

**Environment & Transport Committee****5 October 2015****Strategic Case for Upgrading Streetlighting with LED Lanterns**

RD-10-15-F

Executive Manager - Roads**Infrastructure Services Department
/ Roads Service****1.0 Summary**

- 1.1 The purpose of this report is to inform the Committee of an investigation into the proposed replacement of the “conventional” lanterns on Shetland’s streetlights with more energy efficient Light Emitting Diode (LED) lanterns.
- 1.2 The benefits are significantly reduced energy use with the resulting long term cost savings and reduction in the Council’s carbon footprint.

2.0 Decisions Required

- 2.1 That the Environment and Transport Committee APPROVE the development of a Service Need Case for consideration under the Council's Gateway process for capital project prioritisation, for an LED street lighting replacement programme, to deliver energy savings, replace failing infrastructure and reduce carbon emissions.

3.0 Detail

- 3.1 Streetlighting Inventory
The streetlighting asset consists of lanterns, lighting columns, cabling, ducts, feeder pillars, illuminated signs and illuminated bollards. There are approximately 3,900 streetlights on the roads inventory which are spread throughout Shetland. This does not include the external lighting of public buildings, leisure centres, ferry terminals or piers, which are looked after by other services within the Council or Shetland Recreational Trust. However, the majority of the Council’s share of this additional lighting is also included in the proposed LED upgrade.
- 3.2 Existing LED Lanterns
The Roads Service installed 6 LED lanterns in Bank Lane in 2010/11 and they have operated without fault to the present time. In the past

couple of years the Roads Service has installed another 125 LED lanterns throughout Shetland, during routine maintenance operations, when replacing “conventional” lanterns that have reached the end of their useful life.

3.3 Streetlighting Asset Condition

The relatively poor condition of the existing asset would indicate that over the years there has been under investment in streetlighting maintenance. The majority of columns were installed 25 or more years ago and are now showing the level of wear and tear to be expected from long term exposure to Shetland’s climate. The consequence is that a number of columns have had to be removed for safety reasons. Unfortunately, the existing streetlighting maintenance budgets are insufficient to allow the immediate replacement of all of these removed columns.

3.4 Existing Streetlighting Savings Policy

The recommendations made following a review of the Council’s streetlighting were approved at a meeting of this Committee on 29 October 2012. (Min Ref: 30/12) This introduced a savings policy “that manages the reduction of streetlighting through risk assessment so as to retain lighting at locations where it is most needed.” This has been implemented through the complete removal of lighting from some areas and the introduction of part-night lighting in others. The possibility of making carbon and cost savings through the installation of more energy efficient LED lanterns was discussed at this time. However, it was ruled out due to the high initial cost of implementing that savings option and the lack of available capital funding.

4.0 **Proposal**

4.1 The Scottish Futures Trust is an independent company, established by the Scottish Government with a responsibility for delivering value for money across all public sector infrastructure investment. They have developed a model, the “Streetlighting Financial Toolkit,” for “assisting Local Authorities to assess the impact of investing in energy efficiency measures within their streetlighting asset.” This includes the financial savings to be made from the replacement of “conventional” lanterns with modern LED technology. Therefore, it can be used to assist an initial feasibility assessment for development of the Service Need Case.

4.2 The model shows, at this initial stage, that there may be a viable business case for the wholesale updating of the Council’s external lighting asset with LED lanterns to be funded from the cost savings achieved from the new technology. LEDs use almost 50% less energy than their conventional equivalent which is an important consideration in light of rising electricity rates. The worked example of a replacement street lighting programmes is attached in Appendix 1 to evidence that an escalated LED replacement programme has demonstrable merit for delivering financial and carbon savings .

4.3 Column Replacement

Further investigation of the model indicates that there is also the potential to fund the replacement of lighting columns. It would appear from initial modelling that there may be the potential to replace up to 40% of our lighting columns.

4.4 Actions Required

Electrical testing and structural inspection of the lighting circuits and columns is required before the proposal can proceed further. This is essentially a check that the lighting circuits comply with the wiring regulations and that the columns are structurally sound. It will be done in conjunction with a survey to update the streetlighting inventory. These actions are necessary to allow detailed modelling of the upgrading and replacement programme and thereby allow the calculation of the costs for various options. The chosen option will be refined further for use in the full or final service need case.

5.0 Implications

Strategic

- 5.1 Delivery On Corporate Priorities – The local outcomes from Shetland’s Single outcome agreement include “Shetland stays a safe place to live, and we have strong, resilient and supportive communities.” Improvements to the reliability of the streetlighting network would in certain areas have direct implications for road safety.

A further local outcome that is particularly relevant to streetlighting condition is “Our internal and external transport systems are efficient, sustainable, flexible and affordable, meet our individual and business needs and enable us to access amenities and services.”

An outcome relevant to the reduction in CO₂ production is “We deliver sustainable services and make sustainable decisions, which reduce harmful impacts on the environment.”

5.2 Community /Stakeholder Issues

The proposed upgrading of our streetlighting network would, on certain areas, improve the safety of road users.

- 5.3 Policy and/or Delegated Authority – The Council’s Scheme of Administration and Delegation provides authority for each functional Committee to discharge the powers and duties of the Council within their own functional areas in accordance with the policies of the Council, and the relevant provisions in its approved revenue and capital budgets.

- 5.4 Risk Management –There is a risk of significant disadvantages with the unplanned removal of streetlighting due to the structural “failure” of columns. Possible consequences are an increase in night-time accidents, reduced social inclusion, and an increase in crime and in the fear of crime. It should be noted that the former in the event of an increase in insurance claims may lead to an increase in settlement costs.

- 5.5 Equalities, Health And Human Rights
No implications.
- 5.6 Environmental - Government has recently designated energy efficiency as a National Priority. Streetlighting is a high energy user. Our current streetlighting requires frequent maintenance and is not of the most energy efficient lighting type. By carrying out these improvements we will both reduce our energy usage and reduce our carbon footprint in terms of Council policy to support the Council's Carbon Management Plan. National Government is currently supporting external funding to deliver street lighting changes throughout Scotland as these works are an easy hit in delivering the national carbon reduction agenda. By implementing these changes locally Council will be supporting the national and local carbon reduction agenda and will also be seen to be delivering the national energy efficiency priority agenda.

Resources

- 5.7 Financial – The cost of staff time to undertake preliminary design work and costings for the proposals will be met from existing approved staffing budgets. The electrical testing and structural inspection, required before the proposal can proceed, would be funded from existing roads budgets. The total cost of this is estimated to be in the region of £50,000.
- 5.8 The full cost of the project described in the report is in the region of £2.2m and the Scottish Futures Trust model demonstrates that the resultant savings in energy, maintenance and inspection costs may be capable of funding this project. The costs will be clarified in the service needs case following the survey.
- 5.9 The financial implications, including the best funding option for this project, will be fully explored and determined by the Executive Manager - Finance.
- 5.10 Legal – The Council's statutory duties are defined by Section 35 of the Roads (Scotland) Act 1984 which requires that *"a local roads authority shall provide and maintain lighting for roads, or proposed roads, which are, or will be, maintainable by them and which in their opinion ought to be lit."* Should the Council be of that opinion, lighting must be provided.
- The Climate Change (Scotland) Act 2009 imposes ongoing duties on the Council. In exercising its functions the Council must act (a) in the way best calculated to contribute to the delivery of emissions reduction targets, as specified in the Act, (b) in the way best calculated to help deliver any programme setting out Scottish Ministerial objectives in relation to adaption to climate change and associated matters and (c) in a way that it considers is most sustainable.
- 5.11 Human Resources – None.
- 5.12 Assets And Property – Implementation of the Replacement Programme would not result in any increase of asset within the public road network. The existing asset would be improved, becoming more resilient with an

increased design life in comparison to the existing columns and lanterns.

6.0 Conclusion

- 6.1 This report is for the Committee to confirm their approval of the development of a Service Need Case for an escalated replacement programme of “conventional” lanterns with energy and carbon efficient LED lanterns.

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25 September 2015

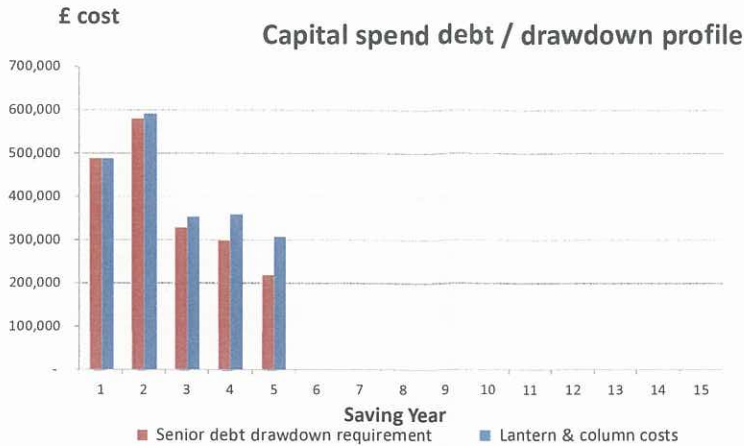
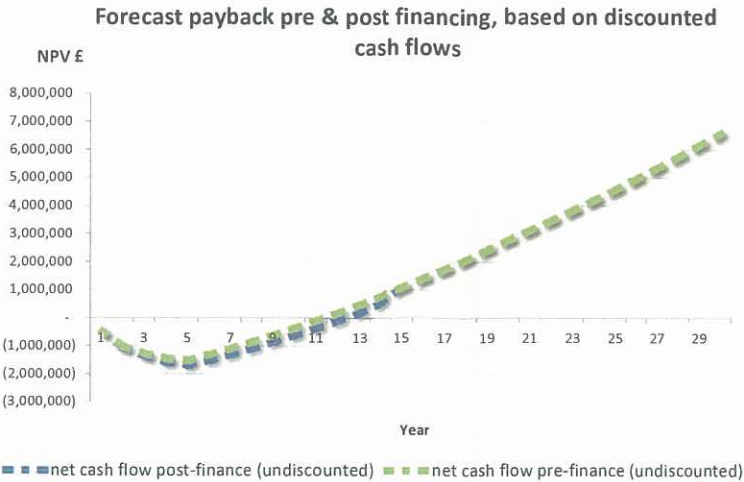
Appendix - Indicative example of using the Green Loan formulae

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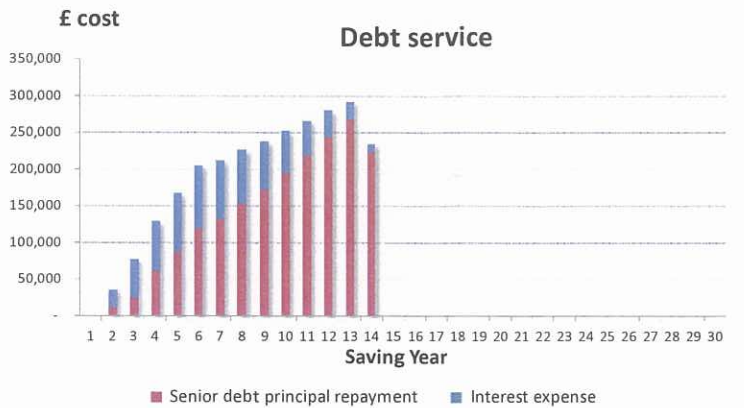
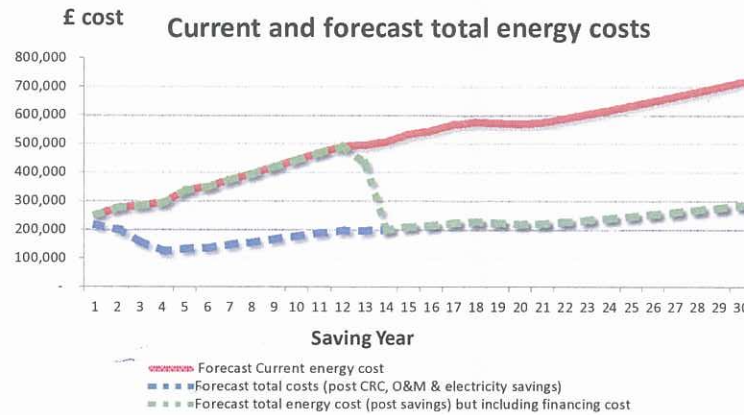
Fin Summary

LED
Base
Lantern & column costs

KEY OUTPUTS	Total	unit
Capital related		
Lantern only cost	752,560	£
Lantern & column costs	2,098,960	£
Lantern, column & sleeving costs	2,098,960	£
	2,230,010	£
Lantern, column, sleeving & CMS costs		
Fundable debt level from savings	3,955,894	£
Capital funding (if applicable)	-	£
	14,865	tonnes
Total CO2 emission over life of project		
Abatement cost	141	£ per tonne
Savings passed centrally		
Year 1 savings to be received by council	-	£
Total savings to Council over project life	-	£



TOTAL AND YEAR 1 PROJECT CASHFLOWS / SA	Total	unit	Year 1
Length of operations	25	years	
Length of project inc. construction timescale	30	years	
Value of Electricity saving / (cost)	6,450,212	£	22,367
CRC annual saving / (cost)	772,133	£	1,748
Forecast maintenance (cost) / saving	1,711,322	£	12,638
Forecast Council (cost) / saving	-	£	-
Forecast lifecycle expenditure	-	£	-
Total savings	8,933,667	£	36,754
Senior debt principal repayment	(1,911,833)	£	(12,388)
Interest expense	(708,550)	£	(24,366)
Net operational savings / (costs)	6,313,284	£	-
Current forecast energy cost	15,191,836	£	252,940
% energy saving	58.81%		14.53%
Payback period (post-financing)	13	years	
Payback period (pre-financing)	11	years	
Overall Net present value of project	1,648,226	£	
NPV / Capital ratio	0.7	ratio	



ECONOMIC ASSUMPTIONS	Input	Unit
Financial forecast start date	01 Apr 14	date
First financial year	2015	year #
Months per model period	12	months
Financial year end month number	3	month #
Month end date from when savings start to be made	31 Mar 15	date
Length of project inc. construction timescale	30	years

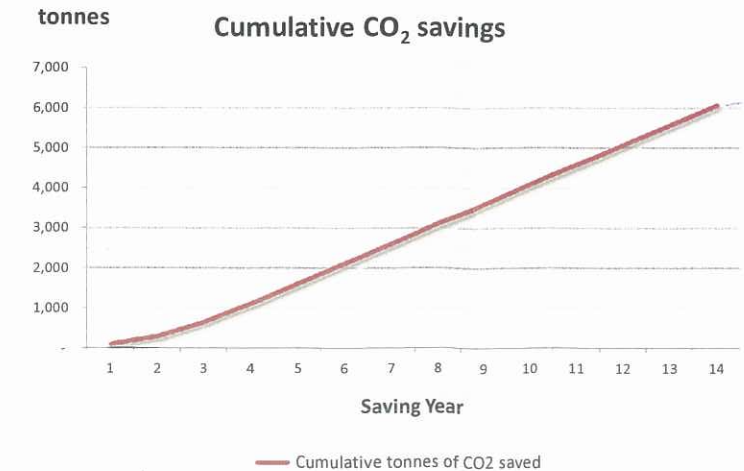
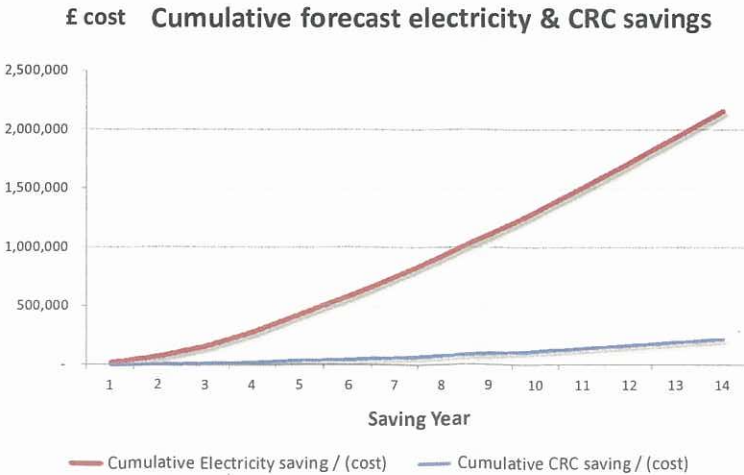
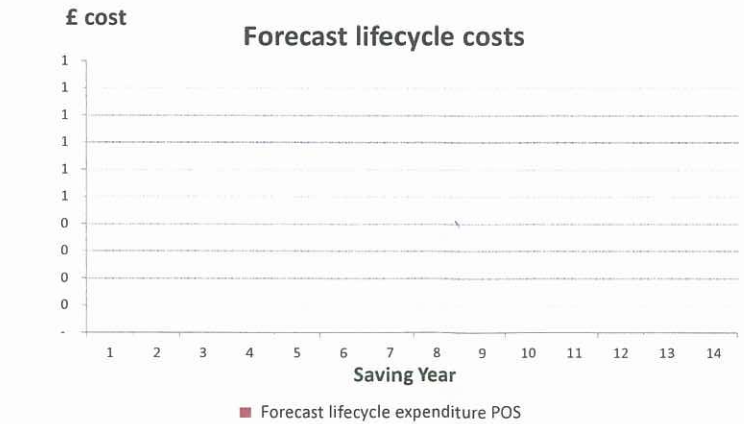
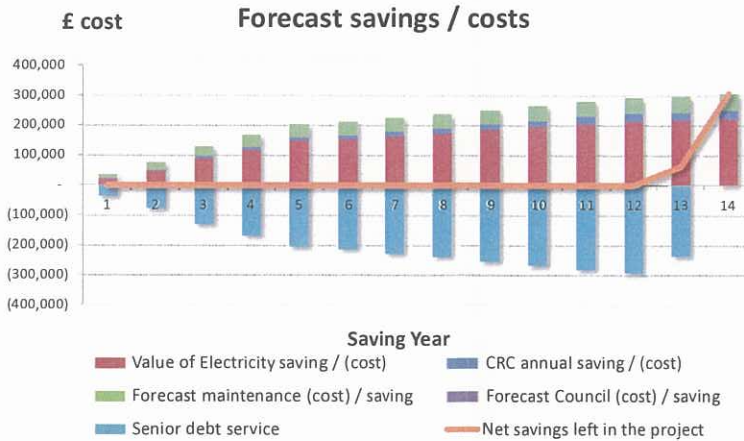
INFLATION AND SAVINGS	Input	Unit
Assumed general inflation Rate	2.50%	%
Year 1 savings to be received by council	-	£

CURRENT ENERGY COSTS	Input	Unit
Base current cost of Electricity	224,793	£

FUTURE ELECTRICITY REQ'T	Input	Unit
Future Electricity allowance (additional assets)	-	%

BASE ENERGY UNIT COSTS	Input	Unit
Base unit cost of Electricity	0.1060	£/kWh

CHECKS SUMMARY	Input	Unit
Total funding equals 100%	OK	check
Debt repaid by end of concession	OK	check
Operation end date no more than 25 years from year of upgrade	OK	check
External debt meets drawdown requirement (if required)	OK	check
Column count before and after	OK	check



**Environment & Transport Committee****5 October 2015****Shetland's Hydrogen Potential: Update Report****EO-07-15-F**

Executive Manager – Estate Operations

Infrastructure Services Department

1.0 Summary

- 1.1 The purpose of this report is to update and inform the Environment and Transport Committee of the development potential for low carbon fuels, specifically hydrogen, to offset the current consumption of fossil fuels and to confirm the political support for the hydrogen production facility project. The Council's Carbon Management Plan set out the need for radical thinking to create the shift to deliver the level of carbon reductions to meet carbon reduction targets within the 2020 deadline. It set out a broad outline of a potential Hydrogen Infrastructure Model shifting Council operations away from fossil fuels. The proposed hydrogen production facility project is building on that vision in the Plan, so if the external funding bid is successful it would be the first step towards that radical change in direction following the adoption of the Carbon Management Plan.

2.0 Decision Required

- 2.1 Environment and Transport Committee are asked to CONFIRM their support to develop a hydrogen production facility in Shetland to enable the evaluation of the feasibility of Hydrogen Production and its wider market potential.

3.0 Detail

- 3.1 The Council's Carbon Management Plan has set targets for reducing carbon emissions from the Council's estate. In support of the carbon management strategy and the overarching aim to reduce our carbon footprint, a feasibility study and demonstrator project that proposes to use hydrogen produced from sustainable energy sources to supply and run a series of trial installations at the Council's Gremista Works Depot is being developed.

- 3.2 Shetland benefits from one of the best wind resources available in the UK, and the Council has long term ambitions to utilise this vast potential wind energy to produce hydrogen locally. The Carbon Management Plan described this vision and there is now an opportunity to take a step towards its realisation.
- 3.3 Estate Operations are currently drafting an application for funding support to develop a hydrogen production facility in Shetland at the Council's Gremista depot. This funding bid is being developed with support from Highlands and Island Enterprise (HIE).
- 3.4 In addition, the Carbon Management Team provided support and advice to a local community organisation, the Unst Partnership, to evaluate and analyse the potential market for locally produced hydrogen. Unst Partnership received £25K from the Scottish Government to undertake a Feasibility Study/ Market analysis.
- 3.5 Unst Partnership appointed PURE Energy Centre as a consultant to undertake this work. The outcome of the feasibility work will be freely available as a stipulation in the Scottish Government funding award.
- 3.6 Both of these projects would be a catalyst to the local manufacture and use of hydrogen, with a potential export market becoming available. As the demonstrator equipment will be located at the Gremista depot it could be viewed by many other locally based potential partners and would be an excellent market stimulant for moves to a hydrogen economy.

Drivers

- 3.7 The primary drivers for these developments are energy efficiency and sustainability. At present the Council has an urgent need to replace several inefficient and life expired oil fired boiler installations across the islands, with an overall requirement to replace around 15 installations over the next 10 years.
- 3.8 Due to the remote nature of Shetland, transport is also a major contributor to the overall carbon footprint of the islands. The Council also seeks to implement alternative low carbon fuels in its land based vehicle fleet and in its 12 strong marine fleet of inter islands ferries, the second largest fleet in Scotland.
- 3.9 Given our duties to reduce our carbon footprint, in recent years we have already converted several Lerwick based buildings to run on the waste to energy powered local district heating system, whilst two rural facilities run on biomass with a third under construction.
- 3.10 While biomass installations are cheaper to run and reduce our carbon footprint, their widespread adoption within Shetland does not wholly stack up when shipping and transport costs are taken into account.
- 3.11 The Carbon Management Plan demonstrates that the correct solution for Shetland is the adoption of a diverse energy supply and distribution system that makes full use of all renewable technologies and outputs.

- 3.12 An autonomous fuel source, capable of local on-islands production and storage, based on a local resource in plentiful supply (i.e. wind) would in our minds offer the islands a sustainable and low cost, self sufficient solution. Any intermediate step to natural gas would also be considered should the option become available.

Project Deliverables

- 3.13 The Council's Gremista Depot is the main base for the Council's Roads, Estate and Housing Services. It houses the workshops, stores and offices that service and maintain Shetland's 1,049km road network; 125,325m² built estate; approximately 1,800 Council houses and 285 vehicles. The depot issues around 520,000 litres of diesel per year from our bulk fuel facility and consumes 565,834 kWh of energy per year
- 3.14 **Phase 1** of the project will look into the commissioning of a feasibility study to evaluate the suitability of the Gremista site for the proposed development.
- 3.15 Concurrently it is intended to develop an educational and training programme to raise awareness within the Council, our service partners and the wider community on the potential uses of renewable energy and hydrogen technologies. The aim is to further develop the local skill base to integrate and embed such technologies into the long term asset investment programmes.
- 3.17 **Phase 2** would incorporate the installation of a renewably powered hydrogen production and storage system serving the Council's Gremista Works Depot along with the establishment of a combined heat and power plant and a small scale hydrogen refuelling infrastructure.
- 3.18 From discussions with PURE Energy Centre it has been suggested that a modular approach should be applied to the hydrogen production facility which will allow the system to be adapted in the future to accommodate increased demand.
- 3.19 The immediate end use of the hydrogen produced from the hydrogen production facility will be to provide fuel for a hydrogen combined heat and power plant. Future users of hydrogen are expected to be the Council fleet, in conjunction with the ongoing fleet replacement programme as the market sector matures.
- 3.20 The design of the hydrogen combined heat and power plant (CHP) will require detailed consideration in order to ensure that sufficient electricity/thermal energy can be obtained to meet the demand of the buildings.

Timings

- 3.21 The hydrogen production facility funding bid will be submitted by late October with a view to commencing production in late 2016/early 2017.
- 3.22 The Unst Partnership project to analyse the potential market for hydrogen is ongoing and is scheduled to be completed by March 2016, after which further projects may be developed as bids for external funding.

Potential Future Developments

- 3.23 These installations would allow us to test and evaluate the economic and technical feasibility of the hydrogen production and supply chain at one compact site and would inform our rollout plans across the estate and communities in general. Other renewable power sources i.e. solar could also be harnessed and evaluated.
- 3.24 Subsequent phases of this project would explore the establishment of community based hydrogen production infrastructure and supply chains, as detailed in the Carbon Management Plan and the attached Vision in Appendix 2. It will also inform the Council's ongoing planned replacement programme for the built estate, fleet and ferries and could ultimately see the installation of systems that would form the basis of community hubs. Clearly the phases beyond the demonstrator project rely on the availability of suitable external funding streams and achievement of successful funding bids (including the demonstrator project bid itself) before these phases could be implemented as detailed in Appendix 3.

4.0 Implications

Strategic

- 4.1 Delivery On Corporate Priorities – Fulfilling the Public Bodies Duty to tackle climate change through carbon reduction is a core priority for Council and our community planning partners. It delivers an action within both the Single Outcome Agreement and the Community Plan.
- 4.2 Community /Stakeholder Issues – As Shetland is a high hydrocarbon user a successful hydrogen demonstration project based near Lerwick could be used as a catalyst for large scale community movement to a low carbon economy.
- 4.3 Policy And/Or Delegated Authority – In accordance with Section 2.3.1 of the Council's Scheme of Delegation the Environment and Transport Committee has responsibility for discharging the powers and duties of the Council within its functional area.
- 4.3 Risk Management – The risks associated with the market analysis being undertaken by the Unst Partnership analysis are fully covered through the projects funding mechanism.

The potential funding bid for locally produced hydrogen also requires a full analysis of the risk to be part of the submission process. The main risk at this stage is that the data on which the calculations are based may be flawed.

However care has been taken to ensure that the business case is based upon the best available local, national and international data and examples of best practice.

- 4.4 Equalities, Health And Human Rights – In general the move to a low carbon economy will support the communities health and by possibly reducing the costs of fuel will assist those sectors of society currently affected by high fuel costs.
- 4.5 Environmental – Climate change is a major environmental challenge. Demonstration projects on the use of hydrogen as a fuel alternative would support the move to a low carbon economy and limit the impact on the environment of continued use of fossil fuels.

Resources

- 4.6 Financial – The feasibility/market analysis and the hydrogen production facility will be fully externally funded through European funding with the required match funding element to be funded from the Central Government Low Carbon Implementation Transition Project. A bid is being prepared for submission by the end of October.. The project will not proceed if the external funding bids are not successful.

Any successful application of hydrogen technology would assist Council to reduce its energy costs by moving away from fossil fuels with associated reductions in Carbon payments to the Department of Energy and Climate Change and assist us in our carbon reductions.

The demonstrator project will replace the existing ageing heating system at Gremista which would enable the ongoing maintenance costs for the new technology to be met from the existing maintenance budgets, as it will replace old and obsolete equipment. Whilst it is recognised that with any developmental technology there is a risk that its uniqueness will increase maintenance costs, it would replace an old heating system which has an escalating repair cost. The maintenance of new equipment, even when it is a developing technology, should be less than the cost of maintaining ageing infrastructure.

The cost of the analysis work by the Unst Partnership will be £25K which has been funded by a successful bid to Scottish Government.

Initial estimates for the installation of the production facility are in the region of £530,000 and informal discussions have been held with PURE Energy Centre regarding suggestions on system design. These costs are all included in the external funding bid.

Phase 1	Feasibility & Design	40,000
Phase 2	Detailed Design, Statuary Consents	25,000
	Hydrogen Electrolyser, Containerised	85,000
	Hydrogen Compressor	50,000

	Hydrogen Storage Facilities	70,000
	CHP Plant - Hydrogen Combustion Engine	55,000
	Hydrogen Refuelling Station	125,000
	Civil Works	80,000
	Total	530,000

- 4.7 Legal – These projects support Council in fulfilling its public bodies duties under the Climate Change (Scotland) Act 2009.
- 4.8 Human Resources – Significant up-skilling would be required to support this development, particularly in working with hydrogen and other gasses. In addition to providing local apprentice opportunities, any move to hydrogen production would support any intermediate step to other forms of natural gas powered plant and equipment should they become available. As described in 3.15 the education and training programme included in the feasibility project phase will develop the skill base within our employees and the wider community.
- 4.9 Assets And Property – Demonstration projects showing a transition to a low carbon economy will assist Council to reduce the burden of energy costs arising from the operation of the Council's assets.

5.0 Conclusions

- 5.1 This report advises the Environment and Transport Committee that developments are underway to deliver the radical shift described in the Carbon Management Plan through an externally funded demonstration hydrogen project within Shetland and, following the quantification of demand by the Unst Partnership, potentially market hydrogen as viable within a wider Shetland energy mix which would be an important milestone in the transition from fossil fuels.

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25 September 2015

List of Appendices

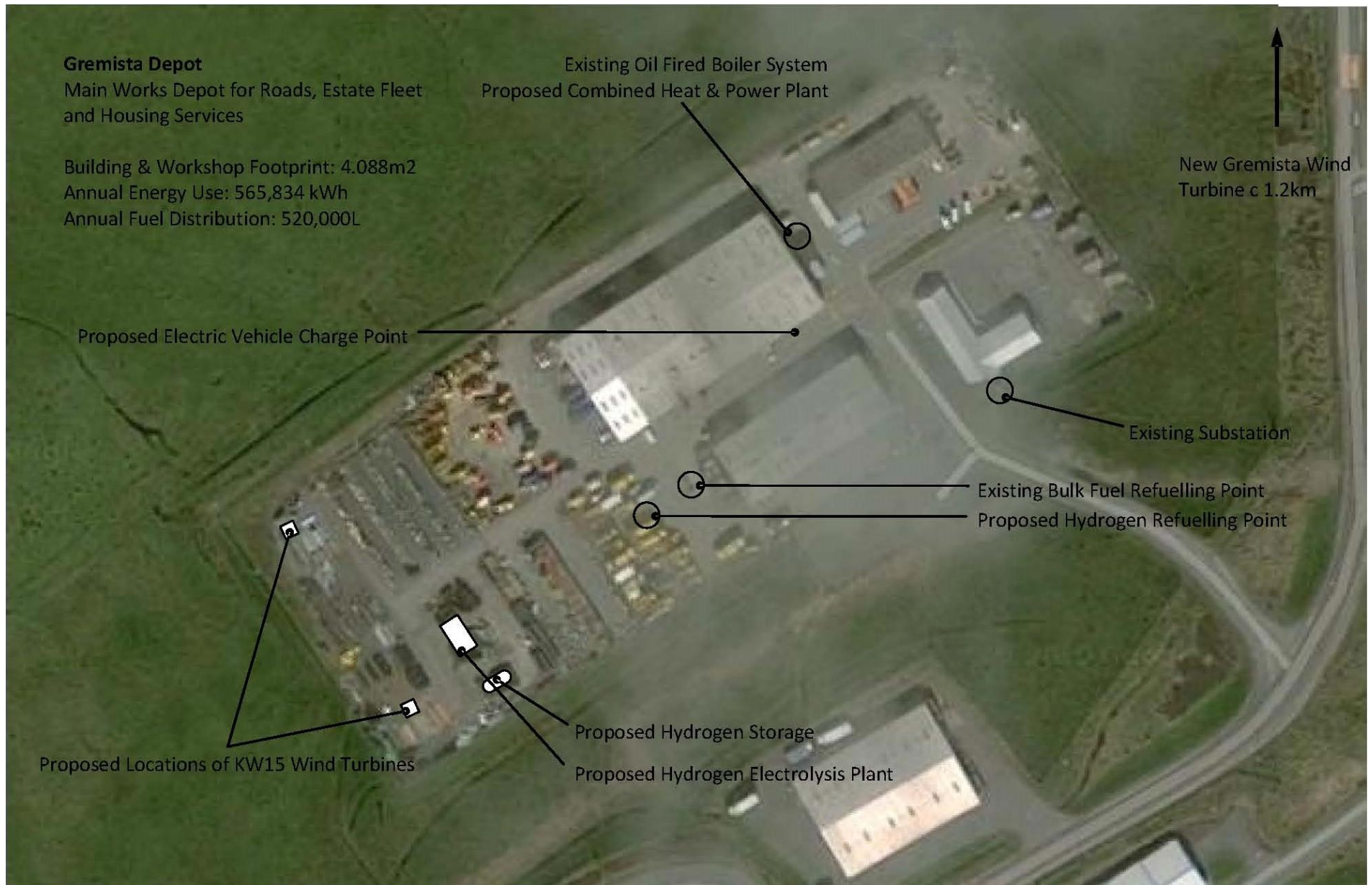
Appendix 1 – Hydrogen Production Facility

Appendix 2 – Key Infrastructure Model

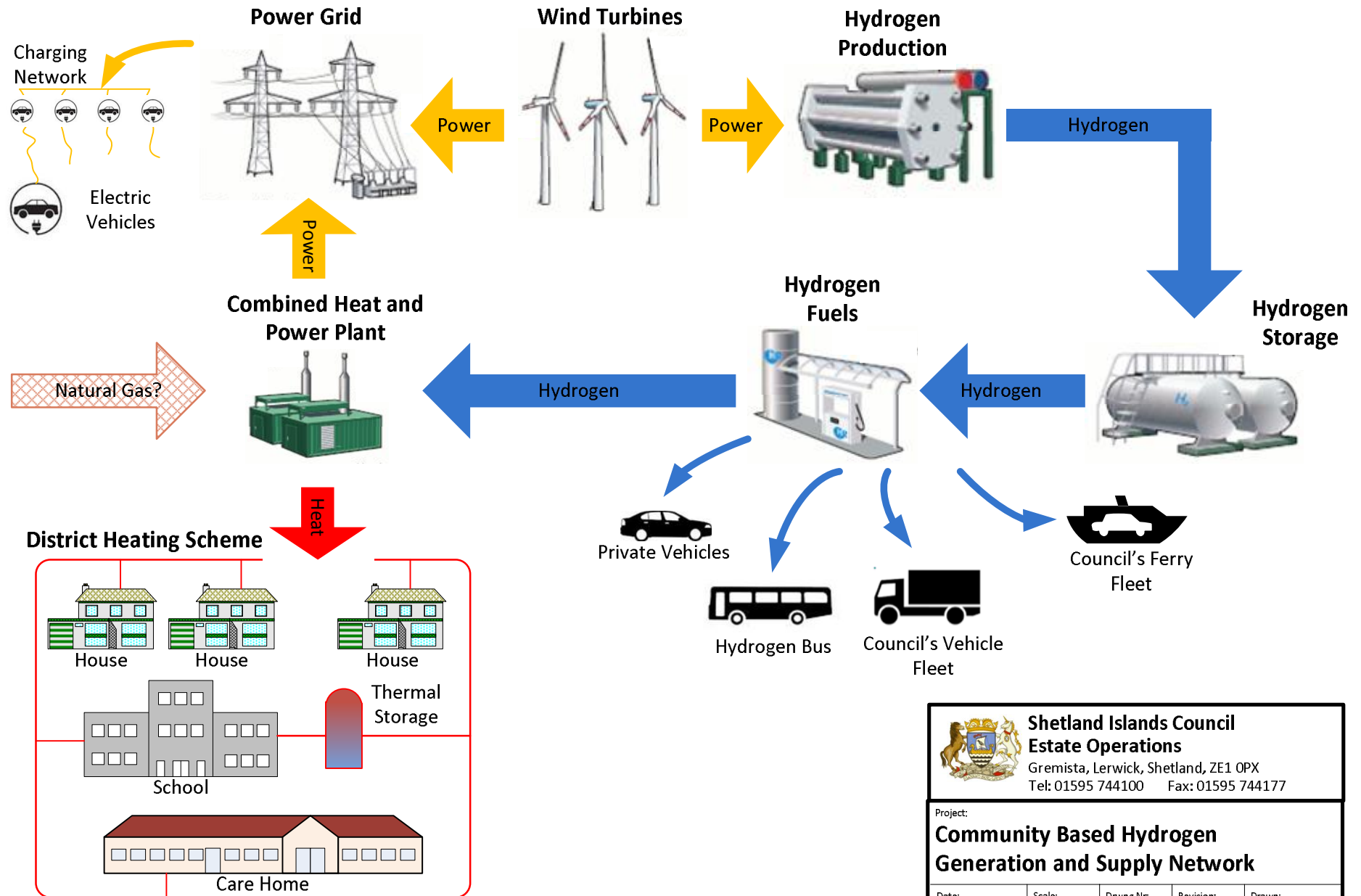
Appendix 3 – Project Timeline

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Appendix 1 – Hydrogen Production Facility

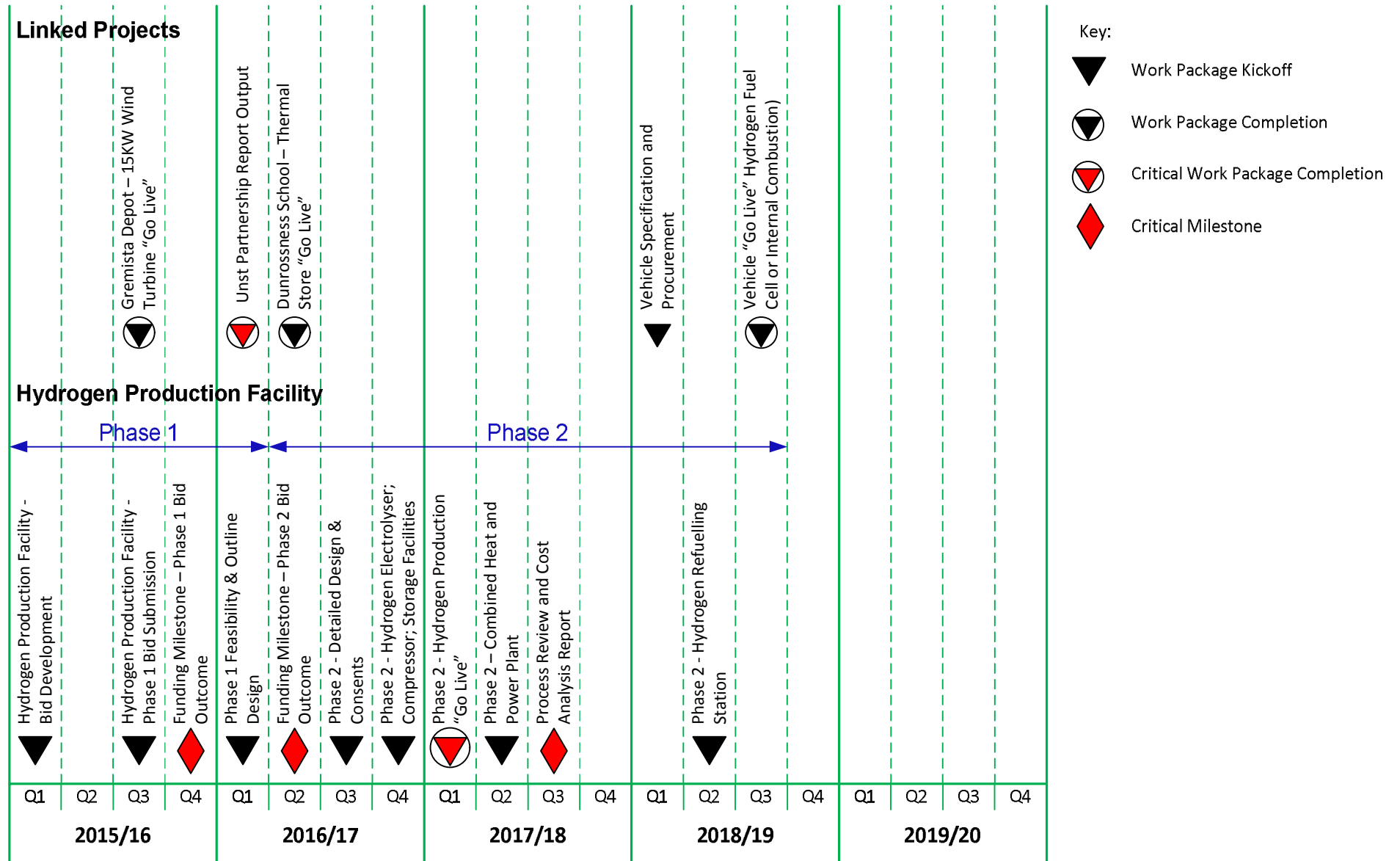


Appendix 2 – Key Infrastructure Model



 Shetland Islands Council Estate Operations Gremista, Lerwick, Shetland, ZE1 0PX Tel: 01595 744100 Fax: 01595 744177				
Project: Community Based Hydrogen Generation and Supply Network				
Date: 16 Sep 15	Scale: NTS	Drwg Nr: 01	Revision: .1B	Drawn: CAS

Appendix 3 – Project Timeline





**Environment and Transport Committee
Policy and Resources Committee**

**5 October 2015
26 October 2015**

Shetland Islands Council Energy Efficiency Action Plan: 2015 - 2020

EO-08-15-F

Executive Manager - Estate Operations

**Infrastructure Services Department
/ Estate Operations**

1.0 Summary

- 1.1 The report details how Estate Operations will progress Energy Efficiency work by implementing an Energy Efficiency Action Plan for the period 2015 - 2020.

2.0 Decision Required

- 2.1 That the Environment and Transport Committee:
- 2.1.1 RECOMMENDS that the Policy and Resources Committee
RESOLVES to adopt the Energy Efficiency Action Plan 2015-2020.
- 2.2.2 INSTRUCT officers to progress the projects set out in the plan to help achieve the Council's carbon reduction targets as a matter of priority.

3.0 Detail

- 3.1 The attached Plan is Shetland Islands Council's first formal Energy Efficiency Action Plan. The Plan has been developed as a direct result of the adoption, by the Council, in April 2015 (Min Ref: 14/15) of the Carbon Management Plan (2015-20) and the actions and project framework sections contained within it.
- 3.2 The Scottish Government published 'Conserve and Save - The Energy Efficiency Action Plan for Scotland (October 2010)' to fulfil a commitment contained within the Climate Change (Scotland) Act 2009.

- 3.3 The Plan sets a minimum energy efficiency target to reduce total final energy consumption by 12% by 2020, set against a three year average baseline over the period 2005 to 2007.
- 3.4 The target was set to be consistent with the Scottish Government's wider climate change ambition and range of actions being taken to meet the Climate Change Target of a 42% emissions reduction across Scotland by 2020
- 3.5 The Scottish Government has designated energy efficiency as a National Infrastructure Priority. The cornerstone of this will be Scotland's Energy Efficiency Programme (SEEP) which will provide an offer of support to all buildings in Scotland – domestic and non-domestic – to improve their energy efficiency rating. The Scottish Government is currently working towards the third Report on Proposals & Policies in 2016.
- 3.6 The Scottish Government has recently introduced mandatory annual reporting for public bodies on their carbon reduction and climate change work. This is stated to be "a means of encouraging local authorities to raise their game in this area". Should this encouragement fail it is certain that local authorities will be faced by annual mandatory targets in the very near future.
- 3.7 There is currently mandatory reporting of the Council's electricity consumption through the CRC Energy Efficiency Scheme.
- 3.8 The main project themes to be tackled by this Plan are energy and water use in all Council buildings and areas captured by the 'electricity contract'. Shetland Islands Council has delivered an annual carbon reduction of 17.43% per year from the baseline position. The Carbon Management Plan identified the need to achieve a possible 24.57% savings in the next 6 years, which equates to an annual reduction of 4.10%.
- 3.9 By implementing the EnergyPlan the Council can also save money in the longer term. The current costs of energy and materials, combined with the future certainty on increased costs in these areas, means that all services have much to gain in seeking to reduce their energy costs. This Plan will support our current budgetary ambitions to maintain funding for frontline services through delivering efficiencies.
- 3.10 By implementing the Plan Council will:
- Reduce energy consumption in all service areas
 - Reduce carbon emissions and associated costs in all service areas
 - Contribute towards climate change mitigation
 - Contribute to the wider carbon management efforts
 - Provide a unified platform for monitoring, managing and assessing energy use
 - Ensure that the Council conforms to its Public Body Duties under the 2009 Climate Change (Scotland) Act
 - Provide support for Best Value 2 and Sustainability reporting

- Reduce energy costs and provide savings as required in the Council's Medium Term Financial Plan.

4.0 Implications

Strategic

- 4.1 Delivery On Corporate Priorities – This Plan delivers the Corporate Plan, that we will have reduced the impact we make on the local environment, particularly reducing carbon emissions from our operations and estate.

This report supports the delivery of the Council's Carbon Management Plan (2015 - 2020) and the Public Bodies Duties under the Climate Change (Scotland) Act 2009.

- 4.2 Community /Stakeholder Issues – Increasing levels of greenhouse gases are almost unanimously agreed by world scientists to be a major contributing factor in global warming and climate change.

The local impact of climate change with rising sea levels and increased storm activity will have a disproportionate effect on island communities. The community will face more disruption to transport and freight delivery, increased storm damage and possible increased power issues.

By approving and implementing the Plan the Council will begin to work in a focussed manner with its community to identify, review and tackle the impact of Council Services.

- 4.3 Policy and/or Delegated Authority – In accordance with Section 2.3.1 of the Council's Scheme of Delegation the Environment and Transport Committee has responsibility for discharging the powers and duties of the Council within its functional area including building and environmental services.

The Policy and Resources Committee has delegated authority for the development and operation of the Council as an organisation and has functional and delegated authority for management of Council assets.

- 4.4 Risk Management – Failure to deliver a statutory duty such as carbon reduction is included in the Departmental Risk Register as a key issue for consideration. In light of Government statements concerning mandatory reporting, failure to approach the issue in a focussed manner will leave the Council facing potential financial penalties on the failure to achieve mandatory targets when these are implemented.

- 4.5 Equalities, Health And Human Rights – It is also certain that failure to address in a focussed manner the likely effects of climate change will lead to considerable negative effects locally and globally in the medium term. These will include loss of habitat, scarcity of food crops and increased risks of poverty and ill health.

- 4.6 Environmental – By tackling carbon emissions from Council services the Energy Efficiency Plan will support climate change mitigation and adaptation. It also supports the Council's Environmental policy and sustainable development strategy.

Resources

4.7 Financial -

- 4.7.1 Under the Local Government in Scotland Act 2003, the Council has a duty to make arrangements which secure Best Value. Best Value is continuous improvement in the performance of the authority's functions taking into account efficiency, effectiveness, economy and equal opportunities.
- 4.7.2 Implementation of the Energy Plan will help to reduce energy costs and associated Carbon Reduction Commitment payments to the Department of Energy & Climate Change, which currently costs the Council £138k per year. It will also support the delivery of efficiency savings in line with the Council's Medium Term Financial Plan.
- 4.7.3 External funding and interest-free loans will be used where possible to fund the projects in the plan. Any borrowing required will be undertaken in line with the Council's Borrowing Policy.

- 4.8 Legal – Under the Climate Change (Scotland) Act 2009 Councils are required to tackle their carbon emissions and make preparations to respond to climate change. The Carbon Management Plan (CMP) provided the backbone of annual mandatory reporting in this area and the EEAP covers one of the CMP's key areas (energy and water use in buildings).

- 4.9 Human Resources – Certain projects included within the Plan may impact upon staff development and skills. An up-skilling of staff may be required to achieve these changes. However, the objective will be that any initial staff training costs will be offset with ongoing financial savings.

- 4.10 Assets and Property – The efficient use of energy within our assets is the main feature within the Plan. Specific areas covered and potential projects are detailed in the Plan itself.

5.0 Conclusion

- 5.1 By approving the Energy Efficiency Action Plan the Council will give clear and positive leadership in its efforts to reduce energy consumption and as a result carbon emissions and energy costs.
- 5.2 It is likely that Government will introduce mandatory targets within the next two years, so by focussed action now Council will be placing itself in a favourable position in advance of the proposed targets.

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25 September 2015

List of Appendices

Appendix 1 – Draft Energy Efficiency Action Plan

END

Shetland Islands Council



Energy Efficiency Action Plan 2015 – 2020 Non Domestic Properties



Sep 2015 - Revision 1.0

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Executive Summary

The Shetland Islands Council's first formal Carbon Management Plan (CMP) was adopted in April 2015. The 2015-2020 plan aims to reduce emissions across the Council and the Community and it prioritises actions that will reduce our carbon footprint and cut costs.

One of the main project themes, recognised in the CMP to deliver carbon savings, is energy and water use in the Council.

The Energy Efficiency Action Plan (EEAP) is the working document produced to cover this theme. The EEAP defines the carbon emissions/energy baseline and provides projections for future emissions. These projections are based on a 5 year implementation plan (in line with the CMP) for achieving a 24.57% reduction in CO₂e emissions from 2015/16 to 2019/20 (the full impact of emissions reduction will be in year 2020/21).

Ownership and responsibility for delivery will be developed and this will be assisted by the project governance structure set out in the CMP.

1. Introduction

- 1.1. Carbon Management Plans are required under the Climate Change (Scotland) Act 2009 as a key tool in tackling climate change by reducing carbon emissions from our operations and estate.
- 1.2. A key part of this is the implementation of measures to improve the Council's estate energy use through the development of an EEAP.
- 1.3. In terms of the estate our current position relative to the baseline (average emissions over the 3 years April 2005 to March 2008) shows an actual CO₂e reduction of approximately 17.43% to 2014/15. The 2015/16 to 2019/20 target is therefore 24.57% or a 4.10% annual reduction year on year.

2. Energy Efficiency Action Plan (EEAP)

- 2.1. By delivering the EEAP we will seek to reduce emissions from our estate.

Context and Drivers

These are as follows:

- 2.2. SIC Carbon Management Plan (2015-2020)
- 2.3. The Climate Change (Scotland) Act 2009 and as a result the 'Conserve and Save – Energy Efficiency Action Plan 2010'.
- 2.4. This sets an energy efficiency target to reduce total final energy consumption by 12% by 2020, set against a three year average baseline over the period 2005 to 2007. This established a minimum level of collective ambition for all sectors."
- 2.5. The target supports the Scottish Government's Climate Change Target of a 42% emissions reduction across Scotland by 2020 contributed to by all sectors."
- 2.6. The impact of rising energy prices on revenue budgets. The EEAP will help to reduce this impact.
- 2.7. Items 2.2 to 2.6 have created a number of external drivers for local authorities including:
 - .1 Energy Performance Certificates
 - .2 Carbon Reduction Commitment. There is currently mandatory reporting of the Council's electricity consumption through the CRC Energy Efficiency Scheme.
- 2.8. The Scottish Government has designated energy efficiency as a National Infrastructure Priority. The cornerstone of this will be Scotland's Energy Efficiency Programme (SEEP) which will provide an offer of support to all buildings in Scotland – domestic and non-domestic – to improve their energy efficiency rating.

The Scottish Government is currently working towards the third Report on Proposals & Policies in 2016.

Targets and Objectives

2.9. The Climate Change (Scotland) Act 2009 stipulates that the CMP, and from this the EEAP, should set annual energy efficiency targets.

2.10. In establishing an EEAP the Council has set the following targets and objectives:

- .1 To achieve a 24.57% reduction in CO₂e emissions in the Council estate through a 5-year implementation plan from 2015/16 to 2019/20
- .2 To encourage workforce involvement in the identification of opportunities and the implementation of actions
- .3 Thereafter, reduce building CO₂e emissions year on year in line with national legislation

3. Emissions Baseline and Projections

Scope

- 3.1. We have measured the emissions from the baseline average up to 2014/15. This information can then be used as a basis to compare our progress year on year.
- 3.2. The main area is energy consumption attached to Council estate but excludes oil used for transport (ferries, tugs and diesel vehicles).
- 3.3. Water consumption has not been included in the data however; reporting will be developed as an action of the EEAP and water saving measures included within project development. At the moment there is a mix of unmetered and metered sites and there is no method for estimating emissions from unmetered sites. It should be noted however that water consumption is not likely to contribute more than 150 tonnes CO₂e to the total emissions figure.

Energy Efficiency Performance to Date and Targets

3.4. The following graph shows that the Council has reduced its CO₂e emissions by approximately 17.43%. To reach the national target saving of 42% by 2020 we would have to save around 4.10% year on year in CO₂e emissions.

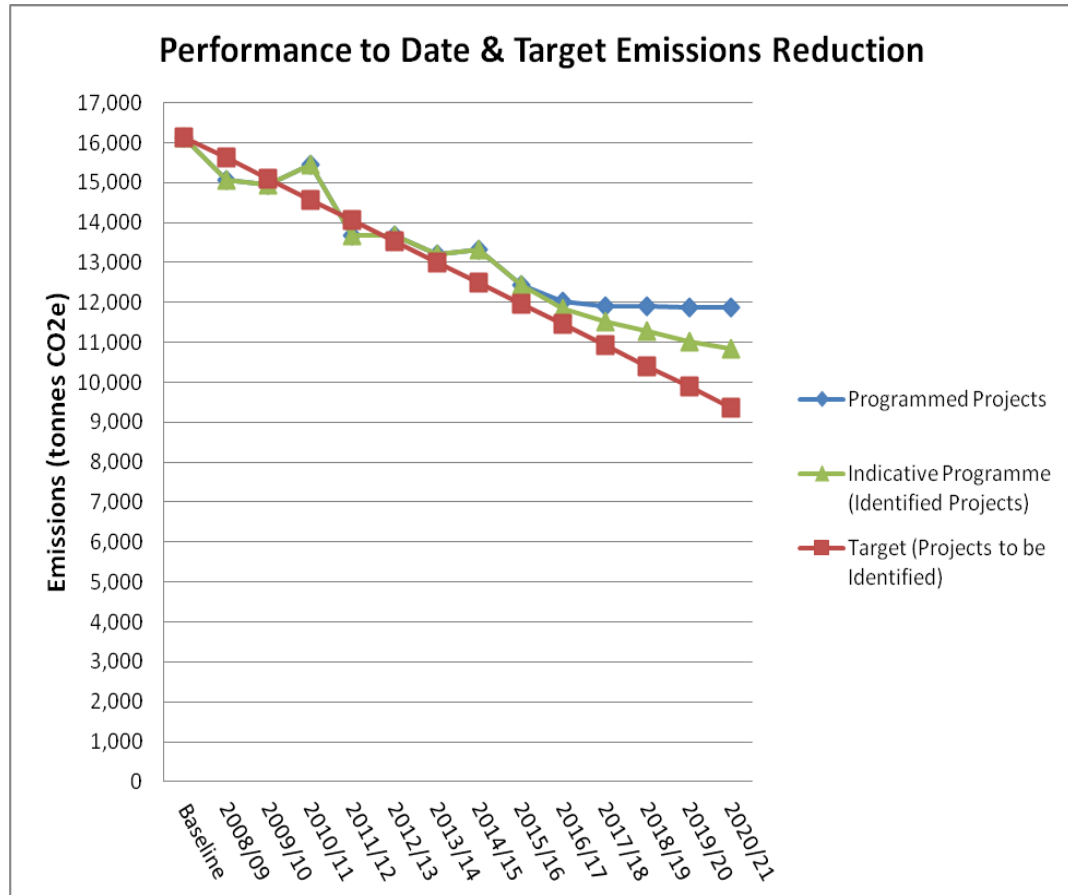


Figure 1: Performance to Date & Target Emissions Reduction

3.5. The graph provides three graphical plots as follows:

- .1 Current estimation based on projects that have been programmed - mainly the Estate Operation 5-year plan.
 - .2 An indicative programme based on identified projects that have not been programmed e.g. street lighting replacement.
 - .3 A target programme which will include projects that have not yet been identified or assessed for potential savings but which will 'close the gap' on the final 42% target figure
- 3.6. Currently 'business' reporting of emissions, as required by DEFRA, uses the UK wide grid average for electricity emissions. One of the main risks is the sensitivity of emissions reduction to changes in the UK grid average emissions factor. In 2014 the grid emissions factor rose by 8.15% which led to the Council's overall emissions rising slightly despite a fall in overall energy consumption. This factor has since fallen back again by 6%. These variances are accounted for in the performance data.

- 3.7. Also noted is the area of consumption a Council project impacts upon e.g. the installation of shore power electricity at Sellaness (to supply the tugs) led to a net benefit to the Council in terms of reduction in energy consumption (gas oil and electricity taken together). However the gas oil reduction is not covered by the EEAP (as it is transport oil) but the electricity that is consumed by the shore power facility is. The effect on the figures reported under EEAP up to 2014/15 is 500 tonnes additional CO₂e emissions.
- 3.8. The programme of works proposed at “Appendix 1 – Carbon Project Register” will build on savings to date to deliver further reductions towards the 2020 target. The works include the indicative projects but these will be subject to change depending on financing and programming.

4. Project Delivery

Projects / Target Projects

- 4.1. **Appendix 1** provides a target list of projects (Carbon Project Register) to be developed or which are on the ground, planned or proposed over the next 5 years.
- 4.2. The CPR includes timelines for implementation and also projected savings figures both for carbon and for costs (where known).
- 4.3. **Appendix 2** provides a list of potential energy efficiency measures that will be reviewed as part of ongoing EPC/energy efficiency surveys.
- 4.4. Projects will continue to be delivered through the following means:
 - .1 Internal workforce
 - .2 Term Service Contract arrangements
 - .3 One-off larger contracts
 - .4 Capital projects
 - .5 Build and maintain projects

Estate Operations 5-year Action Plan

- 4.5. The 5-Year Action Plan has been finalised and where projects have a link to energy efficiency and reduction the projects these have been added to the CPR.
- 4.6. Carbon Management will host fortnightly meetings with Estate Operations to develop the list of projects. Project planning software will be used to plan projects and develop timelines for different stages of project development. **Appendix 3** shows the current planned list of projects.
- 4.7. The plan will be updated as projects are put forward as a result of feedback from BMOs, foremen or through energy surveys (EPCs) and where funding is realised.

By widening the scope of information gathering we will capture a number of the more minor projects that are being carried out but not currently being picked up.

- 4.8. An example of this is lighting replacement on a smaller scale. It is proposed that a monthly report drawn from the Council's Servitor system will highlight where Stores has supplied low energy type fittings to jobs.
- 4.9. Another benefit of regular meetings is that we will be able to plan more effectively minor jobs in order to avoid revisits.

Energy Surveys / Energy Performance Certificates (EPCs) / Trial Projects

- 4.10. The work being carried out to produce EPCs, as well as highlighting new projects (large and small scale), will also allow potential saving figures to be added against the project in the CPR.
- 4.11. As funding is realised these projects will be fed into the Project Plan. The results of these surveys as well as ongoing works through all Services and vitally, staff awareness will reduce the difference between the programmed/indicative figures and the 42% target reduction.
- 4.12. Where projects are noted as being a trial project there is potential that, if successful, that these can be implemented in other buildings and as such further projects will be added to the CPR in due course.

Capital Programme Service – Asset & Property Team

- 4.13. Carbon Management will continue to work alongside Asset & Properties in the turnaround of utility supplies in response to the sale or lease of buildings as well as feed into the Council's Asset Strategy.
- 4.14. This working link has supported the sale of some of the Council's least efficient buildings, some of which have since been redeveloped as energy efficiency homes. This supports our aim to alleviate the demand for accommodation.

New Build Projects

- 4.15. The new AHS and Eric Gray Centres have provided significant opportunities to incorporate energy efficiency in the design stage thereby reducing ongoing revenue costs. Estate Operations have worked along with Capital to assist where possible in achieving this within capital budget constraints.

Awareness Raising and Energy Champions

- 4.16. Reduction in energy use through good practice is difficult to quantify and has not been included. However, the impact of this should not be underestimated particularly as one of the main areas that individuals can assist with is electricity reduction (IT equipment and lighting etc) which is the area of energy use with the highest average cost and emissions factor. Outline proposals are provided in the data management section.

Water Saving Projects

- 4.17. This will go hand in hand with metering of sites. There are a number of remaining sites left where it may be cost effective to meter the site. As with currently metered sites water efficiency projects will be reviewed as meters are installed.

5. Project Finance

- 5.1. The potential funding areas are noted in the CPR. The Carbon Management Team have and will continue to actively support funding bids with all services to ensure that external funding is maximised and the Council's budgets receive the benefits of any external money which may be available.
- 5.2. The initial aim of projects may not be energy/carbon savings but this only stresses the importance of projects outwith the direct responsibility of Carbon Management in helping to achieve the set targets and the potential of the 'energy efficiency' element drawing in external funding.
- 5.3. An example of this is building maintenance where to date Salix/CEEF funding has been drawn in to support maintenance budgets in the upgrade of lighting/emergency lighting systems and associated wiring/isolation for testing. Combining projects also ensures that time is used more effectively.
- 5.4. Bank lending (e.g. through the Green Investment Bank) is being investigated as an option to fund measures noted within the CPR. Carbon Management will use the various tools now available (whole life costing and street lighting financing) to present the case for the investment in energy efficiency measures which will also assist in replacement of life expired equipment e.g. street lighting can include column replacement as part of the lending package.

6. Data Management

- 6.1. All data from invoices (electronic or hardcopy) and site meter readings are held in the “Energy Manager” monitoring and targeting software that allows interpretation of the information provided. This is also backed up with access to half hourly and AMR data via the internet and also the Triscan fuel management software system.
- 6.2. ‘Energy Manager’ will continue to be used as a tool to monitor ongoing energy consumption. It also serves the following purposes:
 - .1 Energy invoice validation to enable error reporting to Utility companies
 - .2 Measure performance and consider how energy may be reduced through technical or technology improvements.
 - .3 Monitoring and targeting
 - .4 Reporting functions
- 6.3. To date all utility invoices (energy and water) are either electronically or manually uploaded through Carbon Management and the Estate Operations Helpdesk. The Helpdesk also provides the oil ordering function on behalf of all sites.
- 6.4. An action of the EEAP is to expand on the remote access of information through Energy Manager by sites/Energy Champions thereby improving access to information and communications. This will also allow meter readings to be electronically submitted reducing time taken, by Carbon Management, to input data.
- 6.5. Information will also be provided in a format for use by Team Leaders/Executive Managers and Directors.
- 6.6. Going forward the Resource Efficient Scotland ‘Carbon Footprint (CF) Forecast and Projections Tool’ will be used to record consumption year on year in order to provide information required for local and national reporting. It will also provide forecast projections of consumption and emissions as projects are built into the programme.

7. Programme Management of the Energy Efficiency Action Plan

- 7.1. To ensure that targets are being met or to allow changes in priority, performance will be reviewed regularly in line with the CMP process.
- 7.2. The following table provides an initial list of actions under the EEAP. Actions from these areas (in particular the CMP meetings) will inform further actions to be added to the list.

Action	Lead Team	Timescale / Frequency	Status
Projects:			
5-Year Plan Implementation	Estate Operations	2015 to 2020	Ongoing
Non 5-Year Plan Projects	Estate/Carbon Management	2015/16	Ongoing
Street Lighting Condition Survey	Roads	April 2016	Ongoing
Energy Surveys/EPC	Estate Operations	January / April 2016	Ongoing
Remaining Water Meter Installations	Carbon Management	April 2016	Ongoing
Awareness Raising:			
'Energy Manager' remote access to data	Carbon Management	April 2016	
Meetings/Project Planning:			
Education Liaison	Schools	Monthly	Ongoing
Building Services	BSU	Monthly	Ongoing
Project Planning (Building Services)	Carbon Management	Fortnightly	Ongoing
Asset & Properties	Carbon Management	Monthly	Ongoing
CMP Board	Estate Operations		-
Funding:			
Street Lighting Project	Roads		
Energy Efficiency Projects	Estate/ Carbon Management		

Table 1 – Current Action List

Appendix 1 – Carbon Project Register
Appendix 2 – List of Potential Measures
Appendix 3 – Energy Efficiency Action Plan

1. Appendix 1 – Carbon Project Register

Project Reference	Description	Capital Cost (£)	Funding	Status	Energy Form	Estimated Annual Savings			Completion Year	Full Year Savings
						(kWh)	(t CO ₂ e)	O & M (£)		
Airport (Tingwall)	Radiant Heating Trial	6,080	CEEF	Complete	Grid Electricity	14,071	7.6	1,687	2014/15	2015/16
Care (ET House)	Replacement Lighting	6,504	Salix	Complete	Grid Electricity	7,044	3.8	814	2014/15	2015/16
Care (North Haven)	Replacement Lighting	6,434	Salix	Complete	Grid Electricity	7,142	3.8	848	2014/15	2015/16
Care (Overtonlea)	Replacement Lighting	6,434	Salix	Complete	Grid Electricity	7,142	3.8	846	2014/15	2015/16
Office (ICT)	Server Virtualisation		Spend to Save	In Progress	Grid Electricity	90,682	48.7	9,490	Ongoing	2016/17
Pier (Blackness)	Replacement Lighting	20,800	Salix	Complete	Grid Electricity	16,066	8.6	18,000	2014/15	2015/16
School (Aith JHS)	Loft Insulation	20,713	CEEF	Complete	Gas Oil	69,860	18.9	4,192	2014/15	2015/16
School (Aith JHS)	Replacement Lighting	3,028	CEEF	Complete	Grid Electricity	2,464	1.3	318	2014/15	2015/16
School (Sandwick JHS)	Replacement Lighting	27,870	Salix	Complete	Grid Electricity	29,000	15.6	3,941	2014/15	2015/16
Sheltered Housing - Grinibrek	Oil (Council) to Electric (Tenant)		Housing Service	Complete	Gas Oil	192,758	52.2	0	2014/15	2015/16
Sheltered Housing - Kalliness	Oil (Council) to Electric (Tenant)		Housing Service	Complete	Gas Oil	217,060	58.8	0	2014/15	2015/16
Street Lighting	LED Conversions Trial	38,305	Salix	Complete	Grid Electricity	61,333	33.0	6,826	2014/15	2015/16
Waste (Landfill Site)	Replacement Lighting	18,899	Salix	Complete	Grid Electricity	21,483	11.5	2,206	2014/15	2015/16
Grid Emissions Savings							629.0			
						736,104	896.8	49,168	2014/15 Total	
Airport (Tingwall)	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	10.7	2,268	2015/16	2016/17
Asset (Various)	Sale/Lease	0	N/A	Complete	Electricity	200,606	100.4	0	2015/16	2016/17
Asset (Various)	Sale/Lease	0	N/A	Complete	Gas Oil	316,570	85.8	0	2015/16	2016/17
Care (New Craigielea)	Replacement Lighting		5-Year Plan	Complete	Grid Electricity	6,814	3.4	807	2015/16	2016/17
Care (Seaview)	Replacement Lighting		5-Year Plan	Complete					2015/16	2016/17
Care (Tain House)	Lighting Upgrades		5-Year Plan		Grid Electricity	7,142	3.6		2015/16	2016/17
Care (Wastview)	Lighting Upgrades		5-Year Plan	Complete	Electricity	7,142	3.6	846	2015/16	2016/17
Communal (12A North Road)	Tamperproof Controls		Carbon Management Revenue		Grid Electricity	2,750	1.4		2015/16	2016/17
Communal Area (Prospect House)	Tamperproof Controls		Carbon Management Revenue		Grid Electricity	3,267	1.6		2015/16	2016/17
Ferry Terminal (Bressay)	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	10.7	2,268	2015/16	2016/17
Ferry Terminal (Fetlar)-New	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	26.9	5,669	2015/16	2016/17
Ferry Terminal (Laxo)	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	10.7	2,268	2015/16	2016/17
Landfill Site	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	80.6	17,008	2015/16	2016/17
Office & Workshops, Gremista Depot	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	53.7	11,339	2015/16	2016/17
Office (Sellaness)	Replacement Lighting		CEEF		Grid Electricity	23,192	11.6	2,748	2015/16	2016/17
Pier - Cullivoe	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	10.7	2,268	2015/16	2016/17
School (Bells Brae Primary)	District Heating/Controls Upgrade			In Progress	District Heating				2015/16	2016/17
School (Bells Brae Primary)	Lighting			Complete	Grid Electricity	46	0.0	0	2015/16	2016/17
School (Dunrossness Primary)	Storage Heating Replacement		CEEF		Grid Electricity	12,656	6.3	1,300	2015/16	2016/17
School (Dunrossness Primary)	Boiler Replacement		EST/Capital Maintenance	In Progress	Gas Oil	54,113	14.7	2,819	2015/16	2016/17
School (Fetlar Primary)	Fetlar Community Wind Project	0	N/A	In Progress	Grid Electricity/Gas Oil	-	7.8	282	2015/16	2016/17
School (Mid Yell)	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	10.7	2,268	2015/16	2016/17
School (Mossbank Primary)	Investor Turbine	0	Investor		Grid Electricity	0	10.7	2,268	2015/16	2016/17
School (Sandwick JHS)	Investor Turbine	0	Investor	Planning Applications	Grid Electricity	0	10.7	2,268	2015/16	2016/17
School (Salloway Primary)	Biomass ESCO	35,000	CEEF	In Progress	Gas Oil	66,797	18.1	9,054	2015/16	2016/17
School (Salloway Primary)	General Lighting Upgrade		5-Year Plan		Grid Electricity	13,342			2015/16	2016/17
School (Sound Primary)	Lighting		Capital Maintenance	In Progress	Grid Electricity	2,633	1.3	312	2015/16	2016/17
School (Sound Primary)	Re-roofing		Capital Maintenance	In Progress	District Heating				2015/16	2016/17
School (Sound Primary)	General & Emergency Lighting Upgrades		5-Year Plan			8,376			2015/16	2016/17
School (Sound Primary)	Games Hall Lighting								2015/16	2016/17
School (Whiteness Primary)	Faulty Windows		5-Year Plan						2015/16	2016/17
School (Whiteness Primary)	Investor Turbine		Investor				10.7	2,268	2015/16	2016/17
Sheltered Housing - Bressay	Oil (Council) to Electric (Tenant)		Housing Service		Gas Oil	289,182	78.4	0	2015/16	2016/17
Toilets (Maryfield)	Tamperproof Controls		Carbon Management Revenue		Grid Electricity	6,262	3.1		2015/16	2016/17
						1,020,888	588	70,325	2015/16 Total	
Care (ET House)	Ventilation Control Trial				Electricity				2016/17	2017/18
Care (ET House)	Voltage Optimisation Trial				Electricity				2016/17	2017/18
Ferry Terminal (General)	Car Park Lighting		Green Bank or Similar		Grid Electricity	31,004	15.5	3,720	2016/17	2017/18
Office & Workshops (Gremista Depot)	Storage Heating Replacement				Grid Electricity				2016/17	2017/18
Piers (General)	Replacement Lighting		Green Bank or Similar		Grid Electricity	112,742	56.4	13,204	2016/17	2017/18
School (Aith JHS)	Lighting Upgrades								2016/17	2017/18
#REF!	#REF!		5-Year Plan		Gas Oil	50,900	13.8	2,640	2016/17	2017/18
School (Baltasound JHS)	General and Emergency Lighting Upgrades		5-Year Plan		Grid Electricity	15,369	7.7		2016/17	2017/18
School (Bells Brae Primary)	Insulation			In Progress	District Heating				2016/17	2017/18
School (Bells Brae Primary)	Storage Heating Replacement			In Progress	Grid Electricity	8,571	4.3	2,135	2016/17	2017/18
School (Bells Brae Primary)	Gym Hall Lighting		5-Year Plan		Grid Electricity	9,526	4.8		2016/17	2017/18
School (Dunrossness Primary)	General Lighting/Pool				Grid Electricity	9,759	4.9		2016/17	2017/18
School (Happyhansel Primary)	Storage Heating Replacement				Grid Electricity	10,000	5.0	803	2016/17	2017/18
School (Mossbank Primary)	Emergency Lighting Upgrades		5-Year Plan						2016/17	2017/18
School (Whiteness Primary)	General Lighting Upgrades		5-Year Plan		Grid Electricity	10,051	5.0	1,295	2016/17	2017/18
Sheltered Housing - Burravoe	Oil (Council) to Electric (Tenant)		Housing Service	Planned	Gas Oil	173,312	47.0	0	2016/17	2017/18

Sheltered Housing - Mid Yell	Oil (Council) to Electric (Tenant)		Housing Service	Planned	Gas Oil	104,747	28.4	0	2016/17	2017/18
Street Lighting	90W Sodium		Green Bank or Similar		Grid Electricity	170,671	85.4	20,480	2016/17	2017/18
Tugs	Replacement Lighting		Proposed Funding Bid		Grid Electricity	77,183	38.6	8,751	2016/17	2017/18
School (Sound Primary)	Renew Old Heaters		5-Year Plan						2016/17	2017/18
						783,834	316.8	53,030	2016/17 Total	
Care (Fernlea)	Loft Insulation				Gas Oil	12,604	3.4	756	2017/18	2018/19
Care (Nordalea)	Loft Insulation				Gas Oil	17,084	4.6	1,025	2017/18	2018/19
Care (Nordalea)	General & Emergency Lighting Upgrades		5-Year Plan		Grid Electricity	7,142	3.6		2017/18	2018/19
Care (North Haven)	Loft Insulation				Gas Oil	16,185	4.4	971	2017/18	2018/19
Care (Overtonlea)	Loft Insulation				Gas Oil	17,384	4.7	0	2017/18	2018/19
Care (Taing House)	Office Ventilation Units		5-Year Plan						2017/18	2018/19
Care (Wastview)	Loft Insulation				Gas Oil	16,769	4.5	1,006	2017/18	2018/19
Community (Islesburgh Centre)	Upgrade Emergency Lighting		5-Year Plan		Grid Electricity				2017/18	2018/19
Office (Lystina House)	Storage Heating Replacement				Grid Electricity	19,896	10.0	1,597	2017/18	2018/19
Office (Lystina House)	General & Emergency Lighting Upgrades		5-Year Plan						2017/18	2018/19
Office (OT Centre)	District Heating Connection				Gas Oil	83,798	22.7		2017/18	2018/19
Office (Town Hall)	District Heating Connection				Gas Oil	140,105	38.0		2017/18	2018/19
School (Anderson High)	New Build		Capital Project		Grid Electricity				2017/18	2018/19
School (Anderson High)	New Build		Capital Project		District Heating				2017/18	2018/19
School (Cullivoe Primary)	Storage Heating Replacement				Grid Electricity	12,950	6.5	1,039	2017/18	2018/19
School (Hamnavoe Primary)	Copper Pipework Replacement		5-Year Plan						2017/18	2018/19
#REF!	#REF!		5-Year Plan		Gas Oil	19,488	5.3	1,001	2017/18	2018/19
School (Happyhansel Primary)	Copper Pipework Replacement		5-Year Plan						2017/18	2018/19
School (Lunnasting Primary)	Lighting Upgrades		5-Year Plan		Grid Electricity	1,739	0.9		2017/18	2018/19
School (North Roe Primary)	Storage Heating Replacement				Grid Electricity	23,921	12.0	1,930	2017/18	2018/19
School (Ollaberry Primary)	Emergency Lighting Upgrades		5-Year Plan		Grid Electricity				2017/18	2018/19
School (Sandness Primary)	Copper Pipework Replacement		5-Year Plan						2017/18	2018/19
School (Sandwick JHS)	Loft Insulation				Gas Oil	19,669	5.3	0	2017/18	2018/19
School (Scalloway)	Loft Insulation				Gas Oil	20,283	5.5	0	2017/18	2018/19
School (Skeld Primary)	Lighting Upgrades		5-Year Plan		Grid Electricity				2017/18	2018/19
School (Skeld Primary)	Copper Pipework Replacement		5-Year Plan						2017/18	2018/19
School (Whalsay Primary)	Re-roof Main Primary		5-Year Plan						2017/18	2018/19
School (Whalsay Secondary)	#REF!		5-Year Plan		Gas Oil	37,730	10.2	1,968	2017/18	2018/19
School (Whalsay Secondary)	General Lighting Upgrades		5-Year Plan		Grid Electricity	7,270	3.6		2017/18	2018/19
Street Lighting	90W Sodium		Green Bank or Similar		Grid Electricity	170,671	85.4	20,480	2017/18	2018/19
						644,686	230.6	31,773	2017/18 Total	
Care (Fernlea)	Boiler Replacement		5-Year Plan		Gas Oil	60,997	16.5		2018/19	2019/20
Care (Windybrae)	Roofing Works		5-Year Plan						2018/19	2019/20
School (Aith JHS)	Emergency Lighting Upgrade		5-Year Plan						2018/19	2019/20
School (Brae Primary)	Emergency Lighting Upgrade		5-Year Plan						2018/19	2019/20
School (Brae Secondary)	General and Emergency Lighting Upgrade		5-Year Plan		Grid Electricity	13,055	6.5		2018/19	2019/20
School (Cullivoe Primary)	Profile Sheeting to Main Extension Roof		5-Year Plan						2018/19	2019/20
School (Happyhansel Primary)	Lighting Upgrades		5-Year Plan		Grid Electricity	3,198	1.6	379	2018/19	2019/20
School (Mossbank Primary)	Roofing Works		5-Year Plan						2018/19	2019/20
School (Nesting Primary)	Lighting Upgrades		5-Year Plan						2018/19	2019/20
School (Nesting Primary)	Copper Pipework Replacement		5-Year Plan						2018/19	2019/20
School (North Roe Primary)	Lighting Upgrades		5-Year Plan						2018/19	2019/20
School (Skerries Primary)	Lighting Upgrades		5-Year Plan						2018/19	2019/20
School (Tingwall Primary)	Upgrade Heaters		5-Year Plan						2018/19	2019/20
School (Tingwall Primary)	Copper Pipework Replacement		5-Year Plan						2018/19	2019/20
School (Urafirth Primary)	Emergency Lighting Upgrades		5-Year Plan						2018/19	2019/20
School (Whalsay Primary)	General Lighting Upgrades		5-Year Plan		Grid Electricity	8,525	4.3		2018/19	2019/20
Street Lighting	69W Sodium		Green Bank or Similar		Grid Electricity	15,459	7.7	1,855	2018/19	2019/20
Street Lighting	123W Sodium		Green Bank or Similar		Grid Electricity	72,196	36.1	8,664	2018/19	2019/20
Street Lighting	180W Sodium		Green Bank or Similar		Grid Electricity	158,158	79.1	18,979	2018/19	2019/20
Street Lighting	301W Sodium		Green Bank or Similar		Grid Electricity	230,138	115.2	27,617	2018/19	2019/20
						561,726	267.1	57,493	2018/19 Total	
Office & Workshops (Gremista Depot)	#REF!				Gas Oil	44,047	11.9	2,226	2019/20	2020/21
#REF!	District Heating Connection				Gas Oil	132,837	36.0		2019/20	2020/21
School (Baltasound JHS)	Renew Curtain Walling		5-Year Plan						2019/20	2020/21
School (Hamnavoe Primary)	Lighting Upgrades		5-Year Plan		Grid Electricity	8,161	4.1		2019/20	2020/21
School (Sandwick Primary)	Games Hall Roof Covering		5-Year Plan						2019/20	2020/21
School (Skerries Primary)	Copper Pipework Replacement		5-Year Plan						2019/20	2020/21
School (Whalsay Primary)	Copper Pipework Replacement		5-Year Plan						2019/20	2020/21
Street Lighting	142W Mercury		Green Bank or Similar		Grid Electricity	275,603	137.9	33,072	2019/20	2020/21
Street Lighting	86W Mercury		Green Bank or Similar		Grid Electricity	553	0.3	66	2019/20	2020/21
Street Lighting	179W Mercury		Green Bank or Similar		Grid Electricity	2,378	1.2	285	2019/20	2020/21
						463,580	191.4	35,651	2019/20 Total	

14. Salix Technology List & Persistence Factors used (November 2012)

Project Type	Work Type	Current PF (Basic maintenance)
Boilers	Boilers - control systems	6.84
	Boilers - replacement condensing	14.44
	Boilers - replacement combination	7.22
	Boilers - replacement modular	10.83
	Boilers - burner management	6.84
	Boilers - retrofit economiser	10.83
Building management systems	BEMS - bureau remotely managed	9.00
	BEMS - not remotely managed	6.84
	BEMS - remotely managed	8.42
Combined heat & power	Gas, Diesel, gasoil engine CHP	15.20
	Biomass CHP	7.60
	Gas Turbine	11.40
Compressor	Compressed Air: air compressor upgrade	14.44
Computers & IT solutions	Network PC power management	4.00
	CRT to flat screen LCD	7.20
	Virtualisation	4.50
	Thin computers	4.50
	Uninterruptible Power Supplies	18.00
	Free Cooling for ICT	13.68
	Evaporative cooling for ICT	13.68
	Energy Efficient File Storage Replacement	4.50
	LED monitors instead of LCD (cost difference)	7.20
	CRT to LED monitors	7.20
	Hot aisle/cold aisle containment	10.83
	Multi Functional Devices	4.50
	Energy Efficient Server Replacement	4.50
Cooling	Cooling - plant replacement/upgrade	8.21
	Free cooling	13.68
	Replacement of air conditioning with evaporative cooling	13.68
Hand Driers	Hand Driers - replacement to more efficient type	4.18
Energy from waste	Anaerobic digestion	15.20
	Incineration	15.20

Project Type	Work Type	Current PF (Basic maintenance)
Heating	Electric to Gas - heating using CHP	15.20
	Electric to Gas - heating using condensing boilers	14.44
	Electric to Gas - tumble driers	8.40
	Heat recovery	10.83
	Heating - direct fired system	9.50
	Heating - discrete controls	6.84
	Heating – distribution pipework improvements	15.20
	Oil to Gas - boiler fuel switching	7.92
	Replace steam calorifier with plate heat exchanger	28.50
	Thermal Stores	18.00
	Heating - TRVs	6.84
	Heating - zone control valves	11.88
	Steam trap replacements	15.20
	Hot Water - distribution improvements	18.00
	Hot Water - point of use heaters	9.50
Industrial kitchen equipment	Steriliser to dishwasher replacement	10.80
Insulation - building fabric	Cavity wall insulation	30.00
	Dry wall lining	30.00
	Loft insulation	27.00
	Retrofit single glazing units	8.00
	Roof insulation	30.00
	Secondary glazing	7.92
Insulation - draught proofing	Insulation - draught proofing	29.25
Insulation - pipework	Heating pipework insulation (internal)	22.50
	Heating pipework insulation (external)	9.00
Insulation - other	Radiator reflective foil (external walls)	8.00
	Automatic/revolving doors	8.45
	Automatic speed doors	8.45
	Draught Lobby (internal)	29.25
	Draught Lobby (external)	29.25
	Air Curtains - heated	10.83
	Air Curtains - ambient	11.40

Project Type	Work Type	Current PF (Basic maintenance)
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Lab Upgrades	Energy Efficient Freezers (-25°C)	9.60
	Energy Efficient Freezers (-86°C)	5.80
	Diode pumped solid state lasers	6.80
	Fume Cupboards - VAV Controls + Inverter Drives	10.26
	Fume Cupboards - Auto Sash Closing + PIR	6.84
	Energy Efficient Fume Cupboards	16.25
	Heat Recovery on Extract System	10.83
Lighting controls	Lighting - discrete controls	8.89
	Lighting control system centralised	10.26
Lighting upgrades	Electronic ballast with dimming control	11.40
	Replace halogen with HID metal halide	20.00
	HP Sodium including new fitting	20.00
	Compact Fluorescent including changing the fitting	20.00
	Compact Fluorescent using same fitting	10.00
	Induction Fluorescent including changing the fitting	20.00
	T5 lighting including changing the fitting	20.00
	T5 lighting retrofit using adaptors	10.00
	T8 lighting including changing the fitting	20.00
	T8 lighting retrofit using adaptors	10.00
	T12/T8 to CCFL including new fitting	20.00
	T12/T8 to CCFL using same fitting	10.00
LED lighting	Halogen to LED including changing the fitting	25.00
	Halogen to LED using same fitting	13.00
	Flood lighting to LED including changing the fitting	20.00
	Compact Fluorescent to LED including new fitting	25.00
	Compact Fluorescent to LED using same fitting	13.00
	Incandescent to LED including new fitting	25.00
	Incandescent to LED using same fitting	13.00
	T12/T8 to LED including new fitting	25.00
	T12/T8 to LED using same fitting	13.00
Street lighting	Replace fitting, controls with electronic ballasts	15.00
	Replace fitting with LED	20.00
	Replace controls including electronic ballasts	12.72
	Replace controls but not ballasts	8.89
	Fit centralised controls with electronic ballasts	12.72
	Fit centralised controls but not ballasts	12.72
	Solar powered bollards	10.00
	Non-illuminated bollards	30.00

Project Type	Work Type	Current PF (Basic maintenance)
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Traffic lights	Replace with LED including new fitting	20.00
	Replace with LED using same fitting	10.00
Motor controls	Fixed speed motor controls	11.40
	Variable speed drives	10.26
	Motors - flat belt drives	11.40
Motor replacement	Motors - high efficiency	15.00
Office equipment	Office equipment improvements for non-ICT	3.00
Renewable energy	Biomass boilers	15.12
	Heat Pump (Air Source)	10.83
Swimming	Swimming pool covers - liquid	8.80
	Swimming pool covers - manual	7.92
	Swimming pool covers - motorised	8.45
Time switches	Time switches	6.84
Transformers	Low loss (cost difference)	30.00
	Low loss	30.00
	Low loss+voltage management(cost difference)	30.00
	Low loss+voltage management	30.00
	Transformer tapping change	30.00
Ventilation	Ventilation - distribution	30.00
	Fans - air handling unit	23.75
	Fans - high efficiency	14.25
	Ventilation - presence controls	6.84
Voltage management	Voltage management - fixed ratio	19.00
	Voltage management - variable ratio	19.00

■ Detail Normal
 ■ Summary Normal
 ■ Detail Critical
 ■ Summary Critical
 ■ Detail Super-Critical
 ■ Summary Super-Critical
 — Baseline1
 ■ Project
 ■ Percent Complete
 ◆ Milestone
 ◆ Milestone Complete
 — Baseline1 Milestone

**Environment and Transport Committee****5 October 2015****Repair Work on Ferries****ISD-24-15-F****Director Infrastructure Services****Infrastructure Services Department****1.0 Summary**

- 1.1 This report requests that the Environment and Transport Committee note the emergency works undertaken on Ferries in this last Committee Cycle.

2.0 Decision Required

- 2.1 That the Committee NOTE the exceptions applied in accordance with the Contract Standing Orders for emergency repair work carried out on Shetland Islands Council ferries. This report is for noting only.

3.0 Detail

- 3.1 The Council's Contract Standing Orders require competitive tendering where the estimated value of goods, works and services is in excess of £10,000. Where the estimated cost is equal to or greater than £50,000, appropriate advertising would apply in accordance with the Contract Standing Orders.
- 3.2 There is a facility in the Council's Standing Orders at Part 1, Paragraph 2 (iii) for an exception where "The demand is for the execution of work or the supply of goods, materials or services, certified by the relevant Service Director as being required as an emergency measure so as not to permit the invitation of tenders. "Emergency" means only an event which could not reasonably have been foreseen".
- 3.3 The m.v "Bigga" experienced pitch problems on 30 May 2015 which resulted in the need to attend drydock for repair. The drydocking and emergency remedial work cost £6,431.
- 3.4 The m.v "Fivla" got a rope in her propeller when on the Bressay crossing, on 10 June 2015, this in turn did some damage to the gearbox pump which required repair before the vessel could return to service. The remedial works cost £5,034.

- 3.5 Emergency repairs to m.v “Geira” bow visor were instructed for 22 August 2015 to remedy damage to the hinge pin, bushing and resolve hydraulic ram bearing damage. The cost of this work is estimated to be in the region of £35,000 although final invoices have not yet been received.
- 3.6 By using the Director of Infrastructure Services authority as described in 3.2 above, the necessary repair works on these vessels were instructed immediately.
- 3.7 The need to return these vessels to service quickly to prevent loss of lifeline services, and the unforeseen nature of the works demonstrate that these were emergency situations justifying the use of negotiated procedures with the suppliers concerned.

4.0 Implications

Strategic

- 4.1 Delivery On Corporate Priorities – Development of a sustainable Inter Island Ferry Service contributes to the “Stronger” section of the Community Plan and also to the Corporate aim to use resources sustainably.
- 4.2 Community /Stakeholder Issues – Communities and Stakeholders are not affected by this issue.
- 4.3 Policy And/Or Delegated Authority – In accordance with Section 2.3.1 of the Council’s Scheme of Delegations the Environment and Transport Committee has responsibility for Ferry Services. The Council’s Contract Standing Orders apply to all Council service departments. Contract Standing Orders Part 1, Paragraph 2 (iii) – emergency works apply and require the reporting of emergency actions to the relevant Service Committee within 6 months.
- 4.4 Risk Management – There is a risk to the economical and social well being of the island communities if ferries cannot be returned to service as quickly as possible following technical problems.
- 4.5 Equalities, Health and Human Rights – There are no Equality, Health or Human Rights implications.
- 4.6 Environmental – There are no Environmental implications.

Resources

4.7 Financial

The cost of the emergency works described above totals approximately £46k which will be funded from the General Fund contingency budget earmarked for Infrastructure Equipment Failure.

4.8 Legal

There is a legal requirement for Ferry Services to comply with EU Procurement Regulations and Council Contract Standing Orders.

4.9 Human Resources

The only Human Resources implications are the resource required to ensure compliance and the capacity of engineering staff to respond in such emergencies.

4.10 Assets & Property

N/A

5 Conclusions

5.1 It is in the best interest of the Ferry Service and the island communities that ferries are returned to service as quickly as possible following breakdown.

5.2 Return to service was expedited by using the facility in the Council's Contract Standing Orders for Emergency Situations.

For further information please contact:
Maggie Sandison Director Infrastructure Services
01595 744851
23 September 2015

END

**Environment and Transport Committee****5 October 2015****Shetland Inter-Island Transport Study & 2018 North Isles Ferry Services Contract****TP-14-15-F****Report Presented by:
Executive Manager -Transport Planning****Development Services Department****1.0 Summary**

- 1.1 In December 2014 the Council approved joint statements defining the nature of dialogue to be held with Transport Scotland and the basis for collaborative working between Shetland Islands Council, ZetTrans, Orkney Islands Council, HITRANS and Transport Scotland on inter island ferry services and the 2018 Northern Isles Ferry Services contract [Min Ref: SIC 104/14].
- 1.2 Since then substantial work has been done on both projects and this paper updates the Committee on the work and seeks the Committee's views on matters to be addressed in the Shetland Inter-Island Transport Study.

2.0 Decision Required

- 2.1 The Environment and Transport Committee RESOLVES to:
- 2.1.1 Note the progress on the work associated with Transport Scotland's Routes and Services Methodology (RSM);
 - 2.1.2 Note the methodology required to conclude the work associated with Transport Scotland's Routes and Services Methodology;
 - 2.1.3 Advise officers of any issues that the Committee considers important to address in the course of the Shetland Inter-Island Transport Study; and
 - 2.1.4 Note the progress on the 2018 Northern Isles Ferry Services Contract.

3.0 Detail

- 3.1 In the Scottish Ferries Plan published in December 2012 Scottish Government stated a willingness to engage with Councils on responsibility for inter-island ferry services where a Council invited them to do so.
- 3.2 A condition of entering in to the dialogue was that Councils first undertook Transport Scotland's RSM to establish a position in terms of service levels and infrastructure requirements for inter-island ferry services. An explanatory note covering the methodology is attached as Appendix 1.
- 3.3 Shetland Islands Council commissioned Peter Brett Associates to undertake steps 1 to 4 of the RSM process and the outcome of this work is covered later in this report.
- 3.4 In effect, to successfully carry out steps 5 and 6 of the RSM it is necessary to apply the Scottish Transport Appraisal Guidance (STAG) process to the entire inter island transport network and this forms the framework for the Study.

Conclusions of Steps 1 to 4 of RSM Process

- 3.5 Steps 1 to 4 of the RSM generate a description of the ferry service levels for each island based on the characteristics of their use and the dependencies the communities have on the services.
- 3.6 A report by Peter Brett Associates detailing the outcome of steps 1 to 4 of the RSM is given in Appendix 2 to this report.
- 3.7 From the report it can be seen that in general the services in Shetland are no higher than would be expected according to the Routes and Services Methodology.
- 3.8 The main areas of difference are on (a) the Fetlar route where the RSM suggests a different nature of service than is provided (shorter operational day but significantly higher frequency) and (b) on the Outer Isles routes where the RSM suggests more sailings over the course of a week could be appropriate. On the Outer Isles routes we must also take into account the inter-island air services as a means of getting to and from the islands and not just the ferry services.
- 3.9 However, implementing services exactly as the RSM process describes is likely to be difficult operationally and in terms of resources required. Having said that, it is clear from discussions with Transport Scotland that a realistic approach is expected and it is likely that in overall terms there will be a need to strike the correct balance in solutions.
- 3.10 Furthermore, we must also bear in mind that fixed links can be an alternative to ferries and should be considered.
- 3.11 This means that a broader approach must be adopted when looking at inter island transport solutions that are realistic and deliverable. This will be addressed in steps 5 and 6 of the RSM process.

Plan for Undertaking Steps 5 and 6 of the RSM Process

- 3.12 Appendix 3 to this report contains an inception report that describes the process, resources and timeline for undertaking the work necessary to complete steps 5 and 6 of the RSM process. The approach to the Study adopts the STAG framework as the principle for undertaking the work and will ensure the Study is objective led and evidence based.
- 3.13 The Council has appointed Peter Brett Associates on the basis of this inception report.
- 3.14 Just under 50% of the cost of the study will be met by Transport Scotland and Highlands and Islands Enterprise. This reflects shared support for the project and recognition of the importance and value of this work to these organisations also. The remainder of the cost is to be met from the Council's Change Fund. Section 4.7 of this report gives more detail.
- 3.15 A "kick off" meeting and a series of fact finding meetings took place during w/c 7 September 2015 and further fact finding visits by various technical consultants will take place before the end of September 2015.
- 3.16 The programme for the Study is tight and is driven by an ambition to have sufficient work completed ahead of the Scottish Government elections in 2016 to support dialogue with Transport Scotland and Scottish Government about the future funding and delivery of inter-island transport services and infrastructure.
- 3.17 Over the course of the study Transport Scotland will be closely involved; this will ensure that the study is undertaken in a way that is consistent with their expectations and will also provide opportunities to develop a shared understanding on issues as the study progresses.
- 3.18 In line with STAG principles there will be engagement with communities and stakeholders which is important in ensuring the study is properly informed and that the suitability of any options is thoroughly researched.
- 3.19 It is anticipated that initial conclusions from the Study will be available during February 2016. Between now and then there will be regular engagement with Members through reports to Committees, briefing notes and through engagement with the Policy Forum.

2018 Northern Isles Ferry Service Contract

- 3.20 Since the joint statement between Shetland Islands Council, ZetTrans, Orkney Islands Council, HITRANS and Transport Scotland was made, which set out the principles of collaborative working and objectives for work on inter-island ferry services and the 2018 Northern Isles Ferry Services Contract, work has progressed.

- 3.21 Between February and May 2015 a working group comprising representative from each of the Councils, RTPs and Transport Scotland undertook workshops to explore the issues that need to be understood. The focus was on the preparation for the 2018 contract and to discuss the most effective way to ensure that the preparation is thorough and inclusive of communities and stakeholders in the islands.
- 3.22 The work culminated in a report summarising the workshop outcomes and recommended that a STAG study is undertaken as the means of ensuring that requirements for the next contract are clear and that all options for service delivery and infrastructure requirements are fully considered. The report will be made available as soon as each of the partners in the process is satisfied that all issues have been accurately captured.
- 3.23 The outcome of the work has been supported by Scottish Government and Members may be aware that on 13 August 2015 the Minister for Transport and the Islands announced the intention to undertake a STAG based study of the Northern Isles Ferry Services as a means of informing the specification and conditions for the next contract.
- 3.24 Transport Scotland is in the process of preparing to commission consultants to undertake the work and a draft brief for the commission is with officers of each of the partners for input to ensure that each of the Councils and RTPs are satisfied with the description of services required.
- 3.25 At the time of writing this report the detail of the study is not able to be published because it will form part of the tendering process for consultants. However, it is clear from the detail that has been provided that the study will be very thorough and will provide adequate opportunity for communities, businesses and organisations to input to the work. The budget for the work suggests that Transport Scotland recognises the scale of the study and is committed to getting the right level of resources necessary to carry out the work.
- 3.26 From the information available it is anticipated that the conclusions will be reported to Scottish Ministers by the end of August 2016.

4.0 Implications

Strategic

- 4.1 Delivery on Corporate Priorities – “Our Plan 2016 to 2020” states ‘*We will have a clearer understanding of the options and the investment needed to create a sustainable internal transport system over the next 50 years*’. This study will provide an investment plan with supporting analysis, appraisal and evidence that will meet this corporate aim.
- 4.2 Community/Stakeholder Issues - Communities and stakeholders will be engaged in the course of the Study.

- 4.3 Policy and/or Delegated Authority - The Environment and Transport Committee has delegated authority to implement decisions within its remit, in accordance with Section 2.3.1 of the Council's Scheme of Administration and Delegations. This report is presented to allow the Committee to fulfil its monitoring and scrutiny role in terms of progress to date on activities that fall within its remit.
- 4.4 Risk Management - The funding required for inter-island ferry services, in terms of annual revenue requirements and capital requirements to replace infrastructure, is beyond what is sustainably affordable for Shetland Islands Council even in the short term. If alternative arrangements cannot be established then there is substantial risk to the sustainability of services and ultimately the well-being of Shetland as a whole and island communities in particular.

The Study which will identify the socio-economic risks which may arise from different options and scenarios and ensure these are clearly detailed in the conclusions of the Study.

The constraints of the current Northern Isles Ferry Service (constrained capacity perhaps the most significant) are considered a barrier to economic growth in Shetland. If these constraints cannot be addressed then Shetland's future needs will not be adequately met with the consequent risks to economic and social conditions in Shetland.

- 4.5 Equalities, Health and Human Rights - Options and scenarios will be assessed as part of the Study.
- 4.6 Environmental - Any necessary environmental assessments will be undertaken as part of the Study.

Resources

- 4.7 Financial – The gross revenue cost of provision of the Inter Island Ferry Service is currently £14.4m, of which £6.8m is funded from the Ferries GAE allocation which forms part of the Scottish Government General Revenue Grant, £2.2m is funded by external fare income leaving a balance of £5.4m to be funded from the Council's General Fund (General Revenue Grant and Reserves).

The revenue cost of the research and consultancy work required as outlined in the report could be up to £220,000.

This cost will be through a combination of up to £120,000 from the Council's Change Fund, up to £50,000 from Transport Scotland and up to £50,000 from Highlands and Islands Enterprise.

- 4.8 Legal – None.
- 4.9 Human Resources – None.
- 4.10 Assets and Property – None.

5.0 Conclusions

- 5.1 The Council is undertaking a study into inter island transport as the means of completing the steps required under Transport Scotland's Routes and Services Methodology.
- 5.2 This was originally a requirement of Scottish Government to support dialogue on the future funding and responsibility for inter-island ferry services.
- 5.3 It is recognised that the study should not be limited to ferry services recognising that air services and fixed links also provide means of providing access to and from islands.
- 5.4 The Study will be undertaken following the STAG framework and will report initial conclusions during February 2016.
- 5.5 Scottish Government has announced that a STAG Study into the Northern Isles Ferry Services as means of informing the 2018 contract. Transport Scotland has established an initial programme works to undertake a STAG and it is anticipated that the study will be complete and reported to Scottish Ministers by the end of August 2016.

For further information please contact:

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Date Cleared: 29 September 2015

List of Appendices

- Appendix 1 – Routes and Services Methodology Explanatory Note
- Appendix 2 – Shetland Islands Ferry Services Routes and Services Methodology – Final Report
- Appendix 3 – Shetland Inter Island Transport Study – Inception Report

Appendix 1

Routes and Services Methodology Explanatory Paper for Local Authorities

1. Overview

The Routes and Services Methodology (RSM) is a six step, evidence-based process that aims to identify whether gaps exist in the current level of service provision for ferry-dependent communities in Scotland. It is intended to be applied consistently across all communities served by the ferries network. Where gaps are identified, options to address the gaps are developed and appraised to set the priorities for future spending. This paper provides an overview of the six step methodology, providing examples to illustrate each step.

2. The RSM process

Step 1: Identify the dependencies of the community

The first step of the RSM is to identify the dependencies of the communities. Four dependencies are considered: commuting and frequent business use; personal; freight; and tourism. A total of 11 indicators (as outlined in Table 1) are used to rank the communities for the four dependencies. It should be noted that a degree of judgement is required in using the indicators to determine the dependencies of communities.

Table 1: Dependency indicators

Dependency	Indicator	Source
Commuting and Frequent Business Use	1. Island to mainland crossing time (in minutes)	1. Local Authority / Service Operator
	2. Percentage of households who use the ferry service for commuting purposes and are also high frequency users	2. Household Survey / Local Authority
	3. Percentage of households who use the ferry service for business purposes and are also high frequency users	3. Household Survey / Local Authority
Personal	4. Population	4. Census
	5. Percentage of households who use the ferry services for health-related purposes	5. Household Survey / Local Authority
	6. Frequency profile for all travel using the ferry service	6. Household Survey / Local Authority
Freight	7. Population	7. Census
	8. Percentage employed in freight-intensive industry	8. Census / Local Authority
	9. Commercial Vehicle Lane metres per capita	9. Local Authority / Service Operator
Tourism	10. Percentage employed in Tourism	10. Census / Local Authority
	11. Share of summer patronage versus share of population	11. Local Authority

Rather than a strict ranking, communities are categorised into a set of pre-defined 'pots', A to D, which are defined as follows:

- 'Pot A': the community has a strong set of indicators which all point to a specific need for that particular dependency.
- 'Pot D': the community has a weak set of indicators which all point to no specific need to that particular dependency.

- 'Pot B': the community has a mixed set of indicators but has more in common with communities in 'pot A' than 'pot D'.
- 'Pot C': the community has a mixed set of indicators but has more in common with communities in 'pot D' than 'pot A'.

Only those communities categorised into 'pots' A or B for a particular dependency are regarded as having a priority need in that specific aspect. It follows that any number of communities might be in any of the 'pots'.

Table 2 provides an example of the dependency rankings for fictitious islands X, Y and Z. Those dependencies for which the community scores an 'A' or 'B' are highlighted in bold.

Table 2: Example dependency rankings: Islands X, Y and Z

Island	Dependencies			
	Commuting and frequent business use	Personal	Freight	Tourism
X	D	C	A	B
Y	A	A	D	A
Z	C	-	C	B

Table 2 shows that: island X has priority needs in freight and tourism; island Y has priority needs in commuting and frequent business use, personal and tourism; and island Z has a priority need in tourism only. It should be noted that for those communities that information is missing or is not adequate, a "-" is used for the dependency ranking.

It is important to consider whether dependencies change between winter and summer. For example, the tourism dependency might rank in 'pot D' in winter but in 'pot A' or 'pot B' in summer.

Step 2: Define the ferry service profile that fits the community's dependencies

The next step is to define the service profile that fits the community's dependencies based on the dependencies identified as having a 'priority need' and the crossing time (in minutes).

Table 3 outlines the required services profiles for each dependency identified as having a 'priority need', based on the crossing time. For crossing times greater than 60 minutes, no service profile for commuting and frequent business use is proposed.

Table 3: Service profiles for each dependency

		Crossing Time (minutes)					
		(0-30)	(31-60)	(61-90)	(91-180)	(181-360)	(360+)
Commuting & frequent business use	Sailing days	7 days	7 days	-	-	-	-
	Sailings per day	Freq. Peak	Freq. Peak	-	-	-	-
	Operating day	Specific	Specific	-	-	-	-
Personal	Sailing days	7 days	7 days	7 days	7 days	7 days	7 days
	Sailings per day	Standard	Standard	Std-Ltd	Limited	Limited	Limited*
	Operating day	Extended +	Extended +	Extended	Partial	Partial	Partial
Freight	Sailing days	7 days	7 days	7 days	7 days	7 days	7 days
	Sailings per day	Frequent	Frequent	Limited	Limited	Limited	Limited*
	Operating day	Standard	Standard	Specific	Specific	Specific	Specific
Tourism	Sailing Days	7 days	7 days	7 days	7 days	7 days	7 days
	Sailings per day	Standard	Standard	Std-Ltd	Limited	Limited	Limited*
	Operating day	Extended +	Extended +	Extended	Partial	Partial	Partial

The definitions for the profiles of sailings per day and operating day are provided in table 4 below.

Table 4: Service profile definitions

Sailings Per Day	Frequent	Constant service throughout the day (20+)
	Freq. Peak	Frequent core hours and then regular (>8)
	Standard	Regular service throughout the day (6-8)
	Std-Ltd	Limited service throughout the day (3-5)
	Limited	1-2 sailings per day (*denotes 1)
Operating Day	Extended +	More than 14 hours
	Extended	Up to 14 hours, 6 am to 8 pm
	Standard	11 hours, 7 am to 6 pm
	Specific	At peak times, not prescribed
	Partial	No normal operating day

Here we use the example of island X from step 1, where two 'priority need' dependencies were identified: freight and tourism. If we assume that island X has a crossing time of 55 minutes to the mainland, the required service profile for the two individual 'priority need' dependencies as well as the overall service profile for the community is as shown in table 5.

The 'overall' service profile is determined by examining the individual service profiles for freight and tourism and using the service profile from whichever one has the greatest requirements. For example, in the case of sailings per day, tourism requires only standard sailings whereas freight requires frequent sailings, we therefore choose 'frequent' for the overall service requirements. Similarly, in the case of the operating day, freight requires only a standard day whereas tourism requires an extended+ day. We therefore choose 'extended+' for the overall service requirement.

Table 5: Example required service profile for individual dependencies: Island X

		Crossing time: (31-60 mins)
Freight	Sailing days Sailings per day Operating day	7 days Frequent Standard
Tourism	Sailing days Sailings per day Operating day	7 days Standard Extended+
Overall	Sailing days Sailings per day Operating day	7 days Frequent Extended+

Table 6 below shows that the proposed service profile for island X is 7 sailing days, frequent sailings per day (20+ sailings per day) and an extended+ operating day (more than 14 hours). As table 6 shows, this proposed service profile refers to summer period. In cases where the dependencies for winter differ, the profile should be adjusted accordingly.

Table 6: Example proposed service profile: Island X

Island	Route (Crossing Time)	Proposed Service Profile (Summer)		
		Sailing days	Sailings per day	Operating day
X	X to mainland (55)	7 days	Frequent	Extended+

Step 3: Define the current ferry service profile

Step 3 requires the current service to be defined in terms of sailing days, sailings per day and length of operating day. It is envisaged that each community will have two sets of service profiles: one for summer and one for winter. Continuing with the example of island X, table 7 shows the actual ferry service profile.

Table 7: Example current service profile: Island X

Island	Route (Crossing Time)	Current Service Profile (Summer)		
		Sailing days	Sailings per day	Operating day
X	X to mainland (55)	6 days	Standard	Extended

Step 4: Compare the current and proposed service profiles to identify gaps in service provision

This step requires a comparison between the proposed and current service profiles to identify whether gaps exist in service provision. Table 8 provides the comparison of our island X example.

Table 8: Example of comparing the proposed and current service profiles

Island	Route (crossing time)	Service profile (Summer)			
		Model/current	Sailing days	Sailings per day	Operating day
X	X to mainland (55)	Model	7 days	Frequent	Extended+
		Current	6 days	Standard	Extended

The following key is used to indicate whether there the current service profile represents under-provision, over-provision or sufficient provision.

	Substantial under-provision
	Marginal under-provision
	Sufficient provision
	Marginal over-provision
	Substantial over-provision

Based on the comparison of current and proposed service profiles, table 9 provides an assessment of the gaps in service provision.

Table 9: Example of assessment of gap in provision

Island	Route (crossing time)	Assessment of gap in provision (Summer)		
		Sailing days	Sailings per day	Operating day
X	X to mainland (55)	Marginal under-provision	Substantial under-provision	Marginal under-provision

In our example, substantial under-provision is identified in the sailings per day whilst marginal under-provision is identified for the number of sailing days and the length of operating day.

Step 5: Propose and appraise options for addressing gaps in service provision

Steps 5 and 6 are required only for those communities where gaps in provision have been identified in step 4.

Step 5 requires the development of a range of options to address the gaps identified between current provision and the proposed service profile. It should be noted that options to maintain the current level of service, such as vessel replacement, should not be considered here; vessel replacement to maintain current service levels should be considered as a separate issue.

Consideration should be given to cost-neutral options, such as timetable re-configuration¹, as well as to options which will require an increase in financial investment².

The options developed should then be subject to a high-level, qualitative appraisal to determine the best option(s) to be taken forward. The appraisal should consider the extent to which the option will address the gap(s) identified and provide a high-level, qualitative assessment of the benefits with respect to the five STAG criteria (environment, economy, integration, accessibility and safety). It should also consider issues such as feasibility,

¹ Timetable re-configuration can achieve a range of objectives such as: lengthening the operating day; offering more frequent services at peak demand times; increasing the number of sailing days; or increasing the number of sailings per day on peak demand days.

² Options requiring additional investment might include introducing an additional vessel or a new port. It may also be appropriate to consider options such as introducing road and bridge links.

public acceptability and affordability, providing a broad indication of the magnitude of the cost.

Step 6: Prioritise options to be taken forward in the short, medium and long-term

Step 6 requires the options that have passed the appraisal process to be prioritised in terms of actions to be taken forward in the short, medium and longer-term. It is anticipated that cost-neutral or low cost options will be taken forward as a priority in the short-term whilst the more costly actions will be prioritised for longer-term investment according to which is likely to have the greatest impact. Findings should be presented in the form of an Investment Plan as outlined in Table 10 below³.

Table 10: Investment Plan pro-forma

Proposal		Estimated Timing	Estimated Funding
Short-term proposals			
Medium-term proposals			
Short-term proposals			

³ Please see Appendix 1 of the Scottish Government Ferries Plan for an example completed Investment Plan. <http://www.transportscotland.gov.uk/strategy-and-research/publications-and-consultations/j254579-16.htm>

Shetland Islands Ferry Services Routes & Services Methodology (RSM)

Final Report

On behalf of **Shetland Islands Council**



Project Ref: 33460 | Rev: SC | Date: September 2015

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1 Introduction

1.1 Overview

1.1.1 Shetland Islands Council commissioned Peter Brett Associates LLP to conduct the Transport Scotland 'Routes & Services Methodology' (RSM) review of the archipelago.

1.1.2 A map of the Shetland Islands Council ferries network is shown below:

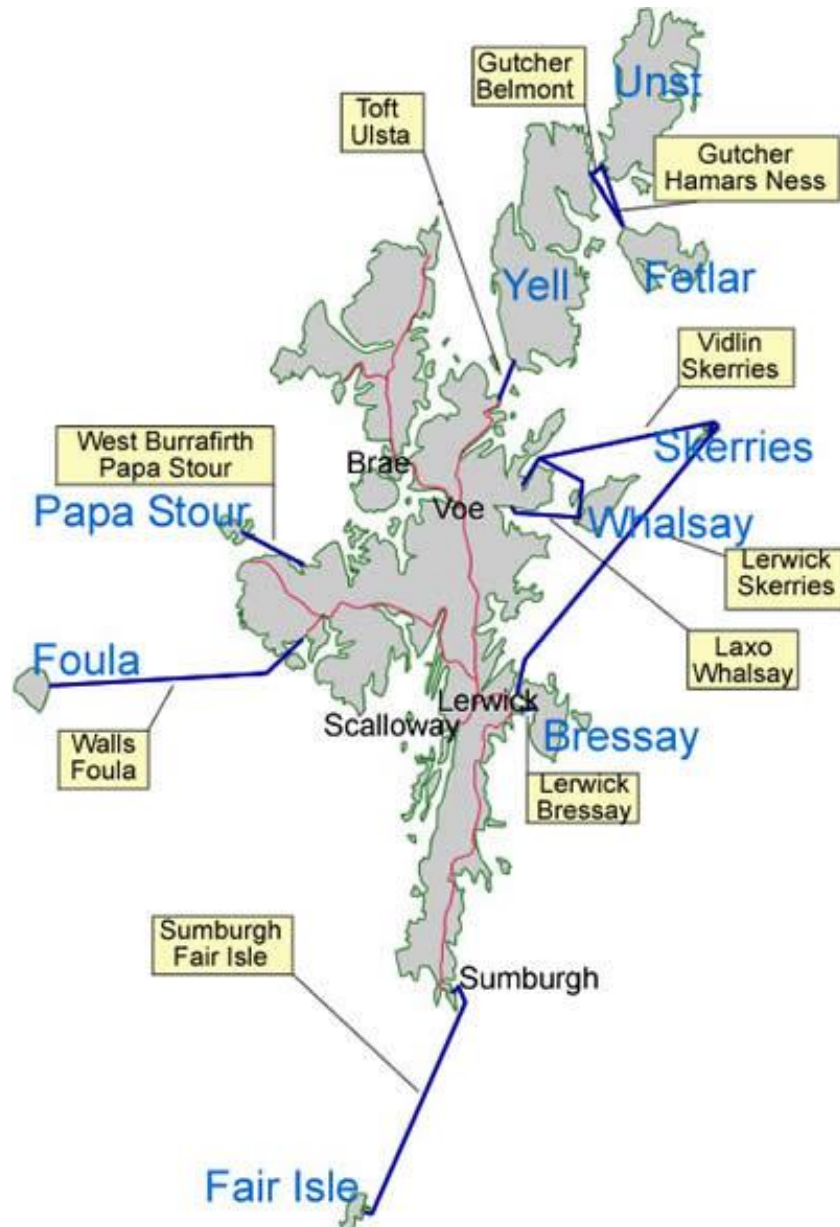


Figure 1.1 Shetland Islands and Ferry Routes

- 1.1.3 This piece of research focuses specifically on future ferry service provision. As part of their comprehensive review of all publicly supported ferry services in Scotland, Transport Scotland developed a 'Routes & Services Methodology' (RSM) designed to ensure a consistent approach to ferry service provision across Scotland.
- 1.1.4 The Routes and Services Methodology (RSM) is a six step, evidence-based process that aims to identify whether gaps exist in the current level of service provision for ferry-dependent communities in Scotland. It is intended to be applied consistently across all communities served by the ferries network. Where gaps are identified, options to address the gaps should be developed and appraised to set the priorities for future spending. There are six steps in the methodology, as follows:
- Step 1: Identify the dependencies of the community
 - Step 2: Define the ferry service profile that fits the community's dependencies
 - Step 3: Define the current ferry service profile
 - Step 4: Compare the current and proposed service profiles to identify gaps in service provision
 - Step 5: Propose and appraise options for addressing gaps in service provision
 - Step 6: Prioritise options to be taken forward in the short, medium and long-term
- 1.1.5 This short report sets out the RSM process for steps 1-4 and the results for each island / group of islands. It is important to note that steps 1-4 in the process are defined in the Transport Scotland RSM guidance.
- 1.1.6 Steps 5 and 6 are concerned with the generation and appraisal of options to address gaps in service provision identified by the RSM. Steps 5&6 do not have to be carried out where there are no identified gaps, although an appraisal of asset replacement options can accompany the RSM analysis. It is at this stage that the 'model service' defined by the RSM can be adapted to take account of locally important issues and the views of the community.
- 1.1.7 In order to progress steps 1-4 of the RSM, a primary data collection exercise was undertaken in the form of a survey of Shetland Islands residents (excluding Shetland Mainland). This is described in the next chapter.

2 The RSM Survey

2.1 Overview

- 2.1.1 The RSM process is underpinned by a series of indicators, which identify the ferry-related dependencies of an island and define in outline the model service which it should receive.
- 2.1.2 It should be noted that RSM focuses entirely on ferry services and does not consider air services or any other alternative transport option.
- 2.1.3 The process considers four **ferry-related dependencies**, each of which is informed by a series of indicators – this is set out in the table below (which was provided by Transport Scotland):

Table 2.1: Community Dependencies and Indicators

Dependency	Indicator
Commuting and Frequent Business Use	1. Island to mainland crossing time (in minutes) 2. Percentage of households who use the ferry service for commuting purposes and are also high frequency users 3. Percentage of households who use the ferry service for business purposes and are also high frequency users
Personal	4. Population 5. Percentage of households who use the ferry services for health-related purposes 6. Frequency profile for all travel using the ferry service
Freight	7. Population 8. Percentage employed in freight-intensive industry 9. Commercial Vehicle Lane metres per capita
Tourism	10. Percentage employed in Tourism 11. Share of summer patronage versus share of population

- 2.1.4 In developing the analysis, we used the above indicators as provided, with the exception of 2 and 3, which were each split out into two separate indicators – i.e. these indicators appear to combine two separate indicators ie (i) percentage of people who use the ferry for commuting / business purposes; and (ii) those who are high frequency users for these purposes.
- 2.1.5 The data required to inform the RSM are a combination of ferry operator data and primary data collection undertaken with islanders. The former are readily available but the latter required a survey of island residents to inform, for example, use of the ferry for commuting and health related-travel.

2.2 Shetland Islands RSM Survey

- 2.2.1 In order to obtain the required data to employ the RSM an online survey of Shetland Islands residents (excluding Shetland Mainland) was undertaken. This was supplemented by paper based versions of the survey which were distributed amongst passengers during their ferry journeys.
- 2.2.2 The survey was set up to be 'live' over a two month period, from 15th May to 10th July 2014. Extensive advertising of the survey was undertaken, including:

- posters and flyers available on the ferry / in booking offices.
- social media, including through the Council's Facebook and Twitter pages;
- Shetland Islands Council advertised the survey to key community groups and other potentially interested parties.

Sampling & Survey Design

2.2.3 This section briefly explains the sampling and survey design process. The 2011 Census reports the following population and households figures for the nine Shetland Islands which are currently served by ferry services:

Table 2.2: Shetland Islands Population and Households

Island	Population	Households
Bressay	368	174
Fair Isle	68	26
Fetlar	61	31
Foula	38	20
Papa Stour	15	9
Skerries (Bruray, Grunay & Housay)	74	31
Unst	632	310
Whalsay	1,061	388
Yell	966	419
Total	3,283	1,408

2.2.4 Across all the Shetland Islands, around 19% of the population are under 16, so this would imply an adult population of around 2,660. Small populations require high sample rates to achieve strict statistical significance. Overall though, from this 2,660 adult population, to obtain say a 5% confidence interval with a 95% certainty required a sample of 335.

2.2.5 The survey was designed to obtain the information necessary to inform the RSM indicators. It was issued in both paper and web-based format.

Summary of Responses Received

2.2.6 A good response was generated by the survey, with a total of 470 responses received, 135 surveys more than the targeted total. The sample can therefore be considered to be robust.

2.2.7 A breakdown of the number of responses received by island is provided in Table 2.3.

Table 2.3: Breakdown of Responses by Island

	Island Population	Number of Responses	% of total responses	Responses as a % of total population
Bressay	368	77	16%	21%
Fair Isle	68	6	1%	9%
Fetlar	61	31	7%	51%
Foula	38	4	1%	11%
Papa Stour	15	10	2%	67%
Skerries	74	31	7%	42%
Unst	632	72	15%	11%
Whalsay	1,061	144	31%	14%
Yell	966	95	20%	10%
Total	3,283	470		

3 RSM Step 1 - Defining the RSM 'Pots'

3.1 Overview

3.1.1 The first step of Transport Scotland's RSM is to identify the dependencies of the communities. Four dependencies are considered:

- commuting and frequent business use;
- personal;
- freight; and
- tourism.

3.1.2 A total of 13 indicators were used to rank the communities for the four dependencies. Rather than a strict ranking, communities are categorised into a set of pre-defined 'pots', A to D, which are defined as follows:

- **'Pot A'**: the community has a **strong** set of indicators which all point to a specific need for that particular dependency.
- **'Pot D'**: the community has a **weak** set of indicators which all point to no specific need to that particular dependency.
- **'Pot B'**: the community has a mixed set of indicators but has more in common with communities in 'pot A' than 'pot D'.
- **'Pot C'**: the community has a mixed set of indicators but has more in common with communities in 'pot D' than 'pot A'.

3.1.3 Only those communities categorised into 'pots' A or B for a particular dependency are regarded as having a **priority need** in that specific aspect and this has implications in terms of the nature of the ferry service required.

3.1.4 This chapter explains how the data collected in the survey, combined with the operator data, were used to identify the dependencies of each island. The initial definition of the RSM dependencies was submitted to Shetland Islands Council and Transport Scotland for review and agreement.

3.2 Issues with RSM Methodology

3.2.1 Although we have followed the RSM as laid out by Transport Scotland, there are a number of characteristics of the RSM process which should be borne in mind when interpreting the results.

3.2.2 Firstly, the RSM process does not specify quantitative bandings for allocating a specific dependency to an island. For example, there are no fixed rules to state that islands with say >50% commuting should be scored as an 'A', 35%-49% a 'B' and so on. As a result, the allocation of an island to an RSM 'pot' requires an element of judgement and as such it is a somewhat subjective process. In order to ensure that the outputs for the Shetland Islands were as consistent as possible, we compared our findings for the Shetland Islands internal services with those for the Orkney Islands.

3.2.3 Secondly, as the RSM looks into assessing current routes and services across the Scottish ferries network consistently, the methodology indicators assume a fixed operational

envelope in that all ports, vessels etc are fixed. In the event that new and faster vessels are procured, the subsequent changes in crossing times would be reflected in updated dependency profiles for the island communities, such as the 'Commuting & Business' dependency.

3.2.4 Similarly, in the 'Personal' dependency, population is used as an indicator. The methodology assumes that the islands with the largest population have the greatest dependency on the ferry for personal use. However, larger islands may in fact have a lower dependency on the ferry for personal use because these islands are capable of sustaining a wider service and retail base on the island.

3.2.5 It should also be noted that the RSM is designed to provide an overarching framework for assessing the island community needs for **ferry services only** across the Scottish network. Hence, although some islands may demonstrate a need, ferry services may not be best placed to meet that specific need. A good example of this is Foula, where the lifeline transport for the island is partly provided by the air service. Our approach to addressing this issue has been to recommend at least the minimum provision under the RSM, which is generally in excess of what such islands currently have in terms of service provision.

3.2.6 With regards to local authority operated services, the RSM considers the dependency of the islands on the Shetland mainland. **There is therefore no 'Shetland mainland' RSM, with the dependencies for the ferry services defined by island need alone.** That is, the process does not consider instances where a resident of the Shetland Mainland has a dependency on travel to one of the other islands in the archipelago for eg commuting or business. The potential exceptions to this are Fetlar & Unst, where the survey has attempted to determine whether their respective dependencies are related to Yell or Shetland mainland (discussed in more detail in the next chapter).

3.2.7 Finally, it should be noted that the **first four stages of the RSM take no account of fares or wider socio-economic issues**. These early stages are concerned with developing a model service provision. Steps 5 and 6 of the process, which are focussed on option generation and appraisal, allow for the more detailed consideration of these issues.

3.3 Commuting & Business

3.3.1 The first dependency is 'Commuting & Business' which is defined by the following indicators:

- 1) Island to mainland crossing time (minutes);
- 2a) Percentage of people who use the ferry service for commuting;
- 2b) Percentage of people who use the ferry service for commuting - high frequency users;
- 3a) Percentage of people who use the ferry for business purposes; and
- 3c) Percentage of people who use the ferry for business purposes – high frequency users.

3.3.2 Table 3.1 highlights the A-D scoring of each island / island group for each indicator. Note that the full results are included in a spreadsheet in Appendix B.

Table 3.1: Commuting & Business Dependency

Island	Indicator 1	Indicator 2a	Indicator 2b	Indicator 3a	Indicator 3b	Overall Rating
Bressay	A	A	A	A	C	A
Fair Isle	D	C	D	B	D	C
Fetlar – Yell	A	C	A	D	D	C
Fetlar - Mainland	C	D	D	C	D	D
Foula	D	B	D	B	D	C
Papa Stour	B	C	D	C	D	C
Skerries	C	C	D	C	D	C
Unst – Yell	A	D	D	D	D	C
Unst - Mainland	C	C	B	C	C	C
Whalsay	A	A	B	B	D	B
Yell	A	B	B	A	D	B

3.3.3 As previously explained in Section 3.2 above, RSM focuses on the island to mainland dependencies only. However, to get to the mainland from the islands of Fetlar & Unst, one has to first pass through the island of Yell. In setting the scope for the study, it was explained that the ferry dependencies of some Fetlar & Unst residents may be related to Yell rather than Mainland. In order to address this, survey respondents were asked to set out the individual ferry journeys they make in relation to each dependency, allowing us to identify a separate dependency for Fetlar/Unst – Yell and Fetlar/Unst – Mainland trips.

3.3.4 If Fetlar/Unst residents were only travelling to Yell for a specific purpose rather than the Mainland, the allocation to an RSM 'Pot' in this respect would only apply to the Gutscher-Belmont/Hamars Ness ferry - ie it would contribute to defining this ferry service. If Fetlar/Unst residents were in fact travelling to the Mainland for a specific purpose, the 'Pot' allocation and hence the service specification would have to apply to both ferries (i.e. the Bluemull Sound and Yell Sound ferries), i.e. it would set the minimum level of service for both the services involved. In the majority of cases, Unst and Fetlar have a greater dependency on the Mainland and, therefore, in all cases, the highest level of service specified by RSM was adopted as minimum service specification for these islands.

3.3.5 In terms of the 'Commuting & Business' dependency, it is perhaps unsurprising that, given proximity, Bressay has a high dependency on access to the Mainland. This is also true of Whalsay and Yell, which are the larger islands in terms of population and where it is unlikely that 'domestic' industries alone can sustain the entire populace. Commuting and business trips from the other islands are less frequent.

3.4 Personal

3.4.1 The 'Personal' dependency covers use of the ferry for health related and other non-work purposes such as shopping and visiting friends and relatives. This dependency is defined by the following indicators:

- 4) Population;

- 5) Percentage of households who use the ferry service for health-related purposes; and
- 6) Frequency profile for all travel using the ferry services.

3.4.2 Table 3.2 highlights the A-D scoring of each island / island group for each indicator.

Table 3.2: Personal Dependency

Island	Indicator 4	Indicator 5	Indicator 6	Overall Rating
Bressay	<i>B</i>	<i>A</i>	<i>A</i>	A
Fair Isle	<i>C</i>	<i>B</i>	<i>D</i>	C
Fetlar – Yell	<i>C</i>	<i>C</i>	<i>B</i>	C
Fetlar - Mainland	<i>C</i>	<i>C</i>	<i>B</i>	C
Foula	<i>D</i>	<i>A</i>	<i>D</i>	C
Papa Stour	<i>D</i>	<i>A</i>	<i>B</i>	B
Skerries	<i>C</i>	<i>A</i>	<i>C</i>	B
Unst – Yell	<i>B</i>	<i>D</i>	<i>C</i>	C
Unst - Mainland	<i>B</i>	<i>B</i>	<i>C</i>	B
Whalsay	<i>A</i>	<i>B</i>	<i>A</i>	A
Yell	<i>A</i>	<i>A</i>	<i>A</i>	A

3.4.3 The table above shows that the larger islands typically have a high dependency on the ferry for access to health and all other purposes - Yell, Bressay and Whalsay have particular dependencies in this regard, whilst Unst also has a 'Personal' dependency. The smaller islands of Papa Stour and Skerries also have a dependency on the ferry in the 'Personal' category, driven principally by access to health.

3.5 Freight

3.5.1 The freight category reflects the dependency on the ferry services to support the functioning of the island supply chain. This is defined by the following indicators:

- 7) Population;
- 8) Percentage employed in freight-intensive industry; and
- 9) Commercial vehicle lane metres per capita.

3.5.2 It should be noted that whilst freight may not be a dependency on all islands (ie the ferry service should not necessarily be built around it), there should be a base level of freight supply to all islands. The ability of the ferry to carry commercial vehicles, loose and bulk goods is critical to the functioning of island supply chains and this need should not be underestimated.

3.5.3 Table 3.3 highlights the A-D scoring of each island / island group for each indicator.

Table 3.3: Freight Dependency

Island	Indicator 7	Indicator 8	Indicator 9	Overall Rating
Bressay	<i>B</i>	<i>C</i>	<i>A</i>	B
Fair Isle	<i>C</i>	<i>A</i>	<i>D</i>	C
Fetlar – Yell	<i>C</i>	<i>A</i>	<i>C</i>	B
Fetlar - Mainland	<i>C</i>	<i>A</i>	<i>C</i>	B
Foula	<i>D</i>	<i>D</i>	<i>D</i>	D
Papa Stour	<i>D</i>	<i>A</i>	<i>D</i>	C
Skerries	<i>C</i>	<i>A</i>	<i>D</i>	C
Unst – Yell	<i>B</i>	<i>B</i>	<i>B</i>	B
Unst - Mainland	<i>B</i>	<i>B</i>	<i>B</i>	B
Whalsay	<i>A</i>	<i>C</i>	<i>D</i>	C
Yell	<i>A</i>	<i>C</i>	<i>A</i>	B

3.5.4 The majority of islands have a dependency on the ferry for freight. However, the four Outer Isles (Fair Isles, Foula, Papa Stour and Skerries) are not deemed by the RSM to have a dependency in this regard. As each island has minimum base freight needs, steps 5 and 6 of the analysis would need to consider whether there is demand for freight transport by ferry or the freight need is addressed by alternative transport options.

3.6 Tourism

3.6.1 The ‘Tourism’ dependency addresses the importance of the ferry services to the tourist economy of an island. This dependency is defined by the following indicators:

- 10) Percentage employed in tourism; and
- 11) Share of summer patronage versus share of population.

3.6.2 Table 3.4 highlights the A-D scoring of each island / island group for each indicator.

Table 3.4: Tourism Dependency

Island	Indicator 10	Indicator 11	Overall Rating
Bressay	<i>C</i>	<i>C</i>	C
Fair Isle	<i>D</i>	<i>D</i>	D
Fetlar – Yell	<i>D</i>	<i>C</i>	C
Fetlar - Mainland	<i>D</i>	<i>C</i>	C
Foula	<i>D</i>	<i>D</i>	D
Papa Stour	<i>D</i>	<i>B</i>	C
Skerries	<i>D</i>	<i>D</i>	D

Island	Indicator 10	Indicator 11	Overall Rating
Unst – Yell	C	A	B
Unst - Mainland	C	A	B
Whalsay	B	D	C
Yell	B	B	B

- 3.6.3 Of the nine islands subject to the RSM, only Unst and Yell are deemed to have a dependency on the ferry for tourism purposes. These islands tend to have a bigger share of the population employed in tourism and a higher level of ferry related seasonality.

3.7 Summary of RSM Pots

- 3.7.1 The RSM Guidance published by Transport Scotland suggests that only those communities categorised into ‘pots’ A or B for a particular dependency are regarded as having a priority need in that specific aspect. The following table summarises the RSM scores for each island under each dependency.

Table 3.5: Summary of RSM Dependencies

Island	Commuting & Business	Personal	Freight	Tourism
Bressay	A	A	B	C
Fair Isle	C	C	C	D
Fetlar – Yell	C	C	B	C
Fetlar - Mainland	D	C	B	C
Foula	C	C	D	D
Papa Stour	C	B	C	C
Skerries	C	B	C	D
Unst – Yell	C	C	B	B
Unst - Mainland	C	B	B	B
Whalsay	B	A	C	C
Yell	B	A	B	B

- 3.7.2 Of the nine islands, only Fair Isle and Foula have no identified ‘priority needs’ for the ferry. If the RSM were to be followed literally, this would imply they have no need for a ferry service. Clearly this is counter-intuitive and, as a result, it was agreed that such islands should be classified under the minimum RSM provision, although this actually offers a higher level of service than that which the islands currently receive (as explained below).
- 3.7.3 The table also shows that both Fetlar and Unst have identified dependencies on the Mainland and would thus require at least an equivalent level of service on the Yell Sound to that offered on the Bluemull Sound. The high dependency level for Yell indicates that such a service level would be received in any case.

4 RSM Step 2 – Development of Model Service

4.1 Overview of Approach

4.1.1 The second step in the RSM process is to define the service profile that fits the community's dependencies based on the dependencies identified as having a 'priority need', and the crossing time (in minutes).

4.1.2 Table 4.1 below outlines the required services profiles for each dependency identified as having a 'priority' need, based on the crossing time. On crossing times greater than 60 minutes, no service profile for commuting and frequent business use is included.

Table 4.1: RSM Service Profiles for each Dependency

		Crossing Time (minutes)					
		(0-30)	(31-60)	(61-90)	(91-180)	(181-360)	(360+)
Commuting & frequent business use	Sailing days	7 days	7 days	-	-	-	-
	Sailings per day	Freq. Peak	Freq. Peak	-	-	-	-
	Operating day	Specific	Specific	-	-	-	-
Personal	Sailing days	7 days	7 days	7 days	7 days	7 days	7 days
	Sailings per day	Standard	Standard	Std-Ltd	Limited	Limited	Limited*
	Operating day	Extended +	Extended +	Extended	Partial	Partial	Partial
Freight	Sailing days	7 days	7 days	7 days	7 days	7 days	7 days
	Sailings per day	Frequent	Frequent	Limited	Limited	Limited	Limited*
	Operating day	Standard	Standard	Specific	Specific	Specific	Specific
Tourism	Sailing Days	7 days	7 days	7 days	7 days	7 days	7 days
	Sailings per day	Standard	Standard	Std-Ltd	Limited	Limited	Limited*
	Operating day	Extended +	Extended +	Extended	Partial	Partial	Partial

4.1.3 The definitions for the profiles of sailings per day and operating day are provided in Table 4.2 below.

Table 4.2: RSM Service Profile Definitions

Sailings Per Day	Frequent	Constant service throughout the day (20+)
	Freq. Peak	Frequent core hours and then regular (>8)
	Standard	Regular service throughout the day (6-8)
	Std-Ltd	Limited service throughout the day (3-5)
	Limited	1-2 sailings per day (*denotes 1)
Operating Day	Extended +	More than 14 hours
	Extended	Up to 14 hours, 6 am to 8 pm
	Standard	11 hours, 7 am to 6 pm
	Specific	At peak times, not prescribed
	Partial	No normal operating day

4.1.4 So for an example, an island which displays a Personal dependency and has a crossing time of 31-60 minutes would require the following service:

- Sailing Days: '7 Days'
- Sailings per Day: 'Standard' that is 'Regular service throughout the day (6-8)'
- Operating Day: 'Extended+' that is 'More than 14 hours'

4.1.5 The overall service profile is determined by examining the individual service profiles for the identified dependencies (ie those scoring 'A' or 'B') and using the highest combined service profile from whichever one has the greatest requirements.

4.2 Model Service

4.2.1 The resulting model service for the non-mainland Shetland Islands is illustrated in Table 4.3 below.

Table 4.3: Shetland Islands Model Services

	Island to Mainland Crossing Time (Mins)	Sailing Days	Sailings Per Day	Operating Day
Bressay	7	7 days	Frequent	Extended+
Fair Isle	160	7 days	Limited*	Partial
Fetlar	25	7 days	Frequent	Standard
Foula	120	7 days	Limited*	Partial
Papa Stour	40	7 days	Standard	Extended+
Skerries (Bruray, Grunay & Housay)	90	7 days	Std-Ltd	Extended

	Island to Mainland Crossing Time (Mins)	Sailing Days	Sailings Per Day	Operating Day
Unst	10	7 days	Frequent	Extended+
Whalsay	30	7 days	Freq. Peak	Extended+
Yell	20	7 days	Frequent	Extended+

* denotes 1 sailing per day

5 RSM Step 3 – Define the Current Ferry Service Profile

5.1 Overview

5.1.1 Step 3 in the RSM process requires the current service to be defined in terms of sailing days, sailings per day and length of operating day.

5.1.2 The RSM guidance suggests that the definition of the current ferry service should take account of both summer and winter timetables. Through a review of Shetland Islands Council's ferries timetables and discussions with the Council, it is our understanding that the timetable is broadly consistent year round, with a slight reduction in service over the winter to account for maintenance and refit. We have therefore focused the definition of current ferry service on the standard summer timetable.

5.2 Current Service

5.2.1 Using the RSM definitions, Table 5.1 below provides an overview of the current service.

Table 5.1: Current Service Profile

	Island to Mainland Crossing Time (Mins)	Sailing Days	Sailings Per Day	Operating Day
Bressay	7	7 days	Frequent	Extended+
Fair Isle	160	3 days	Limited*	Partial
Fetlar	25	7 days	Freq. Peak	Extended+
Foula	120	3 days	Limited*	Partial
Papa Stour	40	4 days	Limited	Partial
Skerries (Bruray, Grunay & Housay)	90	5 days	Limited	Partial
Unst	10	7 days	Frequent	Extended+
Whalsay	30	7 days	Freq. Peak	Extended+
Yell	20	7 days	Frequent	Extended+

5.2.2 The Shetland Islands inter-island ferries network can largely be divided into two different types of service:

- short-hop routes which offer a frequent service over a long operating day – in many cases these routes form part of the spinal north/south route through the archipelago; and
- infrequent routes to the Outer Isles, which are also served by air services.

5.2.3 Bressay, Fetlar, Unst, Whalsay and Yell can all be considered under the first service type, with seven-day services offering a comparatively high frequency and longer operating day.

Fair Isle, Foula, Papa Stour and Skerries have services ranging from 3-5 days per week with a much lower services frequency, but are also served by air.

- 5.2.4 The services on the short-hop routes are generally slightly less frequent on a Saturday, even more so on a Sunday.

6 RSM Step 4 – Gap Analysis

6.1 Overview

- 6.1.1 This step requires a comparison between the proposed and current service profiles to identify whether gaps exists in service provision.

6.2 Gap Analysis

- 6.2.1 The RSM methodology advises the use of a five point scale to identify gaps, as follows:

- **Substantial under provision** – where current provision is at least two ‘service definitions’ short of model provision – eg current sailings per day is “Standard” and model sailings per day is “Frequent”.
- **Marginal under provision** - where current provision is one ‘service definition’ short of model provision – eg current sailings per day is “Freq. Peak” and model sailings per day is “Frequent”.
- **Sufficient provision** – where current provision equates with model provision.
- **Marginal over provision** - where current provision is one ‘service definition’ greater than model provision – eg current sailings per day is “Freq. Peak” and model sailings per day is “Standard”.
- **Substantial over provision** - where current provision is at least two ‘service definitions’ greater than model provision – eg current sailings per day is “Frequent” and model sailings per day is “Standard”.

- 6.2.2 The table overleaf provides an indication of the gap analysis undertaken.

Island	Island to mainland crossing time (minimum)	Service Profile						
		Model / Current	Sailing Days	Sailings per Day	Operating Day			
Bressay	7	Model	7 days	Frequent	Extended+			
		Current	7 days	Frequent	Extended+			
Fair Isle	160	Model	7 days	Limited*	Partial			
		Current	3 days	Limited*	Partial			
Fetlar	25	Model	7 days	Frequent	Standard			
		Current	7 days	Freq. Peak	Extended+			
Foula	120	Model	7 days	Limited*	Partial			
		Current	3 days	Limited*	Partial			
Papa Stour	40	Model	7 days	Standard	Extended+			
		Current	4 days	Limited	Partial			
Skerries (Bruray, Grunay & Housay)	90	Model	7 days	Std-Ltd	Extended			
		Current	5 days	Limited	Partial			
Unst	10	Model	7 days	Frequent	Extended+			
		Current	7 days	Frequent	Extended+			
Whalsay	30	Model	7 days	Freq. Peak	Extended+			
		Current	7 days	Freq. Peak	Extended+			
Yell	20	Model	7 days	Frequent	Extended+			
		Current	7 days	Frequent	Extended+			

Table 6.1: Shetland Islands RSM Gap Analysis¹

6.2.3 The above table demonstrates the high quality of the ferry services on offer in the Shetland Islands, with the majority of islands having at or near to the RSM identified service levels. The main shortcomings are the:

- sub seven day sailing frequency to the Outer Isles; and
- lower than RSM specified number of sailings per day across a small number of islands.

6.2.4 It should be noted that where there is a sub seven day service, this is generally because of the limited demand caused either by a low population and / or a long distance crossing. On each of these routes, the ferry service is supplemented by an air service which, if the RSM were to be broadened out, could allow this level of service (connectivity) to be delivered without a step change in infrastructure investment.

6.2.5 The only identified over-provision is in Fetlar, where the current operating day is deemed to be overly long. However, given that Unst would continue to benefit from an 'Extended+' operating day, it would in all likelihood be publicly unacceptable to in any way decrease the length of the sailing day to Fetlar.

6.2.6 The position for each island / island-group is summarised in the below table:

¹ Note – the journey times for Fetlar and Unst are the travel times from these islands to Yell. The level of service referred to for Fetlar and Unst is for the Bluemull Sound.

Table 6.2: Island-by-Island Issues

Island	Sailing Days	Sailings Per Day	Operating Day
Bressay	Acceptable	Acceptable	Acceptable
Fair Isle	Service should be offered 7 days-a-week Substantial under-provision	Acceptable	Acceptable
Fetlar	Acceptable	Number of sailings should be increased to 20+ p/d Marginal under-provision	Sailing day should be 11 hours, 7am – 6pm Substantial over-provision
Foula	Service should be offered 7 days-a-week Substantial under-provision	Acceptable	Acceptable
Papa Stour	Service should be offered 7 days-a-week Substantial under-provision	Number of sailings should be increased to 6-8 p/d Substantial under-provision	Sailing day should be more than 14 hours Substantial under-provision
Skerries	Service should be offered 7 days-a-week Substantial under-provision	Number of sailings should be increased to 3-5 p/d Marginal under-provision	Sailing day should be up to 14 hours, 6am-8pm Substantial under-provision
Unst	Acceptable	Acceptable	Acceptable
Whalsay	Acceptable	Acceptable	Acceptable
Yell	Acceptable	Acceptable	Acceptable

6.3 Next Steps

- 6.3.1 Having undertaken the RSM steps 1-4, the next steps in the process, which will be developed through a series of separate studies, is to undertake steps 5 & 6 in the RSM process, which identify and prioritise options to ensure the RSM requirements are delivered where possible / feasible.

Shetland Islands Inter- Island Transport Study

Draft Inception Report

On behalf of **Shetland Islands Council**



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1 Overview

1.1 Introduction

- 1.1.1 In December 2014, Shetland Islands Council, HITRANS, Transport Scotland, Orkney Islands Council and ZetTrans agreed a **Joint Statement** establishing Partnership commitments to jointly address ferry replacement issues in Shetland and Orkney. This Agreement was itself linked into the Empowering Scotland's Island Communities Prospectus which identified the benefits of close working to establish a fair and effective solution to service requirements for the future.
- 1.1.2 It was recognised in these Statements that there was a **need for evidence gathering to support future funding and investment decisions**. It was further recognised that the evidence gathering should follow Transport Scotland's established Routes and Services Methodology and STAG Appraisal approaches to ensure consistency and legitimacy alongside other transport projects and services in Scotland.
- 1.1.3 This document forms the Inception Report for the Shetland Inter-Island Transport Study which has been commissioned to meet these requirements, from Shetland Islands Council's perspective.
- 1.1.4 Reflecting the above Joint Statement, Orkney Islands Council and HITRANS are currently commissioning a very similar study. There are clear benefits in adopting a broadly common approach across the two studies, and our methodology has been developed to reflect this, should we be appointed to the Orkney / HITRANS study.

1.2 Preceding Studies

- 1.2.1 This study will build on two recent studies undertaken by PBA on behalf of SIC. These are:
- Shetland Island Routes and Services Methodology (RSM) Study, 2015 – this study applied Transport Scotland's standard RSM to the Shetland Islands and reported the findings; and
 - Shetland Islands Transport Scoping Study, 2015 – this study reviewed five full or partial recent STAG studies undertaken with respect to inter-islands transport. The purpose of this was to identify technical 'gaps' and provide a foundation for this current study. This work was essential to ensure that maximum use is made of the preceding studies commissioned by SIC.

1.3 Study Team & Contractual Arrangements

Study Team

- 1.3.1 Our proposed study team is as follows:
- Peter Brett Associates LLP (PBA) - Project Lead
 - Beckett Rankine – Harbours
 - Donaldson Associates – Fixed Links
 - Natural Capital / Energised Environments - Environment
 - Northpoint Aviation – Aircraft & Airfields
 - The Maritime Group International (TMG) - Vessels
 - Peer Review Group

- o PBA Internal
 - o Reference Economics
 - o Proversa Limited
 - Shetland Islands Council (SIC)
- 1.3.2 Note that we have included SIC as a team member in recognition of the key skills and experience available from members of its team and because we firmly believe this important study can best be delivered through close partnership working. Throughout the study we envisage that SIC will play a key role in terms of:
- facilitating meetings with key players with the Council
 - providing reports and data
 - actively feeding into the early review tasks, then the development of options
 - facilitating and providing resources for the island consultation drop-in events.
- 1.3.3 The project will be managed by **Stephan Canning** and directed by **Scott Leitham**, both of PBA. Stephen and Scott have formed the management team on all recent work for SIC and Orkney Islands Council. Given the importance of the study, PBA's lead in Scotland, Equity Director, **Dougie McDonald** will support the management team as a 'Critical Friend', reviewing and challenging the study outputs and deliverables.

Contractual Arrangements

- 1.3.4 The project will be run as a series of linked contracts with all principal team members contracting directly with SIC. However PBA will continue to lead the study and team members would work via the PBA management team, with PBA providing the interface to SIC.

1.4 Summary of Work Programme

- 1.4.1 The proposed work is laid out in two phases:
- **Phase 1:** September 2015 to February 2016: working towards headline 'direction of travel' findings to inform discussions with Transport Scotland; and
 - **Phase 2:** Detailed working up of findings to STAG Part 2 equivalent, production of detailed 30 year 'route map' for future service development and investment in assets.
- 1.4.2 This document focuses mainly on the Scoping out of Phase 1, with a view to achieving the initial February deadline. It has been informed by a range of discussions within the team and between PBA and SIC.

2 Proposed Tasks

2.1 Introduction

- 2.1.1 This chapter lays out the proposed methodology in a series of tasks, split into two phases.

Phase 1

- 2.1.2 The initial work will focus on eight review tasks. The objective of these tasks is to produce an up to date and consistent picture of the factual position across all nine island routes under consideration. From this a 2-tier set of planning objectives will be developed and taken into an Optioneering process. The options emerging from this will be developed to a sufficient level to take out to a succinct public consultation in early 2016 with a view to firming up on the options by the end of February 2016 to allow SIC to engage meaningfully with Transport Scotland on the potential solutions which look likely to emerge from the detailed study.

Phase 2

- 2.1.3 We envisage that Phase 2 will run for approximately four months from March 2016 to June 2016. This phase would comprise more detailed analysis of the options, building on the outcomes of the discussions with Transport Scotland and taking the options forward to a STAG Part 2 level.
- 2.1.4 This would allow an overarching timed investment 'route map' to be developed and agreed in the summer of 2016. This route map will provide an evidence-based and objective-led framework for the future development and funding of the Shetland Islands inter-island transport services which will meet the evolving needs of Shetland over a 30 year period. This route map could involve partnership working with OIC which we would seek to explore if appointed to the OIC / HITRANS study.

Project Overview

- 2.1.5 We have developed a proportionate approach to meeting the requirements of SIC in the time available and, in addition, the structure proposed below follows a STAG compliant set of steps (focussing on an evidence and objective led approach), which is crucial given the involvement of Transport Scotland.
- 2.1.6 Figure 2.1 overleaf provides an overview of the proposed tasks. Each task is outlined in the sections which follow.

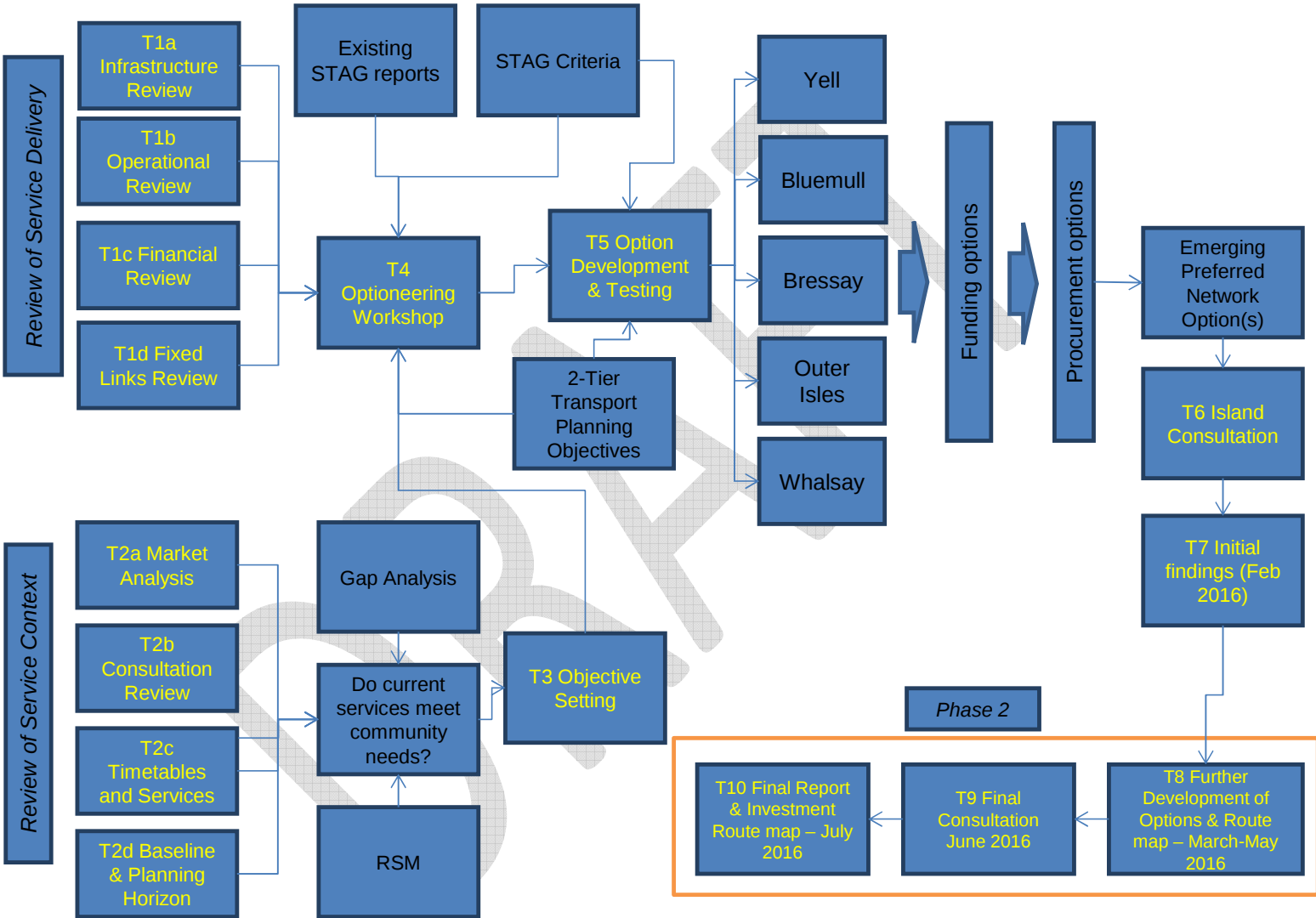


Figure 2.1 Overview of Project

2.2 Task 0 – Management Team Fact-Finding Trip To Shetland

2.2.1 Task 0, not shown on the preceding graphic, comprises an initial 3-4 day 'fact finding' trip to the Shetland Islands by our Management Team, Stephen Canning and Scott Leitham. During this visit, as well as touring the network (there is no substitute for site visits) we would intend to have a number of meetings as laid out below:

- Initial Workshop meeting with SIC (Michael Craigie, Ken Duerden) – here we propose to go through the air and ferries network route by route, and issue by issue to collate the existing knowledge from the SIC side.
- Ferries operations – informed by the above meeting, we would hold more detailed discussions with SIC Ferries.
- Air operations – Direct Flight [potentially including a trip to eg Foula, Fair Isle, Papa Stour or Skerries?]
- Airfields - .SIC Airfields
- Lerwick Port Authority.
- Key service providers (eg health, education, police / fire, waste, social care, utilities).

2.2.2 We will produce a broad agenda in advance of each of these meetings, but the intention would be to use these meetings to gain an overview of the key issues to take forward into the study.

2.2.3 We will finalise this set of meetings with SIC.

2.2.4 This fact finding trip will take place during week beginning 7 September 2015.

Task Outputs: Notes of each meeting will be produced and distributed across the study team. As well as providing the study management team with an overview of the 'big picture', these notes will set the scene for the specialist vessels, harbours and air teams for their later individual meetings, which can therefore be undertaken from a more informed position.

2.3 Task 1 – Review of Service Delivery

- 2.3.1 The purpose of this task is to set out the **factual position** with respect to the current air and ferry services. However in all cases, we will focus on the **pertinent facts and the interpretation of these with respect to this survey** rather than simply compiling a *verbatim* record of information received from SIC.

Task 1a - Existing Assets - Infrastructure

- 2.3.2 Task 1a is focussed on the *delivery* of the current air and ferry services, ie this essentially considers the '**council facing**' aspects of the operation. It is assumed that SIC staff will be able to provide the necessary information to inform the condition assessments, ie our teams will not be undertaking detailed on-site engineering assessments. These reviews will be worked up by the relevant specialist in close partnership with SIC. This task will therefore establish the position with respect to all the elements of 'hard' **infrastructure** and **assets** required to provide the current inter-island air and ferry services as follows.

- **Vessels**

- age and condition, life expectancy, efficiency, fitness for purpose
- standards – compliance with legislation, current and planned
- accessibility
- on board facilities / Wifi / catering etc
- environmental impacts – emissions / power supply
- any capital investment proposals

- **Harbours- piers / slipways etc**

- condition assessment
- life expectancy
- fitness for purpose
- accessibility
- any capital investment proposals

- **Harbours – landside / marshalling**

- condition assessment
- parking & traffic management
- any capital investment proposals
- staffing of facilities

- **Airstrips & navigational aids etc**

- current facilities – infrastructure and navigational
- staffing of facilities
- any capital investment proposals

- **Aircraft**

- age and condition, life expectancy
- tendering process and requirements
- standards – compliance with legislation, current and planned
- environmental impacts – emissions
- any capital investment proposals

- 2.3.3 PBA will collate the outputs from this process.

Task Output: Four Working Papers will be produced (for Vessels, Harbours, Airstrips, Aircraft). Each will include a succinct 'Condition Report' in relation to each asset across the network. This will include a broad timeline for asset replacement. To ensure consistency of

approach, a broad proforma will be developed for completion in relation to each asset. This proforma will be informed by the meetings held as part of Task 0.

Task 1b - Operational Review

2.3.4 This task will establish the position with respect to how the inter-island air and ferry services are currently operated. It will seek to explore all the issues associated with running the services from the **perspective of the service providers**.

2.3.5 This review will consider, for example:

- Current operational practices
- Operational constraints – eg weather, infrastructure, human resource related
- Current vessel and aircraft deployment
 - o Any spare deployment potential?
- Relief vessels and deployment during unscheduled interruptions to services
- Vessel and aircraft overnighting arrangements
- Crewing arrangements and requirements for air and ferry
- Annual maintenance strategies.

2.3.6 The purpose of this review is to ensure that the later option development process is undertaken from an informed and realistic perspective from an operational viewpoint, and that any operational implications of these options can be readily identified.

Task Outputs – 2 Working Papers (Ferry and Air): These two papers will provide a clear statement of current operational practices and the constraints under which the networks currently operate.

Task 1c - Financial Review

2.3.7 The financial review will establish the key **financial parameters** surrounding the current inter-island and ferries operations. This will include:

- ongoing operating deficit – ferries & air, current, trend and anticipated in future
- past and planned capital investment programme – ferries & air
- main components of operating costs – crew costs, fuel costs, maintenance etc
- fare-box revenue – ferries and air, current and trend by passenger / car / commercials, by service, by time of year
- Any other revenue sources eg shore & vessel retail, advertising etc.

2.3.8 The purpose of this review is to produce a clear and transparent presentation of the finances of the air and ferry networks.

2.3.9 Whilst it is noted that there may be some sensitivity regarding some aspects of these data, it would seem essential to produce as clear a picture as possible of all finance related issues in advance of discussions between SIC and Transport Scotland.

Task Outputs – 2 Working Papers (Ferry and Air): These two papers will provide a clear statement of current financial environment in which the networks currently operate.

Task 1d - Fixed Links Review

- 2.3.10 There is an extensive recent history of the consideration of fixed link replacements for ferry services with respect to the shorter inter-island crossings in the Shetland Islands. The aim of this task is to review all the previous fixed links studies from a cost, risk and engineering feasibility perspective. This review will not consider the potential benefits of fixed links, but will focus solely on the deliverability, costs and indeed cost uncertainties and hence risks to SIC of considering these options further.
- 2.3.11 The 'in scope' crossings are Bressay-Mainland, Unst-Yell, Yell-Mainland, and Whalsay-Mainland, and would consider:
- the technical arguments – is there a consensus that can be reached on the deliverability of each scheme? We appreciate that there are a range of views on this and this review may be limited to laying out these differing views.
 - costs / cost ranges – previous cost estimates may now be dated and will need to be updated using appropriate indices.
 - risks & uncertainty – we will set out the key uncertainties with respect to the information currently available, and also identify any key gaps in understanding which may prevent a meaningful decision being taken with respect to whether fixed link options are taken forward.

Task Output: Fixed Links Working Paper laying out the current position with respect to the four prospective crossings and identifying any remaining gaps in knowledge which may be preventing a definitive decision being taken.

2.4 Task 2 – Review of Service Context

- 2.4.1 The purpose of this task is to set out the factual position with respect to the *context* in which the services are delivered, ie this essentially considers the '**public facing**' aspects of the operation.

Task 2a – Air & Ferry Market Analysis

- 2.4.2 This task will undertake a detailed analysis of the current and recent inter-island air and ferry travel 'market'. This will comprise an analysis of each crossing and route in turn. It will consider:
- carryings trends by passenger, car, commercial vehicle, coach, any other (loose) freight, annually, by week of year, time of day etc.
 - unmet demand – we understand that SIC hold some data on short shipped traffic for ferries. Any data of this nature for the air services (eg how often people try to book flights and cannot) would be very useful here.
 - vessel utilisation analysis, systematic identification of where and when ferry capacity (vehicle deck) is potentially problematic.
 - specific consideration of 'effective capacity' on the air services, how often are the planes full or weight restricted due to airfield or weather constraints - this limits the level of connectivity provided, and would mean that the timetabled service is not a true reflection on the connectivity provided.

Task Outputs – 2 Working Papers (Ferry and Air): These two papers will provide a clear statement of current carryings and utilisation across both networks. We will make extensive use of graphical approaches in seeking to highlight the salient points.

Task 2b – Consultation Review

- 2.4.3 Each of the preceding STAG-based reports (which we reviewed in the Shetland Islands Transport Scoping Study (see Chapter 1)) has included a significant element of consultation, with either the public, stakeholders or both, and in some cases, this consultation was very extensive. We are also aware of a raft of other consultation exercises undertaken by SIC on transport and other matters.
- 2.4.4 There has also been a recent survey undertaken to support the RSM work referred to in Chapter 1. In the light of the mounting level of consultation and survey fatigue amongst islanders, this task will collate and review existing consultation material, rather than undertake fresh consultation at this stage.
- 2.4.5 We have reported in outline terms the consultation findings in the Shetland Islands Transport Scoping Study, but in addition to this, this task will collate all potentially relevant consultation material (to be provided by SIC) and extract the relevant material. The main purpose of this will be to determine a set of ‘problems and issues’ associated with inter-island travel for each island. In most cases, this wider review of consultation material will be used to confirm the set of problems and issues identified in the individual STAG studies.
- 2.4.6 We have included Natural Capital here since, as authors of the Bressay and Outer Isles STAG, they have a firm knowledge of the consultation undertaken in these studies.
- 2.4.7 This review would separately consider and report public and stakeholder consultation responses. There would be a particular emphasis on service providers across the islands. The review would also pick up issues relating to freight transport.
- 2.4.8 We will also identify any remaining gaps in the consultation process which may risk undermining the process in the eyes of Transport Scotland.

Task Output – Consultation Working Paper: This Paper will set out in-depth the findings of the various strands of consultation which have been undertaken in, say, the last five years. A concise list of key consultation issues will be produced for each island / route / service. We will confirm with SIC that the identified issues are still valid or otherwise.

Task 2c - Services & Connectivity Review

- 2.4.9 This task will establish the position with respect to the current inter-island air and ferry services, as currently timetabled and operated. This will provide a full picture of the level of connectivity provided to each island by ferry and where appropriate by air as follows.

Ferry – for each island / service

- service frequency
- length of operating day
- connectivity summary
- crossing time
- fares regime & concessions
- reliability of service running (weather and vessel (mechanical))
- reliability of getting on the vessel – capacity
- integration with public transport / active travel
- landside facilities / vehicle marshalling, parking etc
- compliance with RSM

Air – for each island / service

- service frequency
- length of operating day
- connectivity summary
- flight time
- fares & concessions – islander / visitor
- reliability of service running (weather and aircraft (mechanical))
- reliability of getting on the aircraft – capacity analysis
- weight restrictions
- Integration with public transport / active travel
- Vehicle parking at airfields
- Compliance with RSM

2.4.10 The purpose of this task is to produce a clear and consistent picture of connectivity, upon which options can be developed at a later stage.

Task Outputs – 2 Working Papers (Ferry and Air): These two papers will provide a clear statement of the current levels of (timetabled and real) connectivity provided to each island (frequency and capacity), including fares.

Task 2d – Updated Baseline and Planning Outlook

2.4.11 Shetland's internal air and ferry services are clearly not an end in themselves. In looking to ultimately develop a 30 year plan for the future of these services, we need a clear view on how the islands are anticipated to evolve over this period, and hence how the inter-island transport services need to evolve in turn to meet these potentially changing needs.

2.4.12 We reviewed the following studies in the recent Scoping Study:

- Outer Isles (Foula, Fair Isle, Skerries, Papa Stour) – June 2012
- Fixed Links Study – October 2011
- Bluemull (Unst / Fetlar) – September 2008
- Whalsay – May 2008
- Bressay – February 2008
- Yell – no study

2.4.13 The existing STAG reports publication dates range from February 2008 to June 2012. The data reported in these studies will also be lagged, so the actual data is likely to relate to the mid-2000s. Therefore, there is a need to bring the baseline analysis up to the present day to present a consistent position across all the islands.

2.4.14 Collated from secondary data sources, this **baseline** update will cover, for example:

- Population and Demographics, present day plus trend
 - o Itinerant population issues?
- Household car ownership
- Housing

- Income
- Employment status, present day plus trend
- Commuting patterns (2011 Census) – focussing on working at home, off-island commuting and working in Lerwick
- Island based economic activity (BRES)
- Performance of key sectors such as agriculture, aquaculture, energy, tourism
- Public transport services and connectivity to air & ferry services.

2.4.15 Ideally all of these data should be at the island level, but this is not always possible given the size of some of the islands.

2.4.16 The **Planning Horizon** here refers to the time period in which the study will fit. The key point here is to determine, building on the baseline, a picture of the future of the Shetland Islands and how this may impact on the future of inter-island transport.

2.4.17 In setting out this planning horizon, we will review key SIC strategy and related documents, including:

- Regional Transport Strategy
- Local Development Plan
- Economic Development Strategies
- Sector specific issues such as oil & gas, aquaculture and renewable energy
- Other documents to be confirmed in discussion with SIC [*to be confirmed with SIC*]

Task Output – Baseline Working Paper: this paper will provide an island by island reference guide for the key facts and figures in relation to socio-economic and demographics.

Task Output – Planning Horizon Working Paper: this paper will provide an overview of the anticipated future development of the islands and how this may impact on the nature of the air and ferry services.

2.5 Task 3: Objective Setting

2.5.1 In Task 3 we will develop and agree a set of transport planning objectives, which will provide a framework for the subsequent optioneering and option development process.

2.5.2 At this stage in the process, from Tasks 1 and 2 we will have a definitive statement of:

- the RSM 'requirements' and 'gap analysis';
- the 'public facing' side of air and ferry services and the role of the network in meeting the connectivity needs of the Shetland Islands now and in the future; and
- a range of problems and issues drawn from previous reports and the consultation review.

2.5.3 For each island, we can therefore make an assessment of the extent to which the current air and ferry services **meet the needs of each community, now and in the future**. From this, we will develop a 2-tier set of community-based planning objectives:

- overall **network level** connectivity and carrying capacity targets – these will encapsulate the overall connectivity requirements and pick up on recurring issues across the network, and will be limited to no more than six to keep to a manageable set; and

- second-tier **island specific** objectives picking up on the detailed local issues– these will include any potentially detailed requirements bespoke to individual islands, and will also be limited to a maximum of say 4-6 objectives per island.

2.5.4 These objectives will be developed by the team and agreed with SIC.

2.5.5 Ideally these objectives should be as SMART as possible, or at least have the capability of being 'SMART-ened' later in the process. Each objective should also be linked to a set of monitoring data, to allow for later evaluation in the future.

Task Output: An agreed set of Transport Planning Objectives to be used in the development and appraisal of options. The process and findings will be written up in a Working Paper.

2.6 Task 4 Optioneering Workshop

2.6.1 Task 4 will be a key task in steering the rest of the study. Here, we will bring together the community derived transport planning objectives, with the knowledge and insights gained from the 'Council facing' review task to generate a comprehensive list of options. To facilitate this, we propose to hold a one-day team workshop in Edinburgh. This will include all key team members, including the Council and ZetTrans, and the purpose would be to develop and sift a full set of options for each island / crossing. These options will be tested against the 2-tier planning objectives to ensure their continuing validity, and new options would also now be considered.

2.6.2 In advance of this workshop, we will draw on our previous Scoping Study to compile a summary table of all the options which have previously been considered, including the outcome of any analysis undertaken on these options in past. This will vary depending on the STAG report, and some studies progressed further than others.

2.6.3 There could be two main themes to the optioneering process:

- Options associated with addressing the service and **connectivity issues** identified in the Gap Analysis; and
- Options associated with **replacing life expired assets**.

2.6.4 It is also helpful when developing the options to separate:

- things which '**enable**' other things to happen which provide a service / connectivity improvement (eg pier enhancement); and
- things which directly actually **provide the service** / connectivity improvement (eg new vessels / aircraft).

2.6.5 This optioneering process would also consider potential solutions in a:

- Network-wide context across the Shetland Islands; and / or
- Northern Isles wide context where shared approaches with the Orkney Islands may be appropriate.

2.6.6 Options will also be considered over a **short** (eg 0-5 years), **medium** (eg 5-15 years) and **longer term** (eg 15-30 years) timescale.

2.6.7 In addition to the Transport Planning Objectives, this optioneering process will consider the options in the context of the STAG criteria, Feasibility, Affordability & Public Acceptability.

Task Output: From this process, we will produce a relatively short list of options to be taken forward for more detailed development and testing. There will be a clear audit trail for options not taken forward at this stage. All findings will be written up in a Working Paper.

2.7 Task 5 Option Development & Testing

- 2.7.1 This task will take forward the options emerging from Task 4 to a level whereby the main **costs, benefits and impacts** are worked up to a sufficient level of detail to take out to a brief period of focussed consultation in Task 6. The analysis will be undertaken in parallel across the nine islands, with a view to using **as consistent an approach as possible** across the set of islands.
- 2.7.2 In order to test the options, some of the options emerging from Task 4 will require to be worked up in terms of specification, costs etc and this will likely involve some or all of the specialists in the team. The requirement for **option development** will mainly be driven by the state of development of each option in the earlier STAG work, and the extent to which the prior option development is still valid, or has perhaps been overtaken by events.
- 2.7.3 The second purpose of this task is therefore to undertake a range of analysis to **test** the extent to which each option meets the Transport Planning Objectives and the STAG criteria. This analysis will then provide the initial evidence from which preferred option(s) will start to emerge. The focus of this option development and testing will be: the Transport Planning Objectives (Task 3); and the STAG criteria (Environment, Economy, Accessibility & Social Inclusion, Safety, and Integration). For the STAG criteria, we will specifically focus on the aspects of these criteria which are of relevance to this application, rather than adopting a mechanistic approach to each and every aspect of STAG.
- 2.7.4 Across all the islands and options, we will also consider the main **funding and procurement** options with a view to laying out the main advantages and disadvantages of each approach. This is an area where we envisage close partnership working with SIC, although it will be important to challenge current SIC funding and procurement procedures in advance of SIC's discussions with Transport Scotland.
- 2.7.5 Emerging from this process will be a further sifted and relatively limited set of options for each island which will be taken back to the communities for consultation. We envisage that no more than three, and preferably two, options would be taken forward at this stage. It may be that these options develop into **packages of measures** for each route which comprise, for example:
- *Primary* options – in relation to the entity which actually provides the connectivity, such as a new ferry; and
 - *Supporting or Complementary* measures – for example improved public transport connectivity to the new vessel.
- 2.7.6 Where this is the case, it may be possible to take forward a single package to consultation. In other cases, there may be two primary options which are mutually exclusive, eg new ferry versus fixed link in which case these would be presented separately.

Task Output: An Option Development and Testing paper with a section devoted to each island describing the options and their performance against the STAG criteria and the Transport Planning Objectives. This will include much of the material to be taken forward to consultation.

2.8 Task 6 Consultation on Options

- 2.8.1 When entering into discussions with Transport Scotland, it will be important to be able to demonstrate a degree of public support for the emerging proposals. However, given that

many of the proposals coming through this process are likely to be familiar to the public, a relatively 'light touch' consultation exercise will be appropriate at this stage.

2.8.2 Our proposed approach would be to run 'drop-in' sessions across the islands. At these sessions, display boards would outline:

- the process which has been undertaken to review all inter-island connectivity across the network, including key facts and figures;
- the outcome(s) for the island in question; and
- the wider outcomes across the network – designed to ensure transparency and demonstrate that process has led to an equitable and proportionate set of solutions.

2.8.3 We would provide feedback forms where residents can confirm (or otherwise) that the emerging recommendations are locally acceptable. This latter point will be important to satisfy Transport Scotland in particular. The drop-in session and feedback material would also be posted online for anyone unable to make their island session.

2.8.4 Staffing consultation events on the island is resource intensive. We therefore anticipate therefore that these drop-in sessions would be staffed by a combination of PBA and SIC staff, and SIC staff will assist in securing venues, publicity etc.

2.8.5 In addition to public consultation, it would be worthwhile to consult specifically with councillors at this stage.

Task Outputs: A Paper describing the consultation process and collating the findings of the consultation for each island.

2.9 Task 7 Develop Initial Findings (Feb 2016)

2.9.1 Task 7 will merge the outputs from Tasks 5 (Option Development & Testing) and Task 6 (Consultation) to produce a set of initial network findings (and the public response to these) which can form the basis of SIC's discussions with Transport Scotland. We will discuss with SIC the precise requirements for reporting at this stage.

2.9.2 The Working Paper outputs from all the preceding tasks will provide technical appendices to this main substantive report, with references to these where relevant.

Output: Initial Findings Report to form the basis of discussions with Transport Scotland.

Phase 2

2.9.3 As noted, this Inception Report focusses primarily on the requirements to meet the initial February 2016 deadline. The paragraphs below lay out the remaining steps to complete all the analysis to a STAG2 equivalent level.

2.9.4 As we do not know at this stage which projects will be taken forward following discussions with Transport Scotland, the budget for Phase 2 will be determined later.

2.9.5 We expect Phase 2 to commence with a team meeting during which the feedback from transport Scotland will be presented and discussed.

2.10 Task 8 Further Development of Options and Route Map

2.10.1 It is likely that the discussions between TS and SIC will lead to some specific actions in terms of the requirement for further work on the package of Shetland inter-island network options taken to TS in February 2016.

2.10.2 These actions would be taken together with the necessary analysis required to provide a STAG 2 equivalent level of analysis across all Shetland routes and services.

2.10.3 An initial investment route map would be derived from this analysis.

2.11 Task 9 Final Consultation on Options and Route Map

2.11.1 At this stage a more comprehensive public and stakeholder consultation exercise may be merited, as there will now be a firm blueprint for the future of inter-island air and ferry services and an associated investment programme. The emphasis of this consultation would be on honing the package rather than re-opening more fundamental questions though. Again there would require to be a formal means for the public to feedback on the plans as presented.

2.12 Task 10 Final Report and Investment Route Map

2.12.1 Following the consultation exercise, the final route map would be prepared. The Final Report could take the form of an overall Inter-Islands Network Plan, where all the key components of the plan would be outlined together with a Delivery Plan. A conventional STAG report would seem less appropriate but the whole process will have been undertaken on a STAG compliant basis.

2.12.2 There would be a range of supporting technical documents, drawn from the Working Papers and associated reports produced throughout the study.

3 Team and Programme

3.1 Who Does What?

3.1.1 Figure 3.1 shows our proposed project team, together with each proposed task.

Work Phase	Task	Task Description	Peter Brett Associates	Shetland Islands Council	Breckett Rankine	Donaldsons Associates	Natural Capital / Energised Env.	Northpoint Aviation	The Maritime Group	Peer Review: Reference / Provesra
	1	Review of Service Delivery	Lead							✓
Phase 1 - September 2015 to February 2016	1a	Review of Infrastructure / Assets	Lead							
		Vessels		✓			✓		Lead	
		Harbours - piers / slipways		✓	Lead					
		Harbours - landside		✓	Lead					
		Airstrips		✓				Lead		
		Aircraft		✓			✓	Lead		
	1b	Operational review	Lead							
		Air services		✓				Lead		
		Ferry services		✓	✓				Lead	
	1c	Financial review	Lead	data						
	1d	Fixed links review		✓		Lead				
	2	Review of Service Context	Lead							✓
	2a	Market analysis	Lead	data						
	2b	Consultation review	Lead	data			✓			
	2c	Timetables and Services	Lead							
	2d	Baseline & Planning Horizon	Lead	✓			✓			
	3	Objective setting	Lead	✓						
	4	Optioneering workshop	Lead	✓	✓	✓	✓	✓	✓	✓
	5	Option development & testing	Lead		✓	✓	✓	✓	✓	✓
	6	Consultation	Lead	✓						
	7	Initial findings	Lead	✓						✓
Phase 2 - March 2016 - July 2016	8	Further Development of options	Lead	✓	✓	✓	✓	✓	✓	✓
	9	Final Consultation	Lead	✓						
	10	Final report and route map	Lead		✓	✓	✓	✓	✓	
		Lead - task Lead								
		✓ - key role								
		data - key data supply role								

Figure 3.1 Project Plan – Lead and Key Roles

3.1.2 The figure therefore shows where we envisage each team member (including SIC) to have either a lead or a key role. It can be seen that PBA will have a lead or coordinating role on all tasks with the various specialists feeding in at appropriate times. The Peer Review group will also feed in at key decision points in the process, such as the Optioneering Workshop.

3.1.3 PBA will be ultimately responsible for all reporting and we will issue all team members with templates to ensure consistency in reporting formats etc.

3.2 Outline Programme

3.2.1 Figure 3.2 below shows an outline programme for the project which would run between September 2015 and July 2016.

Task	Task Description	September 2015	October 2015	November 2015	December 2015	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016
0	Fact-Finding Trip											
1	Review of Service Delivery											
2	Review of Service Context											
3	Objective setting											
4	Optioneering workshop											
5	Option development & testing											
6	Consultation											
7	Initial findings											
8	Further Development of options											
9	Final Consultation											
10	Final report and route map											

Figure 3.2 Outline Programme

- 3.2.2 There would clearly be some overlap between the months here and we will work up a detailed project plan which we will update on a regular basis. This updated Gantt chart will be circulated with a weekly project update email.
- 3.2.3 It can be seen that the Review work packages are programmed for completion by December 2015, allowing December and January for optioneering and option development and testing. Consultation could then take place in early February allowing initial findings to be confirmed by the end of February 2016.
- 3.2.4 Phase 2 would then run from March to July, allowing for a month of public consultation in June 2016 and project completion in July 2016.