REPORT TO:	**FINANCE AND MANAGEMENT COMMITTEE**	**AGENDA ITEM: 7** **CATEGORY:**
DATE OF MEETING:	**28 APRIL 2022**	**RECOMMENDED**
REPORT FROM:	**ALLISON THOMAS, STRATEGIC DIRECTOR – SERVICE DELIVERY**	**OPEN**
MEMBERS' CONTACT POINT:	**JOHN KINDERMAN, CLIMATE AND ENVIRONMENT OFFICER** **john.kinderman@southderbyshire.gov.uk**	**DOC:**
SUBJECT:	**D2N2 FUNDING PROGRAMME FOR A PILOT HYDROGEN FUELLED WASTE COLLECTION SERVICE.**	
WARD(S) AFFECTED:	**ALL**	**TERMS OF REFERENCE: FM08**

1.0 Recommendations

1.1 That the Committee accepts the terms of the D2N2 Future Funding Programmes that will enable South Derbyshire District Council (SDDC) to deliver a Pilot Hydrogen Project for the waste collection services in 2022/23.

1.2 That the Committee acknowledges that by accepting the D2N2 Future Funding of £310,000 the Council will commit to match funding of £360,000 for the purchase of two new Refuse Collection Vehicles (RCV's) as part of the Operational Fleet replacement programme within the next financial year.

1.3 That the Committee welcomes this Pilot Hydrogen Project for the Waste Collection Service as an external funding opportunity that will support the ongoing transition of the Council's vehicle fleet from diesel to low carbon emission fuel and the overall carbon neutral ambitions of the Council.

1.4 That the Committee welcomes the innovative approach that the Council is taking with this Pilot Hydrogen Project which will increase the operational learnings of hydrogen dual fuelled vehicles, the operational adjustments and the refuelling infrastructure required, both for the Council, the D2N2 region and the wider waste collection audience.

2.0 Purpose of the Report

2.1 To provide the Committee with details of this current funding opportunity and Pilot Hydrogen Project. This report has previously been considered and approved by Environmental and Development Services Committee on 20 April.

2.2 To seek Committee approval for the Pilot Hydrogen Project, the D2N2 funding provided and the match funding required by SDDC and to refer the funding consideration to the Finance and Management Committee.

2.3 That the Committee accepts the importance of this innovative Pilot Hydrogen Project, the data and operational experience it will provide and how this data and information will be shared across the larger D2N2 region.

3.0 Detail

Background

3.1 As part of the Council's commitment to its 2030 carbon neutral targets, the Council's Climate and Environment Action Plan 2021-30 details the actions required to reduce the Council's carbon footprint across all its services. This includes the decarbonisation of the Vehicle Fleet whose current activities result in estimated carbon emissions of 722 tCO2e per year.

3.2 The Council's vehicle fleet can be categorised into three types: vans, specialist vehicles and RCV's, all of which are currently diesel powered.

3.3 The transition of the vans and specialist vehicles from diesel to electric is relatively straight forward, with manufacture of these types of electric vehicles (EV's) becoming mainstream and the required charging infrastructure well established.

3.4 The transition of the RCV's to low carbon emission technology is more complex and because of their weight, required geographical range and operational capability, the electrification of RCV's is currently in question.

3.5 An alternative potential for low carbon emission power is hydrogen fuel, that can perform much more effectively for the operational requirements of RCV's. Hydrogen fuel technology is also in developmental phase and requires much more research and development around the operational hydrogen infrastructure required, the operational performance of Hydrogen RCV's and the cost benefit analysis compared to diesel RCV's.

3.6 This Council is aware that more understanding about hydrogen as an alternative fuel is required, especially as a fuel source in rural districts such as South Derbyshire with large geographies.

3.7 On this basis, the Council, in collaboration with its partners (Toyota Motor Manufacturing (UK) Ltd and ULEMco) put forward this proposal for a Pilot Hydrogen Project funded by D2N2 and match funded by the Council, Toyota Motor Manufacturing (UK) Ltd and ULEMco.

Pilot Hydrogen Project.

3.8 To convert two new RCV's from diesel to dual fuelled (hydrogen and diesel) powered using ULEMco, a dual fuel conversion specialist organisation. These two RCV's will be based in the north of the District at the Toyota Motor Manufacturing (UK) Ltd site where there is availability and space to install a dedicated hydrogen refuelling station.

3.9 The operations of these two RCV's will be specifically selected for the commercial collections and a residential area collection in the north of the District. These collections will give the Pilot Hydrogen Project a broad representation of the

operations required for a rural District as well as promoting innovative low carbon hydrogen fuel technology to business across the District.

3.10 The initial step of the Pilot Hydrogen Project will be the acquisition of the two new RCV's, their conversion to dual fuel, the development of the hydrogen refuelling station at the Toyota site, the successful tendering for the hydrogen supply and the development of the Operational plan for delivering the Project.

3.11 The second step will be the monitoring of the Project and the collation of data and information on the performance of the dual fuelled RCV's, the delivery of collection services using these RCV's, the operator behaviours required and the experience and technical detail required for operating the hydrogen refuelling station.

3.12 The third step of the innovation project will include all the technical experience gained from the operation and supporting partners on this project. This technical data that will be used to compare performance of the dual fuelled RCV's with the diesel equivalents and the practical learnings of operating a hydrogen fleet.

3.13 To complete the Project a report of the Pilot Hydrogen Project will be produced for both the Council, the supporting partners, the D2N2 stakeholders and the wider waste fleet audience that will detail the transitioning journey, learnings, and technical requirements of using hydrogen as a low carbon emission fuel for RCV's.

3.14 This learning and input from the Project and supporting partners will inform the Council's decision making and the next steps in the decarbonisation of the RCV fleet.

4.0 Financial Implications

4.1 The funding is spit in to the D2N2 funding applied for (£310k) and the match funding (£395.8k) required for this Pilot Hydrogen Project:

D2N2 Funding Items	**£Amount**
Conversion cost of two new RCVs to Dual Fuel (Hydrogen/Diesel)	£100k (£50k per RCV)
Webaspx- In cab performance monitoring hardware and software	£49.6k
Innovation Pilot Operational Costs: *	
Additional cost of hydrogen fuel compared to diesel during pilot	£40.4k
Provision of security and power source (civils and DNO costs)	£10k
Provision of temporary welfare facilities required at site, including utility consumption (power and water).	£80k
Project Management Costs	£30k
Total D2N2 Funding	**£310k**

***There is no guarantee that these costs will continue to be funded after the innovation pilot is completed.**

Match Funding Item	**Match Funding**	**Stakeholders**
Two new diesel RCVs	£360k	SDDC
Familiarisation and Training programme for RCV drivers and maintenance fitters	£25k	ULEMco
Providing site of 600m2, pro-bono in kind contribution for 2 years.	£10.8k	Toyota Motor Manufacturing (UK) Ltd
Total Match Funding	**£395.8k**	

4.1 Part of the project aim is to stimulate demand for hydrogen fuel which in turn will reduce the unit cost of hydrogen to a level more comparable with diesel. If this and

other market forces do not create some cost equivalence between the two fuel types then the fallback position will be to revert the two RCVs back to diesel.

4.2 The Council will be the accountable body. The funding application will require the spending (which could mean a contractual commitment to purchase vehicles and fuel) to be completed before 31 March 2023.

4.3 The funding is released at the point that the bid is confirmed as successful.

5.0 Corporate Implications

Employment Implications

5.1 The Operational Teams required for the two RCV's in this Pilot Hydrogen Project will be based out of the Toyota Refuelling site the duration of the Project.

5.2 The employees involved with this Pilot Hydrogen Project will require the necessary health and safety training for hydrogen use and refuelling.

Legal Implications

5.3 It is anticipated that the Council will enter into a licence or lease with Toyota to secure the RCVs base at the Toyota site. The agreement will create liabilities for the Council for repair and to insure that part of the site. In addition, an agreement needs to be reached regarding the installation of the hydrogen fuelling station on the site and whether the Council or Toyota are responsible for this station. Written agreements will be required to formalise the agreement reached.

5.4 The funding terms are attached as Appendix 1.

Corporate Plan Implications

5.5 These Phased proposals meet the Corporate Plan key aims of:

5.5.1 Striving to make South Derbyshire District Council carbon neutral by 2050

5.5.2 Working with residents, business, and partners to reduce their carbon footprint.

5.5.3 Encourage and support business development and new investment in the District.

Risk Impact

5.6 The primary risks are identified as:

5.6.1 The operational capability of the dual fuelled RCV's is unknown.

5.6.2 The use of a Hydrogen refuelling station at the Toyota site.

5.6.3 The current increased costs of hydrogen fuel compared to diesel fuel.

5.6.4 What happens at the end of the pilot? This financial risks of this have been mitigated by caveats in the Funding Application Form. This limits additional operational costs as a consequence of this Project to the timeframe of the Project only.

6.0 Community Impact

Consultation

6.1 None

Equality and Diversity Impact

6.2 None

Social Value Impact

6.3 There are several social value impacts to this proposal:

6.3.1 The Council is promoting the transition from diesel RCV's to innovating with dual hydrogen fuel in line with the UK Governments agenda.

6.3.2 The Council is supporting the reduction of carbon emissions from the transport sector across South Derbyshire which supports the mitigation of the climate crisis, reduces air pollution, and improves the health and wellbeing of residents.

6.3.3 The data and learnings from this Pilot Hydrogen Project will be shared with the D2N2 region and the wider waste collection audience.

Environmental Sustainability

6.4 The carbon emissions from the Transport Sector are responsible for 47% of the total carbon emissions of South Derbyshire and are the single highest emitting sector. Any decarbonization action, such as the promotion and increase of low carbon vehicle usage supports the reduction in the overall carbon footprint of the District and the improvement of environmental sustainability across South Derbyshire.

6.5 Developing an innovative Hydrogen infrastructure promotes and supports other local authorities and business that use RCV's and other heavy goods vehicles that will potentially require this type of low carbon technology in the future.

7.0 Conclusions

7.1 That the Committee approves the acceptance of D2N2 funding.

7.2 That the Committee welcomes the innovative approach the Council is taking with this Pilot Hydrogen Project.

8.0 Background Papers

Climate and Environment Strategy 2020

Climate and Environment Action Plan 2021 -2030