6. Asset Performance Evaluation

Developing and Managing an Active Asset Management Strategy

6.1 The National Housing Federation guide entitled 'Managing the Assets, 2nd Edition', defines Asset Management as the process whereby a landlord understands and manages the performance of, and risks presented by, a landlords assets. An effective Asset Management Strategy therefore provides a framework for a landlord to manage its stock actively to support and deliver corporate objectives so that decisions are made at both a portfolio and individual property level.

6.2 Our Active Asset Management Strategy 2012 reflects this with the following objectives

- To assess asset performance across the Housing Executive's housing stock
- To identify and address poorly performing stock
- To assist in targeting investment in the housing stock

Asset Performance Evaluation – A framework for investment decisions

Overview

6.3 The evaluation of the performance of the stock has included a financial evaluation, based on 30 year income and expenditure associated with the assets, alongside other non-financial measures of broader neighbourhood sustainability measured against the key Landlord objectives of Better Services, Better Homes and Vibrant Communities.

6.4 The modelling is intended to inform an investment strategy based on an active asset management approach where we make investment decisions based on the performance of the stock in a way that strengthens our Business Plan and contributes to meeting our and DSD's policy objectives.

6.5 The modelling is focussed on 87,219 rented properties. It excludes other tenures (e.g. travellers sites and shared equity) and also excludes properties where decisions have already been taken to dispose or demolish. In total some 500 properties are excluded for these reasons

6.6 The results of this modelling are summarised below.

Financial sustainability

6.7 The 30 year net present value (NPV) of the tenanted housing stock has been assessed based on the Commonly Adopted Standard set out in section 5. The modelling uses the technical outputs of the survey and does not make any adjustment for affordability or other decisions to phase work. These are considered in section 7, using the results of the modelling to inform the investment planning process.

6.8 For the purposes of analysis, we have broken down the tenanted housing stock into 509 'asset groups'. The groupings are by region, area, property type, age and construction type. The model is built up at an individual property level and the assets are then grouped for

7. Our New Strategic Approach

Our long term aim

7.1 Given our statutory responsibilities to draw up programmes to meet housing needs and effect the improvement of stock and our position as the largest social landlord in Northern Ireland, it is essential that we have a robust strategy in place to ensure that our stock's contribution to meeting our community's social housing needs is maximised. It is also, however, imperative that this strategy takes cognisance of the funding that would be required to do so.

7.2 As demonstrated in Chapter 6, the majority of our stock has been assessed as sustainable, both financially and socially. In the long term, therefore, the aim of our Asset Management Strategy must be to build on this position by establishing a portfolio of assets that:

- Matches social housing needs
- Provides a quality of housing that meets residents' requirements and aspirations
- Both supports and can be supported by a robust business plan

7.3 This means that our long term approach will be to provide a scale, type and quality of housing that will support sustainable communities and neighbourhoods and, as importantly, that can be supported by the resources that will be available to us.

7.4 However, this approach will almost certainly also include actions to remove uneconomic and obsolete stock that fail to meet these challenges. We already have a history of renewing pockets of our purpose built stock with new affordable housing, albeit over the last decade and a half this has been delivered by our housing association partners. In promoting an overall increase in the quality of our own asset base we would want to explore options that would allow us to regenerate our stock through our own new build programme.

7.5 The implementation of this longer term approach is to a large extent dependant on the outcome of structural change to our landlord function as determined through the Social Housing Reform Programme, and the regulatory, funding and rent regime that will be put in place.

Strategic objectives

7.6 Given the above, in the short term - i.e. over the next five years - our strategic asset management objectives will be:

- To protect our tenants, leaseholders and built assets by ensuring that statutory and legislative compliancy requirements are met
- To focus investment on our stock's key physical needs - as identified in the Stock Condition Survey - by adopting the Commonly Adopted Standard as the basis for developing maintenance and improvement programmes
- To adopt an Active Asset Management approach where investment decisions are based on the performance of assets in a way that strengthens our business plan and contributes to meeting our business objectives i.e.
    - Focus investment on well performing stock (i.e. that is sustainable in the long term from both a financial and non-financial perspective)
    - Explore if and how performance can be improved for those assets demonstrating weak financial and social sustainability before deciding to invest

8. Investment and maintenance planning

Funding

8.1 NIHE, like many public sector landlords throughout the UK, is currently operating under a highly constrained system of funding without the ability to borrow to fund its investment requirements.

8.2 A recent decision by the DSD to give the Landlord function the authority to retain surpluses will replicate to some extent the self financing regime enjoyed by public sector social landlords in other jurisdictions. This has taken effect in this financial year (2015/16) and enables us to begin the process of taking a longer term strategic approach to asset investment.

8.3 Welcome though this change is, the business planning work carried out as part of the asset commission indicates that there will continue to be a considerable funding gap between the level of investment required in the stock, and what is affordable within the current context. The level of funding gap depends on assumptions about whether, and at what point any revised rent policy is adopted, the standard adopted, the speed of mobilisation and rates of inflation over the next five years. For example, modelling carried out for SHRP indicates that to deliver the Commonly Adopted Standard for all stock, while also incorporating changes from the current consultation on rent policy, indicates that even after adopting the revised rent policy there would remain a funding gap of some £493m by 2022. Without the revised rent policy, this figure would increase considerably dependant on the detail of the rent policy approach adopted.

8.4 The outcome of discussions arising from the Social Housing Reform Programme will be pivotal in determining the availability of sufficient finance to deliver the investment required within a reasonable period of time. In the meantime, this strategy needs to consider how investment decisions are prioritised within this constrained environment.

8.5 The key issues which impact on available investment resources over the next 5 years are projections for landlord income, including the approach to rent increases, and the impact of repaying existing debt. Debt repayments are projected to fall over the next 5 years which will have a positive impact on available investment resources. A rent policy review is being undertaken by DSD through the SHRP and as part of the asset commission work. However recent announcements by the UK Government regarding rents in England have potential repercussions here as they relate specifically to the size of the Housing benefit bill. In order to illustrate the impact of different approaches to rent increase a series of assumptions have been made about future rent setting to enable comparative indicative resource figures to be produced for this strategy.

8.6 The assumptions used in the varying scenarios are as follows:

- that rents would rise by CPI plus 1.5% plus £2 per week (The current proposed DSD consultation position)
- That rents will remain stable in comparison to inflation
- That rents will decrease by 1% over the next 4 years.

For the purposes of the above RPI, as a measure of inflation, is assumed to be 2.5% and CPI 2%

8.7 Whilst SHRP uses 2015/16 as year 1 in its modelling for the purposes of this strategy the position is different. This strategy and, more particularly, the 5 year investment plan will be taken forward on a 2+5 year basis. That is the current year and 2016/17 are both accounted for in terms of the interim investment programme and existing contractual commitments. The new approach described in this document will cover the 5 year period 2017 – 22.

8.8 Using the rent assumptions set out above provides for the following, varying, levels of expenditure going forward:

Table 12: Availability of future resources

Projected resources (£m)	**1**	**2**	**3**	**4**	**5**	**Total**
Year	2017/18	2018/19	2019/20	2020/21	2021/22	
Scenario 1 (Rent increases)	216.1	245.0	270.7	296.9	313.4	**1,342.1**
Scenario 2 (static Rents)	176.1	184.2	188.7	193.1	196.0	**938.2**
Scenario 3 (Rent Decrease)	170.1	175.2	176.8	181.2	184.1	**887.5**

8.9 This Internal financial modelling work carried out as part of the development of this strategy estimates that over the relevant 5 years period a programme totalling anything from circa £890million up to £1,340million could be afforded, very much dependant on the rent approach adopted.

8.10 These sums include the costs of responsive, void, cyclical, external painting and major works. The stock condition survey indicates an investment requirement of almost £2 Billion between now and then. That means if there is no significant change to the existing funding position we could afford around 60% of the identified investment requirement based on the higher rent assumption.

8.11 The significance of the impact of rental increases or otherwise on the available resources for investment is clear from the table. Taking the median position as an example the distribution of this resource across the various investment categories is estimated as follows:

Table 123: Use of Future Resources

Category of activity	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Totals**
	£m's	£m's	£m's	£m's	£m's	£m's
Responsive Maintenance, inc Void maintenance	41.7	41.7	41.7	41.7	41.7	208.5
Cyclical Maintenance, including painiting and repair schemes	32.5	32.5	32.5	32.5	32.5	162.5
Planned Maintenance / Improvement works	101.9	110	114.5	118.9	121.9	567.2
Totals	**176.1**	**184.2**	**188.7**	**193.1**	**196.1**	**938.2**

8.12 This strategy sets out the ambition to bring the long term sustainable stock up to the commonly adopted standard. The reality is of course that carrying out full improvement and modernisation works to every property within a large portfolio over a relatively short period of time will not be realistic, achievable or affordable. The flexing of timing and works is therefore the key consideration in the development of a detailed investment plan.

8.13 Where the asset performance identifies that the long term future of the stock may not be sustainable, options to improve financial performance will be explored and alternative investment options will be considered before decisions are taken to proceed with investment. In order to allow time for these appraisals, this stock is not programmed for comprehensive investment in the early years of our investment plan.

8.14 In the event that structural change is forthcoming as a result of the SHRP, and access to additional resources is secured, this strategy will be reviewed and updated.

Investment planning process

8.15 Section 5 of this strategy sets out the stock condition survey results that show the technical assessment of future investment requirements. This sets out the value of what is required to be spent on all the stock in order to bring it up to the identified standard and to maintain it at that standard long term.

8.16 Section 6 then sets out the position in relation to the evaluation of the performance of the stock.

8.17 Taking these together, the investment planning process then has to consider how this technical requirement is translated into a viable programme of works. This process will involve:

- Taking as a starting point the nature of works identified within the SCS outputs
- Using the evidence from the detailed asset modelling to establish the viability of the properties and, in the process, developing this with more detailed local options appraisals to understand whether investment is sensible and will deliver the best outcomes based on an economic appraisal.
- Any resident priorities to inform periodic review of investment standards.
- An assessment of the energy performance of the stock, using the data from the stock condition survey, to establish which investment adds the most value in terms of improving the energy performance of the properties.
- Matching the emerging programme of works to the available resources identified in 8.7 above.

8.18 This strategy confirms our commitment to bring all our long term sustainable stock up to the Commonly Adopted Standard, a position which assumes there will be a structural change in our financial position arising from social housing reform. However, recognising the existing funding constraints we also need to acknowledge that some elements of the standard may need to be appraised on an individual basis to confirm the impact on the financial sustainability of the overall portfolio. This includes elements of improvements associated with over cladding in Tower Blocks and Non Traditionally built dwellings as well as environmental improvements. The Commonly Adopted Standard also includes allowances for the replacement and repair of existing environmental works. Consideration will be given to the extent of these works that can be delivered within the available funding envelope.

8.19 In order to manage the existing funding position, some works identified within SCS will be deferred in the early years. This will include works associated with improved thermal efficiency through over cladding in Tower Blocks and Non Traditional dwellings, and also deferring elements of environmental improvement. As set out previously, the Commonly Adopted Standard also includes elements of repair to environmental works and these will be prioritised on a health and safety basis within available resources. Beyond this, affordability will need to be managed by limiting internal and external investment work and by prioritising works to maintain fitness and health and safety compliance and to prevent future deterioration of the asset.

8.20 Investment needs to be targeted at the long term sustainable stock. Our first priority for investment planning will therefore be stock which shows a viable financial future, and long term strong demand. The APE model identifies that 44% of the stock shows weak or poor financial performance. The investment plan will set interim investment programmes only on these units until options appraisals are completed and final plans confirmed for the long term future of these assets. The investment planning process will also consider whether any of the stock currently showing strong financial performance faces weak sustainability in terms of long term demand. Investment in this stock may also be deferred until strategies to secure long term demand can be identified.

8.21 Investment planning also needs to make sense at Estate level. Where there is poorly performing stock adjacent to and on the same estate as good performing stock, local options appraisals will be carried out to consider the extent to which the inclusion of investment in the poorly performing stock can be justified by taking a view of the viability of the estate overall. If overall the estate can demonstrate viability, and it makes sense in terms of estate planning and investment programming, then poorly performing stock will be included for investment in the first five years of the plan.

8.22 From the above it can be seen that the process of developing a robust detailed investment plan can be lengthy and complex. Simply taking the results of the survey and dropping them into a plan for delivery would result in investing in some properties that should not be invested in, particularly in light of the outputs from the asset appraisal work. Neither can the stock condition survey simply form the investment plan from a financial point of view as it identifies all requirements, the costs of which currently exceed the available resources. The plan therefore needs to be tailored to fit the available landlord budget.

5 year maintenance and investment plan

8.23 The next key stage of the process is to develop a 5 year investment plan which takes into account the new information available from the work of the asset commission. This will involve a transitional process from where we are now to where we need to be. Over the next two years (2015/16 and 2016/17) the investment approach will comprise of the existing 2012 - 2016 Maintenance Strategy (single element replacement etc) plus the new ‘Interim Investment Plan” agreed by the Board in February 2015. Engineering a change to the new approach will involve not only establishing a new programme of works but putting in place the necessary procurement arrangements to deliver it.

8.24 In this context it is envisaged that a gradual transition in the nature of work carried out will occur over the next two years with years 3 - 7 being the key period in which the 5 year investment plan will deliver, on a new basis, the key priorities identified within the SCS.

8.25 The interim investment priorities agreed earlier this year broadly reflect the priorities identified in the outputs of the SCS and were categorised as follows:

- Mixed Element internal improvements
- Health and Safety Compliance
- Thermal efficiency Programme
- Multi Storey Blocks
- Non Traditional stock
- Roof Replacement/external renewal
- Environmental Improvement Schemes

8.26 The budgetary assumptions described earlier include resources required for day to day repairs and cyclical maintenance programmes which will be budgeted for as a first priority. The value of what is available for programmed investment projects is estimated to total £1,201 million over the 5 year period 2017- 2022.

Investment planning priorities

8.27 This asset management strategy seeks to confirm investment planning priorities that will be applied in the process of developing a detailed long term plan. Set out above is the process of developing a detailed investment plan, which will be taken forward over the coming months.

8.28 The Maintenance Investment Plan 2011 highlighted a number of priorities but concluded that a single element approach to investment works provided the optimum approach at that time. It is proposed to change that approach to one where, if investment works have been identified as viable in a group of properties, as many elements of work as possible which contribute to achieving the agreed standard will be carried out.

8.29 Our Investment Plan for the next five years will focus on achieving the optimum improvement in as many properties as possible in line with the Commonly Adopted Standard.

8.30 In order to achieve this the following elements will form the main work categories in the development of an outline 5 year plan which will then be reviewed and updated with the results of the detailed investment planning process described above:

- A package of Internal upgrading - to include where required, Kitchen replacement, bathroom renewal and internal rewiring
- The standard for this package of works would be intended to ensure the provision of modern kitchens to an enhanced specification in terms of quality and number of units fitted i.e. more than a basic kitchen and, where necessary, changing the layout of the kitchen to provide adequate space. In addition the provision of modern bathrooms including overhead showers and the provision of a minimum number of socket outlets and, where appropriate, adjusting height of sockets as part of the electrical installation, which may necessitate either partial rewiring or full rewiring.
- Provision of full and modern central heating systems which are efficient in use with an emphasis on installation, where practical, of gas central heating systems. Strategically we will liaise with infrastructure supply agents to maximise the potential for this approach

- Completion of window and door programmes across the stock to improve thermal insulation values and to provide modern, secure front and back doors

- External cyclical maintenance – in order to address the backlog of external cyclical maintenance, resources will be targeted to deliver a maximum cycle of 8 years on average across the stock.

- To support efforts in relation to fuel poverty, a targeted programme of improving insulation in properties identified via SCS as having a poor SAP rating

- Emphasis on all health and safety and compliance elements identified within the survey

- A programme of external improvement works with a focus on fascias/soffits and rainwater goods

8.31 In tandem with developing this investment plan we will initiate a significant programme of options appraisals for those assets identified as having poor sustainability characteristics. This will facilitate the requirement to develop long term plans for the sustainability of all assets.

9. Implementation and delivery

Taking the Strategy Forward

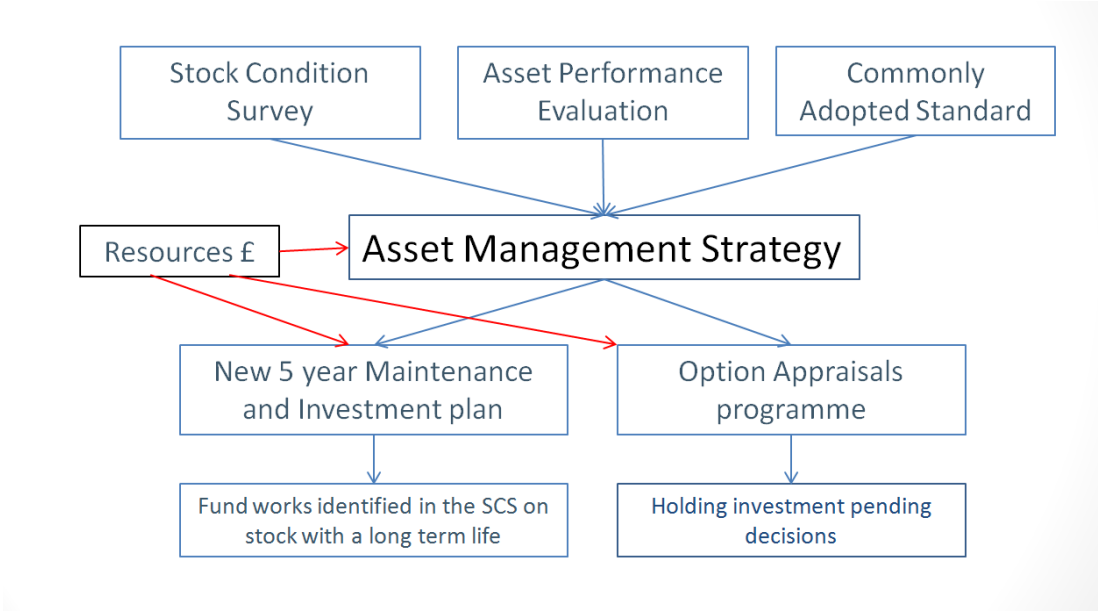
9.1 The following comprise the practical steps we will take in implementing this Asset Management Strategy:

- Using the data provided by Savills, a draft high-level 5 year maintenance plan has been created.
- This output will now be used to develop a more detailed plan that will inform future procurement planning in order that the shift in emphasis to mixed element improvements and, where required, specialised major works programmes can be implemented effectively. These elements of investment will sit alongside the more routine responsive repairs, voids and cyclical works.
- The stock condition data provided in 2015 will be uploaded into our new Asset Management System Database which will be procured in September 2015.
- Detailed programme planning and monitoring will ensure that delivery proceeds to plan and that the new Asset Management Database can provide real-time reporting on works completed, stock condition and progress against investment plans.

9.2 There will be an annual plan identifying stock investment priorities and other elements of the active asset management approach such as a programme of option appraisals and there will be routine reporting to the Board on progress and financial and quality out turns against these plans. Key accountabilities for monitoring and review are set out in the next section.

9.3 Our approach to asset management going forwards is illustrated below:

Figure 4: NIHE Asset Management Approach



Value for money – delivery

9.4 We will, as a matter of routine, consider how best value for money (VFM) can be achieved in respect of this strategy to maximise the use of scarce resources.

9.5 Consideration will be given to whether works will be delivered as “one hit” all in package, separate programmes for internal and external works, an elemental approach or a combination of these options.

9.6 The investment and delivery process will ensure the following:

- That works programmes are affordable within the available budget
- That a programme is mapped out to suit local needs
- That work packages are structured to secure best value for money
- That the capacity and skills of our staff, centrally and locally, are enhanced to ensure effectively delivery of the programme.
- That the external contracting market can deliver the programme

9.7 Works will be programmed wherever possible so that works can be done in sensible geographical locations in order to minimise costs related to set up and preliminaries.

9.8 Benchmarking will be used to verify that all planned programmes are delivering value for money.

Value for money – procurement

9.9 The programme for 2015/16 is already in hand and therefore we will develop a procurement strategy designed to deliver the programme for 2016 – 2021. New and alternative investment and supplier arrangements are anticipated to be in place in 2017/18.

9.10 The detailed investment plan will inform the procurement of work to deliver the programme(s) in the most cost effective way. In order to do this the asset management and procurement teams will take the results of the detailed investment plan and look at how the work can be packaged in such a way that will attract competitive pricing and efficient delivery. They will also schedule the work in such a way that the programme(s) can be delivered realistically. Packaging work correctly and setting out timescales that are realistic will have a major influence on the overall price paid and maximising the benefits of the money set aside for investment in the stock.

9.11 The Procurement strategy being planned for the major investment programme will ensure that Value for Money is its key driver. Correct identification of the works through the stock survey and pre works scoping will ensure the contractors receive sufficient quality information to build a programme based on correct volumes of replacements thus minimising abortive work/visits and unplanned additional costs.

9.12 Appropriate procurement of supplies is one of the most important aspects of value for money and cost control and good procurement can increase profitability enormously.

9.13 The procurement approach is designed to deliver the investment plan, as set out above whilst meeting the following objectives:

- Certainty – meet identified investment Standard and customer needs.
- Deliverability - Meeting required timescales and quality standard.
- Affordability and Value for Money – within the available budget.
- Predictability and Flexibility – to meet future changes in the business.
- Mitigate risk – reduce and contain.

Value for money – return on assets

9.14 We will use the asset modelling work set out in section 6 to determine how limited resources are targeted to deliver maximum return for investment. This will mean giving careful consideration to all investment but, in particular, may result in delaying key investment decisions in stock which is currently performing poorly within the model. A series of option appraisals will be undertaken to determine the most effective course of action in particular estates and /or asset groups. This may mean reviewing the investment standard to be delivered in particular instances and determining the timing of that investment.

Value for Money – Social Value

9.15 In pursuing the aims of this strategy we will include considerations of how our Social Housing Enterprise Strategy, aimed at promoting and supporting social enterprise within our local communities, can be advanced.

9.16 Social housing enterprises can create employment opportunities for those who might otherwise remain unemployed, invest in community-based projects, act to protect or improve the local environment, and provide services which are important and accessible for those who might not otherwise get them.

9.17 The scale of the investment programme will potentially provide opportunities to support these goals, particularly in partnership with future contractors. We will:

- examine ways of ensuring the positive application of Social Value Clauses in our procurement approach in order to build community skill bases.
- explore opportunities for “buying social” procurement of services where appropriate local enterprises exist for example in house clearances, furniture removal and storage, etc

Generating stakeholder support for the asset strategy

Resident involvement

9.18 Community involvement is a cornerstone of our efforts to improve and maintain the sustainability of estates and neighbourhoods. We have proactively promoted local engagement for many years, and have an extensive tenant/resident consultation/participation framework in place including:

- Several hundred local tenants/residents/community groups.

- 13 Tenant Scrutiny Panels, one for each of our Area Offices, setting and monitoring our services at that level.
- Residents and inter-agency partnerships to help develop and deliver local strategies.
- Forums for 'Difficult to Reach' Groups including People with Disabilities, Youth, Rural Community, and BME communities.
- The Housing Community Forum Central Panel which serves as the 'tenant voice' at policy/strategy level.

9.19 Allied to this engagement framework – and often driven through the work of its Tenant Scrutiny Panels and local groups – is our work to monitor tenant satisfaction with our services.

9.20 In taking forward this Strategy we will utilise the existing framework to ensure tenant and community engagement in the processes and decisions which will flow from the strategy. DSD have recently produced proposals for a new tenant participation strategy across Northern Ireland and, in that context, we will consider the need for any changes or improvements that may be required to achieve effective tenant participation in our asset management activities.

9.21 Crucial elements for resident involvement arising from this strategy will include:

- Routinely consulting tenants on any works that we are proposing in their homes and appraisals we are carrying out of their homes.
- Ensuring resident involvement is at the forefront of any small scale stock transfer considerations
- Involving tenants in developing investment standards and priorities
- Examining further the range of services that can be delivered by local groups via Community Service Agreements
- Monitoring resident satisfaction with particular works on their homes and incorporating the results into future programmes.

Other stakeholders

9.22 It is imperative that DSD is aligned with the overarching direction of the strategy, is kept appraised of all key developments and has specific roles in key elements which, over time, will emerge. These would include but not be limited to the need for DSD to approve any proposal for demolition or other type of asset disposal. Similarly DSD must give its consent to tenanted stock transfer proposals.

9.23 Other stakeholders will include the new Councils who receive annual statements setting out investment plans. This is the formal process but, in addition, informally we would routinely consult local elected representatives and involve them in consultation exercises on strategies, proposals, option appraisals, etc.

10. Monitoring and Review

Monitoring

10.1 The Director of Asset Management will be responsible for implementing, monitoring and reporting on the Strategy.

10.2 The Strategy will be reported on at the Director of Asset Management's monthly Performance Review meeting.

10.3 The Director of Asset Management will report on the implementation of the Strategy:

- Bi-annually to the Chief Executive's Business Committee
- Annually to the Board (or as otherwise directed)

Review

10.4 It is intended that this Strategy will have an initial timeframe of five years, with a full formal review carried out in 2020/21.

10.5 However, the strategy may be reviewed at an earlier date as directed by the Board, or as may be required by the introduction of relevant new Ministerial priorities.

10.6 The underlying data and asset and modelling assumptions in the Asset Performance Evaluation (APE) Model will be reviewed at the 3 year mark. This will be facilitated by the following:

- Stock Condition Survey data will be updated via:
    - The capturing and recording of planned, cyclical and response maintenance works by property
    - A rolling annual programme of stock condition surveys
- Actual unit costs and prices for component replacement will be monitored on an ongoing basis and used to update the model
- Trends in response maintenance works and costs will be subject to ongoing analysis, and used to inform investment programmes
- Management costs will be monitored
- Housing demand will be regularly reviewed

10.7 Also included in this review of the APE Model will be:

- an assessment of the Asset Groups structure to ensure - after three years in use - that it provides the most appropriate basis for asset performance modelling and evaluation
- A review of the non-financial (social sustainability) indicators and their weighting to ensure that they remain robust and relevant to our business objectives

Approvals

10.8 Option Appraisals for poor performing stock will be subject to the Regional and Central scrutiny and approval processes already in place.

10.9 Where necessary the option appraisals will be presented to the Board for approval, and further to the Department for Social Development as required.

11. Appendix One: Stock condition overview of NIHE non traditional properties

No Fines

11.1 These properties are built from in-situ poured concrete. They are called no-fines as the concrete mix should be composed of cement, water and aggregate of one size only. They are 2 storey dwellings built between 1950 and 1979 using proprietary concrete systems. Half of these are deemed to fail the thermal comfort criteria.

Timber Framed Construction

11.2 These are system built houses constructed 1970 to 1980. They are mostly brick clad however some have tile cladding or sheeting to outer skin. Much of construction was completed off-site. The homes were more energy efficient than standard homes built at the time. The main structure of the dwelling is a carcass of timber framing with plywood and insulation. An external skin of brickwork is usually added. The insulation level of below 50mm is below the present standard required but it would be difficult to top up. Insulation has been added in the roofs of these dwellings.

Orlit

11.3 An Orlit is a prefabricated concrete frame and panel patented construction system built post war. There a 2 storey and single storey orlits called 'Ulster cottages'. They were built between 1947 and 1957. Major improvements were undertaken circa 20 years ago. At the time of construction they were thermally inefficient.

11.4 There are a small number of proprietary concrete systems called Gregory and Dorran. Single storey orlits (Ulster Cottages) are also concrete frame and infill panel construction. They are generally in pairs with a door on each gable. The internal layout is poor.

11.5 In their original form all of these properties are designated defective under the Housing Defects Act.

Cross-Wall

11.6 Cross-wall construction is so called because the front and back walls are of a different construction to the gable and party walls. They were built 1963 - 1975 the party walls are brick or no-fines concrete. All were constructed using a combination of on-site construction and off-site prefabrication with some panels constructed in Harland and Wolff. The original timber and composite fronts and backs had little insulation, were single glazed and used a great variation in the quality of timber. Some have been reinstated as conventional houses. They are unlikely to meets today's energy's standards. Maintenance of these properties has proven particularly challenging because the kitchen units are built into the external wall structure.

Aluminium Bungalows

11.7 These property types were constructed between 1948 and 1951. They were designed with a 60 year life. A comprehensive programme of upgrading of the internal linings and partitions was undertaken to improve fire safety, this improved the energy efficiency and air leakage of the bungalows. Of the original elements that remain the roofs and walls have reached the end

of their useful life, different approaches to re-roofing have been taken across the stock. Many of these properties have had structural repairs and over cladding undertaken to them.

Wilson Masonry

11.8 This construction consists of a single wall of hollow block 200mm in depth. The blocks are large and difficult to lay. There are two steel bars for handles in the blocks; it was thought that these would corrode and encourage rain penetration if the walls were cavity filled. This doesn't appear to have been a problem in the one estate which did receive this measure.

11.9 Whilst some repair work has been undertaken to the non-traditional properties contained within the NIHE portfolio, the vast majority of properties remain in their original form. As a consequence the recommendation would be to undertake any necessary repair work to the structure followed by overcladding. Unlike the tower blocks, Savills has not been commissioned to undertake detailed structural investigations into the condition of the non-traditional properties. Savills has therefore made an allowance for each non-traditional property type for repairs and over-cladding, with the costs based on our experience in other jurisdictions. Many thousands of these properties have been repaired over the years and there is lots of benchmark information about the costs involved.

11.10 Savills have set out below a summary of the non-traditional property types contained within the database, the budget costs that we have allowed for repairs and overcladding, together with a brief comment against each type.

Table 13: Non traditional property type and estimated costs for exceptional work

	Per unit			
Type	**Bungalow**	**Flat**	**House**	**Comments**
Aluminium Bungalow	£20,000			Repairs to structure followed by overcladding
Cross Wall		£7,000	£12,000	Repairs to structure followed by overcladding
Cross Wall Gregory			£19,000	Repairs to structure followed by overcladding (these properties contain some pre fabricated reinforced concrete
Cross Wall Timber Frame	£10,000		£12,000	Repairs to structure followed by overcladding
Dorran			£20,000	These are PRC properties which are designated defective - they need repairs to the structure followed by over cladding
Easiform / No Fines	£10,000	£7,000	£12,000	Some repairs required (generally to defective lintels) followed by overcladding
Easiform Laings			£12,000	Some repairs required (generally to defective lintels) followed by overcladding
No Fines	£10,000	£7,000	£12,000	Some repairs required (generally to defective lintels) followed by overcladding
No Fines Cross Wall	£10,000	£7,000	£12,000	Some repairs required (generally to defective lintels) followed by overcladding

	Per unit			
Type	**Bungalow**	**Flat**	**House**	**Comments**
Orlit	£20,000	£17,500	£35,000	These are PRC properties which are designated defective. They need repair (particularly the concrete beam structure on the first floor) followed by overcladding
Tarran or Dorran	£15,000			These are PRC properties which are designated defective. Repairs to the structure followed by over cladding
Timber Framed	£10,000	£7,000	£12,000	Repairs to structure followed by overcladding
Timber Framed / Liverpool			£12,000	Repairs to structure followed by overcladding
Timber Framed/Trusteel			£20,000	Steel frame houses with potential corrosion. They need any necessary repairs carried out followed by over cladding
Ulster Cottage	£11,000			These are like Orlit properties and hence contain PRC components which need repair, followed by over cladding
Wilson Masonry	£13,500	£10,000	£20,000	Issues with the ties between the cavities in these properties - they need repair followed by overcladding

11.11 The total costs associated with the exceptional work to Non traditional properties are estimated at £109million.

Future investment need – non traditional construction

11.12 The average 30 year costs associated with properties of non traditional construction, included in the tables in section five is £53,165. This represents stock condition costs and works to deal with issues relating to non traditional construction. The equivalent average for the whole stock for major repairs only which is £42,301[10]. The average costs per property ranges considerably by non traditional construction type from over £76,800 for Trusteel and Orlits, to under £47,800 in the case of Cross Wall construction type and a little over £51,100 per property for No Fines .

11.13 This shows the concentration of investment requirement linked to high numbers of no Fines properties across all areas, Orlits in West Belfast and Timber Framed in the Western Area, North Region.

11.14 When stock condition costs are viewed on an average per property basis this identifies where there are high concentrations of investment need at individual properties. High cost individual properties include

- Orlits in all areas
- Aluminium bungalows in the Lisburn & Castlereagh area, and the West area of the North Region

[10] Programme renewals Commonly Adopted Standard total £3.7bn divided by 87,439 units

- Trusteel timber framed properties in South & East Belfast
- Ulster Cottages in Lisburn & Castlereagh
- Cross wall Gregory properties in the South area of the South region

Financial analysis - Non traditional homes

11.15 The table above includes the results for homes of non traditional construction. When analysing results for these homes separately, the results show that the 30 year net present value (NPV) of the non traditional stock is -£76.2m, representing an average value of minus £8360 per home.

11.16 The range of performance across the different asset groups varies from minus £34,947 to £8,662. Key factors that drive this performance variation include

- Rates of future investment need per unit, which range from an average of just under £40,000 to £90,000 per unit once all major works costs are taken into account including stock condition, asbestos, FRA and external painting. Again, the equivalent average for the whole stock of these elements is around £54,273.
- Low rents in No Fines flats, although these often have lower stock condition costs compared to other elements of the non traditional portfolio.
- Above average voids in some asset groups, particularly in Timber Frame properties in mid Ulster, the West area of the North region, and no Fines flats in North Belfast
- Estimated future repair costs which vary from £732 per unit to £795 per unit compared to the average for the whole stock of £760. The variation is driven by an analysis of historic responsive repair expenditure needed in this stock. In general historically this stock has had lower average costs for responsive repairs than for the whole stock, with only 16% of non homes having higher than average historic repair costs.