have to be discussed and agreed with the providers who interact directly with the housing management systems. The level of impact will vary per provider. The impact on Northgate will be significant if not selected.

- **Technology:** the mobile device portfolio will require refresh and expansion to cater for new features and expanded functionality. Interfaces between core systems will require enhancements or redevelopment. The potential need to introduce cloud-based web services to support mobile working will also have to be supported.

3.7.6 Implementation Plan

The estimated timeframe for the implementation of this option is circa 15-18 months and will include the following:

- Define and specify the functional and operational requirements.

- Form a procurement team and systematically review the market.

- Undertake a detailed solution/supplier selection process.

- Undertake commercial negotiation and acceptance of terms with the selected provider.

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Undertake business process review across all impacted service areas in line with proposed system scope.

- Discuss integration requirements with all affected parties – systems and service providers, material suppliers and contractors.

- Undertake specification and phased enhancement and implementation of interfaces and integrations.

- Undertake specification and development of reports.

- Undertake extensive data cleansing and migration exercise.

- Assess the current technical infrastructure for servers, mobile working and cloud services against the new environment requirements and initiate upgrades where needed.

- Conduct phased system implementation in line with business process dependencies, and include robust testing of functionality, security and access control.

- Undertake formal acceptance and comprehensive training including disaster recovery capabilities.

- Switchover to new housing management system and switch old solution to read only mode and provide look up access.

- Perform a post implementation review.

As with Option 2, business process and technical (mobile device) training should be an integral part of the overall implementation, not only for RBC but also contractors and suppliers as required.

3.7.7 Assumptions

The key assumptions made when formulating this option are:

- The indicative costs presented below for this option include costs for procurement and are based on NCC Group's understanding and experience of the market.

- The necessary budget can be secured for both the procurement of additional modules and system enhancements and to implement the solution as a controlled and well managed project.

- Suitable contractual and commercial arrangements can be secured with the selected housing management system supplier.

- Suitably experienced housing management system consultants will be assigned to the project.

- Resources will be made available within the Housing teams to fully support the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- It is assumed that the deployment to the cloud will be a longer term aspiration, hence additional hardware will be required, including servers and end user mobile devices although, longer term, housing management solutions could be migrated to the cloud;

- New and revised integrations are technically feasible and can be delivered within the stated timeframes.

- All 3rd party clients will support and align with the changes in working practices.

- Existing data can be mapped across and migrated to the new solution.

3.7.8 Indicative Costs

NCC Group's experience and discussions with housing management system suppliers have provided an indication of the typical level of support they have provided similar clients with to migrate from their current to a new enhanced HMS. The following costs are based on these discussions and experience.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£614,500**
Annual costs – including annual subscriptions, maintenance & support	**£107,000**
Total cost of ownership over 5 years – excluding internal costs	**£1,149,500**
Internal resource costs for implementation	**£201,375**
Total cost of ownership over 5 years including Internal resource costs	**£1,350,875**

It is important to note that these costs:

- Include a relatively significant element of contingency for external consultancy services, hardware and additional software.

- Additional licences needed to be purchased to support the further required functionality.

- Assume only external resources from the selected housing management system supplier will be procured, with all other activities undertaken by existing Housing and Council resources.

- The following are NOT included:

  o Decommissioning costs for the current systems.

  o Savings achieved from decommissioning the current systems i.e. annual operating costs for the systems and associated hardware, including reduced future server hardware procurement requirements.

3.8 High Level Alignment against Strategic Goals and Target Operating Model

All the options proposed have been aligned, to varying degrees, against the strategic goals agreed for the housing management solution set, including:

- Increased service efficiency through more automated and controlled processes, and the effective utilisation of supporting housing-related systems.

- Elimination of manual processes and bespoke outside of core system solutions.

- Substantial improvement and confidence in data quality.

- Enablement of point of capture electronic data collection for field-based operatives.

- Single entry of data.

- Single master source of information.

- Paperless, except when required for regulatory compliance.

- Bi-directional interfaces running at optimal frequency. i.e. real-time, hourly, daily etc.

- Robust and secure system interfaces, within and external to RBC.

- Device and operating system agnostic mobile services.

- Dashboard management and reporting.

The extent to which each option supports the key drivers of the Target Operating Model (TOM) are highlighted in the following Table (Table 7), where:

(B)lue indicates a small, tactical improvement over the current level of delivery for the TOM driver.

 (A)mber highlights a noticeable improvement in terms of supporting delivery of the TOM driver.

(G)reen indicates a significant improvement towards fully meeting the TOM driver.

Target Operating Model (TOM) Drivers *(options appraisal specific comments)*	Option 1 **Do Minimum**	Option 2 **Implement NPS Housing**	Option 3 **Approach Market**
Personalised portal *– only replacement housing management system will provide this capability*	B	G	G
Consistent interaction across services *– single HMS and retirement of tactical systems*	B (1)	G	G

| Target Operating Model (TOM) Drivers | Option 1 | Option 2 | Option 3 |
(options appraisal specific comments)	Do Minimum	Implement NPS Housing	Approach Market
Digital by default, yet facilitating digital inclusion – *NPS Housing and other selected HMS are by default a digital solution*	A	G	G
Mobile first for housing and maintenance staff	B	G	G
Facilitates channel migration – *limited opportunities with OHMS*	B	G	G
Front office integration – *dependent upon the sophistication of task management/workflow*	A (1)	G	G
Single version of the truth – *limited opportunities with OHMS*	B	G	G
Back office 'specialist' interaction layer – *dependent upon the sophistication of task management/workflow*	A (1)	G	G
Real-time reporting dashboard / client – *limited for OHMS*	B	G	G
Data segregation / client – *NPS Northgate and others can offer data segregation*	B	G	G
Drives business efficiencies through automation and standard ways of working	B	G (2)	G (2)

Table 7 – Housing Management TOM Alignment

Clarification Notes:

(1) Option 1 delivers tactical improvements rather than significant functional enhancements.

(2) Level of improvement will be dependent on number of areas within Housing and other services deploying the solution.

3.9 Recommended Way Forward

It is NCC Group's recommendation, taking into account impact, risk, cost/benefits and return on investment that RBC selects option 2 as its preferred way forward and implement NPS Housing to replace OHMS.

This option will involve engaging with Northgate through the procurement framework that both organisations have in place as part of the strategic partnership arrangements. The implementation will follow a transitional approach and could commence once contractual arrangements have been finalised.

The sections that follow provide a clear pathway and action plan that RBC can use as a template to plan for and embark on the way forward.

Top-level underpinning tasks include:

- **Plan and market way forward** – Once decisions have been made on how to continue, this should be communicated to the business through the normal communications channels i.e. team briefing, Intranet/email bulletins etc. All staff will be impacted by this new implementation and whether they are involved actively or not must feel positive about it. Channels must be set up to enable staff to voice their concerns and issues to the module implementation teams. This will also enable management to gauge staff opinion during the implementation of any replacement system;

- **Form project management team** – to maintain ownership and increase visibility of the project a project management team should be selected. The team should include a project board to maintain governance during implementation as well as appointing a near 'full time' project manager. Individual module implementation teams should also be formed. These teams will be responsible for the implementation of functionality into their specific areas and manage associated change. Training should also be planned;

- **Facilitate Ownership and understanding by the Business** – it is recommended that Northgate is asked to demonstrate their housing solution to the business and summarise how they intend to replace the current OHMS solution. Further ownership should be achieved by representatives from the key services undertaking one or more reference site visits so they are able to review the NPS Housing solution in an operational environment;

- **Ensure Continued Business Involvement** – Every opportunity should be undertaken to maintain the momentum achieved so far by actively involving business areas in the implementation of the new system. In the early stages of the implementation, project teams can be asked to review functionality, undertake prototyping sessions, review documentation, take part in specification working parties etc.;

- **Develop Specification of Requirements** – it is recommended that the Housing Service builds upon the high-level requirements in this document and develops a more detailed specification of requirements. This will enable business priorities to be reflected and ensure that Northgate responds with a solution design that will clearly articulate how NPS Housing will be configured to deliver against the priorities and benefits of the business;

- **Finalise Key Technical Arrangements** – there are a number of important technical considerations that will need to be agreed between RBC and Northgate before implementation can commence;

- **Formalise agreement with Northgate** – once all the above key enabling actions have been undertaken to RBC's satisfaction then a formal agreement with Northgate should be drawn up based on the most relevant Government procurement framework. It is recommended that RBC negotiates with Northgate the total cost of ownership of the solution. Ideally, RBC should engage with Northgate on a fixed cost proposal based on phased acceptance of deliverables. Once agreed, the total set of implementation days should be managed as a call off contract.

4 Maintenance Management Options Appraisal

4.1 Introduction

This document provides a high-level appraisal of the systems options available for the maintenance, repair and field service management functions within the Reading Borough Council (RBC) Housing Management service.

NCC Group has developed a set of viable options for this appraisal and will be presenting them using the following categories:

- **Functional description:** a summary of the functionality and business requirements that are to be made available through the implementation of the option. NCC Group has provided RBC with an indication of a minimum option (option 1) that will provide a baseline against which to compare the other viable options.

- **Strengths, benefits and weaknesses:** the benefits and weaknesses of the option.

- **Risk:** a high-level risk analysis and assessment for the option.

- **Impact analysis:** a high-level assessment of the impact or effect on the user, the technology and the organisation and the relationships that RBC has with its residents and business partners.

- **Implementation plan:** a high-level implementation plan for the option.

- **Assumptions:** any underlying assumptions that have been made when developing the cost model and implementation plan.

- **Indicative costs:** a high-level summary of the costs of the option. **Please note these costs should only be regarded as thumbnail approximations at this stage and are based on a significant number of assumptions. As a result, the costs should not be used as a serious input to any funding request or more detailed cost benefit analysis.** Although these costs will be thumbnail approximations, they will be at an accuracy that will enable RBC to compare options from a financial perspective**.**

4.2 Current Maintenance & Repair System Summary

Currently a loosely integrated blended approach is taken towards housing maintenance, repair and field service management within RBC, consisting of:

- Northgate OHMS is used to record property asset, resident, and selected maintenance and repair information.

- Northgate Codeman records property asset details and the capital planned maintenance programme.

- Northgate Information@work holds scanned maintenance and repair documents and certificates.

- Northgate Repair Finder is used as an aid in fault diagnosis.

- TotalRepairs by TotalMobile manages schedules of rates (SOR), job requests, work scheduling and job management.

- TotalMobile supports field delivery and recording of information for scheduled maintenance and repair jobs.

- Oracle Fusion manages purchase orders, payments and recharges.

- Photographs of properties and repairs are stored in TotalView.

- Bespoke Microsoft Access databases and Excel spreadsheets are used for warranty management, gas servicing, asbestos, kitchen and bathroom refurbishments etc.

- Property plans and other related documents are held in an Access database.

- Citizen Space is used for post inspection consultation.

- Glasscubes cloud-based collaboration services are used to share information and documents within teams and with external partners.

- Contractor management, including pay and productivity, is managed via Access databases.

- Contract management is primarily a manual process.

- A variety of reporting tools are used including Business Objects, Infomaker and Crystal Reports.

Only RBC direct labour use the TotalMobile and TotalRepairs systems.

Where integrations do exist between systems, they are generally limited in terms of direction (some only one way), content (subsets of information) and timeliness (end of day or weekly batch updates in some cases). This leads to considerable duplication of information, disparity in information content between systems, and overall uncertainty as to the accuracy and quality of information held across the systems.

4.3   Required Position

The required position is one whereby:

- The number of core systems required to deliver effective and efficient maintenance, repair and field service management is minimised to:

    o   Housing and Asset Management System.

    o   Maintenance & Repair System.

    o   Mobile Field Service Management System.

- o Enterprise Content Management System.

- o Financial System.

- The core systems are tightly integrated with bi-directional information flow as and when applicable.

- Workaround internal bespoke solutions are decommissioned and replaced by in-built functionality within the core systems.

- The key services expected within the housing maintenance, repair and field service management solution are delivered by the chosen core systems, in particular:

  - o Planned and cyclical maintenance.

  - o Dynamic job scheduling.

  - o Job management including recharge handling.

  - o Warranty management.

  - o Compliance management.

  - o Contract management including invoicing.

  - o Contractor management.

  - o Supplier management and integrations.

  - o Commercialisation

    - Support the needs of multiple client contracts.

    - Client management and integrations.

  - o Electronic capture of information at source.

  - o Online and offline working for the mobile workforce.

  - o Access to and visibility of accurate real time information.

  - o Elimination of paper, except where there is a regulatory requirement.

  - o Management and performance reporting.

For this options appraisal the focus will be on the core Maintenance and Repair, and Mobile Field Service Management systems. The Housing and Asset Management, and Enterprise Content Management systems are the subjects of their own specific options appraisals. Oracle Fusion is the corporate wide financial system and will remain in situ for the foreseeable future.

4.4　Proposed Options

To facilitate and deliver the required position, three options are considered, namely:

- **Option 1** – Continue to operate with the current solutions in the short to medium term. Review the use of the systems in more detail and implement a range of tactical improvements where feasible. This is the "Do Minimum" option.

- **Option 2** – Expand the use of the TotalMobile solutions suite (TotalRepairs and TotalMobile) within the maintenance, repair and field service management functions to bring more of the core requirements into the systems and reduce the need for bespoke in-house solutions.

- **Option 3** – Formally approach and review the market for the most economical and viable solution, assessing the current environment against suitable competing products including Kirona, 1st Touch and housing management system suppliers' modular options for maintenance, repair and mobile working.

For each of the options, it is essential to be cognisant of other ongoing change initiatives within Housing and the overall RBC corporate environment, and the impact they may have on the Maintenance and Repair services.

Each option is now explored in more detail.

4.5　Option 1: Continue to operate with existing systems

4.5.1　Functional Description

This is the "do minimum" option, consisting of a review of the current operations in conjunction with the supplier's professional services team, identification of tactical improvement opportunities and implementation thereof. The improvements identified must:

- Address any inefficient uses of the current TotalRepairs and TotalMobile systems, explore opportunities around unused and/or underutilised functionality, including support for commercialisation, and implement improved operational processes.

- Align with the results of the other options appraisals being undertaken in parallel; in particular for the main Housing Management System (HMS) as this is likely to require operational process changes.

This option will also look to address known issues with the systems and their support and oversee the necessary corrective actions. As highlighted in the overall Housing systems review, training and data quality will be a key area requiring improvement.

On completion, a post implementation review will be undertaken to determine the completeness and effectiveness of the project, and to ensure follow-on training and awareness processes and plans are in place.

Option 1 will act as a key comparator for the other options.

4.5.2 Strengths and Benefits

The strengths and benefits associated with this option are:

- This is the lowest cost option.

- The level of disruption to the business will be minimal.

- Assessing current usage of the systems against best practice will provide a clearer view as to the long-term viability and positioning of the solutions.

- Prioritising and addressing specific quick win opportunities will deliver benefits in terms of data quality, enhanced system capabilities and process improvement. Benefits will start to be realised in a short timeframe i.e. 3+ months.

- Raising awareness and training within the functional teams will yield further on-going benefits.

- It will better prepare TotalRepairs users for the 2019 major user front end refresh and, if timings align, could be undertaken in parallel with this annual system upgrade.

- This is the most pragmatic option when considering the uncertainty surrounding the current Housing Management System, Northgate OHMS.

- If it is decided to replace OHMS, this option can align with and be delivered in parallel to the HMS replacement system. Furthermore, it will have limited resourcing impact on the OHMS replacement project.

- If deemed appropriate, it can also be used as a precursor to Option 2 without incurring significant overhead, whilst offering a structured improvement plan in conjunction with the potential OHMS replacement.

4.5.3 Weaknesses

The key weaknesses associated with this option are:

- Without the addition of further modules, it offers limited scope for process enhancement and operational change when considered against Housing's aspirations, in particular commercialisation.

- Savings and cashable benefits opportunities are potentially the lowest for this option, although they will be realised quicker than the other options.

- Some level of investment in terms of cost, time and resource (internal and external) will be required, albeit low in comparison to the other options.

- It will not fully address some of the key fundamental issues around lack of functionality and systems integration.

4.5.4 Risks

There are a number of risks associated with this option, including:

- Not all of the existing faults and issues will be fully addressed.

- There is the potential for new business and technical workarounds, rather than structured managed processes, to be introduced to manage system functionality shortfalls.

- Success and benefits will be compromised if the right blend of TotalMobile professional services and Housing resources are not assigned to the project.

- There will be an additional dependency on key internal staff to deliver and maintain process and system change on an ongoing basis.

- Unavailability of key RBC resources to work with TotalMobile will negatively impact the return from the consultancy investment.

- Motivating staff is a challenge when delivering limited process improvements below aspiration and expectation levels.

4.5.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** minimal short-term business impact as no new major functionality to be introduced. In the longer term this may adversely impact the effectiveness of new companion systems introduced e.g. new Housing Management System.

- **Other Council Services:** there is likely to be some minor impact on other Council services who receive or provide information from/to the Housing Maintenance and Repair functions.

- **Resident:** there will be no direct impact on the resident.

- **Client:** there may be varying low levels of impact on client organisations who contract RBC to provide maintenance and repair services. Minor modifications to existing integrations and/or reporting mechanisms may be introduced.

- **Contractor:** some minor working process changes may be required, and contractors will be expected to adopt and adhere to them.

- **Systems and Service Providers:** TotalMobile will be integral to the success of the project. For others, there is unlikely to be any significant impact on the current integrations.

- **Material Supplier:** in the event of the proposed introduction of new processes, these will have to be discussed and agreed with the relevant suppliers, although overall impact is likely to be minor.

- **Technology:** there is likely to be little impact with regards to the technical environment, however there may be a small expansion in mobile data capture capabilities. Recommendations for the procurement of further TotalRepairs or TotalMobile modules may be raised during the course of the project, however these should be addressed separately.

4.5.6 Implementation Plan

Although this is a "do minimum" option, a formal implementation plan is still required, albeit not on the same scale as for the other more expansive options. Resourcing on this option will be a combination of internal and TotalMobile Professional Services staff, and timings will have to align with the prevailing business priorities. The identification and implementation of the tactical improvements are likely to take circa 4-6 months and will include the following phases:

- Set up, resource and plan the programme of work with the assistance of TotalMobile. Include representatives from Corporate Improvement and Corporate ICT.

- Conduct a focused operational review in conjunction with TotalMobile consultants. Identify systems and process improvement opportunities.

- Where applicable, discuss process change, impact and integration requirements with all affected parties.

- Plan, develop and implement the improvement opportunities, either in a phased or big bang approach depending on scale, disruption impact, resource demands and availability.

- Undertake training and conduct robust testing of functionality as part of the implementation.

- Perform a post implementation review.

Business focused training should be an integral part of the overall implementation.

4.5.7 Assumptions

The key assumptions made when formulating this option are:

- The current versions of the TotalMobile suite of products will continue to be supported by TotalMobile for an extended period of time – beyond 2 years.

- Housing staff will be available to work on the project.

- Suitably experienced TotalMobile consultants will be assigned to the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Additional opportunities identified during the project which require the procurement of new TotalRepairs and/or TotalMobile modules will be documented and passed to the Housing ICT Board for future consideration.

- In the event of the current Housing Management System (HMS) being replaced in the medium term:

  o The TotalMobile solutions suite of products will be compatible with the new HMS.

  o Tactical improvement changes proposed will be cognisant of the new HMS and its capabilities.

  o Changes to and/or development of the necessary interfaces between the TotalMobile solutions suite and the new HMS will be funded by the replacement HMS project.

4.5.8 Indicative Costs

Without undertaking a detailed review of the TotalMobile suite of products and their current use within RBC, it is difficult to accurately estimate the level of external resource required to support Housing in making better use of the solution. Discussions with TotalMobile have provided an indication of the typical level of support they have provided similar clients with to enhance their use of the product suite. The following costs are based on these discussions and findings.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£38,750**
Annual costs – including annual subscriptions, maintenance & support	**£2,000**
Total cost of ownership over 5 years – excluding internal costs	**£48,750**
Internal resource costs for implementation	**£18,000**
Total cost of ownership over 5 years including Internal resource costs	**£66,750**

It is important to note that these costs:

- Are based on current resource usage levels.

- Include a small element of contingency for external consultancy services and additional software.

- Are incremental to the current TotalRepairs and TotalMobile annual operating costs.

- Assume only TotalMobile external resources will be procured, with all other activities undertaken by incumbent Housing and Council resources.

- Are predominantly incurred during the implementation period, with a very low incremental annual cost uplift.

4.6 Option 2: Expand the use of the TotalMobile solutions suite

4.6.1 Functional Description

This option consists of a partial re-implementation and expansion of the TotalRepairs and TotalMobile systems and functionality within RBC's Housing service areas to achieve maximum benefit from the systems and to increase mobile working capabilities. The option will entail:

- Reviewing and understanding the identified operational issues and functional gaps between the current deployment of the TotalMobile suite and the ideal business process requirements.

- Assessing the range of functionality and upgrade options available within the TotalRepairs and TotalMobile products, mapping these against the RBC requirements and identifying the enhanced integration opportunities with the HMS, Oracle Fusion financial system and other associated products.

- Deploying selected expanded functionality across maintenance, repair and field service management in a controlled manner, including, but not limited to:

  o Planned Maintenance.

  o Dynamic Scheduling.

  o Contractor Management.

  o Contract Management.

  o Supplier Management.

  o Compliance Management.

  o Enhanced mobile capabilities and data capture.

  o Enhanced bi-directional integrations with HMS and Finance systems.

- Aligning with associated business and technical change, including:

  o Potential replacement HMS.

  o Potential electronic document and content management changes.

  o New approved mobile technology.

  o Increased adoption of Cloud services.

Please note there is a variant associated with this option that includes expansion of the TotalMobile field service support functionality to further areas within Housing and other Council services. This variant has not been explored in this option as it is highly reliant on factors external to the Maintenance & Repair area, including the systems used. Furthermore, the desire to support such expanded functionality will be highly dependent on proven success within Maintenance & Repair.

This option in its current form is therefore a potential proof of concept for an expansion in mobile field service management across the Council, and as such will be high visibility.

4.6.2   Strengths and Benefits

The strengths associated with this option include:

- Disruption to the business can be better controlled than in Option 1 as it will be a more formal programme of work.

- The expanded functionality will address major weaknesses within the current environment, including the lack of commercialisation support capabilities, and offer more management and control.

- Data quality and visibility will increase, data duplication will reduce.

- Current bespoke out of core systems and workarounds will be reduced, preferably eliminated.

- Staff will continue to work with a familiar product suite that they are comfortable with.

- TotalMobile suite experience to date will assist in helping define realistic and deliverable change.

- TotalRepairs and TotalMobile are leading products within local authorities and housing associations and as such are expected to continue to develop and grow in line with the market.

- TotalMobile has partnership arrangements in place with the leading HMS suppliers and is aligned with their functional and technical requirements.

- Selection of Option 1 does not preclude a future decision to move forward with this option as they are compatible and can be aligned. i.e. Option 1 can be a precursor to Option 2, with minimal incremental cost.

- This is a more cost-effective option than going to market, providing wholesale change is not expected across the Housing systems environment.

4.6.3   Weaknesses

- The solution is both tactical and strategic in that it does address some key operational issues.

- Success will be partially dependent on the integration capabilities of the systems that the TotalMobile suite receives information from or sends information to.

- Although a fully cloud-based solution is preferable, due to the limited number of users a hybrid solution consisting of both on premise and cloud services is the most economically viable - the breakeven threshold for fully cloud-based services is approximately 250 users/devices.

- The overall cost may not deliver an acceptable return on investment in the short term.

- Due to the level of investment required, RBC will be tied into the TotalMobile suite of products for the medium term i.e. minimum 3 years.

- Staff have concerns around TotalMobile's expansion into other industries and the potential negative impact this may have on the continued development of maintenance and repair functionality.

4.6.4 Risks

The risks associated with this option include:

- TotalRepairs and/or TotalMobile cannot fully support RBC's requirements, either directly or in partnership with other Housing systems.

- Not all required improvements will be implemented due to non-delivery of other partner system change requirements, be they for technical or financial reasons.

- There is a dependency on key internal staff to deliver and maintain process and system change.

- Some suppliers and contractors may not buy into the proposed new ways of working.

- Legacy data quality and duplication issues will remain a concern and may impact the targeted benefits.

- Strategically this option is an interim step on the path to a fully SaaS based solution. Consequently, if the use of TotalMobile is expanded to include other service areas, the user/device count will rise above the threshold at which a full SaaS solution is the most economic option. This will then require a further migration onto the new platform for Housing, which will incur additional costs and subject to timing potentially impact the return on investment of this option.

4.6.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** there will be a reasonable level of business operational impact both within and outside of the Maintenance and Repair teams; including for other Housing teams, contractors and suppliers.

- **Other Council Services:** there will be varying levels of impact on other Council services who receive or provide information from/to the Housing Maintenance and Repair functions.

- **Resident:** there will be minimal impact on residents, with the occasional need to electronically sign forms on the maintenance engineer's device.

- **Client:** there will be varying levels of impact on client organisations who contract RBC to provide maintenance and repair services. Changes may include the introduction of new, or modifications to existing, integrations.

- **Contractor:** the introduction of new working processes will impact contractors to varying extents depending on their current capabilities. They will be required to adhere to the new processes, including supporting mobile recording of work undertaken.

- **Systems and Service Providers:** revised, enhanced and/or new integrations and working practices will have to be discussed and agreed with the providers who interact directly with the maintenance and repair systems. The level of impact will vary per provider.

- **Material Supplier:** in the event of the proposed introduction of new processes, these will have to be discussed and agreed with the relevant suppliers, who in turn may be required to adjust their technical and operational processes, however this will depend on their ability to adapt.

- **Technology:** the mobile device portfolio will require refresh and expansion to cater for new features and expanded functionality. Interfaces between core systems will require enhancements or redevelopment. The potential need to introduce cloud-based web services to support contractor mobile working will also have to be supported.

4.6.6   Implementation Plan

The estimated implementation timeframe for this option is circa 10-12 months and will include the following key stages:

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Define the requirements and assess their impact.

- Review requirements, assess feasibility and define workable solutions with TotalMobile, including integrations.

- Undertake business process review for impacted areas in line with proposed system improvements.

- Develop detailed specification, including interfaces.

- Discuss integration requirements with all affected parties – systems and service providers, material suppliers and contractors.

- Assess the current technical infrastructure for servers, mobile working and cloud services against the new environment requirements and initiate upgrades where needed.

- Finalise contractual arrangements with all suppliers.

- Conduct phased implementation in line with business process dependencies, and include robust testing of functionality, security and access control.

- Undertake formal acceptance and comprehensive training.

- Perform a post implementation review.

Business process and technical (mobile device) training should be an integral part of the overall implementation, not only for RBC but also contractors and suppliers as required.

4.6.7   Assumptions

The key assumptions made when formulating this option are:

- The necessary budget can be secured for both the system enhancements and to implement the solution as a controlled and well managed project.

- Suitably experienced TotalMobile consultants will be assigned to the project.

- Resources will be made available within the Housing teams to fully support the project.

- The TotalMobile suite of products will continue to be supported and enhanced by TotalMobile for the long term.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- A hybrid solution consisting of a combination of on premise and cloud-based services will be deployed rather than a full SaaS solution.

- Additional hardware will be required, including servers and end user mobile devices.

- Additional licensing will be required, both on a user and module level.

- The move to enhanced cloud-based TotalMobile solution, whilst expanding core on premise TotalMobile capabilities, will not present an issue to Corporate ICT.

- New and revised integrations are technically feasible and can be delivered within the stated timeframes.

- Contractors and suppliers will support and align with the changes in working practices.

- In the event of the current Housing Management System (HMS) being replaced in the medium term:

    o The TotalMobile solutions suite of products will be compatible with the new HMS.

    o The system and process changes proposed will be cognisant of the new HMS and its capabilities.

    o Changes to and/or development of the necessary interfaces between the TotalMobile solutions suite and the new HMS will be funded by the replacement HMS project.

4.6.8 Indicative Costs

The following indicative costs are based on high level discussions with TotalMobile, during which RBC's identity was not disclosed, and NCC Group's experience with atypical projects. As with the other options, the costs are estimates based on informed calculations and previous project experience rather than RBC specific TotalMobile figures.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£141,000**
Annual costs – including annual subscriptions, maintenance & support	**£43,534**
Total cost of ownership over 5 years – excluding internal costs	**£358,670**
Internal resource costs for implementation	**£68,625**
Total cost of ownership over 5 years including Internal resource costs	**£427,295**

It is important to note that these costs:

- Include a small element of contingency for external consultancy services, hardware and additional software.

- Are based on an increase in mobile users from 60 to 80. It is assumed the increased licences will be used for inspections, surveys and other Housing related maintenance management activities.

- Include dynamic scheduling for all 80 resources. This is based on the on-premise subscription service rather than perpetual licensing. This makes it easier to switch to the SaaS solution in the longer term.

- Enhance the TotalRepairs system with the inclusion of a Subcontractors Portal for online management of maintenance and repair jobs.

- Are incremental to the current TotalRepairs and TotalMobile annual operating costs.

- Assume only TotalMobile external resources will be procured, with all other activities undertaken by existing Housing and Council resources.

- Are predominantly incurred during the implementation period, with a very low incremental annual cost uplift.

4.7 Option 3: Formally Approach and Review the Market

4.7.1 Functional Description

This option will enable RBC to market test its current repair, maintenance and field service management solutions against their most viable direct competition including Kirona, 1st Touch and housing management system suppliers' who offer modular options for these service areas. In the case of the latter, HMS supplier mobility modules generally require online access and do not support an offline capability,

The option will also include the commissioning of a suitable range of implementation services as required to successfully deliver the preferred solution in line with RBC's requirements.

4.7.2 Strengths and Benefits

The strengths and benefits associated with this option are:

- Provides RBC will real choice and gives Housing the opportunity to benchmark its current suppliers and solutions against the open market.

- Offers the opportunity to expand the mobile workforce remit to include other areas of Housing, thereby providing the potential for a common solution across the various Housing teams, which in turn can lead to reduced operational costs.

- Engages all key stakeholders within Housing to facilitate shared ownership of the procured solution.

- Enables Housing to take advantage of the benefits offered by RBC's new strategic ICT direction, including flexibility in deployment options such as Software as a Service (SaaS), externally hosted and/or Cloud services etc.

- Provides RBC with the opportunity to introduce a commercially innovative contract e.g. risk and reward, shared benefit, performance focused etc.

- Offers the opportunity for Housing to re-engineer its business processes and eliminate bad practices such as manual workarounds and bespoke in-house solutions.

- Enables Maintenance and Repair to align the solution more closely and effectively with the current or potential new Housing Management System.

4.7.3 Weaknesses

The key weaknesses of going to the market include:

- The procurement process will be more time consuming than the other options, adding a minimum 5-7 elapsed months to the timeframe.

- Replacing the complete maintenance and repair solution will significantly increase the implementation costs.

- Decommissioning the incumbent solution will require existing systems integrations to be redeveloped.

- Current equipment may have to be decommissioned if no longer suitable to support the new solution, and this may result in a loss of investment.

- Migration of information to the new solution will be time consuming and likely to be costly.

- If a new Housing Management System (HMS) is to be selected, then:

    o This option will have to integrate and align closely with it, which is therefore likely to extend the delivery timeframe.

    o It is highly likely that TotalMobile will already be a recommended, and in some cases preferred, mobility partner of the selected HMS.

- Disruption to the business will be highest for this option and may not be acceptable, particularly given the current resourcing constraints.

- The overall project timeframe is likely to be in the order of 15-18 months.

4.7.4 Risks

Notable risks associated with this option are:

- Although stakeholders will be actively involved in the selection of the solution, they do not embrace it as expected and benefits are not realised.

- Key suppliers qualify out of the procurement process.

- Increased resource demands of a full system replacement.

- May not be possible to achieve the same level of integration as per the current systems.

- Ability to align implementation and contract termination timeframes across all systems.

- Learning curve for new solution and its potential impact on performance against, and commercial arrangements for, RBC client contracts.

- Ability to maintain the level of service for the solutions to be retired.

- Solution switchover management, timing and communication.

4.7.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** there will be significant impact on the business in terms of service delivery and the resources required to implement the solution.

- **Other Council Services:** there will be varying levels of impact on other Council services who receive or provide information from/to the Housing Maintenance and Repair functions.

- **Resident:** there will variable impact on residents depending on their level of engagement, with the opportunity to report faults online, and the occasional need to electronically sign forms on the maintenance engineer's device.

- **Client:** there will be notable levels of impact on client organisations who contract RBC to provide maintenance and repair services. Changes may include the introduction of new, or modifications to existing, integrations.

- **Contractor:** impact will be significant with new working processes introduced and contractors required to adhere to these, including supporting mobile recording of work undertaken.

- **Systems and Service Providers:** New integrations and working practices will have to be agreed and developed with the providers who interact directly with the maintenance and repair systems. The level of impact will vary per provider depending on the technical flexibility of their systems.

- **Material Supplier:** The introduction of new processes will require suppliers to adjust their technical and operational processes. Impact will depend on the flexibility offered by the material suppliers' systems and the new maintenance and repair solution.

- **Technology:** the mobile device portfolio will require refresh and expansion to cater for new features and expanded functionality. Interfaces between core systems will require enhancements or redevelopment. The potential need to introduce new servers or cloud-based web services to support contractor mobile working will also have to be supported.

4.7.6   Implementation Plan

The estimated timeframe for the implementation of this option is circa 15-18 months and will include the following:

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Define the detailed requirements for the new solution, whilst also considering other areas of Housing and the wider Council services.

- Review the market.

- Undertake a detailed solution/supplier selection process.

- Obtain commercial acceptance.

- Finalise contractual arrangements with all suppliers.

- Conduct detailed planning.

- Review current and define new business processes.

- Implementation of new solution, including:

    o Commissioning of new infrastructure and external technical services.

    o Data migration.

    o Specification and development of interfaces.

    o Training for both internal and external resources.

    o Formal acceptance testing, including disaster recovery capabilities.

    o Switchover to new solution.

    o Switch old solution to read only mode and provide look up access.

- Post implementation review.

As with Option 2, business process and technical (mobile device) training should be an integral part of the overall implementation, not only for RBC but also contractors and suppliers as required.

4.7.7   Assumptions

The key assumptions made when formulating this option are:

- The necessary budget can be secured to implement the replacement solution as a controlled and well managed project.

- The preferred supplier will support (and potentially host) the application following implementation.

- The indicative costs presented below for this option include costs for procurement and are based on NCC Group's understanding and experience of the market.

- Resources will be made available within the Housing teams to fully support the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- New hardware will be required, including servers and end user mobile devices.

- New licensing will be required, both on a systems and user basis.

- Existing data can be mapped across and migrated to the new solution.

- Integration changes required for existing service provider, client and supplier interfaces are technically feasible and can be delivered within the stated timeframes.

- Possible move to SaaS and/or cloud-based will not present an issue to Corporate ICT.

- Contractors, clients and suppliers will support and align with the changes in working practices.

- In the event of the current Housing Management System (HMS) being replaced in the medium term:

  o The new solution chosen will be fully compatible with, and approved by, the new HMS.

  o The process changes proposed will be cognisant of the new HMS and its capabilities.

  o Additional changes to and/or development of the necessary interfaces between the new maintenance and repair solution and the new HMS will be funded by the replacement HMS project.

4.7.8   Indicative Costs

The indicative costs shown below are based on high level discussions with a number of solution providers and NCC Group's experience with similar "go to market" projects. As with the previous options, the costs are estimates based on informed calculations and experience rather than definitive supplier quotations.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£352,000**
Annual costs – including annual subscriptions, maintenance & support	**£214,400**
Total cost of ownership over 5 years – excluding internal costs	**£1,424,000**
Internal resource costs for implementation	**£132,750**
Total cost of ownership over 5 years including Internal resource costs	**£1,556,750**

It is important to note that these costs:

- Assume Housing moves to a fully cloud-based SaaS service for all Housing maintenance and repair management.

- Include a small element of contingency for external consultancy services, hardware and additional software.

- Are based on an increase in mobile users from 60 to 100. It is assumed the increased licences will be used for inspections, surveys and other Housing related management activities not previously supported.

- Include the replacement of TotalRepairs with a new cloud-based service supporting up to 30 users.

- Assume legacy data, other than schedules of rates (SOR) and standard configuration information, will not be transferred to the new system.

- Include dynamic scheduling for all mobile resources.

- Include a Subcontractors Portal for online management of maintenance and repair jobs.

- Assume only the selected solution provider's external resources will be procured, with all other activities undertaken by existing Housing and Council resources.

- The following are NOT included:

  o Decommissioning costs for the current systems.

  o Savings achieved from decommissioning the current systems i.e. annual operating costs for the systems and associated hardware, including reduced future server hardware procurement requirements.

As mentioned above, it is important to note that this option is a total operating cost for running the solution over a 5-year period, whereas the other options are additional costs on top of the current operating costs for the incumbent solutions. Unfortunately, as we do not have accurate figures for the current operating costs it is not possible to compare all three options in a like for like manner i.e. compare the total Housing maintenance management solution costs for each.

4.8 High Level Alignment against Strategic Goals and Target Operating Model

All the options proposed have been aligned, to varying degrees, against the strategic goals agreed for the housing management solution set, including:

- Increased service efficiency through more automated and controlled processes, and the effective utilisation of supporting maintenance, repair and field service management systems.

- Elimination of manual processes and bespoke outside of core system solutions.

- Substantial improvement and confidence in data quality.

- Enablement of point of capture electronic data collection for field-based operatives.

- Single entry of data.

- Single master source of information.

- Paperless, except when required for regulatory compliance.

- Bi-directional interfaces running at optimal frequency. i.e. real-time, hourly, daily etc.

- Robust and secure system interfaces, within and external to RBC.

- Device and operating system agnostic mobile services.

- Dashboard management and reporting.

The extent to which each option supports the key drivers of the Target Operating Model (TOM) are highlighted in the following Table (Table 8), where:

(B)lue indicates a small, tactical improvement over the current level of delivery for the TOM driver.

(A)mber highlights a noticeable improvement in terms of supporting delivery of the TOM driver.

(G)reen indicates a significant improvement towards fully meeting the TOM driver.

Target Operating Model (TOM) Drivers (options appraisal specific comments)	Option 1 Do Minimum	Option 2 Scale up TotalMobile	Option 3 Approach Market
Personalised portal – *self-service per M&R operative*	B (1)	A	G
Consistent interaction across services – *dependent on HMS*	B (1)	A	A (2)
Digital by default, yet facilitating digital inclusion – *totalmobile is by default a digital solution*	A (3)	A	G
Mobile first for housing and maintenance staff	A (3)	A (2)	G
Facilitates channel migration – *limited opportunities*	B (1)	A	A
Front office integration – *not directly applicable*	N/A	N/A	N/A
Single version of the truth – *dependent on how HMS handles data sent / received*	B (1)	A	A
Back office 'specialist' interaction layer – *not applicable*	N/A	N/A	N/A
Real-time reporting dashboard / client – *limited for client*	A (4)	A	G
Data segregation / client – *not applicable as system is data presenter / collector / conduit.*	N/A	N/A	N/A
Drives business efficiencies through automation and standard ways of working	A (5)	A	G

Table 8 – Maintenance Management TOM Alignment

Clarification Notes:

(1) Option 1 delivers tactical improvements rather than significant functional enhancements.

(2) Level of improvement will be dependent on number of areas within Housing and other services deploying the solution.

(3) Option 1 will deliver more effective use of what is currently in place.

(4) There is the potential within Option 1 to improve the current TotalView capabilities by making full use of its functionality.

(5) Although Option 1 is tactical, the improvements made should result in a noticeable efficiency improvement within daily working processes.

4.9   Recommended Way Forward

Considering the current functional fit of the incumbent systems, Housing's strategic goals, the strengths, benefits, weaknesses and risks of each option, and the wider systems, operational and data issues to be addressed within Housing, it is proposed that RBC considers Option 1 as the way forward for maintenance, repair and field service management.

If the Council was not considering replacing its housing management system then Option 2 would be a sensible approach to take as it builds on the current environment and associated investment, offers considerable improvement opportunities and maintains familiarity and consistency in the service delivery approach for Housing staff. **A key caveat against this option is the potential future use of TotalMobile within other Council service areas.** If this were to be actively considered then Housing should work together with the other service areas to deliver a fully SaaS based solution, which would be more economically advantageous.

Option 3 on the other hand is the pragmatic way forward as it considers all possible solutions and validates the preferred solution. It is however very resource and time intensive, will conflict with the likely HMS replacement project for resources and add confusion to the overall situation. Furthermore, it is likely that the TotalMobile solution set will be a leading candidate when undertaking a market review.

Although it does not deliver the full remit of change desired, this leaves Option 1 as the preferred route for the following reasons:

- It is the least disruptive option in terms of impact on Housing, its clients, residents and suppliers.

- It can be delivered in a relatively quick timeframe.

- There will be a significantly lower demand for internal resources than that required for the other options.

- The recent Housing review highlighted manual processes, workarounds and a lack of clear understanding of TotalRepairs' and TotalMobile's full capabilities. The inclusion of Total suite consultancy expertise within this option should identify and offer significant opportunities for improvement.

- It builds on existing infrastructure, is relatively low cost and offers the potential of a good and quick return on investment.

- A phased rather than big bang approach can be taken if required i.e. implement individual step improvements. This can reduce the level of risk and resource demands.

- The project will introduce revised working practices into the business and start to build a culture of change.

- The training provided will build up expertise within the Housing teams and lead to improved working practises and hopefully fewer operational errors.

- It is unlikely to be significantly impacted by the potential HMS replacement project and could be an interim phase complementary project.

- If desired, it can be implemented as a precursor to Option 2 in the event of a future decision to expand the use of TotalMobile within Housing and potentially throughout the Council.

5 Asset Management Systems Options Appraisal

5.1 Introduction

This section provides a high-level appraisal of the systems options available for asset management functions within the Reading Borough Council (RBC) Housing Management service.

NCC Group has developed a set of viable options for this appraisal and will be presenting them using the following categories:

- **Functional description:** a summary of the functionality and business requirements that are to be made available through the implementation of the option. NCC Group has provided RBC with an indication of a minimum option (option 1) that will provide a baseline against which to compare the other viable options.

- **Strengths, benefits and weaknesses:** the benefits and weaknesses of the option.

- **Risk:** a high-level risk analysis and assessment for the option.

- **Impact analysis:** a high-level assessment of the impact or effect on the user, the technology and the organisation and the relationships that RBC has with its residents and business partners.

- **Implementation plan:** a high-level implementation plan for the option.

- **Assumptions:** any underlying assumptions that have been made when developing the cost model and implementation plan.

- **Indicative costs:** a high-level summary of the costs of the option. **Please note these costs should only be regarded as thumbnail approximations at this stage and are based on a significant number of assumptions. As a result, the costs should not be used as a serious input to any funding request or more detailed cost benefit analysis.** Although these costs will be thumbnail approximations, they will be at an accuracy that will enable RBC to compare options from a financial perspective**.**

5.2 Current Asset Management System Summary

RBC, over time, has become reliant upon tactical database solutions developed in applications such as Microsoft Excel and Access to supplement Northgate's Codeman's asset management solution.

5.3 Required Position

The requirement, therefore, should be to ensure that all key asset management requirements are adequately supported by core system functionality, namely:

- Efficient maintenance and management of property attributes and asset-based data;

- Development and management of planned maintenance programmes;

- Contract and project management;

- Development and management of cyclical and servicing programmes;

- Management of stock condition surveys and associated data;

- Management of decency and compliance against the Decent Homes agenda;

- Housing Health and Safety Rating System (HHSRS) assessment, recording and reporting;

- Energy Performance Certification (EPC), SAP and compliance reporting;

- Management of fully complaint asbestos register, alerts and warnings;

- NROSH reporting and data extraction;

- Forecasting, scenario planning and what if analysis;

- Cost modelling, profiling and reporting;

- Development of regulatory returns.

5.4 Proposed Options

To facilitate and deliver the required position, two options are considered, namely:

- **Option 1: Do Minimum - Enhance/extend current system usage and provide training.** This is essentially a do minimum option which will involve working with Codeman's supplier Northgate to review its current usage in more detail, and where appropriate, for RBC to invest in the take-up of additional functionality that is not currently part of the core configuration. The option will also involve the implementation of a programme of business-focused training to help address the shortfalls in the awareness of how to get the best from Codeman. It should be stated that this option will act as a key comparator for the other option.

- **Option 2: Approach market via the Government Procurement Framework and seek replacement for Codeman.** This option will enable RBC to consider the procurement of a replacement asset management system solution. This option will enable RBC to market test Codeman against its direct competition: PIMS, Promaster and Keystone. The option will also include the commissioning of a suitable range of implementation services as required to successfully deliver the preferred solution in line with RBC's requirements.

For each of the options, it is essential to be cognisant of other ongoing change initiatives within Housing and the overall RBC corporate environment, and the impact they may have on the Maintenance and Repair services.

Each option is now explored in more detail.

5.5 Option 1: Enhance/extend current system usage and provide training

5.5.1 Functional Description

This is essentially a do minimum option which will involve working with Codeman's supplier, Northgate professional services team to review its current usage in more detail, and where appropriate, for RBC to invest in the take-up of additional functionality that is not currently part of the core configuration.

The option will also involve the implementation of a programme of business-focused training to help address the shortfalls in the awareness of how to get the best from Codeman. This option will involve addressing some of the key shortfalls within the current Codeman implementation and ICT support arrangements, but essentially remain 'as is' with only tactical improvements being made.

This option will further focus on getting better usage from the system, with training and data quality being a key area requiring improvement. On completion, a post implementation review will be undertaken to determine the completeness and effectiveness of the project, and to ensure follow-on training, support arrangements and awareness processes and plans have been fully established and delivering business value.

Option 1 will act as a key comparator for the other option.

5.5.2 Strengths and Benefits

The strengths and benefits associated with this option are:

- This is the lowest cost option.

- The level of disruption to the business will be minimal.

- Assessing current usage of the systems against best practice will provide a clearer view as to the long-term viability and positioning of the solutions.

- Prioritising and addressing specific quick win opportunities will deliver benefits in terms of data quality, enhanced system capabilities and process improvement. Benefits will start to be realised in a short timeframe i.e. 3+ months.

- Raising awareness and training within the functional teams will yield further on-going benefits.

- If NPS Housing or an associated housing management system with a fully integrated asset management module is selected then this option will enable Codeman to be reviewed and potentially replaced in the longer term.

5.5.3 Weaknesses

The key weaknesses associated with this option are:

- Although tactical issues may be resolved, more significant faults and issues may not be addressed, including impact on efficiency.

- Savings and cashable benefits opportunities are potentially the lowest for this option, although they will be realised quicker than the other option.

- Some level of investment in terms of cost, time and resource (internal and external) will be required, albeit low in comparison to the other option.

- It will not fully address many of the key fundamental issues around lack of functionality and systems integration.

- This option will not enable RBC to formally review the market which would provide an opportunity to gain an appreciation of the scope and capability of asset management systems available.

5.5.4 Risks

There are a number of risks associated with this option, including:

- Not all of the existing faults and issues will be fully addressed.

- There is the potential for new business and technical workarounds, rather than structured managed processes, to be introduced to manage system functionality shortfalls.

- Success and benefits will be compromised if the right blend of Northgate professional services and Housing resources are not assigned to the project.

- There will be an additional dependency on key internal staff to deliver and maintain process and system change on an ongoing basis.

- Unavailability of key RBC resources to work with Northgate will negatively impact the return from the consultancy investment.

5.5.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** little business impact will be experienced if Codeman is retained and functional gaps are addressed.

- **Other Council Services:** there is unlikely to be adverse impact on other Council services who receive or provide information from/to the Housing Service functions.

- **Resident:** there will be no adverse impact on the resident.

- **Client:** there will be low levels of impact on client organisations who contract RBC to provide maintenance and repair services. Minor modifications to existing integrations and/or reporting mechanisms may be introduced.

- **Contractor:** some minor working process changes may be required, and contractors will be expected to adopt and adhere to them.

- **Systems and Service Providers:** Northgate will be integral to the success of the project. For others, there is unlikely to be any significant impact on the current integrations.

- **Technology:** there is likely to be little impact with regards to the technical environment although longer term, the ability to transition Codeman to the cloud will not be easily undertaken if this is the direction RBC wishes to go strategically.

5.5.6 Implementation Plan

Although this is a "do minimum" option, a formal implementation plan is still required, albeit not on the same scale as for the other more expansive options. Resourcing on this option will be a combination of internal and Northgate Professional Services (PS) staff, and timings will have to align with the prevailing business priorities. The identification and implementation of the tactical improvements are likely to take circa 3-4 months and will include the following phases:

- Set up, resource and plan the programme of work with the assistance of Northgate. Include representatives from Corporate Improvement and Corporate ICT.

- Define, prioritise and deliver a large scale data quality and cleansing activity and introduce data governance processes to maintain data quality at an appropriate level.

- Conduct a focused operational review in conjunction with Northgate PS consultants. Identify systems and process improvement opportunities.

- Where applicable, discuss process change, impact and integration requirements with all affected parties.

- Plan, develop and implement the improvement opportunities, either in a phased or big bang approach depending on scale, disruption impact, resource demands and availability.

- Undertake training and conduct robust testing of functionality as part of the implementation.

- Perform a post implementation review.

Business focused training should be an integral part of the overall implementation.

5.5.7 Assumptions

The key assumptions made when formulating this option are:

- Northgate continues to support Codeman in the medium term and, as a minimum, continues to maintain the level of resource they are providing currently for support and maintenance.

- Housing staff will be available to work on the project.

- Suitably experienced Northgate PS consultants will be assigned to the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

5.5.8 Indicative Costs

NCC Group's experience and discussions with Northgate have provided an indication of the typical level of support they have provided similar clients with to enhance their use of the product suite. The following costs are based on these discussions and experience.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£35,000**
Annual costs – including annual subscriptions, maintenance & support	**£5,000**
Total cost of ownership over 5 years – excluding internal costs	**£60,000**
Internal resource costs for implementation	**£14,175**
Total cost of ownership over 5 years including Internal resource costs	**£74,175**

It is important to note that these costs:

- Are based on current resource usage levels.

- Include a small element of contingency for external consultancy services and additional software.

- Are incremental to the current Northgate Codeman annual operating costs.

- Assume only Northgate external resources will be procured, with all other activities undertaken by incumbent Housing and Council resources.

- Are predominantly incurred during the implementation period, with a very low incremental annual cost uplift.

5.6 Option 2: Approach market and seek replacement for Codeman

5.6.1 Functional Description

This option will enable RBC to consider the procurement of a replacement asset management system solution by market testing Codeman against its direct competition: PIMS, Promaster and Keystone. The option will also include the commissioning of a suitable range of implementation services as required to successfully deliver the preferred solution in line with RBC's requirements.

The option will also include the commissioning of a suitable range of implementation services as required to successfully deliver the preferred solution in line with RBC's requirements.

5.6.2 Strengths and Benefits

The strengths and benefits associated with this option are:

- Provides RBC will real choice and gives the Housing Service the opportunity to benchmark its current suppliers and solutions against the open market.

- Engages all key stakeholders within Housing to facilitate shared ownership of the procured solution.

- Enables Housing to take advantage of the benefits offered by RBC's new strategic ICT direction, including flexibility in deployment options such as Software as a Service (SaaS), externally hosted and/or Cloud services etc.

- Provides RBC with the opportunity to introduce a commercially innovative contract e.g. risk and reward, shared benefit, performance focused etc.

- Offers the opportunity for Housing to re-engineer its business processes and eliminate bad practices such as manual workarounds and bespoke in-house solutions.

- Will enable RBC to review the market in detail and ensure that costs of eventual solution remain extremely competitive.

5.6.3 Weaknesses

The key weaknesses of going to the market include:

- Although RBC is able to exploit a Government procurement framework, the procurement process will be more time consuming than the other options, adding a minimum 4-6 elapsed months to the timeframe.

- Will be the highest cost option when internal costs are considered.

- Integration across other core solutions will be more of a challenge than option 1.

- Decommissioning the incumbent solution will require existing systems integrations to be redeveloped if moving away from Codeman.

- Current equipment may have to be decommissioned if no longer suitable to support the new solution, and this may result in a loss of investment.

- Cleansing and migration of data to the new solution will be time consuming and likely to be costly, particularly if the selected solution is not Northgate.

- The overall project timeframe is likely to be in the order of 10-12 months.

- Potentially the Housing Services staff will be working with a new asset management system supplier.

5.6.4 Risks

Notable risks associated with this option are:

- Although stakeholders will be actively involved in the selection of the solution they do not embrace it as expected and benefits not realised.

- Key suppliers qualify out of the procurement process.

- Increased resource demands of a full system replacement.

- May not be possible to achieve the same level of integration as per the current systems.

- Ability to align implementation and contract termination timeframes across all systems.

- Learning curve for new solution and its potential impact on performance.

- Ability to maintain the level of service for the solutions to be retired.

- Solution switchover management, timing and communication.

- Working relationship with Northgate if another housing system supplier is selected.

5.6.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** significant impact on the business in terms of service delivery and the resources required to implement the solution – a new contract with the asset management system supplier will need to be drawn up to better reflect the new proposition.

- **Other Council Services:** there will be varying levels of impact on other Council services who receive or provide information from/to the Housing Management functions.

- **Resident:** the impact on the resident will not be significant.

- **Client:** there will be varying levels of impact on client organisations who contract with RBC to provide asset management and other related services. Changes may include the introduction of new, or modifications to existing, integrations.

- **Systems and Service Providers:** revised, enhanced and/or new integrations and working practices will have to be discussed and agreed with the providers who interact directly with the asset management system. The level of impact will vary per provider. The impact on Northgate will be significant if not selected.

- **Technology:** the mobile device portfolio will require refresh and expansion to cater for new features and expanded functionality. Interfaces between core systems will require enhancements or redevelopment. The potential need to introduce cloud-based web services to support mobile working will also have to be supported.

5.6.6 Implementation Plan

The estimated timeframe for the implementation of this option is circa 10-12 months and will include the following:

- Define and specify the functional and operational requirements.

- Form a procurement team and systematically review the market.

- Undertake a detailed solution/supplier selection process.

- Undertake commercial negotiation and acceptance of terms with the selected supplier.

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Undertake business process review across all impacted service areas in line with proposed system scope.

- Discuss integration requirements with all affected parties – systems and service providers, material suppliers and contractors.

- Undertake specification and phased enhancement and implementation of interfaces and integrations.

- Undertake specification and development of reports.

- Undertake extensive data cleansing and migration exercise.

- Assess the current technical infrastructure for servers, mobile working and cloud services against the new environment requirements and initiate upgrades where needed.

- Conduct phased system implementation in line with business process dependencies, and include robust testing of functionality, security and access control.

- Undertake formal acceptance and comprehensive training including disaster recovery capabilities.

- Switchover to new asset management system and switch old solution to read only mode and provide look up access.

- Perform a post implementation review.

5.6.7 Assumptions

The key assumptions made when formulating this option are:

- The indicative costs presented below for this option include costs for procurement and are based on NCC Group's understanding and experience of the market.

- The necessary budget can be secured for both the procurement of additional modules and system enhancements and to implement the solution as a controlled and well managed project.

- Suitable contractual and commercial arrangements can be secured with the selected asset management system supplier.

- Suitably experienced asset management system consultants will be assigned to the project.

- Resources will be made available within the Housing teams to fully support the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- It is assumed that deployment to the cloud will be a longer-term aspiration, hence additional hardware will be required, including servers and end user mobile devices. If RBC do select a SaaS asset management solution then the costs below would need to be revisited.

- New and revised integrations are technically feasible and can be delivered within the stated timeframes.

- All 3rd party clients will support and align with the changes in working practices.

- Existing data can be mapped across and migrated to the new solution.

5.6.8 Indicative Costs

NCC Group's experience and discussions with asset management system suppliers have provided an indication of the typical level of support they have provided similar clients with to enhance their use of the product suite. The following costs are based on these discussions and experience.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£252,500**
Annual costs – including annual subscriptions, maintenance & support	**£32,500**
Total cost of ownership over 5 years – excluding internal costs	**£415,000**
Internal resource costs for implementation	**£58,500**
Total cost of ownership over 5 years including Internal resource costs	**£473,500**

It is important to note that these costs:

- Include a relatively significant element of contingency for external consultancy services, hardware and additional software.

- Additional licences needed to be purchased to support the further required functionality.

- Assume only external resources from the selected asset management system supplier will be procured, with all other activities undertaken by existing Housing and Council resources.

- Are predominantly incurred during the implementation period, with only a relatively small incremental annual cost uplift compared to current costs.

- The following are NOT included:

    o Decommissioning costs for the current systems.

    o Savings achieved from decommissioning the current systems i.e. annual operating costs for the systems and associated hardware, including reduced future server hardware procurement requirements.

5.7   High Level Alignment against Strategic Goals and Target Operating Model

The two options proposed have been aligned, to varying degrees, against the strategic goals agreed for the housing management solution set, including:

- Increased service efficiency through more automated and controlled processes, and the effective utilisation of supporting housing-related systems.

- Elimination of manual processes and bespoke outside of core system solutions.

- Substantial improvement and confidence in data quality.

- Enablement of point of capture electronic data collection for field-based operatives.

- Single entry of data.

- Single master source of information.

- Paperless, except when required for regulatory compliance.

- Bi-directional interfaces running at optimal frequency. i.e. real-time, hourly, daily etc.

- Robust and secure system interfaces, within and external to RBC.

- Device and operating system agnostic mobile services.

- Dashboard management and reporting.

The extent to which each option supports the key drivers of the Target Operating Model (TOM) are highlighted in the following Table (Table 9), where:

(B)lue indicates a small, tactical improvement over the current level of delivery for the TOM driver.

(A)mber highlights a noticeable improvement in terms of supporting delivery of the TOM driver.

(G)reen indicates a significant improvement towards fully meeting the TOM driver.

Target Operating Model (TOM) Drivers (options appraisal specific comments)	Option 1 Do Minimum	Option 2 Approach Market
Personalised portal – only replacement asset management system will provide this capability	B	G
Consistent interaction across services – integrated asset management system and retirement of tactical systems	B (1)	G
Digital by default, yet facilitating digital inclusion – NPS Housing and other selected HMS are by default a digital solution	B	A (3)
Mobile first for housing and maintenance staff	B	G
Facilitates channel migration – limited opportunities with Codeman	B	G
Front office integration – dependent upon the sophistication of task management/workflow	A (1)	G
Single version of the truth – limited opportunities with Codeman given current implementation	A	G
Back office 'specialist' interaction layer – dependent upon the sophistication of task management/workflow	A (1)	G
Real-time reporting dashboard / client – not really a requirement for asset management	N/A	N/A
Data segregation / client – 3rd party asset management solutions can offer data segregation	B	G
Drives business efficiencies through automation and standard ways of working	B	G (2)

Table 9 – Asset Management TOM Alignment

Clarification Notes:

(1) Option 1 delivers tactical improvements rather than significant functional enhancements.

(2) Level of improvement will be dependent on number of areas within Housing and other services deploying the solution.

(3) Potential to be available in the integrated asset management module of NPS Housing, but not currently operationally available.

5.8   Recommended Way Forward

It is NCC Group's recommendation, taking into account impact, risk, cost/benefits and return on investment that RBC selects option 1 as its preferred way forward and aims to address some of the key issues with the current implementation of Codeman. This improvement programme should be conducted as a formal project that is adequately resourced and has sufficient budget assigned to facilitate its success.

6 ECM Options Appraisal

6.1 Introduction

This document provides a high-level appraisal of the systems options available for the enterprise content management functions within the Reading Borough Council (RBC) Housing Management service.

NCC Group has developed a set of viable options for this appraisal and will be presenting them using the following categories:

- **Functional description:** a summary of the functionality and business requirements that are to be made available through the implementation of the option. NCC Group has provided RBC with an indication of a minimum option (option 1) that will provide a baseline against which to compare the other viable options.

- **Strengths, benefits and weaknesses:** the benefits and weaknesses of the option.

- **Risk:** a high-level risk analysis and assessment for the option.

- **Impact analysis:** a high-level assessment of the impact or effect on the user, the technology and the organisation and the relationships that RBC has with its residents and business partners.

- **Implementation plan:** a high-level implementation plan for the option.

- **Assumptions:** any underlying assumptions that have been made when developing the cost model and implementation plan.

- **Indicative costs:** a high-level summary of the costs of the option. **Please note these costs should only be regarded as thumbnail approximations at this stage and are based on a significant number of assumptions. As a result, the costs should not be used as a serious input to any funding request or more detailed cost benefit analysis.** Although these costs will be thumbnail approximations, they will be at an accuracy that will enable RBC to compare options from a financial perspective**.**

6.2 Current Enterprise Content Management (ECM) System Summary

Currently a blended approach is taken towards the recording of electronic documents, scanned images, photographs etc., commonly referred to as Digital Content (or simply Content), within the RBC Housing systems' environment, consisting of:

- Northgate Information@work is used to store scanned documents relating to various Housing activities including applications, repairs, resident photographs etc.

- TotalRepairs and TotalMobile hold various types of electronic content information relating to asset maintenance and repair and mobile device activity, including:

    o Property photographs.

    o Repair photographs against specific jobs.

    o Resident photographs.

    o Contents of forms completed on mobile devices.

- This information is stored in a combination of internal repositories, including the TotalRepairs database (job related information), TotalView (photographs) and the TotalMobile flat file datamart (completed mobile form contents and other non-job-related files).

- Network shared folders are used to store various types of documents and images, often on a temporary basis i.e. active documents for applications etc. which are not scanned into Information@work until the process has been completed.

- Bespoke Microsoft Access databases are used to store documents, including property plans and photographs.

- Citizen Space is used to manage post inspection consultation.

- Glasscubes cloud-based collaboration services are used to share information and documents within teams and with external partners.

This diverse range of electronic storage means that:

- Housing staff are often required to search across multiple sources for content relating to their work activities and/or external enquiries.

- The dispersed nature of content storage leads to high levels of duplication and different versions of content stored across the sources.

- Data is often retained beyond its useful, or indeed legal life, due to no clear archiving and retention policies and processes.

- The effectiveness and robustness of security controls across the content sources varies considerably.

- The combination of the above severely compromises the data quality and integrity of the content held within the Housing environment.

6.3 Required Position

The optimal required position is one in which:

- The number of content repositories is minimised to system specific content repositories and a Reading corporate wide enterprise content management (ECM) solution.

- There is a specified master source for all content elements. i.e. the 'go to' source for determining current status.

- Content is managed via clearly defined data retention and archiving policies across all content sources.

- Access to content is securely controlled.

For this options appraisal the focus will be on Housing Services, in particular the content repositories that are not embedded within the core systems i.e. integrate with the core systems or operate on a standalone basis.

6.4 Proposed Options

To facilitate and deliver the required position, three options are considered, namely:

- **Option 1** – Continue to operate with the current solutions in the short to medium term. Review the use of the systems in more detail and implement a range of initiatives to improve data quality and integrity, specifically for Information@work. This is the "Do Minimum" option.

- **Option 2** – Implement Microsoft SharePoint Online as a replacement for the non-core systems content repositories. Integrate it with the core systems and processes, using it as the primary repository for storing Housing content and to deliver collaboration services.

- **Option 3** – Formally approach and review the market for the most economical and viable ECM solution, assessing the current environment against suitable competing products including Microsoft, IDOX, Civica, Opentext and Hyland.

For each of the options, it is essential to be cognisant of other ongoing change initiatives within Housing and the overall RBC corporate environment, and the impact they may have on content management services.

Each option is now explored in more detail.

6.5 Option 1: Continue to operate with existing systems

6.5.1 Functional Description

Irrespective of budget or resource constraints, the ongoing and growing issues of data quality and integrity need to be addressed, therefore the "do minimum" option in this case is not simply to continue as is but rather to focus on the key content repository of concern, namely Information@work.

This option will look to address the current quality and integrity concerns with Information@work by creating a new instance of the database for all future content, with existing content accessible via the legacy (original) instance. It also offers the opportunity to move some of the other non-core content store operations into Information@work, where technically and operationally feasible. As highlighted in the overall Housing systems review, awareness and training will also be key areas requiring improvement.

The improvements identified must be aligned with the results of the other options appraisals being undertaken in parallel, particularly for the main Housing Management System (HMS) and Field Service Management (TotalMobile) as these are likely to require operational process changes.

On completion, a post implementation review will be undertaken to determine the completeness and effectiveness of the project, and to ensure follow-on training and awareness processes and plans are in place.

Option 1 will act as a key comparator for the other options.

6.5.2 Strengths and Benefits

The strengths and benefits associated with this option are that:

- This is the lowest cost option.

- The level of disruption to the business will be minimal in comparison to the other options, however there will be a need to educate and train staff on the revised content storage and access methods, albeit they will be using a familiar solution.

- Segregating new and future content from the legacy content will significantly improve the quality and integrity of this content both in the short and long term; and will help facilitate smoother transition of accurate and relevant information to future new Housing systems solutions.

- Although a data cleansing exercise is still required for important content that needs to be retained for the longer term, this is more manageable than for the other options as it can be phased and delivered over a prolonged period and undertaken in line with resource availability.

- There are opportunities to migrate some of the non-core content store operations to Information@work. This will not only reduce the number of repositories but also help address the database storage limit and/or access speed issues currently being encountered with some of the content stores, particularly Microsoft Access databases.

- Raising awareness and training within the functional teams will yield further on-going benefits as there is currently a significant disparity between teams in terms of their knowledge of what process support can and is being delivered by Information@work.

- Staff confidence in the integrity of the content stored and accessed will grow over time.

- This is the most pragmatic option when considering the uncertainty surrounding the current Housing Management System, Northgate OHMS, as it is focusing on improving the quality of content regardless of the main HMS.

6.5.3 Weaknesses

The key weaknesses associated with this option are:

- It offers limited scope for process enhancement and operational change.

- Savings and cashable benefits opportunities are lowest for this option, and indeed it is expected to incur an operational cost overhead particularly in the short term.

- A level of investment in terms of cost, time and resource will be required, albeit relatively low in comparison to the other options.

- It will not address some of the key fundamental issues around lack of functionality and systems integration.

- Although there is an opportunity to consolidate some non-core content sources this will be limited due to Information@work technical restrictions e.g. content file types supported.

6.5.4 Risks

There are a number of risks associated with this option, including:

- The changes in process required may lead to confusion and result in new content being wrongly placed in the legacy Information@work database. Occurrences of this should reduce significantly after the initial 3-4 months as staff become acquainted to the new processes.

- There will be an additional dependency on key internal staff to deliver and maintain process and system change.

- There may be reluctance in migrating some of the non-core content store operations to Information@work.

- The number of users with authorised access to the legacy Information@work instance may not decline at the expected rate over time, which in turn is likely to incur additional licensing costs.

- The retention period for the legacy instance could be prolonged if important information is retained within it and not transferred across (over time) to the live instance.

- Motivating staff is a challenge when delivering limited process improvements below overall aspiration and expectation levels. This must be managed by focusing on the data quality improvements this option offers, which are an essential prerequisite in supporting the successful implementation of future new Housing solutions.

6.5.5 Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** there will be some minor business impact as the revised processes for storing and accessing content are introduced, however the main positive impact will be the improvement in data quality and integrity over time.

- **Other Council Services:** there is likely to be some minor process change impact on other Council services who have access to Housing Services content repositories. There should also be a noticeable improvement in content quality in the longer term.

- **Resident:** there will be no direct impact on the resident, however the quality of information linked to the resident should improve over time.

- **Client:** there is unlikely to be any direct impact on clients, albeit, as per residents, the quality of information maintained on and for the client should improve in due course.

- **Contractor:** there may be some minor working process changes required, which contractors will be expected to adopt and adhere to.

- **Systems and Service Providers:** there is likely to be a requirement to update some of the current integrations to point to the new Information@work repository, however these should be minor changes.

- **Material Supplier:** no direct impact.

- **Technology:** there is a need to create a new instance of Information@work, which may require an additional server (physical or virtual), licences and storage, however in the case of the latter the increase should roughly be in line with normal growth expectations as the overall volume of data will not increase significantly. i.e. limited, if any content, will be replicated / transferred from the original Information@work database.

6.5.6   Implementation Plan

Although this is a "do minimum" option, a formal implementation plan is still required, albeit not on the same scale as for the other more expansive options. Resourcing on this option will be primarily internal, and as such will have to align with the prevailing business priorities. The identification and implementation of the data quality improvement initiatives are likely to take circa 4-6 months and will include the following stages:

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Define the requirements, assess their impact and identify process changes required.

- Where applicable, discuss integration requirements with all affected parties.

- Assess the current technical infrastructure and licensing impact; and establish upgrade costs.

- Undertake business process reviews for impacted areas in line with proposed improvements.

- Finalise commercial and contractual arrangements with all suppliers – primarily Northgate.

- Plan and implement technical upgrades as required and establish new Information@work instance.

- Conduct phased implementation by service area/team, including training and robust testing of functionality, security and access control.

- Perform a post implementation review.

Business focused training should be an integral part of the overall implementation.

6.5.7 Assumptions

The key assumptions made when formulating this option are:

- The necessary budget can be secured to implement the improvement initiatives as a controlled and well managed project.

- The indicative costs presented below for this option include costs for procurement and are based on NCC Group's understanding and experience of the market.

- Resources will be made available within the Housing teams to fully support the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- The current version of Information@work supports multiple instances within the same environment.

- There are no restrictions on expanding the technical environment.

- New hardware may be required, including servers.

- New licensing will be required, both on a systems and user basis.

- If required, existing data can be mapped across and migrated to the new instance.

- Integration changes required are technically feasible and can be delivered within the stated timeframes.

- Data security and access control will not be compromised.

- In the event of the current Housing Management System (HMS) being replaced in the medium term:

  o The content within the new Information@work instance will be compatible with, approved and used by the new HMS.

  o The process changes proposed will be cognisant of the new HMS and its capabilities.

  o Additional changes to and/or development of the necessary integrations with the new HMS will be funded by the replacement HMS project.

6.5.8 Indicative Costs

Without undertaking a detailed contractual review, in conjunction with Northgate Public Services, of the current Information@work solution and usage within RBC, it is difficult to accurately estimate the licensing and support costs for a new additional instance of the Housing content repository. Furthermore, it has also not been possible to obtain the current Information@work annual costs for Housing, therefore the following figures exclude the additional licensing and storage costs for the new instance of Information@work.

It is assumed that the worst-case scenario in year 1 is a doubling of current costs with this decreasing significantly from year 2 onwards as the new instance becomes the main source of all necessary content. Commercial discussions should be undertaken with Northgate to negotiate a favourable arrangement that meets both parties need.

Cost Element	Indicative Cost
Capital costs – including hardware and external consultancy, but excluding new Information@work software licensing	**£38,500**
Annual costs – including specific maintenance & support apart from those for the new Information@work instance	**£5,000**
Total cost of ownership over 5 years – excluding internal costs and Information@work licensing and support	**£63,500**
Internal resource costs for implementation	**£49,050**
Total cost of ownership over 5 years including Internal resource costs – excluding Information@work licensing and support	**£112,550**

It is important to note that these costs:

- Include a small element of contingency for external consultancy services and additional software.

- **Exclude the current and new Information@work instances licensing and annual operating costs.**

- Assume only Northgate Public Service external resources, either new or currently contractually supporting RBC, will be procured, with all other activities undertaken by incumbent Housing and Council resources.

- Include internal resource time costs for:

  o The integrity checking and cleansing of essential elements of the current Information@work Housing content prior to it being loaded into the new instance as part of the project implementation phase.

- o Migration of applicable other Housing content repositories into Information@work over time.

    - o Technical resources to support the content cleansing and migration.

- Data cleansing will be phased across the project and the first year of the implementation rather than undertaken in advance of the introduction of the new Information@work instance.

6.6 Option 2: Implement Microsoft SharePoint Online

6.6.1 Functional Description

This option will enable Housing to align with the Corporate ICT strategic direction, consolidate content repositories and deliver enhanced collaboration via Microsoft cloud-based services. It will require existing active and relevant historical content to be cleansed and uploaded into SharePoint. The option will also require the commissioning of a suitable range of implementation services to successfully deliver the preferred solution in line with RBC's requirements.

6.6.2 Strengths and Benefits

The strengths and benefits associated with this option are that it:

- Aligns and positions Housing as an innovator within the Council, enabling it to take advantage of the benefits offered by RBC's new strategic ICT direction, including the flexibility of Software as a Service (SaaS) deployment.

- Offers the opportunity to expand the enterprise content remit to:

    - o Increase the number of types of unstructured content that can be captured, organised and referenced.

    - o Expand integration options with the Housing core systems.

    - o Align with other service area content solutions over time as they implement SharePoint.

- Provides enhanced and new collaboration opportunities with both internal and external partners.

- Reduces the implementation and ongoing operational costs of the solution by benefiting from RBC's Microsoft corporate agreements.

- Provides tight integration between the Microsoft Office suite (Outlook, Word, Excel etc.) and SharePoint, enabling more streamlined processes for content capture and retrieval.

- Offers the opportunity for Housing to re-engineer its business processes and eliminate bad practices such as manual workarounds and bespoke in-house solutions.

- Complies with all regulatory requirements including data protection and GDPR.

- Offers enhanced data loss prevention (DLP) capabilities for content, thereby further supporting GDPR compliance.

- Staff confidence in the quality and integrity of the content stored will grow as the solution is implemented.

6.6.3 Weaknesses

The key weaknesses of this option are:

- The implementation timeframe for this solution will be noticeably longer than Option 1.

- Replacing the complete set of Housing content repositories will increase the storage requirements and implementation costs.

- Decommissioning the incumbent solutions will require existing systems integrations to be redeveloped.

- Current equipment will, after the required solution verification period, have to be decommissioned and this may result in a loss of investment.

- Migration of information to the new solution will be time consuming and likely to be costly as significant data quality issues will have to be addressed. It may be necessary to phase the migration. i.e. active then legacy or by Housing function.

- If a new Housing Management System (HMS) is to be selected, this option will have to integrate and align closely with it, which is therefore likely to extend the delivery timeframe.

- Disruption to the business will be significant for this option and may not be acceptable, particularly given the current resourcing constraints.

- There will be limited internal experience of SharePoint within RBC as Housing will be an innovator rather than follower.

- The overall project timeframe is likely to be in the order of 10-12 months.

6.6.4 Risks

Notable risks associated with this option are:

- Increased resource demands of a single solution replacement of all content repositories.

- As one of the first Services to use SharePoint within RBC, it may take longer to implement the solution as there may be elements of trial and error within the project due to the general unfamiliarity of the product.

- In-house operational support expertise will be limited compared to current solutions.

- Complexity of integrations with existing core systems.

- Data cleansing issues.

- Learning curve for the new solution and its potential impact on overall Housing team performance in the short term.

- Ability to align implementation and contract termination timeframes across all systems.

- Ability to maintain the level of service for the solutions to be retired.

- Service partner, client and resident resistance to the new services introduced.

- Solution switchover management, timing and communication.

6.6.5   Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** there will be significant impact on the business in terms of service delivery and the resources required to implement the solution, however this will eventually be offset by the expected substantial improvement in data quality and integrity over time.

- **Other Council Services:** there will be varying levels of impact on other Council services who have access to Housing content repositories, however there should be a noticeable improvement in content quality in the longer term.

- **Resident:** there will be initially be minimal impact on residents, however this may increase in the longer term if self-service and collaboration is introduced.

- **Client:** there is likely to be a positive impact with respect to clients in that approved content will be easier to share through the collaboration portal.

- **Contractor:** impact is likely to be significant in certain areas with new working processes introduced and contractors required to adhere to these, including supporting electronic data capture and sharing. As with clients there is the opportunity to share relevant content through collaboration portals.

- **Systems and Service Providers:** New integrations and working practices will have to be agreed and developed with the providers who interact directly with the Housing core systems. The level of impact will vary per provider depending on the technical flexibility of their systems.

- **Material Supplier:** There is likely to be limited impact on the day to day operational processes with material suppliers, however there may be an opportunity to share suitable information via collaboration portals e.g. product catalogues, pricing tables etc. Impact will depend on the flexibility offered by the material suppliers' systems.

- **Technology:** the impact on technology will be driven by move to cloud-based services. The majority, if not all, of the new technology will reside in the Cloud as part of the solution's service contract. It is essential that the sizing of current and future content needs is accurately forecast. The need for cloud-based collaboration services with Housing's various partners and clients will have to be assessed and supported. The on-premise equipment used to deliver the current solutions will eventually be decommissioned.

6.6.6 Implementation Plan

The estimated timeframe for the implementation of this option is circa 10-12 months and will include the following:

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Define the detailed requirements for the new solution, whilst also considering the wider range of Council services.

- If a corporate SharePoint implementation partner is not in situ, undertake a detailed partner selection process.

- Obtain commercial approval.

- Finalise contractual arrangements with all suppliers.

- Conduct detailed planning.

- Review current content quality and develop remediation plan.

- Define new business processes and integrations.

- Implementation of new solution, including:

    o Commissioning of new SharePoint Online infrastructure and technical services.

    o Data cleansing and migration.

    o Specification and development of interfaces.

    o Training for both internal and external resources.

    o Formal acceptance testing, including disaster recovery capabilities.

    o Switchover to new solution.

    o Switch old solution to read only mode and provide look up access for an agreed timeframe.

- Post implementation review.

It is imperative that business process and technical training is an integral part of the overall implementation, not only for RBC but also all affected contractors, clients and suppliers as required.

6.6.7 Assumptions

The key assumptions made when formulating this option are:

- The necessary budget can be secured to implement the SharePoint Online solution as a controlled and well managed project.

- Housing will leverage RBC's Microsoft corporate licensing agreement and pricing.

- The RBC authorised Microsoft service partner will host the solution.

- The implementation partner will provide an agreed level of support following implementation.

- The indicative costs presented below for this option include costs for procurement and are based on NCC Group's understanding and experience of the market.

- Resources will be made available within the Housing teams to fully support the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- Existing content can be cleansed, mapped across and migrated to SharePoint Online.

- Integration changes required are technically feasible and can be delivered within the stated timeframes.

- Contractors, clients and suppliers will support and align with the changes in working practices.

- Data security and access control will not be compromised.

- SharePoint Online is fully compliant with all regulatory requirements including data protection and GDPR.

- In the event of the current Housing Management System (HMS) being replaced in the medium term:

    o The content and supported file types within SharePoint Online will be compatible with, approved and used by the new HMS.

    o The process changes proposed will be cognisant of the new HMS and its capabilities.

    o Additional changes to and/or development of the necessary integrations with the new HMS will be funded by the replacement HMS project.

6.6.8 Indicative Costs

The following indicative costs are based on NCC Group's experience with similar SharePoint enterprise content management projects and RBC's need for data cleansing. As with the other options, the costs are estimates based on informed calculations rather than RBC specific Microsoft contractual pricing.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£162,000**
Annual costs – including annual subscriptions, maintenance & support	**£58,829**
Total cost of ownership over 5 years – excluding internal costs	**£456,144**
Internal resource costs for implementation	**£142,875**
Total cost of ownership over 5 years including Internal resource costs	**£599,019**

It is important to note that these costs:

- Are based on an estimated Housing user count of 200.

- Include a small element of contingency for external consultancy services, hardware and additional software.

- Assume migration of all Housing content management to the cloud in a Software-as-a-Service (SaaS) arrangement.

- Include the full cost of a Microsoft Office 365 Enterprise E3 license per user. The E3 licence includes the full use of the Microsoft Office suite as well as SharePoint Online, therefore there is the potential to exclude some or all of these costs if RBC move in advance to full Office 365 service delivery – licence costs would be picked-up by that project.

- Assume only the selected RBC Microsoft partner's external resources will be procured, with all other activities undertaken by existing Housing and Council resources.

- Include internal resource time costs for:

  o The integrity checking and cleansing of the to be retained elements of the current Information@work Housing content prior to it being loaded into SharePoint Online as part of the project implementation phase.

  o Migration of applicable other Housing content repositories into SharePoint Online. This does not have to occur immediately but can be part of a phased implementation.

  o Technical resources to support the content cleansing and migration.

- Assume there will be some element of SharePoint expertise within the Corporate ICT Team that can be utilised within the project.

- The following are NOT included:

    o Decommissioning costs for the Housing elements of the current Information@work environment.

    o Savings achieved from decommissioning the Housing elements of the current Information@work environment i.e. annual operating costs for the systems and associated hardware, including reduced future server hardware procurement requirements.

    o Costs for an RBC Microsoft Azure cloud environment.

6.7 Option 3: Formally Approach and Review the Market

6.7.1 Functional Description

This option will enable RBC to market test its Housing ECM and proposed corporate SharePoint solutions against their most viable direct competition, including the need for internal and external collaboration services linked to the content repositories. Both ECM and Content Service Platform (CSP) solutions – both of which manage enterprise content – should be considered and assessed, including those from IDOX, Civica, Opentext and Hyland. The option will also require the commissioning of a suitable range of implementation services to successfully deliver the preferred solution in line with RBC's requirements.

6.7.2 Strengths and Benefits

The strengths and benefits associated with this option are:

- Provides RBC will real choice and gives Housing the opportunity to benchmark its current suppliers and solutions against the open market.

- Offers the opportunity to expand the enterprise content remit to:

    o Include other service areas within the Council, thereby providing the potential for a common corporate wide solution, which in turn can lead to reduced operational costs.

    o Increase the number of types of unstructured content that can be captured, organised and referenced.

    o Expand integration options with the Housing core systems.

- Enables Housing to take advantage of the benefits offered by RBC's new strategic ICT direction, including flexibility in deployment options such as Software as a Service (SaaS), externally hosted and/or Cloud services etc.

- Offers the opportunity for Housing to re-engineer its business processes and eliminate bad practices such as manual workarounds and bespoke in-house solutions.

- Enables content management to be aligned more closely and effectively with the current or potential new Housing Management System.

- As with most modern ECMs, the ability to deliver collaboration portals and tools as part of the overall solution will bring additional operational benefits for all parties.

- The chosen solution will comply with all regulatory requirements including data protection and GDPR.

- Staff confidence in the quality and integrity of the content stored will grow as the solution is implemented.

- Provides RBC with the opportunity to introduce a commercially innovative contract e.g. risk and reward, shared benefit, performance focused etc.

6.7.3   Weaknesses

The key weaknesses of going to the market include:

- The procurement process will be more time consuming than the other options, adding a minimum 3-4 elapsed months to the timeframe.

- Replacing the complete set of Housing content repositories may significantly increase the implementation costs.

- Decommissioning the incumbent solutions will require existing systems integrations to be redeveloped.

- Current equipment may have to be decommissioned if no longer suitable to support the new solution, and this may result in a loss of investment.

- Migration of information to the new solution will be time consuming and likely to be costly as significant data quality issues will have to be addressed.

- If a new Housing Management System (HMS) is to be selected, this option will have to integrate and align closely with it, which is therefore likely to extend the delivery timeframe.

- Disruption to the business will be highest for this option and may not be acceptable, particularly given the current resourcing constraints.

- The overall project timeframe is likely to be in the order of 12-15 months.

6.7.4   Risks

Notable risks associated with this option are:

- Although stakeholders will be actively involved in the selection of the solution, they do not embrace it as expected and benefits are not realised.

- Key suppliers qualify out of the procurement process.

- Increased resource demands of a single solution replacement of all content repositories.

- Complexity of integrations with existing core systems.

- In-house support expertise may be limited compared to current solutions.

- Learning curve for the new solution and its potential impact on overall Housing team performance in the short term.

- Data cleansing issues.

- Ability to align implementation and contract termination timeframes across all systems.

- Ability to maintain the level of service for the solutions to be retired.

- Service partner, client and resident resistance to the new services introduced.

- Solution switchover management, timing and communication.

6.7.5   Impact Analysis

The high-level impact analysis is as follows:

- **Organisational:** there will be significant impact on the business in terms of service delivery and the resources required to implement the solution, however this will eventually be offset by the expected substantial improvement in data quality and integrity over time.

- **Other Council Services:** there will be varying levels of impact on other Council services who have access to Housing Services content repositories, however there should be a noticeable improvement in content quality in the longer term.

- **Resident:** there will be a variable degree of impact on residents depending on their level of engagement, with the potential opportunity for them to directly access and/or upload authorised content to the Housing solution.

- **Client:** there is likely to be a positive impact with respect to clients in that approved content will be easier to share through portal and other technologies.

- **Contractor:** impact is likely to be significant in certain areas with new working processes introduced and contractors required to adhere to these, including supporting electronic data capture and sharing. As with clients and residents, there is also the opportunity to share relevant content through portal technologies.

- **Systems and Service Providers:** New integrations and working practices will have to be agreed and developed with the providers who interact directly with the Housing core systems. The level of impact will vary per provider depending on the technical flexibility of their systems.

- **Material Supplier:** There is likely to be limited impact on the day to day operational processes with material suppliers, however there may be an opportunity to share suitable information via collaboration portals e.g. product catalogues, pricing tables etc. Impact will depend on the flexibility offered by the material suppliers' systems and the new ECM solution.

- **Technology:** the impact on technology will very much be driven by the hosting and delivery mechanisms for the new solution. If, as expected, it is cloud-based then existing on premise technology will need to be decommissioned after a suitable period of time, plus a limited amount of new supportive technology introduced on premise as required. Ultimately the majority of the new technology, including servers and storages, will reside in the Cloud as part of the solution's service contract. It is therefore essential that the sizing of current and future content needs is accurately forecast. The potential need to introduce additional cloud-based web services to support collaboration with Housing's various partners and clients will also have to be assessed and supported. The on-premise equipment used to deliver the current solutions will eventually be decommissioned.

6.7.6   Implementation Plan

The estimated timeframe for the implementation of this option is circa 12-15 months and will include the following:

- Set up, resource and plan the programme of work. Include representatives from Corporate Improvement and Corporate ICT.

- Define the detailed requirements for the new solution, whilst also considering the wider range of Council services.

- Review the market for both Enterprise Content Management (ECM) and Content Service Platform (CSP) solutions.

- Undertake a detailed solution/supplier selection process.

- Obtain commercial acceptance.

- Finalise contractual arrangements with all suppliers.

- Conduct detailed planning.

- Review current content quality and develop remediation plan.

- Define new business processes and integrations.

- Implementation of new solution, including:

  - Commissioning of new infrastructure and technical services, internal and/or external.

  - Data cleansing and migration.

  - Specification and development of interfaces.

  - Training for both internal and external resources.

  - Formal acceptance testing, including disaster recovery capabilities.

  - Switchover to new solution.

- o Switch old solution to read only mode and provide look up access for an agreed timeframe.

- Post implementation review.

As with Option 2, business process and technical training should be an integral part of the overall implementation, not only for RBC but also all affected contractors, clients and suppliers as required.

6.7.7 Assumptions

The key assumptions made when formulating this option are:

- The necessary budget can be secured to implement the replacement solution as a controlled and well managed project.

- The preferred supplier, authorised service partner or existing RBC external service partner will host the solution.

- The preferred supplier will support the application following implementation.

- The indicative costs presented below for this option include costs for procurement and are based on NCC Group's understanding and experience of the market.

- Resources will be made available within the Housing teams to fully support the project.

- Corporate Improvement and Corporate ICT staff will be available to support the project as required.

- Other areas of the Council impacted by the changes will align to them as required.

- The expected move to a hosted SaaS and/or cloud-based solution will not present an issue to Corporate ICT.

- The majority of, if not all, new hardware required, including servers and storage, will be hosted externally.

- Existing content can be cleansed, mapped across and migrated to the new solution.

- Integration changes required are technically feasible and can be delivered within the stated timeframes.

- Contractors, clients and suppliers will support and align with the changes in working practices.

- Data security and access control will not be compromised.

- The chosen solution will be fully compliant with all regulatory requirements including data protection and GDPR.

- In the event of the current Housing Management System (HMS) being replaced in the medium term:

    o The content and supported file types within the new solution will be compatible with, approved and used by the new HMS.

    o The process changes proposed will be cognisant of the new HMS and its capabilities.

    o Additional changes to and/or development of the necessary integrations with the new HMS will be funded by the replacement HMS project.

6.7.8   Indicative Costs

The following indicative costs are based on NCC Group's experience with atypical enterprise content management projects and RBC's need to address its current data quality and integrity concerns. The costs are estimates based on informed calculations rather than supplier specific product pricing.

Cost Element	Indicative Cost
Capital costs – including hardware, software and external consultancy	**£243,500**
Annual costs – including annual subscriptions, maintenance & support	**£56,000**
Total cost of ownership over 5 years – excluding internal costs	**£523,500**
Internal resource costs for implementation	**£180,000**
Total cost of ownership over 5 years including Internal resource costs	**£703,500**

It is important to note that these costs:

- Are based on an estimated Housing user count of 200.

- Include a small element of contingency for external consultancy services, hardware and additional software.

- Assume migration of all Housing content management to the cloud in a Software-as-a-Service (SaaS) arrangement.

- Assume the selected product is compatible and integrates with the Microsoft Office 365 product suite.

- Include internal resource time costs for:

    o The integrity checking and cleansing of the to be retained elements of the current Information@work Housing content prior to it being loaded into the new ECM as part of the project implementation phase.

- o Migration of applicable other Housing content repositories into the new ECM. This does not have to occur immediately but can be part of a phased implementation.

- o Technical resources to support the content cleansing and migration.

- Assume only the selected solution provider's external resources will be procured, with all other activities undertaken by existing Housing and Council resources.

- The following are NOT included:

  - o Decommissioning costs for the Housing elements of the current Information@work environment.

  - o Savings achieved from decommissioning the Housing elements of the current Information@work environment i.e. annual operating costs for the systems and associated hardware, including reduced future server hardware procurement requirements.

6.8 High Level Alignment against Strategic Goals

All the options proposed have been aligned, to varying degrees, against the strategic goals agreed for the housing management solution set, including:

- Increased service efficiency through more automated and controlled processes, and the effective utilisation of supporting ECM system(s).

- Expansion in the content file types supported by the ECM system.

- Alignment were practical with the Corporate ICT strategic direction.

- Substantial improvement and confidence in data quality.

- Elimination of manual processes and bespoke outside of core system solutions.

- Enablement of content management support for point of capture electronic data collection.

- Single entry of data.

- Single master source of information.

- Paperless, except when required for regulatory compliance.

- Robust and secure system interfaces, within and external to RBC.

- Compliance with all regulatory requirements including data protection and GDPR.

The extent to which each option supports the key drivers of the Target Operating Model (TOM) are highlighted in the following Table (Table 10), where:

(B)lue indicates a small, tactical improvement over the current level of delivery for the TOM driver.

(A)mber highlights a noticeable improvement in terms of supporting delivery of the TOM driver.

(G)reen indicates a significant improvement towards fully meeting the TOM driver.

Target Operating Model (TOM) Drivers (options appraisal specific comments)	Option 1 Do Minimum	Option 2 Implement SharePoint	Option 3 Approach Market
Personalised portal – self-service per operative	B (1)	G	G
Consistent interaction across services – dependent on HMS	B (1)	A (2)	A (2)
Digital by default, yet facilitating digital inclusion – Information@work is by default a digital solution	B (1)	G	G
Mobile first for housing and maintenance staff – in conjunction with other M&R enhancements	A (3)	A (3)	A (3)
Facilitates channel migration – opportunities for self-serve	B (1)	G (4)	G (4)
Front office integration – in particular with Office 365	A	G	G
Single version of the truth – not directly deliverable	A (5)	A (5)	A (5)
Back office 'specialist' interaction layer – level of integration	B (6)	G	G
Real-time reporting dashboard / client – not applicable	N/A	N/A	N/A
Data segregation / client – security controls to manage access to content.	A (7)	G	G
Drives business efficiencies through automation and standard ways of working	A	G	G

Table 10 – ECM TOM Alignment

Clarification Notes:

(1) Option 1 delivers tactical improvements rather than significant functional enhancements.

(2) Level of improvement will be dependent on number of areas within Housing and other services deploying the solution.

(3) ECM is a key part of Digital First solutions delivery, however it cannot deliver this on its own. Potential enhancements to M&R mobile working could be further supported by the ECM.

(4) Options 2 and 3 offer the opportunity to push electronic content collection out to the resident.

(5) Although not directly delivering a "single version of the truth", having a central content store that everyone can search should reduce the occurrences of multiple instances of content.

(6) Information@work has limited back office integration options compared to Options 2 and 3.

(7) Although it does have security access control features, Information@work does not have the same level of configuration flexibility as the other options.

6.9 Recommended Way Forward

Considering the current functional fit of the incumbent systems, Housing's strategic goals, the strengths, benefits, weaknesses and risks of each option, and the wider systems, operational and data issues to be addressed within Housing, it is proposed that RBC considers Option 1 as the way forward for enterprise content management.

In an ideal world, given the Council's stated ICT strategy, Option 2 is the sensible approach. However, it is NCC Group's view that the Housing, Corporate ICT and Corporate Improvement teams are not yet at the point where they can successfully deliver this option within the next 12-18 months. As the ICT strategy is relatively new and still evolving, there are too many outstanding questions around how RBC will implement the strategy in a coherent, consistent and effective manner. The lack of in-house SharePoint Online expertise and the embryonic state of Azure cloud-based service capabilities within the Council pose unacceptable risks to Housing and its need to address data quality sooner rather than later. This is a particularly prevalent point when viewed against the likely imminent recommendation to replace Northgate OHMS.

Option 3 would generally be the recommended pragmatic approach when an organisation is looking to completely replace a core business solution. However, in the case of RBC, the Council has, through its ICT strategy, already selected a corporate solution that can meet the enterprise content management requirements of Housing. As Microsoft are a leader in this field, a market assessment is likely to concur with the already selected corporate solution. Consequently, going out to the market will only add unnecessary costs and extend implementation timeframes.

This leaves Option 1 as the preferred route for the following reasons:

- It is the least disruptive option in terms of impact on Housing, its clients, residents and suppliers.

- It can be delivered in a relatively quick timeframe.

- There will be a significantly lower demand for internal resources than that required for the other options.

- Data quality issues can be addressed in a structured and phased manner, namely:

  o New content captured will have quality addressed at its point of entry into the new instance of Information@work.

- o Time can be taken to assess legacy content and a decision made on what should be retained and cleansed, and when this work should be undertaken.

- A phased rather than big bang approach can be taken, reducing the level of risk and resource demands.

- The project can either standalone as a discrete project or align with the proposed HMS replacement project. In the case of the latter, Option 1 provides a quicker route to delivering cleansed data to the new HMS.

- The project will introduce new content management working practices into the business and start to build a culture of change.

- Familiarity with Information@work will:

  - o Reduce the risk of failure whilst also offering practical critique and advice on data cleansing and new processes.

  - o Significantly reduce the level of training required compared to that for a completely new solution.

  - o Hasten the implementation and content cleansing timescales and deliver a faster return on investment in the short to medium term.

Appendix A: Consultation Schedule

The following table summarises the level of consultation that has been undertaken, it includes 12 x workshops, 3 x 1:1 interviews and over 60 staff consulted.

Workshop Title	Date	Time
Housing Advice and Homelessness	26/09/2018	09:00 - 10:30
Allocations and Voids	28/09/2018	10:00 - 12:00
Rents and Arrears Management, Rent Guarantee Scheme team	25/09/2018	10:00 - 12:00
Tenancy Services, RTB and Leaseholder Management	24/09/2018	09:00 - 11:00
Sheltered and Supported Housing	18/09/2018	10:00 - 12:00
Client-side Repairs and Works Management	20/09/2018	14:00 - 16:00
Planned/cyclical Maintenance, Servicing and Asset Management	21/09/2018	09:00 - 11:00
The Council's Corporate ICT Team	14/09/2018	14:00 - 16:00
The Council's Corporate Improvement Team	17/09/2018	15:00 - 16:00
The Council's Customer Services Team	13/09/2018	14:00 - 15:00
Representative from Affinity Housing	18/09/2018	15:00 - 16:00
Homes for Reading	13/09/2018	10:00 - 11:00
Team managing Wokingham BC client-side repairs contract	25/09/2018	14:00 - 15:00
Document Management and utilisation of Information@Work	26/09/2018	14:00 - 16:00
Mark Green, MD, Homes for Reading	26/09/2018	13:00 - 14:00