

Solent Mobility Zone

Future Mobility Zone Fund Expression of Interest
May 2019



Future Mobility Zones Fund Application Form – Outline Proposal



Department
for Transport

This application is for the creation of a single Future Mobility Zone (FMZ). **One application form must be completed for the proposed zone, regardless of how many individual schemes it contains.** Please include all relevant information within your completed application form.

Applicant Information

City region name: Portsmouth City Region and Southampton City Region
(Hampshire County Council, Isle of Wight Council, Portsmouth City Council and Southampton City Council)

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SECTION A – Name, location and description of the FMZ

A1. FMZ name and location (please provide a map of the area in an annex):

FMZ Name: **Solent Mobility Zone**

The map in Annex A shows the Solent Mobility Zone boundary, in addition to the Portsmouth and Southampton City Region Transforming Cities Fund project boundaries.

A2. FMZ description

The Solent Mobility Zone (SMZ) proposal covers most of the Solent sub-region. This area is a nationally important, internationally-recognised economic hub anchored around the two City Regions of Portsmouth and Southampton, the settlements and strategic growth areas within Hampshire between/ adjacent to the cities, and the Solent waterway.

The SMZ includes:

- Southampton City Region, comprising the city of Southampton and surrounding towns such as Eastleigh, Totton & Romsey;
- Portsmouth City Region, comprising the city of Portsmouth and surrounding towns such as Fareham, Havant, Waterlooville and Ryde (IOW); and
- The wider “Solent Go” multi-operator public transport smart ticketing area which extends beyond and between the two TCF city regions and includes the Isle of Wight.

Estimated population within the SMZ is 1.16m¹ (2017).

The Solent area’s role as a gateway for international trade underpins its economy and is a major driver of transport demand. Portsmouth and Southampton are two of the UK’s key ports for different sectors of UK trade to both EU and non-EU markets. Together with Portsmouth naval base and numerous marine /maritime industrial sites and research establishments (including Portsmouth & Southampton Universities), 20.5% of Solent’s £27.8bn GVA is generated by the marine & maritime sector - over 3,000 businesses providing 40,000 jobs.

The Solent’s rivers, coastlines and harbours, whilst the enablers of this economic specialisation, present major challenges for transport- creating severance, additional travel time & costs, and channelling of over 3.2m trips each day through a small number of pinch points along the M27-A27 corridor. Transport issues are a key factor contributing to Solent’s productivity levels lagging behind regional and national averages.

Recognising our unique strategic context, the SMZ project would test & deliver future mobility options that support the efficient movement of people, and also explore innovative approaches to movement of goods and freight in urban areas.

¹ 2017 Mid Year Estimates for Eastleigh, Fareham, Gosport, Havant, New Forest, Portsmouth & Southampton LAs (HCC 2018)

SECTION B – The Strategic Case

B1. Background - What are the zone's objectives

The interplay of complex coastal geography and increasingly decentralised development patterns in Solent drive high levels of car dependency for personal travel, creating numerous transport challenges which negatively affect quality of life, the economy and the environment.

Additionally, Solent's "international gateway" role underpins a thriving freight & logistics sector located adjacent to key population centres - creating particular local challenges around the movement of goods in urban environments.

The Solent Mobility Zone (SMZ) project seeks to address the following issues:

- Low Productivity - Solent average productivity of £45,645 (2015) was 8.4% below the regional average and almost 0.5% behind the UK average;
- Traffic Congestion - £100m/pa² economic cost of congestion in Southampton alone. In Portsmouth average vehicle speeds are 32% lower than the national average;
- High Car Dependency – the Solent has lower public transport mode share and less extensive public transport system than comparable dual city regions³;
- Poor Air Quality - 21 AQMAs, with Portsmouth, Southampton and Fareham subject to Ministerial directives to address exceedances;
- Low Physical Activity Levels and Poor Public Health- 65% of Southampton residents are classed as overweight/obese⁴; and
- Impacts of movement of goods by road- this accounts for around 15-20% of all traffic and is the fastest growing area of travel demand⁵ but is not directly addressed by the TCF proposals. Up to 30% of emissions in some Southampton AQMAs are from LGVs (vans).

The SMZ proposal will address these challenges by delivering projects focused on two overarching themes:

- Theme 1: Personal Mobility: providing new modes of travel, and developing new, complimentary means of planning and paying for journeys - strengthening and deepening the use of sustainable modes beyond what our TCF proposals would deliver
- Theme 2: Sustainable Urban Logistics: developing innovative approaches to address impacts of freight & logistics in urban environments.

² Oxford Economics 2014

³ <https://solentlep.org.uk/media/1514/tip-final-web-version.pdf>

⁴ Public Health England LA Profiles - Obese & Overweight, 2016

⁵ DfT road traffic forecasts 2018

B2. Strategic Case - What does the FMZ contribute to the programme objectives

The Solent Mobility Zone programme would comprise two overarching, complementary “themes”. Each theme contains a series of inter-related projects which if implemented together would put the Solent area at the forefront of development of new mobility options.

Theme 1 consists of innovations in Personal Mobility and would support greater uptake of sustainable and active modes of travel, connecting people in areas of high car dependency with employment opportunities.

Projects delivered in this theme would:

- Implement a range of personal mobility improvements to enhance travel choices;
- Introduce measures to improve the integration of travel modes and reduce barriers; and
- Use research excellence at Southampton and Portsmouth Universities to evaluate outcomes and disseminate findings, to inform and ease replication of similar projects in other areas across the country.

Theme 2 consists of innovative approaches to Urban Logistics and would put the Solent in the vanguard of development of new, more sustainable means of movement of goods through urban areas, supporting growth of the economy through reducing costs and inefficiency- whilst also reducing transport impacts of these activities.

Projects delivered in this theme would:

- Make use of Southampton’s leading expertise in urban logistics and drone technologies to trial medical drone deliveries;
- Implement a range of innovative freight consolidation and last mile delivery trials in the cities; and
- Utilise existing expertise in urban logistics at local universities to monitor project outputs & outcomes, and disseminate the findings, raising Solent’s profile as an international showcase for sustainable urban logistics.

Both themes are brought together through implementation of many of the new services at **Local Mobility Hubs** and **Interchanges** across both city regions.

Theme 1 Personal Mobility projects	Theme 2 Urban Logistics projects
<i>Mobility as a Service (MaaS)</i>	<i>Drone Logistics</i>
<i>Growing Solent Go</i>	<i>Delivery Consolidation & Delivery Service Plans</i>
<i>Demand Responsive Transit (DRT)</i>	<i>Sustainable Last Mile Logistics & Micro Consolidation Points</i>
<i>Bike/ e-bike share</i>	<i>Consolidation for Universities</i>
<i>Car and Liftsharing</i>	<i>Waste Consolidation</i>
<i>Local Mobility Hubs & Interchanges</i>	

Projects across both themes support the strategic ambitions that both Portsmouth and Southampton City Regions are designing their respective Transforming Cities packages to achieve. The projects:

- are complementary to the corridor-based measures that are proposed in both cities TCF Tranche 2 proposals; and
- have been designed to that they could operate together (so as to deliver the biggest benefits to the Solent area) or be delivered independently.

Theme 1: Personal Mobility

Affordable and convenient personal mobility is vital to ensure that people can engage in work, education and leisure activities. The five projects in this theme would deliver outputs that provide wider access to existing travel options, develop new mobility opportunities, and enable next-generation travel planning and purchasing. This will directly strengthen and deepen the benefits of both cities' TCF packages.

The projects within Theme 1 would be brought together through the development of a Mobility as a Service (MaaS) platform, initially at Portsmouth and Southampton Universities, and then across the Solent Mobility Zone. Physical elements of this theme (eg shared cycles, DRT services) would be focused around local mobility hubs and interchanges- in common with some Theme 2 (Urban Logistics) projects, eg last mile delivery.

Project 1: Developing Mobility as a Service (MaaS) for Solent

Mobility as a Service (MaaS) integrates planning and payment for multiple modes of transport, capitalising on technology to provide an end-user with convenient and seamless travel. To date most implementations of MaaS have been in larger urban conurbations (e.g. Helsinki, West Midlands) with dense public transport networks, where relationships between government and public transport providers are more integrated than in the Solent sub-region. The Solent area is more typical of large parts of the UK where the dominance of the car, and less integrated transport governance arrangements and relationships, could create barriers to developing MaaS.

The Solent Mobility Zone project proposes to test the development of MaaS in our diverse, decentralised, more car dominated context.

The MaaS projects are a cornerstone of Theme 1 of the Solent Mobility Zone proposal, with the ultimate aim of providing a viable scheme which links together other Theme 1 projects across the whole Solent sub-region.

Significant goals for these projects include:

- Providing people with a variety of options to allow them to plan their journeys across numerous travel modes;
- Providing direct, real-time, and accurate comparisons between the different choices available for personal mobility (e.g. cost, time, health, emissions comparisons); and
- Testing of incentives and/or rewards to encourage users to make sustainable mobility choices, in the short term (e.g. per-journey), and over longer timescales (potentially including rewards linked to the scrapping of a car).

The MaaS project directly complements the other projects in this theme: MaaS platforms can offer a range of mobility options and our approach would be flexible and able to evolve and change as new mobility options become available.

This project would initially focus on the Universities of Portsmouth and Southampton, which are amongst the largest employers in each city (about 11-12% of each city's workday population) and jointly have over 50,000 students and 7,500 staff.

This means they are amongst the largest individual travel demand generators in each city, and are substantial factors in issues such as congestion, parking in constrained areas, and demand for public transport. Developing MaaS as a means of helping staff and students travel to, from, and around the universities would provide benefits at a scale which supports the strategic transport objectives

of both City Regions, whilst also providing a good testbed for the relatively new concepts which MaaS involves.

University of Southampton is focused on a constrained campus at Highfield to the north of the City Centre, with several other satellite sites around the city. It is a significant but fairly self-contained entity with a number of existing transport links by bus and cycle (some of which it contracts/controls through the UniLink bus service, which has grown from being an inter-campus service to a city wide network used by all residents).

University of Portsmouth is a city centre based university that is integrated into the city's fabric, and is served by rail, bus, ferry and cycle links with a mix of commercially provided transport services and operators (largely not under the University's direct control) used by students and staff.

Our approach is to trial development of MaaS services for each University, enabling development, testing and implementation in a controlled environment which permits significant research work into these processes, and how users react to them.

The learning and experience generated by these trials would then inform development of Project 3 (the enhancement of the existing Solent Go multi-mode, multi-operator ticketing range into a new MaaS type 'marketplace').

University of Southampton Proposal

University of Southampton and Atkins have substantially developed plans for an initial trial (which has support from key external stakeholders) that could be rapidly implemented upon the award of FMZ funding. The proposed trial is split into phases, starting with research to better understand the barriers to modal shift and MaaS in a car dependent context.

The first implementation phase (Phase 1) would consist of small-scale trials focusing on the particular needs of particular groups of staff and students. This would lead in to Phase 2 (a wider roll out across the University).

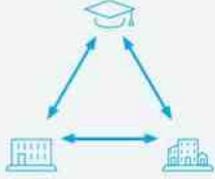
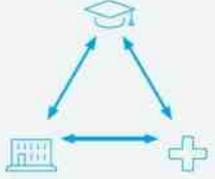
This project will be led by Atkins' Intelligent Mobility team and researchers from the University's Transportation Research Group (TRG). The plans draw on Atkins' experience of previous MaaS trials (including experience of conducting controlled trials and growing them into a wider commercially viable roll-out) and the lessons learned.

TRG researchers have experience of assessing and monitoring a number of different schemes and this project will benefit particularly from their expertise in understanding and influencing behavioural change.

University of Portsmouth Proposal

A proposal for a similar MaaS pilot at the University of Portsmouth is also being developed, supported by a multi-disciplinary team of researchers from the University's Intelligent Transport Research Cluster and Centre of Operational Research and Logistics, undertaking research across several thematic areas. The mix of transport providers in Portsmouth and how they are accessed by students differs significantly from that in Southampton, creating potential to explore and overcome different technical and organisational challenges across the two cities.

The graphic below sets out the planned phasing for the University of Southampton MaaS project. The University of Portsmouth project is expected to follow similar phasing but starting with Phase 1b (MaaS for staff). The range of transport providers for the Portsmouth project would also differ.

Goal	Transport Routes and Operators	Trial Participants		
<p>Phase 1a: MaaS for Local Movements</p> <p>Aim To better understand how MaaS can be used for short, regular journeys within a defined area, and to increase the uptake of active modes such as cycling.</p>	<p>Students travelling between campuses, halls and the city centre</p>  	<p>University Students</p> <p>Focus Combining basic travel modes for students travelling between campuses, halls and the city centre.</p>		
<p>Phase 1b: MaaS for Commutes</p> <p>Aim To better understand how MaaS can reduce the number of commutes made using private cars.</p>	<p>Staff commuting to work at campuses</p>  	<p>University Staff</p> <p>Focus Encouraging staff at the university to reduce private car usage in preference for public transport, shared journeys and active travel options.</p>		
<p>Phase 1c: MaaS for Irregular Journeys</p> <p>Aim To better understand how MaaS can provide options for journeys beyond the reach of traditional public transport systems (either because of the location or the time of day).</p>	<p>Placement students travelling predominantly to hospitals and doctors' surgeries</p>  	<p>University Placement Students</p> <p>Focus Reducing the requirement for students on placement to use a private car. These will be predominantly medical students travelling to hospitals, surgeries or making community visits, often at unsociable hours.</p>		
<p>Key</p>				
 University campus	 University halls	 City Centre	 Staff home	 Hospital / surgery
 Electric vehicle charging	 Car sharing	 Taxi	 Demand Responsive Transport	 Other emerging forms of transport e.g. scooter

Project 2: Trial and development of Demand Responsive Transit (DRT) services

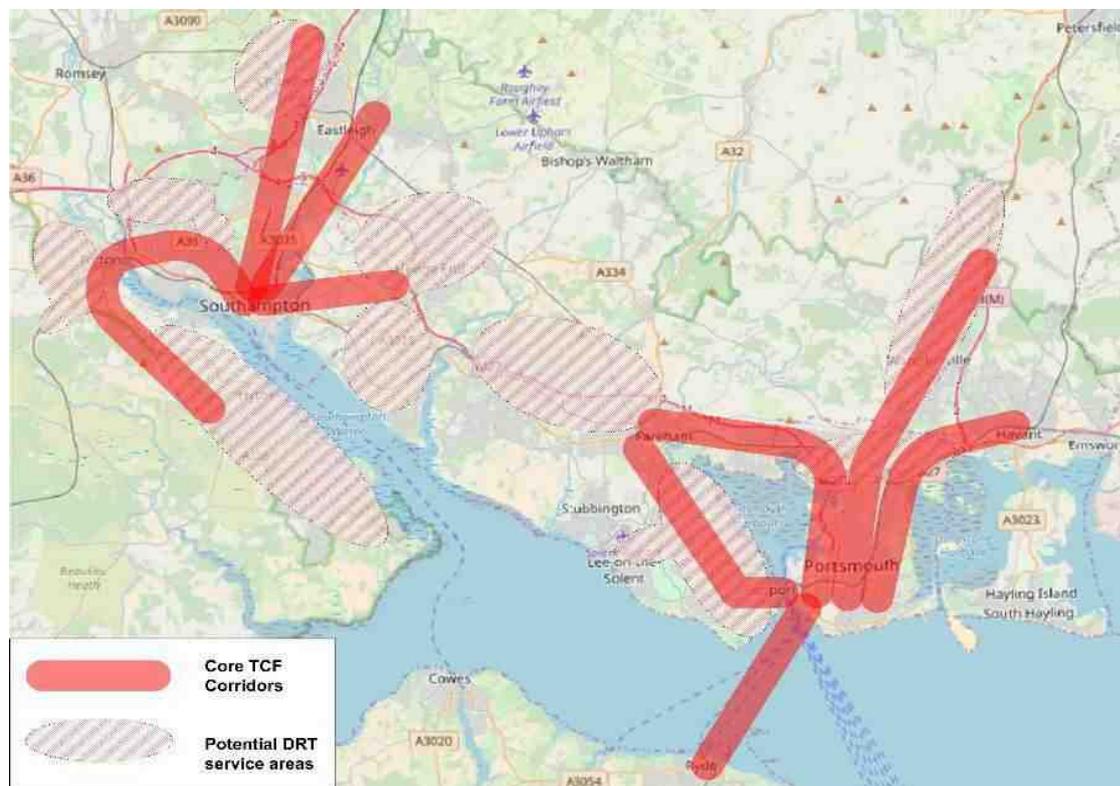
Flexible, “Demand Responsive” Transit services offer the opportunity to grow public transport connectivity in areas where the viability of traditional bus services is limited. They offer a service on demand and can provide integrated links to the main public transport networks, connecting key destinations in areas of “thinner” public transport provision.

Towards the outer edges of the nine identified TCF corridors in the two City Regions, and in some areas in-between, lower population densities and more dispersed travel patterns sometimes limit the density/frequency of traditional public transport that is viable, “building in” car-dependency. For example, Hedge End, north-east of Southampton, has a high level of car trips to work in Eastleigh, Southampton and Winchester (Whiteley) reflecting that public transport routes by bus or rail (where available) are infrequent or circuitous.

Within the two cities themselves there are locales where demographics, car ownership levels, and travel patterns limit public transport’s viability and mode share. Even with infrastructure enhancements supporting a step change in public transport and active travel proposed by the two cities TCF business cases, more may need to be done to significantly reduce car-dependency or isolation in some of these areas.

We have identified 10 potential DRT operating zones across the Solent Mobility Zone area, indicated on Map 1 (overleaf). All these zones are either “edge of urban” areas or intra-urban areas of the types described above.

These areas offer a variety of trip origins and destinations, and demographics. While the DRT services would primarily be commuter trip driven, it is envisaged that they would be available to serve other journey purposes (e.g. business or personal travel) and incorporate Community Transport services in one of the cities, in order to explore potential cross-overs and efficiencies.

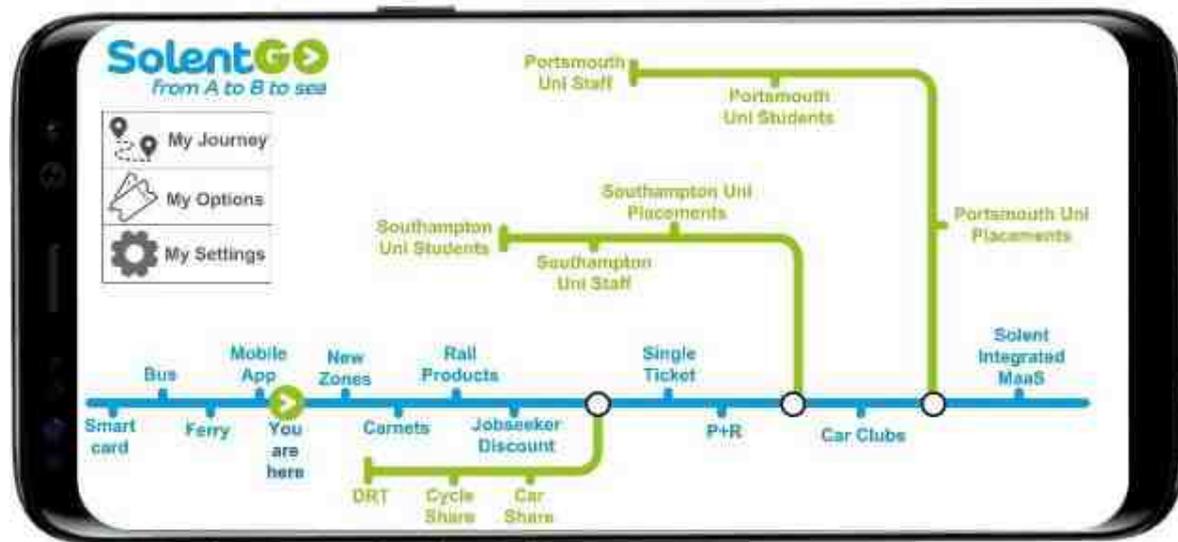


Map 1 - Potential DRT operating zones for Southampton and Portsmouth

The MaaS proposals in Project 2 would provide accessible and integrated digital platforms for journey planning, booking and payment for DRT services as part of their capabilities

We propose to trial DRT services incrementally, launching two trial areas in years 1 & 2. Subject to success, we would then seek to expand these and trial additional areas in years 3 and 4.

Project 3: Growing Solent Go



Solent Go development “roadmap” and links with other SMZ project proposals

[Solent Go](#) is an established multi-operator smart ticket across the Solent area which currently offers bus and ferry travel options. Solent Go is managed jointly by Solent Transport (the four Local Transport Authorities of Hampshire, Isle of Wight, Portsmouth and Southampton) and by SHBOA (South Hampshire Bus Operators Association) reflecting the strong voluntary partnerships that exist between operators and the Local Transport Authorities, and the relatively buoyant bus market in many parts of Solent.

This project would deliver improvements to Solent Go’s product line, which would be designed to reduce cost and convenience barriers which continue to deter multi-operator/ multi-stage public transport journeys in the Solent area. This would result in benefits for existing public transport users, and would attract new public transport users - growing public transport mode share through shift from private car users by reducing the barriers around cost, interchange and attractiveness for casual users.

These new Solent Go products would augment the benefits of proposed TCF capital investments in Rapid Bus Corridors in Southampton and the South-East Hampshire Bus Rapid Transit network in Portsmouth. Along with journey time reductions and improved interchanges delivered by these capital investments, this project would further reduce the penalties for transfer between operators or modes- supporting efforts to merge existing “standalone” corridors into truly integrated networks which offer a viable alternative to driving for a wider range of travel flows.

This project would consist of the following key enhancements to the Solent Go product range:

- Integrating rail travel options on the Solent Go platform;
- Developing new products and zone structures to better match City Region travel patterns and enable more attractive pricing;

- Developing carnet tickets that provide access to “season ticket” type discounts for frequent but not daily travellers (e.g. part time workers) to benefit lower earners;
- Developing “short hop” products to reduce barriers to multi-operator one-way trips; and
- Expanding the current discount scheme offered by some Solent bus operators aimed at Jobcentreplus users.

It is envisaged that some of these elements would be developed prior to launch of a Solent Go MaaS type platform (which would build upon experience gained via project 1), and that all Solent Go products would be offered via this platform when launched, alongside operators own products. This “end point” platform would also offer integration with other modes which would be developed as part of the Solent Mobility Zone project (e.g. shared cycles, DRT) and with existing / developing modes (e.g. car clubs, Park & Ride).

Project 4: Shared Bike/ e-Bike Project

There is strong interest amongst several authorities in Solent regarding provision of shared bikes or e-bikes.

Public bike share systems make cycling available as a choice for those whose circumstances mean they do not have immediate access to a bike, and can be linked with bus/rail/ ferry to extend the usable catchment of these modes by providing onward travel options which are faster and longer-ranged than walking.

Proposals to develop the public transport networks (per the two cities TCF business cases) together with our proposals for improved integrated ticketing and trials of MaaS would improve public transport options significantly, but there are limitations to the density of public transport network that can be provided in some parts of the city regions, hence there is clear potential for shared cycles to combine with public transport improvements to offer a fuller range of door-to-door non-car travel options.

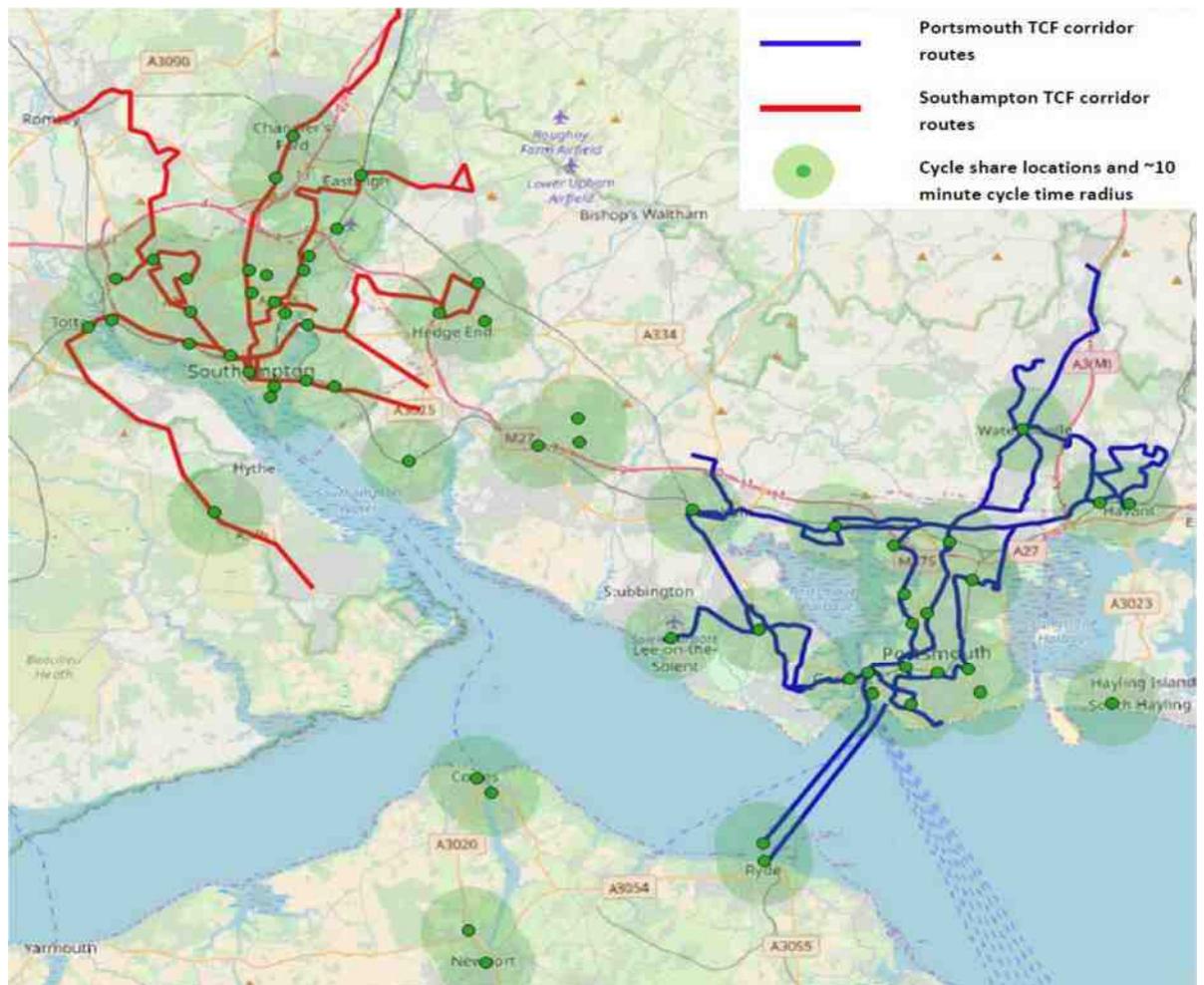
Whilst cycling from journey origins (ie home) to rail stations is a well-established travel choice, cycling from origins to bus stops is not. However this behaviour is already being demonstrated on some routes in Solent, including by users of Eclipse BRT (Fareham-Gosport) and the Bluestar 1 (Southampton – Chandler’s Ford-Winchester) route, both of which are key TCF corridor routes.

This indicates potential for public transport users to utilise shared cycles at the “destination” end of their journeys in locations where the Rapid Bus corridor is still some distance away from the user’s final destination, creating new options enabling users to access employment locations not well served by public transport.

Examples include connecting the Eclipse BRT service in Gosport to Solent Enterprise Zone in Lee-on-Solent; or connecting Southampton Science Park in Chilworth with the Southampton-Chandler’s Ford-Winchester Rapid Bus Corridor.

Shared cycle schemes also provide another option for some single stage pedestrian/cycle/taxi/bus journeys. Whilst a potential cycle share scheme in Solent would be primarily aimed at commuters and for journeys to work it would also provide a lower cost option benefitting other user groups including lower income groups, and would assist efforts to increase usage of cycling as a travel option more generally- supporting the Southampton Cycle Strategy and Portsmouth’s emerging Local Cycling & Walking Improvement Plan (LCWIP).

E-bikes offer potential to further increase the distances over which users can travel, whilst also widening user appeal to groups which might not use conventional cycles.



Indicative Solent bike/ e-bike share scheme coverage

Therefore we have developed an outline proposal for development of bike/ e-bike sharing across the Solent area, designed to support both city regions TCF proposals, which we would like to develop further and work with our partners to implement (subject to business case). GIS analysis of an initial proposal indicates that should be feasible to aim for around 80% of the urbanised area within the Solent Mobility Zone, and around 70% of it's population, to be within a 10 minute cycling radius of a cycle share location.

This shared bike/ e-bike scheme would be integrated into the overarching MaaS proposals, offering seamless inclusion of cycle share (including booking and information on cycle availability in real time) within journey planning.

Aspirations are primarily focused around provision of “docked” cycles based at public transport interchanges on the TCF corridors, key public transport stops, and in key districts where “local mobility hubs” are proposed via the TCF proposals (see Interchange/Local Mobility Hubs section, page 17/18). However there may be ways of shaping “dockless” bike user behaviour (eg through use of financial incentives) to return cycles to designated parking areas which we would be willing to explore with providers. Use of MaaS systems might offer opportunities to implement this eg through some form of travel credits to incentivise user behaviour.

Project 5: Car and Lift sharing

Trips to work by car account for 72% of all journeys to work in the Solent (2011), with 66% of all commutes being by single occupancy car. Carsharing and liftsharing platforms have been established in the Solent for the past decade and have a stable user base but there are opportunities to promote these more widely through workplace-based programmes and through use of new digital platforms, in order to address barriers to greater use.

This project would support businesses, often in areas of poor public transport coverage, to set up localised lift and car-sharing schemes, and would also enable car sharing as an option within the Solent MaaS platform- enabling car sharing options to be offered as part of the planning for many more journeys.

The project will focus on the many 24 hour or shift based workplaces in the area e.g. the Ports, NHS, freight operators, where the lack of 24-hour public transport limits travel choices for many workers and can exclude non-car owners from employment opportunities. Better ways of enabling liftsharing would open up mobility options for those without a car and also help reduce the number of single occupancy car trips.

Integration with the MaaS platforms (Projects 1 and 3) would enable users to identify potential car share partners beyond their own organisation who may be travelling to the same location. The platform would enable detailed data capture and reporting on car share journeys occurring. As an extension the platform would include capabilities for employees to search for colleagues who cycle and would like to share their ride to work.

To encourage and support businesses this project would provide a grant to part fund set-up of the scheme in each workplace, in return for agreement to cooperate on data exchange to contribute towards improved evidence based planning, supporting further initiatives in future.

Funding for employers would be tapered with 50% funding of costs in years 1 & 2 and 25% in year 3, reducing to zero in year 4 as businesses start to realise financial benefits as a result of fewer single occupancy car trips requiring fewer parking spaces.

Initially the project would start in Southampton, where 14 employers have expressed interest in participating – with potential reach to at least 22,000 employees –extending to 42 employers and 67,000 employees by 2022. Once set up in Southampton the project would be extended to Portsmouth City Region employers using the same platform and approach.

Theme 2: Urban Logistics

As a result of changes to the way people shop and work, due to increasing levels of online retail and rising numbers of self-employed people, light goods vehicles (LGVs, ie vans) are the fastest growing sector of road traffic. Over the past 20 years, LGV traffic has grown by 71%, compared to growth of 13% for cars and 2% for HGVs⁶.

All scenarios in DfT's Road Traffic Forecasts 2018 project that growth in Light Goods Vehicles (LGVs) will significantly exceed growth in car traffic, and will be a major driver of total traffic growth.

The impact of LGV traffic on air quality can be significant: in Southampton it is forecast that LGVs will create between 12% and 30% of road transport NOx emissions at key locations in 2020, making freight vehicles the second largest contributor to emissions after diesel cars. LGVs also contribute to parking and loading issues in both residential streets and local centres, particularly on Victorian terraced streets in some of the densely populated central parts of each city, eg on Portsea Island.

⁶ DfT(2017) Road Traffic Estimates Great Britain 2016

Theme 2 projects will explore and demonstrate new ways of making urban logistics more sustainable, reducing the impact the movement of goods has on congestion, air quality, safety and journey times in our towns and cities.

As an international gateway and major distribution hub for the UK, the Solent has a unique position which enables effective trialling of innovations in this field. The presence of academic centres of excellence for urban logistics research (University of Southampton TRG) and for transport operational research (University of Portsmouth ITRC) means we have locally based capability to monitor, evaluate and disseminate information from these projects

We propose delivery of a programme of studies and trials of innovative approaches to sustainable urban logistics, developing the Solent as a centre of excellence in this field where case study projects delivered by the SMZ programme are used as internationally important exemplars of ways to tackle this fast-growing challenge for urban transport.

Additionally, this workstream would support each City Region's TCF proposals to deliver Rapid Bus Corridors, taking advantage of and supporting new approaches to managing parking, loading and road space for servicing and deliveries, in order to prioritise public transport.

Project 1- Drone Logistics

Road based logistics is exposed to issues around congestion and safety which can hinder efficient and timely delivery of goods. For critical and "just in time" goods this can be a significant risk and for the movement of medical products, logistics sometimes has potential to become a matter of life or death.

This project proposes to realise the first commercial drone delivery flights in the UK, introducing the use of drones for medical logistics within the Solent area. Potential has also been identified to widen the project scope to also trial use of drones to replace vans for movement of pathology samples from local healthcare facilities to central hospital labs.

In 2018, University of Southampton and SCC participated in the NESTA "Flying High" Southampton project, which investigated the potential for drone delivery of medical products between hospitals in Portsmouth, Southampton and the Isle of Wight⁷. This project identified that congestion and long journey times by road and ferry between both Queen Alexandra Hospital in Portsmouth and Southampton General Hospital to St Mary's Hospital in Newport, Isle of Wight, results in high delivery costs and inefficiencies to the NHS which could be significantly reduced if these products were distributed by drone.

Removing uncertainty over road journey times through a reliable drone based logistics service would benefit the NHS whilst also resulting in benefits for air quality, congestion and road safety.

This project would consist of the following key stages:

- Research and development of suitable drones and development of back office procedures (delivery receipt/dispatch);
- Development of drone operating procedures initially using "synthetic environment" software before proceeding to "real world" testing to ensure aviation safety is not compromised;
- Working with NATS (based at Swanwick in Hampshire) and CAA to determine flight profiles and operating protocols – including interaction with Southampton Airport flight paths;
- Development of the UK's first Unmanned Traffic Control System (UTCS) – an essential pre-requisite to routine operation of drones in a beyond visual line of sight environment;

⁷ <https://www.nesta.org.uk/report/flying-high-challenge-future-of-drone-technology-in-uk-cities/shaping-drone-use-southampton/>

- Real-world trials using dummy payloads with assessment by NATS & CAA; and
- Trials of operational drone deliveries of blood and palliative care products between the main land hospitals and the Isle of Wight (see network map below).



Proposed drone delivery network for medical products

Success of trials would enable routine operation of a drone delivery service.

Research to date indicates that there is potential for up to 10 drone crossings per day between Southampton/Portsmouth and the Isle of Wight. Compared to current delivery methods (van/blue light ambulance/courier motorbike), drone delivery is forecast to offer cost savings to the NHS of £60,000 in first year alone, whilst enabling deliveries to the Isle of Wight to be made in around 15 minutes, compared to (typically) around two hours for a vehicle via ferry.

Further research by University of Southampton for the “add-on” pathology sample delivery project found that at present there are 12 dedicated daily van rounds servicing approximately 30 doctors surgeries in Southampton alone, with each van travelling on average 123km per day. With around 840,000 pathology samples being transferred from Southampton GP surgeries to SGH per year, and a likely similar scale pathology distribution operation at QAH Portsmouth, there could be considerable scope for drone deliveries to reduce the current van based transport footprint in one or both cities.

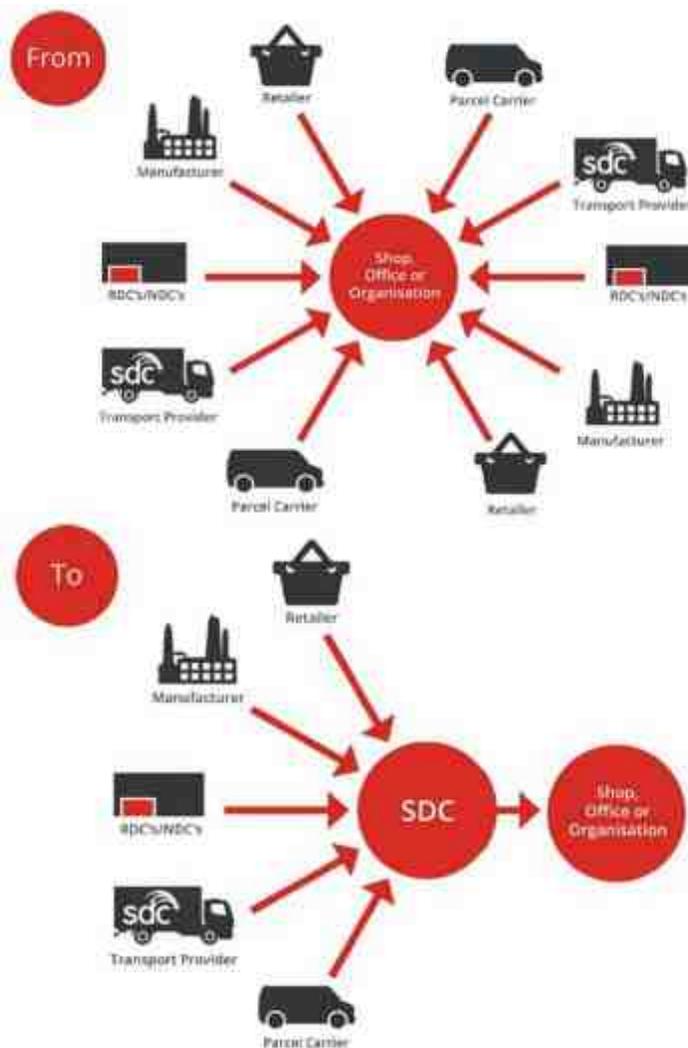
As both hospitals are significant hubs for TCF corridors in both city regions, this highly innovative project, if implemented to its full extent, offers potential to reduce delivery traffic at these key focus points for public transport in the two cities - to the benefit of the wider TCF proposals (particularly public transport). It also offers potential for creation of an UK and indeed world-leading medical logistics operation in Solent.

Project 2- Delivery Consolidation and Delivery/Service Plans

Currently, most organisations receive deliveries across the day or week from a variety of different suppliers often in an uncoordinated fashion. Many larger vehicles (primarily medium or light goods vehicles) can make a number of relatively small deliveries to each premises. This results in significant traffic associated with deliveries and servicing, particularly at larger employment hubs such as universities, hospitals, local district, town and city centres.

As a result of this concentration of activities, often kerbside or focused on a central delivery/loading point, impacts on air quality, safety, parking and congestion can occur as a result.

This project would develop the use of delivery consolidation in order to reduce the numbers of goods vehicles making deliveries to major employment, retail, health and education sites within the urban areas in Solent.



Delivery consolidation uses a single point (e.g. a warehouse close to the Major or Strategic Road Networks) away from busy central areas to act as an intermediate hub where all the individual deliveries to a location (eg a large business, or group of businesses) are brought together and consolidated into a single load. This single load is then delivered on one vehicle. As this “last mile” journey is short, potential exists to use electric vehicles to make this consolidated delivery.

Implemented at a large scale, such as a city or City Region, there is potential for delivery consolidation to significantly reduce delivery traffic at busy urban hubs, with consequent benefits for traffic congestion, parking demand, air quality and financial efficiency of businesses. Given the forecast growth in van traffic, there is an increasing need to determine if delivery consolidation offers a sustainable solution to this growing problem.

This consolidation approach is supported by Delivery and Service Plans (DSPs), (sometimes referred to as “Freight Travel Plans”). DSPs are planning studies which identify the operational, environmental and financial opportunities related to freight and servicing activities at a location, and are the first stage in developing sustainable consolidation approaches.

Since 2013 Southampton City Council has run a Sustainable Distribution Centre (SDC) in partnership with the private sector at a location close to M271 Junction 1, enabling delivery consolidation for several public sector clients. The aspiration is to expand this use of this facility to more businesses in Southampton City Region, and to extend SDC to cover Portsmouth city region. Wider use of SDC

creates opportunities around use of low/zero emission vehicles, including e-vans or e-cargo bikes to make the final mile deliveries, and also links into and enables opportunities for micro-consolidation hubs at interchanges or local mobility hubs identified in the “last mile logistics” project.

This project will focus on:

- Undertaking Delivery and Service Plans (DSPs) at sites across the Solent with potential to receive consolidated deliveries- such as hospitals, retail or industrial Parks, universities, colleges, and in the city centres- through providing expert advice and research for potential users;
- Enhancement of the Southampton SDC at Nursling as a central hub for consolidation and other logistics innovations in Southampton, widening its reach and supporting other urban logistics projects within the Solent Mobility Zone project, including last mile logistics;
- Implementation of a Portsmouth SDC operation to act as a consolidation hub for Portsmouth, catalysing development of sustainable urban logistics operations in Portsmouth City Region, mirroring the approach for the Southampton SDC; and
- Development of app/back office system to make use of ‘empty’ vehicles such as low-emission taxis for local deliveries using Local Mobility Hubs as pick up points.

Dependent on funding levels, we would seek to carry out between 8 and 20 DSPs annually for three years, in either Southampton alone, or in Southampton and Portsmouth, as well as providing financial support for start-up and switch-over for similar numbers of potential SDC users.

A number of key employment sites have been identified as targets for logistics consolidation projects, including Southampton General Hospital where, working with Transport Systems Catapult, modelling of the impacts of delivery consolidation has already been undertaken, indicating that this approach would remove 640 LGV and 113 HGV movements per week from the road network.

Focusing on the hospitals and universities (which are both on several TCF corridors), reducing delivery traffic in these areas would help to improve conditions for public transport and air quality, and also for walking and cycling.

Project 3-Sustainable Last Mile Logistics and Micro Consolidation Points

The growth in e-commerce means the last-mile movement of parcels, goods, groceries and take-aways in our urban centres is increasing. This is one of the factors in the observed increases in LGV activity. A growing proportion of these activities are linked to the ‘gig economy’ where employees use their own vehicles. This presents a plethora of commercial, regulatory and environmental challenges affecting both the transport & logistics sector, and local and national authorities.

There is an increasing interest in greater use of more sustainable, zero emission transport modes, such as electric cargo cycles and walking porters operating from local “micro-consolidation” points, to deliver goods over these short last stretches of a delivery journey. Micro-consolidation points could be set up anywhere that suitable space exists- for example at new local mobility hubs or improved public transport interchanges delivered by TCF tranche 2 funding.

Research indicates that there are substantial benefits for consumers, businesses and the transport network from innovative approaches to last mile delivery. Use of e-cargo bikes coupled with a micro-consolidation centre in London and Milan reduced CO² emissions per parcel delivered by 55% and 73% respectively compared to diesel vans. Trials of walking porters in London indicated that van kerbside dwell time can be reduced by up to 80%, and that around 80% of consumer parcels can be delivered by foot porter via drop-off points - halving the number of delivery vans needed. And studies have suggested that 25-50% of current freight traffic destined for urban centres could be transferred from motorised vehicles to e-cargo cycles under the right conditions- potentially significantly reducing the number of parcel van based trips made into central urban areas.

To date research and trialling of innovative last mile logistics has been in larger urban centres rather than small/medium sized cities such as Portsmouth and Southampton. This project would develop sustainable last mile logistics in smaller urban centres by:

- Quantifying the transport footprint of parcel/goods related logistics in Portsmouth and Southampton City Regions;
- Identifying opportunities to develop micro-consolidation points at locations such as public transport interchanges (eg by use of bus stands which are unused in the off-peak period) and at local mobility hubs- enabling transfer of goods to sustainable modes for the last mile of deliveries;
- Undertaking trial implementations using walking porters, e-cargo bikes, e-vans and attended and unattended collection systems at these locations;
- Changes to loading and waiting restrictions to enable use of temporary micro-consolidation points, and to encourage use of e-vans; and
- Develop crowd shipping services where drivers might rendezvous with walking or cycling couriers to perform the delivery transaction.

This project would support the wider outputs from Theme 2, ie reductions in delivery van traffic and emissions in our urban centres. It would also contribute to the objective of developing Solent as a centre of excellence for urban logistics through dissemination of research establishing the benefits of different approaches which would be tested.

Project 4-University Halls Deliveries Consolidation

Studies at University Halls of Residence in Southampton⁸ indicated that these sites can generate over 13,000 package delivery courier trips annually, and that these could be consolidated onto a number of delivery journeys numbering in the hundreds per year, reducing congestion, parking infringements and improving air quality in central parts of the city.

This project would develop delivery consolidation at one or more universities in Solent, reducing numbers of individual deliveries to halls of residence. The project would start in Southampton, developing a first-year student halls contract for consolidated post and packages delivery (utilising the Southampton SDC) which would be implemented as a trial for the 2020-21 academic year.

A second phase, which could be delivered linked to the creation of the Portsmouth SDC or potentially as a standalone project, would implement a similar trial at University of Portsmouth- offering opportunities for comparative evaluation of approaches in different locations.

Project 5- Waste consolidation

Normally, in any given urban area there will be numerous different waste and recycling contractors servicing premises: for example, it was found that 19 separate organisations collected residual waste, recycling and other waste types from 76 businesses on Winchester High Street (Maynard and Cherrett, 2009).

Whilst some commercial waste may require specialist collection, a large proportion of it is similar in composition to household waste, and could be collected alongside the household waste. Additionally, many small-to-medium enterprises (SMEs) currently find it difficult to find a local commercial waste recycling service that meets their needs as the collection of SME commercial waste for recycling is often not considered commercially viable by the larger waste contractors. This

⁸ Cherrett, T; Dickinson, J; McLeod, F; Sit, J; Bailey, G; Whittle, G (2017) Logistics impacts of students online shopping – Evaluating delivery consolidation to halls of residence. Transportation Research Part C, 78, pp111-128. <http://dx.doi.org/10.1016/j.trc.2017.02.021>

is believed to reduce recycling rates: DEFRA have estimated that over 1 million SMEs across the UK are still not recycling any materials.

This project would research and seek to identify commercially viable opportunities to better utilise existing domestic waste and recycling collection fleets to assist SME's in their recycling and waste collection. The concept of 'joint domestic-commercial waste collection' is not new with several councils operating such systems, most notably New Forest District Council who have been using the domestic fleet to service SMEs in the Lymington area for many years.

The project would:

- Investigate viability of implementing "consolidated" commercial recycling services where multiple SMEs are served by a single contractor;
- Examine the potential for combined household and commercial waste collections to work within the current regulatory context, and/or identify the potential for regulatory changes which would ease potential regulatory issues around recycling reporting which may impede these approaches;
- Utilise business-as-usual data collected by the domestic collection fleets in Southampton and Portsmouth (and /or other Waste Collection Authorities within the Solent Mobility Zone) to quantify potential capacity on domestic recycling rounds and the scope for re-designing those to collect SME waste/ recycling; and
- Use waste logistics optimisation software to design, develop, cost and evaluate city-wide SME recycling collection schemes, as well as quantifying the reductions in vehicle movements that this approach would achieve. The outputs of the project would help to establish whether there is an opportunity for the Councils to roll out such schemes commercially.

Local Mobility Hubs and Interchanges

The Solent Mobility Zone project proposes to trial approaches which increase the range of functions and services that are provided at transport interchanges and local mobility hubs.

Improvements to transport interchanges are a significant theme in both the Southampton and Portsmouth City Region TCF proposals, with proposals to improve interchanges in various locations such as Portsmouth city centre, Southampton city centre, Gosport and Waterlooville being developed. Southampton City Region's proposal also seeks to develop up to five "local mobility hubs" in key district centres and high streets (Shirley, Woolston, Bitterne, Lordshill, Portswood).

Local mobility hubs are conceptualised as high footfall "hub" locations where a range of mobility options and services are offered in the same place. This includes combining provision of public transport interchange, car club vehicles, high quality cycle facilities and cycle parking, taxi rank, EV charging points, and flexible space for business use (eg cafes, "pop up" shops etc) all linked together by improved quality public realm. It is likely that some of Portsmouth City Region's interchange enhancements would offer similar improvements.

Funding of the SMZ programme would expand the role of interchanges and local mobility hubs by offering a number of new services and travel modes (developed by the SMZ programme) at these locations:

- Access to shared bikes/ e-bikes;
- Hub/ interchange point for DRT services;
- Provision of space for micro-consolidation points; and
- Provision of click & collect facilities.

The range of facilities and services that could be offered at these sites, and how this would be considerably widened through FMZ funding is illustrated in the graphic overleaf.



Local Mobility Hub/ Interchanges: integrating new mobility services and options

B3. Global significance

Significance of our programme proposals

The Solent Mobility Zone programme consists of several interlinked and synergistic projects, many of which build upon established partnerships, and which seek to act as demonstrators of new approaches to sustainable personal mobility and sustainable urban logistics which would be significant both in the UK and at a wider European/ global level.

Our approach offers opportunities for partners in the academic sector to undertake high quality comparative research between trials of several future mobility technologies and operations (DRT, MaaS, shared mobility, urban logistics) in a range of different locations. This would enable us to achieve greater insights and learning from these projects than “standalone” projects in one place would achieve.

The Solent Mobility Zone programme would also put the Solent area at the forefront of urban logistics planning across a dual centre economy. The proximity of three international gateways (ports of Southampton and Portsmouth and Southampton Airport) mean that there is a high level of logistics movements on both the local and strategic road networks, and the national rail network. The logistics sector, which accounts for 5% of employment within the Solent economy⁹, relies upon efficient and effective transport networks and connections to function effectively.

<i>Project</i>	<i>Significance</i>	<i>How Solent would be a demonstrator</i>
Drone Logistics	<p>Setting up the UK’s first drone delivery network</p> <p>Using drones for movement of medical supplies between hospitals and across water to an island</p> <p>Demonstrating how drones can reduce costs/improve efficiency for the NHS and compared to conventional transport modes</p> <p>Some of these potential uses for drones are already being tested and experimented with elsewhere- if the UK is to secure/ maintain a lead in this field, support for testing and development is required in the short term</p>	<p>Creating a ‘pathfinder’ that can inform the implementation of drone logistics elsewhere in UK and internationally</p> <p>Build on the NESTA project and involvement of the academic sector for knowledge sharing, evaluation, innovation and research</p> <p>Working with CAA and NATS</p> <p>Develop drone delivery as a viable option for high priority deliveries</p> <p>Knowledge from these trials will contribute to developing drone logistics for other high-value time critical logistics</p>
Sustainable Urban Logistics – DSPs, Consolidation, Last Mile, Local E-mobility Hubs	<p>Solent is leading way for small-medium sized cities in sustainable urban logistics – current schemes eg SDC are already more advanced than in larger comparators eg Oslo, Gothenburg, Rotterdam & Copenhagen)</p> <p>Build on the Southampton SDC to set up a similar operation in Portsmouth,</p>	<p>The Solent, and Southampton in particular, has developed a reputation as significant influencer in the sustainable urban logistics field, through active engagement in a number of European and International networks – e.g. POLIS, CityLab project and BuyZET projects</p> <p>Access to a network of similar cities through POLIS and working groups on</p>

⁹ Oxford Economics 2013/ Solent LEP Strategic Economic Plan

	<p>starting to roll out a wider sub-regional approach to delivery consolidation</p> <p>University Halls and Waste Consolidation projects undertake research and trialling into two fields (residential delivery consolidation, consolidation of waste & recycling collections) that are relatively untried</p> <p>Support development of centre of excellence and knowledge sharing in urban logistics including e-logistics, mobility, drone and consolidation.</p> <p>Usage of local mobility hubs and interchanges as hubs for local deliveries (micro logistics hubs) not widely tried in UK</p> <p>Connects to the wider cycling and public transport proposals in both City Regions TCF business cases- use of interchanges for MLHs; development of cycle infrastructure supports use of e-bikes for deliveries</p>	<p>Urban Freight-enables use of our experiences and knowledge to demonstrate success and failures</p> <p>UK demonstrator opportunity through participation in National Infrastructure Commission “Next Steps for Cities” programme as one of five urban freight demonstrator cities</p> <p>A thriving logistics sector with two international gateway ports and an international airport – we are a leading area in the sector, significantly supporting the UK economy</p>
<p>Mobility as a Service (MaaS) and Solent Go</p>	<p>Developing new MaaS services in a dual centre, non-combined authority/ PTE area with high level of car dependency and a large number of different transport operators – including 3 out of 5 largest UK bus operators</p> <p>Significant scale of University projects: potential user base of up to 48,000 students and 7,500 staff- exceeds any known UK MaaS trial to date, comparable to global MaaS leaders at present</p> <p>Final Solent area wide MaaS platform, would be potentially accessible to a catchment population of approximately 1.16 million, and would capture and expand upon current user base of ~3,000 smart card users; ~8,000 annual paper day/weekly ticket sales- again offering significant scale</p>	<p>Innovation and demonstration of the viability of MaaS in a wider context that would be relevant to many urban areas outside of a UK “core cities”</p> <p>Clearly scalable project starting with defined, discrete pilot schemes at the Universities, utilising learning at each stage to inform progress to the next</p> <p>The partnership with the Universities (including one of the UK’s leading transport research centres) gives access to cutting edge innovation and research, whilst also maximising the potential for the wider sharing of knowledge</p> <p>Long track record of participants in this EOI delivering successful projects in partnership with transport providers in the Solent area</p> <p>Development in parallel with/integration with wide range of other mobility solutions via the SMZ project (SolentGo, Bike Share, Liftshare etc) and in parallel with TCF investments to drive up usage</p>

<p>DRT</p>	<p>Next generation DRT that trials blending of traditional Community Transport with commercial business orientated DRT</p> <p>Trialling two DRT service areas in same sub-region but in areas with different geographical, built environment and demographic factors</p>	<p>At present understanding and evidence from “standalone” commercialised services in single operating zones is limited</p> <p>SMZ projects would provide comparative study evidence of factors, growing the evidence base to inform development of future DRT projects in UK and further afield</p>
<p>Bike/ e-bike share and liftshare</p>	<p>Developing bike and e-bike sharing as part of an integrated public transport network in car-dependent areas- expanding the reach of non-car modes into areas hitherto inaccessible without a car</p> <p>Inclusion of bike share and liftshare options in Solent MaaS platform- offering new modes and greater integration</p>	<p>Links to /supports TCF investment in Rapid Transit networks in both Portsmouth and Southampton</p> <p>Supports the other personal mobility schemes</p> <p>Provide evidence for how these can play a greater role in the transport mix.</p>

SECTION C – The financial case

C1. Financial case – scheme costs

This should include total scheme cost, total Future Mobility Zones Fund contribution, total public sector contribution to scheme, total local and private contributions and any contributions in kind. This should include, if possible, a profile of costs for each financial year up to 2022/23.

Total scheme cost (£m): £23.08m to £33.44m

Total DfT (FMZ) funding contribution (£m): £21.59m to £31.96m

Total public sector contribution (£m): Total £1.169m (£0.652m from Solent Transport/ Member Authorities; £0.517m from DEFRA/ DfT JAQU Southampton Clean Air Zone funding for SDC project)

Total local and/or private contribution (£m): Total £0.314m (£0.314m –from employers participating in liftshare project)

Total match funding £1.483m across all sources.

Additionally, SCC have allocated £389k of 2019/20 Clean Air Zone Implementation funding provided by DEFRA/ DfT JAQU for delivery of schemes which have a close association with those proposed in the Future Mobility Zone bid. This includes initiatives that will aid personal mobility via bus and taxis, provision of EV charge points (including at Local Mobility Hub locations), and supporting individuals and businesses affected by local air quality plans.

Further, Portsmouth City Council are currently preparing a business case to DEFRA/ DfT JAQU for funding for initiatives with similar objectives and it is likely if this funding was awarded, it would support initiatives which are complementary to the SMZ programme.

It is possible that as projects are developed/ refined during co-development, that further local contributions may be identified.

Details of any ‘contributions in kind’ (e.g. operators agreeing to run a service):

- University of Southampton Sustainability and Travel Service – in kind support through staff time to support MaaS trial implementation;
- University of Southampton TRG – in kind support for use of Boldrewood Innovation Campus and National Infrastructure Laboratory as a venue/base for project activities; use of laboratory facilities for the development and testing of drones

We have developed “high” and “low” budget variants of the Solent Mobility Zone proposal. A breakdown of forecast costs of these variants is shown in the tables 3 & 4 overleaf. The “low” variant represents the minimum level of funding which would deliver each of the SMZ projects in a way that would provide meaningful outcomes. There is potential to scale some projects up/down to funding levels in between the “low” and “high” budget thresholds.

Solent Mobility Zone HIGH project budget		2019/20	2020/21	2021/22	2022/23	Totals
Theme 1	DRT trials					
	MaaS trials					
	Growing Solent Go					
	Bike/e-bike share					
	Car & Liftshare					
Theme 2	Drone Logistics					
	Delivery Consolidation & DSPs					
	Consolidation for Universities					
	Sustainable Last Mile Logistics & Micro Consolidation					
	Waste consolidation					
	Programme Monitoring+Eval.					
	Programme Mgt					
	Contingency					
	Totals	£2,137,000	£10,674,000	£8,900,000	£10,253,000	£31,964,000

Solent Mobility Zone LOW project budget		2019/20	2020/21	2021/22	2022/23	Totals
Theme 1	DRT trials					
	MaaS trials					
	Growing Solent Go					
	Bike/e-bike share					
	Car & Liftshare					
Theme 2	Drone Logistics					
	Delivery Consolidation & DSPs					
	Consolidation for Universities					
	Sustainable Last Mile Logistics & Micro Consolidation					
	Waste consolidation					
	Programme monitoring+eval.					
	Programme Mgt					
	Contingency					
	Totals	£1,870,000	£8,454,000	£6,739,000	£4,532,000	£21,595,000

SECTION D – The management case

D1. Management case – Delivery and risk management

The lead authority and accountable body for the Solent Mobility Zone project would be Southampton City Council.

Our proposal includes funding for a Solent Mobility Zone project team of between 6.5 and 8 FTE positions (depending on scale of funding awarded) within Solent Transport and the Member Authorities which would be dedicated to delivery of the project.

This would include:

- A dedicated Solent Mobility Zone Programme Manager, taking direct responsibility for the delivery of the programme according to the budget, as authorised by the Project Board, and within the timescales and parameters as agreed with DfT;
- Workstream leads for each of Theme 1, Theme 2, who would lead on client and/or project management (as appropriate for each project within the workstream);
- A dedicated Solent Go enhancement project manager, to lead on this particular project which will require additional engagement, commercial and technical capability;
- Technical and project support officers, who would deliver elements of projects directly implemented by Member Authorities (2-3 FTE depending on scale); and
- Solent Mobility Zone marketing, communications, research staff- providing capacity and capability in promotion, research and behaviour change areas of work which would be important to the success of the Programme (1.5-2 FTE).

Whilst the intention would be to recruit the above roles via individual fixed term contracts in the employment of Solent Transport or its Member Authorities, there is scope and flexibility in the budget to resource more specialist roles (if required) via commissioned services or consultancies.

As outlined in section E1 (commercial case) a significant number of the projects within this proposal would be delivered jointly with University of Southampton and University of Portsmouth, with Solent Transport taking on a client management role. The costs/ project planning for each project delivered by these partners takes account of funding for resource required for delivery. Both universities have access to substantial numbers of specialist researchers:

- University of Southampton’s Transport Research Group - 32 out of 34 staff are research/technical focused, and
- University of Portsmouth’s Intelligent Transport Research Cluster - 50 researchers.

Elements of projects involving physical construction or use of/changes to physical space such as highway land will be delivered by the local Highway Authority. Existing arrangements each Authority has with their term highways /network management contractors will be utilised. Projects which will require construction work or use of dedicated physical space or facilities are:

- Sustainable Distribution Centre in Portsmouth
- Bike/ e-bike share Points focused around key Rapid Transit interchanges, and
- Micro Consolidation Points.

A project milestones plan is provided overleaf, and an overview of key identified risks (for individual projects and the wider programme) and our approach to mitigating them is provided in Annex B.

Solent Mobility Zone: Key Milestones Plan

	2019				2020				2021				2022				2023	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1			
DRT trials	Project design &				Preparation for				Launch DRT				Monitor, evaluate				Launch DRT Zones 3+4	Monitor, evaluate, report
					UoP project design UoS Stage 1 trials				UoP Stage 1 trial UoS Stage 2 trial/implementation				UoP Stage 2 trial/implementation Wider Solent Maas					
Maas trials	PMO /delivery team setup				Procure,design,mobilise				Rezoning,new bus, DRT products				New rail,cycle share products				Transition to Maas platform	
	Develop, agree commercial																	
Solent Go enhancements	Project design				Procure,mobilise				Implementation									
Cycle/scooter share	Project initiation				Year 1-4 employers				Year 2-11 employers				Year 3-18 employers				Year 4-26 employers	Final Report
					Reporting				Reporting				Reporting				Self-sustains at end of fund	
Workplace car sharing	Project dev, Stage 1				Project development & testing, Stage 2				Stage 3 dummy trials				Stage 4 live trials				Implement inter-hospital service	Sustainment
					Synthetic environment tests								Pathology delivery network project (add-on)					
Drone delivery	Southampton- Project design				Southampton-implement, monitor, evaluate				Portsmouth-implement, monitor, evaluate				Portsmouth-implement, monitor, evaluate				Sustainment	Sustainment
					Portsmouth-plan,procure,mobilise				Launch project 2020/21 academic year				Continue project 2021/22 academic year				Sustainment	Sustainment
SDC Consolidation					Project design													
					Stage 1-Develop BAU case				Stage 2-Develop business case for live trials; procure/contract live trial partners				Stage 3-Implement live trials				Reporting	
Halls consolidation									Study period				Reporting					
Last Mile Logistics																		
Waste consolidation																		
Programme monitoring/eval	Design programme monitoring				Ongoing monitoring, research, evaluation activities				Y1 report				Y2 report				Y3 report	Final report
	Project initiation Recruit PMs + staff																	
Project Management																		

D2. Management case – Governance

Do you have governance processes in place to deliver the scheme?

Yes No

The Solent Mobility Zone programme would be delivered by Solent Transport on behalf of the Portsmouth and Southampton City Region Transforming Cities Fund projects.

[Solent Transport](#) is a partnership and Joint Committee of the four Local Transport Authorities in the Solent area which has been established since 2007. Its members are:

- Hampshire County Council
- Southampton City Council
- Portsmouth City Council
- Isle of Wight Council

One of Solent Transport’s functions is to deliver shared projects which provide benefits jointly across all four authorities. The Solent Mobility Zone programme is such a project and Solent Transport has been selected by the two City Regions as lead delivery of this programme.

Solent Transport has two established levels of governance and decision making:

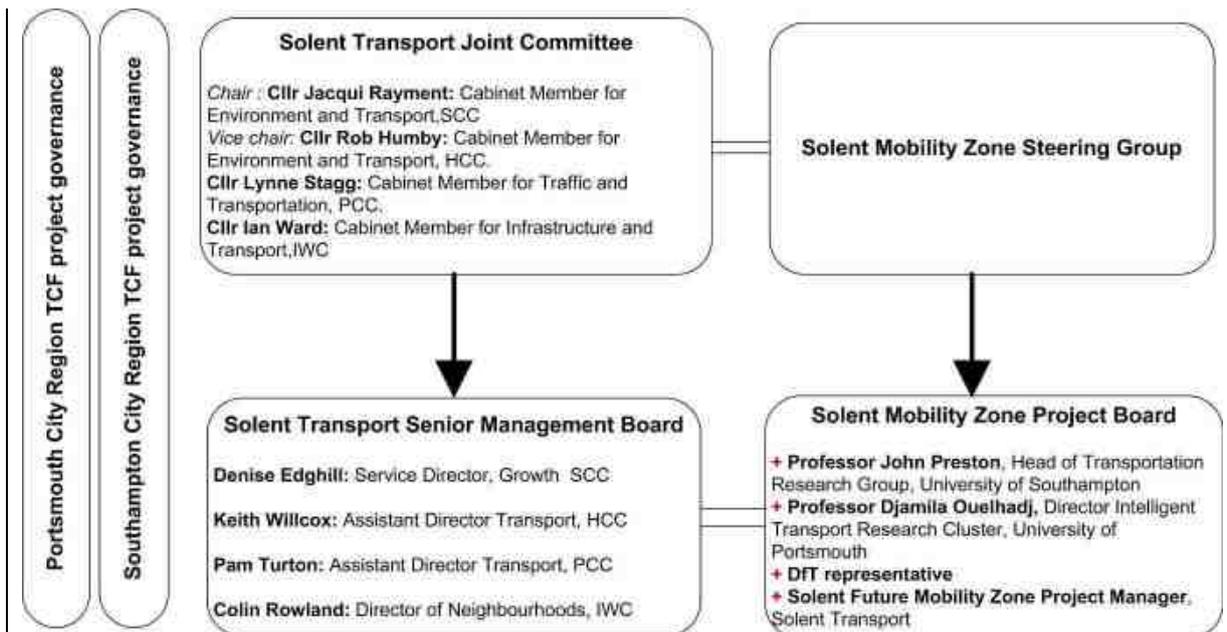
- Joint Committee, which provides strategic direction and decision making on joint initiatives undertaken. The Joint Committee consists of the Executive/Cabinet members for Transport from each of the four member Authorities; and
- Senior Management Board (SMB): SMB consists of the senior officers responsible for transport at the four authorities. SMB provides project level direction, governance and decision making.

If this proposal was funded, a new Solent Mobility Zone Programme Board and Steering Group would be set up to deliver the Solent Mobility Zone programme. Membership of these groups would comprise Members and Officers from the Joint Committee and SMB structures respectively, with additional representation on the Programme Board from the leads of the relevant research groups at University of Southampton and University of Portsmouth, reflecting the role of these organisations as “tier 1” partners; and from a representative from the DfT (the key funder).

The Senior Responsible Owner would be Denise Edghill (Service Director Growth, Southampton City Council).

All of the Solent Transport authorities are partners in one (or two, in the case of Hampshire County Council) of the two City Region Transforming Cities Fund projects, meaning that governance of the SMZ project would link directly with governance of the related TCF projects.

The organogram overleaf illustrates our proposed governance approach, and how this would link to the Transforming Cities Fund projects.



Solent Mobility Zone programme governance structure

Solent Transport has a strong previous track record of delivering partnership projects of comparable scale, profile and complexity. Examples include:

- “Better Connected South Hampshire” project 2012-2015: Large Local Sustainable Transport Fund (LSTF) project which delivered £31m of investment (£17.8m from DfT) into a range of sustainable transport interventions between 2012 and 2015, including creation of the Solent Go smartcard; and
- South Hampshire Better Bus Area Fund (2014): delivery of £4.5m project to enhance quality of bus travel across South Hampshire. 137 buses refurbished and 565 buses fitted with on-bus Wi-Fi.

University of Southampton’s Transport Research Group was a key partner in delivery of both these previous projects, undertaking monitoring and evaluation for both and undertaking related research for the LSTF project.

Solent Transport is also responsible for managing the Solent Go multi-operator smartcard jointly with South Hampshire Bus Operators Association (SHBOA) as well as a number of other ongoing initiatives (including the well-regarded My Journey travel behaviour change brand/programme) which would be relevant to the Solent Mobility Zone programme.

SECTION E – The commercial case

E1. Commercial Case

Market Engagement

Solent Transport and its key partners have undertaken engagement with a number of potential commercial providers, delivery partners, and other key stakeholders (e.g. public transport operators, consultees or regulatory bodies) to help inform the development of the Solent Mobility Zone proposals:

Theme 1: Personal Mobility

<i>MaaS & Growing Solent Go</i>	<i>DRT</i>	<i>Bike/ e-bike and Liftshare</i>
		

Theme 2: Urban Logistics

<i>Drone Logistics</i>	<i>Sustainable Distribution, Consolidation & Last Mile Logistics</i>
	

Procurement Strategy Overview

A significant number of the projects within this proposal are planned to be delivered jointly with University of Southampton and University of Portsmouth. These projects are: MaaS, Liftshare, Drone Logistics, Sustainable Delivery Consolidation, University Halls Consolidation, Last Mile Logistics, and Waste Consolidation.

It is intended that most of these joint projects would utilise the existing Centre For Sustainable Travel Choices (CSTC) partnership, and/ or its successor. The CSTC was set up in 2012 as a partnership between SCC (lead authority), Sustrans and the University of Southampton to deliver and monitor the South Hampshire LSTF programme. It has since been extended and expanded to include HCC, CyclingUK and British Cycling, to deliver and monitor/evaluate the Southampton City Region Access Fund programme.

The CSTC is governed by a Memorandum of Understanding (MoU) signed by the organisations identified above which enables the named partners to deliver a range of services and research as

part of sustainable transport programmes. New schedules can be added to this MoU to cover delivery of new projects, as well as setting out and securing partners commitments to agreed roles and responsibilities and to participate in project governance. At present, the CSTC MoU is due to expire in March 2020 (end of Access Fund period) meaning it would be available to deliver very early items of work within this proposal.

Work is commencing to extend or re-procure this MoU, or a similar Service Level Agreement (SLA) in order to support / deliver two other significant current/future projects:

- Southampton City Region TCF project [Tranche 1 funding awarded; and if funding awarded, Tranche 2 in addition]; and
- Solent Transport/ Highways England M27 & M3 Travel Demand Management project [£1.9m funding recently awarded].

If the Solent Mobility Zone proposal was selected for co-development, the CSTC MoU or a successor would be extended and we would seek to add Portsmouth City Council and University of Portsmouth to this arrangement.

Several other projects in the SMZ programme would follow a different procurement route. These are:

- Growing Solent Go – this project would use the current Solent Go smartcard and associated back office provided for Solent Transport through contractual arrangements between SCC and Unicard (back office, fulfilment website etc) and Euclid (smart card bureau). Public transport operators participating in the project (implementing Solent Go products in their own back office ticketing systems) would deliver improvements to their own systems via their own commercial arrangements, with SMZ funding provided via a conditional grant scheme;
- DRT – intention is to procure via separate tender process which would be aligned with re-tendering of the Dial-a Ride/ Community Transport services for one of the cities in 2020/21;
- Bike/ e-Bike Share project – procured via a tender process managed by Solent Transport;
- Southampton SDC – currently SCC is renewing its existing single-operator framework contract which will secure a provider in place for this service for duration of the Solent Mobility Zone programme; and
- Portsmouth SDC – this would need to be procured through a tender process managed by PCC.

If a need for additional specialist or technical consultancy support arises for any projects, Solent Transport has, via its Member Authorities, access to existing framework contracts for multi-disciplinary technical and professional advice, such as HCC's strategic partnership contract with Atkins.

From informal discussions with other authorities considering MaaS trials we understand there may be opportunities to explore potential for a consortium procurement approach across several authorities in the UK to develop a "white label" MaaS product that might offer financial efficiencies, deliverability advantages and user benefits. Should an opportunity for such an approach emerge, we would consider participating in such a consortium if appropriate for our proposed projects.

SECTION F – Additionality

F1. Additionality

The Solent Mobility Zone programme will provide a package of innovative personal mobility and urban logistics projects which would be complementary to the TCF packages being developed for the Portsmouth and Southampton City Regions.

At a strategic level, additional benefits for personal mobility include provision of new travel modes and improved access to Rapid Transit corridors and cycle networks, which will help to achieve modal shift above and beyond what the TCF proposals would deliver.

The Theme 2 (urban logistics) projects have been conceived to complement the theme 1 projects, tackling different types of (non-personal) travel demand which TCF interventions would not address.

In combination, the SMZ projects would assist efforts to make better use of local highway networks to serve nationally important freight flows which pass through Solent- improving the resilience of the supply chain from the UK to/from various markets of importance.

The Port of Southampton in particular is of national strategic importance, and is the UK's most important port for trade with non- EU markets: 31% of the UK's seaborne trade with non-EU markets (value £71bn p/a) passes through Southampton, much of it travelling via parts of the city's highway network. Portsmouth International Port is also significant, being the UK's second busiest port for flows to/from EU markets.

Alignment with and additionality above TCF proposals

Theme 1 – Personal Mobility

Mobility as a Service and Growing Solent Go

The population within the Solent Go integrated ticketing zone- many of whom could potentially benefit from the proposed Solent Go improvements and transition to a MaaS platform- is approximately 1.16 million - compared to approximately 760,000 residents within a 1km radius of the nine TCF core corridors across the two cities. Thus the Solent Mobility Zone proposals would cover a catchment containing approximately 400,000 additional residents compared to those likely to benefit most from the TCF proposals.

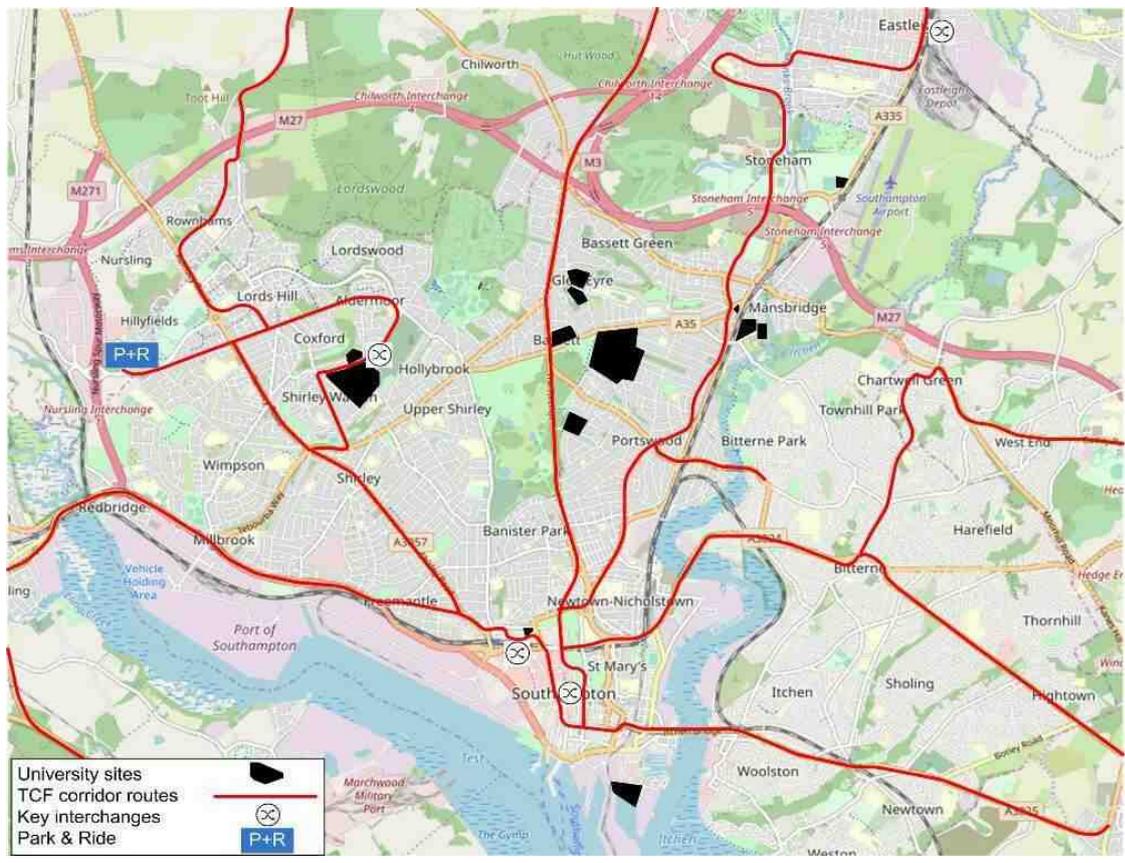
The MaaS and Growing Solent Go projects will strongly complement the investment in Rapid Bus and Transit networks that is proposed in both Portsmouth and Southampton City Regions through TCF. The Portsmouth TCF proposal has a workstream examining options for improvements to ticketing to compliment the emerging infrastructure proposals, and South Western Railway has a franchise requirement to offer a Solent Go rail product. If the proposals in this EOI for Solent Go MaaS were not funded, it is likely that any improvements to Solent Go would be restricted to one or two new products and introduction of a limited range of rail travel options which would only be offered through existing individual methods (smart cards, paper or m-tickets) rather than through any new MaaS-style platform. Also, there would be no scope for the integration of journey planning, information and promotion, or ability to purchase a wider range of mobility products as the MaaS platform would offer.

Additionally, Winchester City Council are investigating potential for MaaS to meet some of Winchester's future transport and mobility challenges. Whilst this (if implemented) could offer potential to support Southampton City Region's TCF proposals for improvements to the Rapid Bus

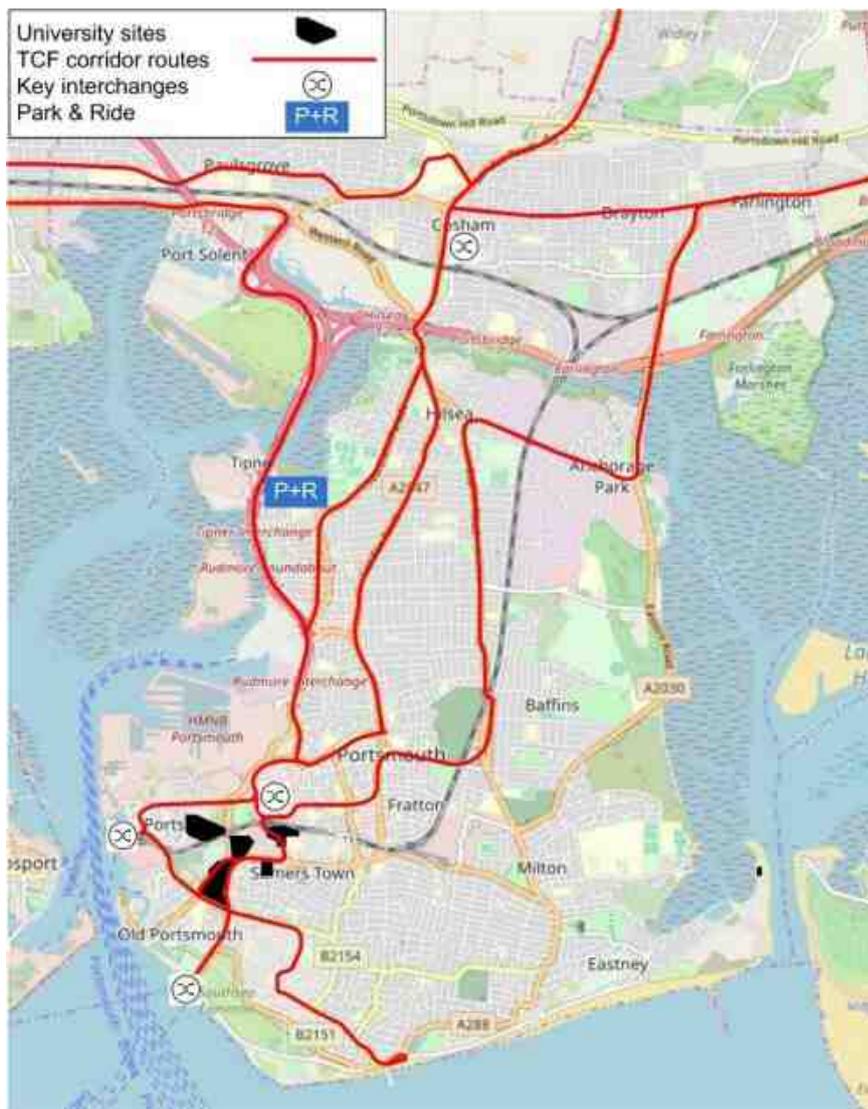
Corridor between Winchester and Southampton via Chandler’s Ford, the Winchester proposals would not offer significant benefits for the wider Solent region or for Portsmouth City Region.

The initial focus of the MaaS development and trial would be Portsmouth and Southampton Universities. The outcomes of this would directly inform the development of the Solent Go MaaS workstream. Without this approach the ability to gain experience from prior trials to shape and inform the Solent Go MaaS platform would not be available. We have not proposed to DfT to provide TCF funding for the university MaaS projects, and it is unclear how they could otherwise be funded at this time.

Our proposal to carry out initial MaaS trials focused on the universities has also been strongly influenced by the fact they would directly support the Transforming Cities Fund proposals for both city regions: both universities have teaching and residential sites located along multiple TCF “focus” corridors (as illustrated on the maps below/overleaf) and are major components of the travel market for each city.



University of Southampton sites and their relationship with TCF corridor routes



University of Portsmouth sites and their relationship with TCF corridor routes

DRT Trials

The potential DRT zones have an average resident population of 44,000 and significant parts of these zones are outside of the core Portsmouth or Southampton TCF corridors. Therefore the Solent Mobility Zone programme would introduce an entirely new travel option for between 80,000 and 180,000 people, a high proportion of whom would not benefit significantly from any of the core TCF proposals.

The Southampton City Region TCF proposal includes a small scale business focused DRT to address access and mobility issues in the Hamble area. A study is being commissioned by HCC to investigate feasibility of this. The Solent Mobility Zone DRT proposals cover a substantially wider geography than the Hamble study, potentially delivering as many as four DRT operating zones in Solent- a considerably wider implementation than TCF business cases will propose.

Bike Share and Liftshare

Both City Regions (and certain authorities) have considered developing bike share schemes either independently or as part of the TCF proposals. The Solent Mobility Zone proposal provides the

potential to develop a coherent and coordinated bike/ e-bike share scheme on a larger dual-city scale. As well as integrating closely with public transport improvements that would be delivered by TCF, this approach may enable achievement of economies of scale and more effective marketing, as well as user benefits such as improved linkage with the Solent Go MaaS platform, compared to implementation of smaller/ un-coordinated projects.

The liftshare project is also additional to the TCF proposals and would support wider TCF objectives, and would likely not be funded in absence of FMZ funding.

Theme 2- Sustainable Urban Logistics

All of the projects proposed within Theme 2 (sustainable urban logistics) would be additional to the wider TCF proposals: none of these projects are proposed to be funded as part of the two cities TCF business cases.

The projects which are fully scoped alone have the potential to remove up to 50-60,000 freight vehicle trips per year from the highway network of each city, many occurring along the TCF focus corridors. Removal of freight traffic from these corridors would directly support measures in the Portsmouth and Southampton TCF proposals to improve conditions for public transport and active travel, and would not be achieved by the wider TCF projects. There are also wider benefits associated with air quality, logistics efficiency, and safety. Some of these projects (eg Last Mile Logistics) have been designed to take advantage of improvements delivered by TCF, ie local mobility hubs and interchanges. Given the potential scale of the benefits, consideration will be given as to how long term commitments to usage of the SDCs and Micro Consolidation Hubs could be secured.

Some of the individual projects in theme 2 could be funded through alternative routes or other sources, albeit at a much lower level. However the Solent Mobility Zone proposal provides the opportunity for larger scale implementation, research, and coordination and synergies between projects, and subsequent dissemination of knowledge and technology.

Drone Logistics

The University of Southampton is a lead research institution in the aerospace sector and in drone development, working alongside along a number of SME technology companies in this field. The University of Portsmouth also has areas of research related to mechanical engineering and other aspects of drones. In addition to being a hub in research & development of autonomous aerial vehicles, the Solent is also the location of the NATS headquarters at Swanwick (the UK's air traffic control hub). This concentration of local expertise makes the Solent area well suited as a testbed for development of advanced unmanned and autonomous aerial vehicle technology, as well as meaning several key regulatory players are easily accessible.

Whilst efforts are ongoing to fund some this project from various sources, if it was funded from different sources, such as the private or aviation sector, this might reduce the opportunities to disseminate findings to the wider transport, policy, or Government (rather than aviation sector) audiences.

Sustainable Last Mile Logistics & Consolidation

The development of new public transport interchanges in city centres or district centres in Portsmouth and Southampton, and the development of Local Mobility Hubs in Southampton, will

create spaces which provide opportunities for implementation of last mile/ micro consolidation approaches alongside other mobility services such as e-bike or e-vehicle hire.

For example, spare off-peak capacity (eg bus bays) at interchanges could be flexibly designated to enable use by micro-consolidation points, and interchanges can be designed with space for delivery collection points so people can pick up items as part of their public transport journey. This integrates sustainable last mile logistics and consolidation into wider transport improvements at city or district centres and public transport hubs proposed by both cities' TCF projects .

The development of high quality cycle networks (also proposed by the cities' TCF business cases) also supports the use of e-cargo bikes. In Southampton, the improvements to the cycle network are specifically being designed to accommodate e-cargo bikes.

There has been some exploration of low/zero emission "last mile" approaches in Solent to date. Isle of Wight Council have delivered a project supporting use of e-bikes for personal travel by healthcare workers, and have trialled extending this to e-cargo bikes. This is currently funded via the Access Fund which ceases in March 2020. In Southampton the zero-emission distribution company Zedify have recently launched indicating growing commercial interest in zero emission last mile logistics. Our aspiration is to use FMZ funding to kick-start the wider implementation of these new approaches to last mile logistics in Solent, making the Solent a leader in this area by normalising these approaches.

Additional learning

A wide range of potential research opportunities, primarily for academic research, have been identified across the projects within the proposed Solent Mobility Zone programme. These include:

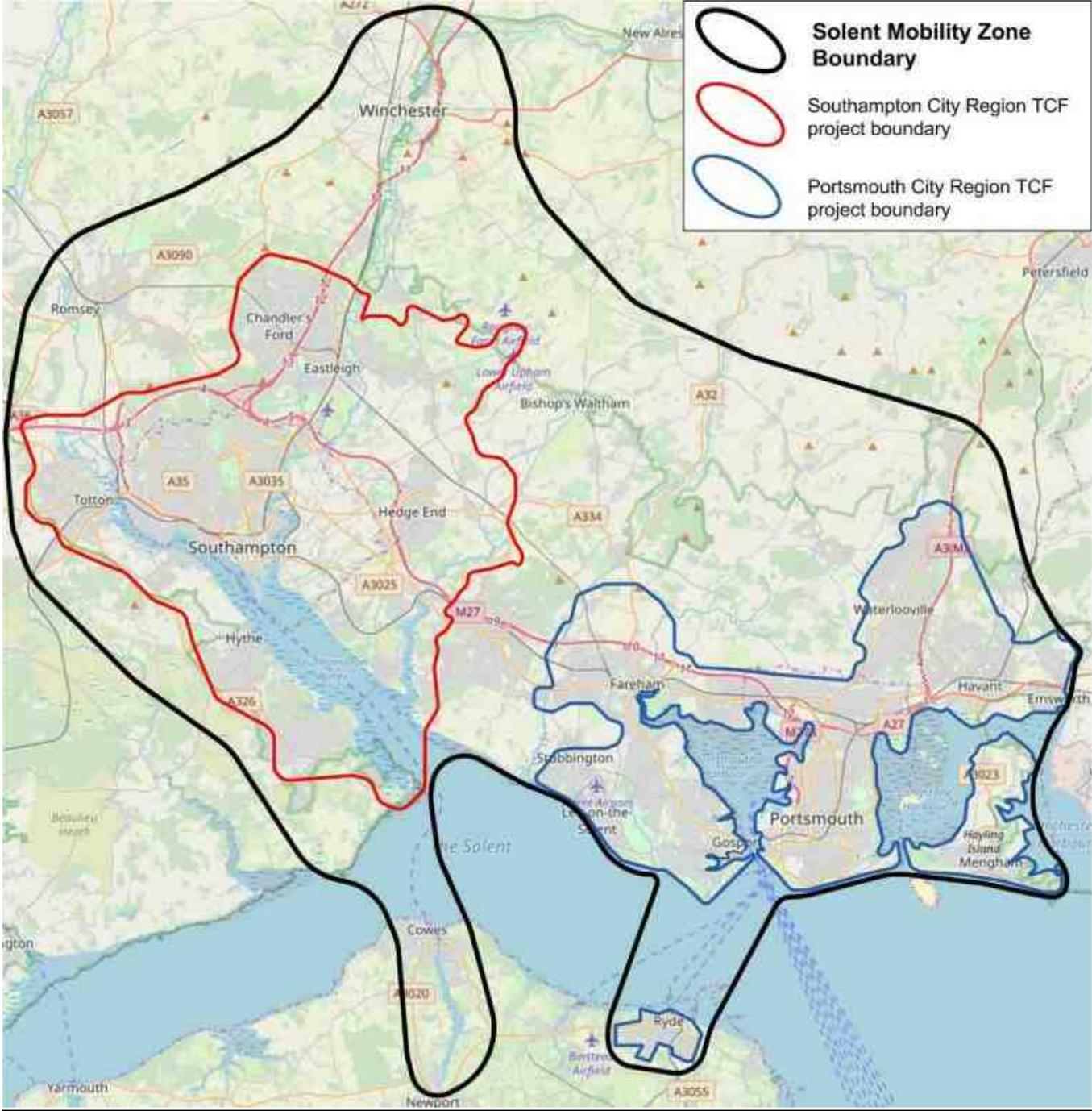
Personal Mobility		Urban Logistics	
MaaS, Growing SolentGo, Bike Share, Liftshare	DRT	Drone Logistics	Consolidation projects
Interface design and human factors research Behavioural change Active Travel/ Car sharing incentives Air quality, sustainability & environmental impact Information provision Systems integration Links with SMEs Future & emerging technologies Security and risk	Interface design Behaviour change Air quality & environmental impact Information provision Operational approaches Success/failure factors	Cargo (UAV) drone design Unmanned Traffic Management Systems Security and safety Drone distribution operating models Planning policies and guidance for drone take-off/ landing sites Public reaction and acceptability	Centre of Excellence for Urban Logistics Behavioural change Distribution operating models Policy & incentives Low or zero emission distribution vehicles Micro consolidation Air quality & environmental impact Potential for 'Logistics as a Service' applications

SECTION G – Declarations

G1. Senior Responsible Owner Declaration	
As Senior Responsible Owner for Solent Mobility Zone I hereby submit this request for approval to DfT on behalf of Southampton City Region and Portsmouth City Region and confirm that I have the necessary authority to do so.	
I confirm that Southampton City Region and Portsmouth City Region will have all the necessary statutory powers in place to ensure the planned timescales in the application can be realised.	
Name: Denise Edghill	Signed: 
Position: Service Director, Growth, Southampton City Council	

G2. Section 151 Officer Declaration	
As Section 151 Officer for [n/a] I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that [n/a]	
<ul style="list-style-type: none"> • has allocated sufficient budget to deliver this scheme on the basis of its proposed funding contribution; • accepts responsibility for meeting any costs over and above the DfT contribution requested, including potential cost overruns and the underwriting of any funding contributions expected from third parties; • accepts responsibility for meeting any ongoing revenue and capital requirements in relation to the scheme; • accepts that no further increase in DfT funding will be considered beyond the maximum contribution requested and that no DfT funding will be provided after 2022/23; • Confirms that the authority has the necessary governance and assurance arrangements in place and the authority can provide, if required, evidence of a stakeholder analysis and communications plan in place. 	
Name: N/A	Signed: N/A

Annex A: Solent Future Mobility Zone Map



Annex B: Overview of key identified risks

	Risk	Assessment	Mitigation Measures	Residual Risk
		H M L		H M L
Programme Management	Insufficient budget due to under-estimation of requirements/ cost increases/inflation etc	Y	<ul style="list-style-type: none"> Proposal has been assessed & challenged by key officers and partners with expertise in projects/programmes of this nature prior to submission Solent Transport has challenged sponsors of each project to identify "pessimistic" budget level requirements rather than "optimistic" minimum costs Quotes have been received from potential suppliers for many elements of the project during development of this EOI Contingency allowances are included within several project budget estimates where there is uncertainty, and a further 10% allowance has been applied across the board at a programme level Close monitoring will be undertaken of expenditure against forecast by relevant accountancy team and by programme board. Any significant cost increases would be raised via programme governance processes and decisions would be made to re-profile / re-plan accordingly to minimise impacts. As noted in financial case, most projects within the programme can be scaled up or down in terms of cost 	Y
	Inability to deliver according to programme timescales	Y	<ul style="list-style-type: none"> Proposal has been assessed & challenged by key officers and partners with expertise in projects/programmes of this nature prior to submission An allowance for delays is included in the timescales presented for some projects Procurement of many project elements via CSTC MoU significantly reduces procurement risk to timescales for many projects 	Y
	Lack of internal resource to deliver the programme	Y	<ul style="list-style-type: none"> Project would rely on existing resources at Solent Transport / member authorities/ partner in early part of start-up phase; but financial case includes significant funding to recruit 6.5 to 8 FTE dedicated project staff within Solent Transport including staff suitably qualified and experienced to lead the two overarching workstreams and specific projects within them, and technical specialist positions for delivery of certain projects Costs for University-led projects also include cost of staff resource required to deliver projects. Access is available to a significant number of suitably skilled staff at these partners: University of Southampton TRG has 34 academic/ research staff together with numerous aviation researchers at University of Southampton (relevant to Drone Delivery project); Portsmouth ITRC comprises around 50 staff. 	Y
	Timely approval of bid-DfT decision is delayed	Y	<ul style="list-style-type: none"> Project plans include some allowances for delays to funding decision. There is potential to deliver projects to a revised timescale if DfT funding "slippage" occurs due to delays; or there is potential to reduce scope of projects to fit within available timescales Development of some projects (Uni MaaS, Drone deliveries, Solent go enhancements) planned to continue on ongoing basis regardless of DfT decisionmaking timescales, in order to develop proposals for other funding opportunities- meaning some progress should occur on these projects in lieu of funding decision 	Y
Links to Transforming Cities Fund programmes	One or both of Southampton City Region / Portsmouth City Region TCF projects is not funded	Y	<ul style="list-style-type: none"> The projects within Theme 1 of this proposal have been developed under the assumption that the two TCF proposals will be significantly (if not fully) funded and have therefore been designed to complement both cities TCF proposals. However none of the Solent Mobility Zone theme 1 projects are fundamentally dependent on TCF infrastructure proposals, although implementing these projects without supporting TCF investments may reduce their benefits. The projects in Theme 2 are also not fundamentally dependent on TCF delivery, although elements of Project 3 (last mile delivery) have been designed to take advantage of TCF proposals such as interchange enhancements. 	Y
	TCF programme delays for one or both city regions	Y	<ul style="list-style-type: none"> See above text- delays to delivery of TCF programmes would not fundamentally impact most projects within the Solent Mobility Zone proposal. 	Y
T1 P1 DRT trials	Delays to delivery	Y	<ul style="list-style-type: none"> Feasibility study underway already. Substantial experience across Solent Transport authorities in developing+ implementing community transport focused DRT services and close partnerships with several potential (existing) commercial DRT providers via SHBOA 	Y
T1 P2 Solent Go enhancements	Delays due to difficulties in negotiating commercial agreements	Y	<ul style="list-style-type: none"> We have already agreed a "heads of terms" with SHBOA for the enhancements proposed, significantly reducing this risk. SWR rail franchise includes a commitment to offer Solent Go rail products, addressing this element of risk, and discussions around commercial aspects of this are ongoing 	Y
	Delays due to technical issues	Y	<ul style="list-style-type: none"> Development of ITSO smart ticketing products and related back office etc now well understood by major operators - significantly less risk (and cost risk) associated with these actions than in the past 	Y

	Risk	Assessment			Mitigation Measures	Residual Risk		
		H	M	L		H	M	L
T1 P3 MaaS trials	MaaS - Specialist supply chain capacity constraints		Y		•Flag our timescales & requirements in all early engagement & contract negotiation. We have already undertaken informal early engagement with one potential provider to help them understand our likely needs.			Y
	Delays due to technical issues		Y		•Engagement with one potential provider has revealed that this provider already has connections in place to back offices of several key transport operators we would seek to include in our proposals, as well as software development capabilities to connect to any other required provider following development work. A proposal, setting out outline timescales for these activities, has been prepared and has informed this EOI.			Y
	Delays due to difficulties in negotiating commercial agreements		Y		•Many key service providers we would seek to include on MaaS platforms are already engaged via Solent Go and SHBOA, and through other means. This reduces the number of identified providers where there is elevated risk of issues around commercial arrangements			Y
T1 P4 Cycle/scooter share	Issues around delivery of physical infrastructure schemes		Y		•Schemes would be delivered solely on highway land eliminating land acquisition costs/risks. Authorities would make use of established delivery partnerships/ frameworks to deliver highway elements of these schemes, reducing risks. Interchange cycle schemes would be delivered as part of wider TCF programme (which would be very well resourced in terms of highway engineering capacity if TCF SOBCs are funded) • Carry out a full feasibility study to inform a business case prior to proceeding with any proposals			Y
Drone delivery	Difficulties securing required regulatory/ airspace/ etc permissions to implement later stages of project		Y		•Routine BVLOS flights will need either special exemption from the CAA or updated legislation taking into account capability of the drone and surrounding infrastructure. Project plan includes significant time and resource to overcome these issues through synthetic environment testing, development of UTC, and through engagement with regulatory bodies and key local aviation sector stakeholders in order to either secure required exemptions, or changes to regulation regulations.			Y
	Existence of a drone design which meets technical requirements/ capabilities for the proposed service		Y		•Engagement has been ongoing with potential drone providers around likely requirements (VTOL, high payload, long range drone capable of working in all weather conditions), and work has also been ongoing at both Universities regarding studies/ prototyping of new drone designs. Significant funding and time allowance in budget/ outline project plan for development of new drone designs which meet requirements			Y
SDC Consolidation	Project delivery impeded due to lack of SDC facilities		Y		•Southampton SDC currently being secured on a new contract which will guarantee it will be in operation for duration of project. If option of a Portsmouth SDC project is funded but difficulties arise in delivery of SDC site, Southampton SDC offers potential to be used for consolidated deliveries towards Portsmouth area as well (albeit at lower level of efficiency, and likely ruling out zero emission last mile delivery)			Y
Halls consolidation	Institutional resistance from University estates departments		Y		•Early engagement at high level of Universities management has been undertaken. Project budget includes funding for subsidies in Y1 in order to demonstrate benefits of scheme to users whilst making means of financial compensation for risk (if required) to help reduce potential resistance to scheme			Y
Last Mile Delivery	Difficulties around data sharing, GDPR and legal agreements amongst logistics carriers sharing manifest data/ delivery rounds		Y		•This is a known issue for delivery consolidation approaches and has been the subject of considerable study and engagement by University of Southampton researchers. Combined delivery models do exist (eg Menzies Highland Parcels) which provide exemplars for ways of addressing data sharing related issues			Y
	Creating drop-off facilities that can be used by multiple carriers and the ability of the councils to create, manage and legislate for such space.		Y		•Parts of this project have been designed with the intention of using local highway authority owned but non adopted highway land, eg public transport interchanges or perhaps car parks, as a means of avoiding issues around (for example) ability/legality to implement TROs on the highway which designate loading bays for use by specific operators during specific time periods (as would be required for a mobile micro-logistics hub operation).			Y