Section 1. Context

1. How does your proposal demonstrate delivery of the 2050 Ambition?

The Council’s Waste Contract is coming to an end in 2023 and the current destination for waste is at risk. At the same time, the waste industry is starting to regard waste as a valuable commodity either for recycling or for energy production. The new Environment Bill which is expected during 2019/20, will place greater rules around recycling and a requirement for businesses to have separate collections.

From an energy perspective, there is a need to reduce emissions radically to meet net-zero and to provide access to a low carbon heat network which will feed new developments but also allow households to connect to the service and lower both emissions and heating costs. Lower heating and energy costs are desperately needed by many as energy inflation runs between 4-8% higher than general inflation.

Implementation of a Waste to Product Strategy, which could also be called a Zero Waste Strategy, would consist of a structured decision making hierarchy for waste in which waste is:

- First, treated to provide the maximum levels of recycling based on criteria of effectiveness, cost, safety, emissions and revenue opportunities.
- Second, all remaining waste would be processed through a low emissions Waste to Energy (W2E) plant with the two products being electricity and heat.

The heat will feed into a heat network which can be targeted to provide heat initially to new developments such as Queensway. As such heat networks expand using both W2E and conventional gas or fuel cell CHP plants, there will be opportunities to retrofit existing dwellings providing low cost heat. Electricity generated would be used to sell to tenants up to the current regulatory limit and to other customers as the regulations change to allow this process which the regulator is seeking to encourage.

Net-zero emissions require the reduction of 560,000t CO2e by 2030/2050 of which 41% is gas and 27% grid electricity. The Waste to Product Strategy provides for a substantial move to reduce emissions using low emission processes whilst cutting costs to householders.

This approach is linked very clearly to the Safe and Well outcome.

2. What evidence have you got that this approach will deliver of the outcome?
The Council is engaged with a Project (Plasticity) which is mapping commercial waste especially plastic with a view to mapping out new business models including household and commercial waste. Combining the commercial and household waste into one operation will reduce vehicle movements lowering emissions from duplicated transport but will also provide for the W2E plant. In turn, the W2E plant will provide low cost and low emissions energy in the form of heat and electricity reducing the town’s dependence on an increasingly fragile electricity grid system.

Waste to Energy is a non-intermittent generator which means that it can complement wind and solar in a local energy generation mix very well. Some plants also can take organic waste and convert them to bio-fuels such as bio-ethanol, bio-diesel and bio-aviation fuel. This mix of plant types need to be considered within the mix of recycling and waste to energy processes and the volume of material available. A local W2E plant would also deliver the benefit of lower vehicle movements reducing costs and emissions still further.

The Waste to Energy plant also links closely with the Queensway development creating an opportunity to take the energy centre off site releasing the space for additional flats or more flexible master planning.

3. What are the measures of impact, success and how will you embed learning?

Measures of impact will include recycling rates, energy generated and the cost of energy available for the waste mix in Southend. A further measure of success will be the bringing forward of investment plans with private sector partners providing funding for the plant to be designed, funded, built and operated.
Section 2. Aims, Objectives & Collaboration

4. What are the key aims and objectives of the proposal?

They key aim is to integrate waste and energy strategies making the maximum use of waste for recycling and energy production. This will help to lower emissions and provide a lower cost local energy source for householders. This proposal is for a feasibility study which will link to procurement already started using the Clear Futures framework.

5. Who else have you involved in discussions and how have the helped to shape the proposal?

Carl Robinson
Andy Lewis
Steve Crowther/Imran Kazalbash
Queensway project team and Swan HA
Stobart Energy and Vital Energy
Leader and Portfolio Holder
Chief Executive
The proposal to start procurement discussions subject to the procurement options appraisal up to the point of incurring cost or contingent liability was approved by the Commissioning Board and the Investment Board.

6. What are the links and dependencies with the other outcome proposals?

This proposal links to the New Cooperative System for Deep Energy Retrofit as these skills will be required as the heat network becomes available and the local residents will have the opportunity to connect up savings money every year and having the chance to lower emissions. The proposal also links to the Local Energy Systems project and will feed data into that project. The W2E and heat network plans will form the bedrock for the local energy system expanding out as more opportunities arise.

7. Who are the partners (or potential partners) and how to you envisage their role(s) in collaborating to delivering the proposal to achieve the outcome?

Stobart/Vital Energy – Partners with the task of designing, funding, building, operating and expanding the W2E plant and the associated heat networks.
EMRGNT Ltd – Service partner providing regulatory plans for retail generation of energy and local delivery customer service.

8. What potential challenges do you anticipate in respect of a) implementing this proposal, b) caused by this proposal once implemented?

Waste to Energy has a chequered reputation mainly due to poor implementation and technology choice. Very low emission plants are available but are seen as new untried technology despite being used successfully for 10 years. This leads to a number of potential obstacles:

1. The lowest emission technologies are not adopted yet by the largest operators
2. Site selection for the plant may prove difficult
3. Planning permission will be required for the plant which may also be close to a residential area
4. Timescales may be difficult for the Queensway energy centre to be serviced but backup plant and a stand alone heat work could be used as an initial provision.
Section 3. Social Value

9. How could the proposal deliver social value - in terms of the local community, businesses, economy and environment and what will the specific impact and benefits be?

A Waste to Energy plant and heat network will deliver social value through the provision of lower cost and lower emissions heat and electricity whilst providing additional grid capacity because local grids are overwhelmed. In the areas serviced, costs of energy are likely to be lower with fewer emissions helping to achieve a net Zero emissions scenario.

10. What is the perceived impact the proposal will have on groups with ‘protected characteristics’?

Residents at each end of the age spectrum are more vulnerable to health effects of poor heat and energy supply and of large energy prices. This proposal will assist to relieve these groups and will provide additional positive benefits to these groups.

11. What is the proposal's potential direct or indirect impact on the wider community?

These are explored above.