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AECOM

Perth West Logistics Hub

Feasibility Study

SEStran

April 2023

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
Elliot Bayley Consultant	Paul Davison Associate Director	John Hix Regional Director	

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Prepared for:

SEStran

Prepared by:

Paul Davison
Associate Director
M: (+44) 07799 712521
E: paul.davison@aecom.com

AECOM Limited
1 New York Street
Manchester M1 4HD
United Kingdom

T: +44 161 601 1700
aecom.com

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Executive Summary

Introduction

This report has been developed by AECOM to determine the feasibility of a logistics hub/consolidation centre at Perth. AECOM was appointed by SEStran to develop a logistics framework for Perth West to explore and demonstrate how efficient cargo distributions in urban areas can be achieved, developing route map work undertaken through the SURFLOGH programme.

A key element of the Perth West development will be a logistics hub, which has been proposed as a consolidation centre/La Milo facility. Within the context of the scope, this report also assesses the feasibility of a consolidation centre at this site and how it can be realised operating as a going concern.

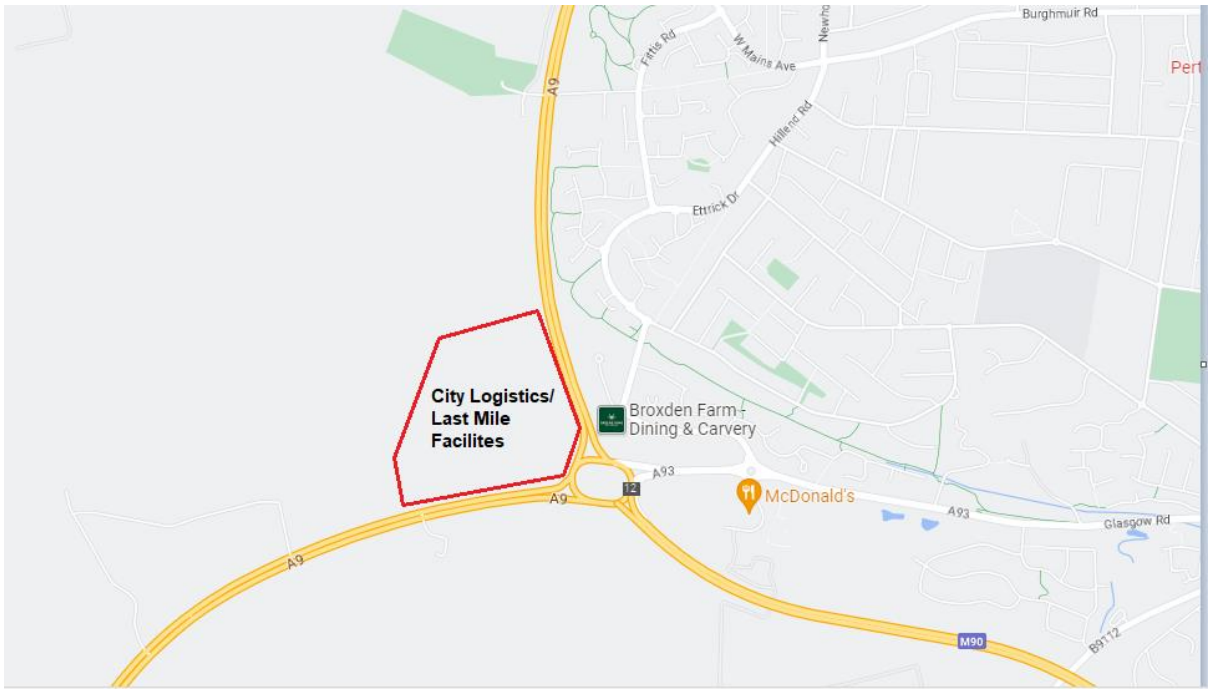
This report also looks to explore wider potential sustainable logistics options in Perth, through engagement with policy makers, market and customers, to outline logistics service options, infrastructure and approaches to delivery.

Perth and Perth West

The City of Perth is located in central Scotland on the banks of the River Tay, situated in the Perth and Kinross Council area. It has a population of nearly 50,000[1] and is a relatively small city with a historic compact urban centre. Due to its geographical and strategic position on the Trunk Road Network it has the potential to become a significant location for freight operators, many of which have depots located in the Central Belt.

Perth West is a major development proposed for the city, which will be built with sustainability at its heart. It will cover an area of 240 hectares of land on the western edge of Perth, providing residential and commercial development opportunities. Figure 2 figure below shows the location of the proposed logistics hub.

[1] *"Mid-2020 Population Estimates for Settlements and Localities in Scotland". National Records of Scotland. 31 March 2022. Retrieved 31 March 2022.*



Perth West Site

SURFLOGH (Smart Urban Freight Logistics Hubs)

This project is in partnership with SURFLOGH (Smart Urban Freight Logistics Hubs), a North Sea Region Programme which aims to build a more sustainable transport system and understanding of when and how businesses and consumers can be encouraged to switch to more sustainable modes of freight transport.

This study was informed by lessons learned from the project pilots and partners responsible for setting up and ongoing operations have provided invaluable input into the shaping of these findings.

Policy Context

The development of a sustainable logistics hub aligns with key policy at the National, Regional and Local Level.

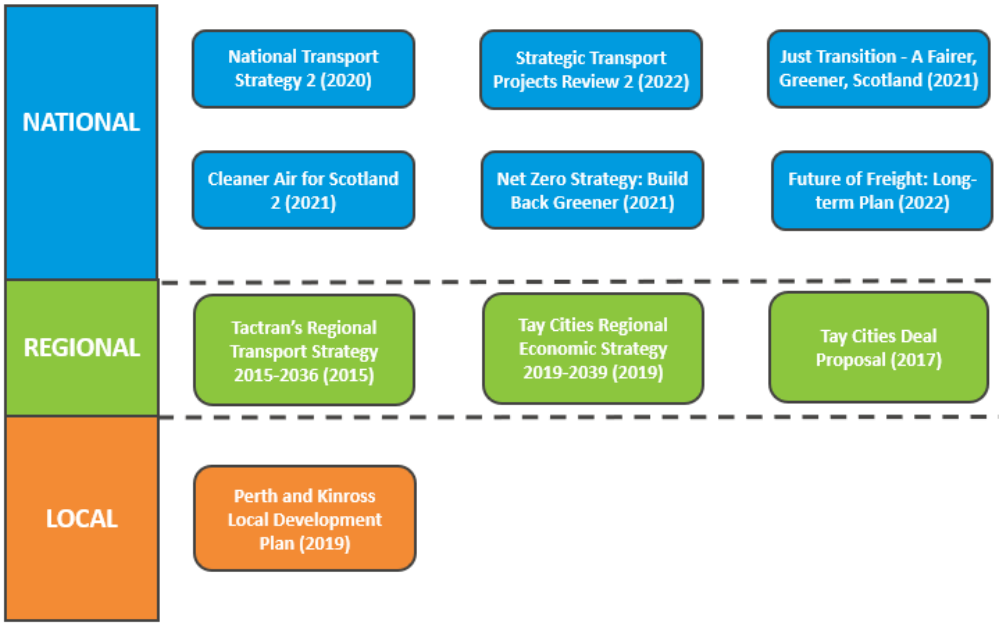


Diagram of Related Policy

The option to utilise zero emission vehicles either as HGVs, vans or cycle logistics ensures that these proposals can help meet wider targets for decarbonisation of the transport sector as well as promoting active travel with associated health and wellbeing targets. Therefore, there can be considered an excellent policy fit of this concept with existing national, regional and local ambitions.

Stakeholder Engagement

Engagement was undertaken with public and private sector stakeholders via workshops and one-to-one discussions. There was strong support for the concept of a sustainable logistics hub at Perth West from Perth and Kinross Council officers and regional transport body Tactrans.

By consulting with those (and their representatives) who are likely to generate demand for deliveries, as well as those who may undertake these deliveries it was clear that there is interest in the concept and that ancillary and supporting facilities can help boost the business case and provide further benefits.

Customer Segments
Following the described research and consultation, it has been possible to identify different customer segments that could generate demand and throughput of a logistics hub/consolidation centre. These include:

- Households
- Retail
- Manufacturing/Trade
- Public Sector
- Regional freight movements

Operational Models
There are a number of potential uses of the logistics hub that could generate revenue for the initiative whilst helping fulfil strategic objectives relating to sustainability and innovation. These include (and could be a combination of) the following.

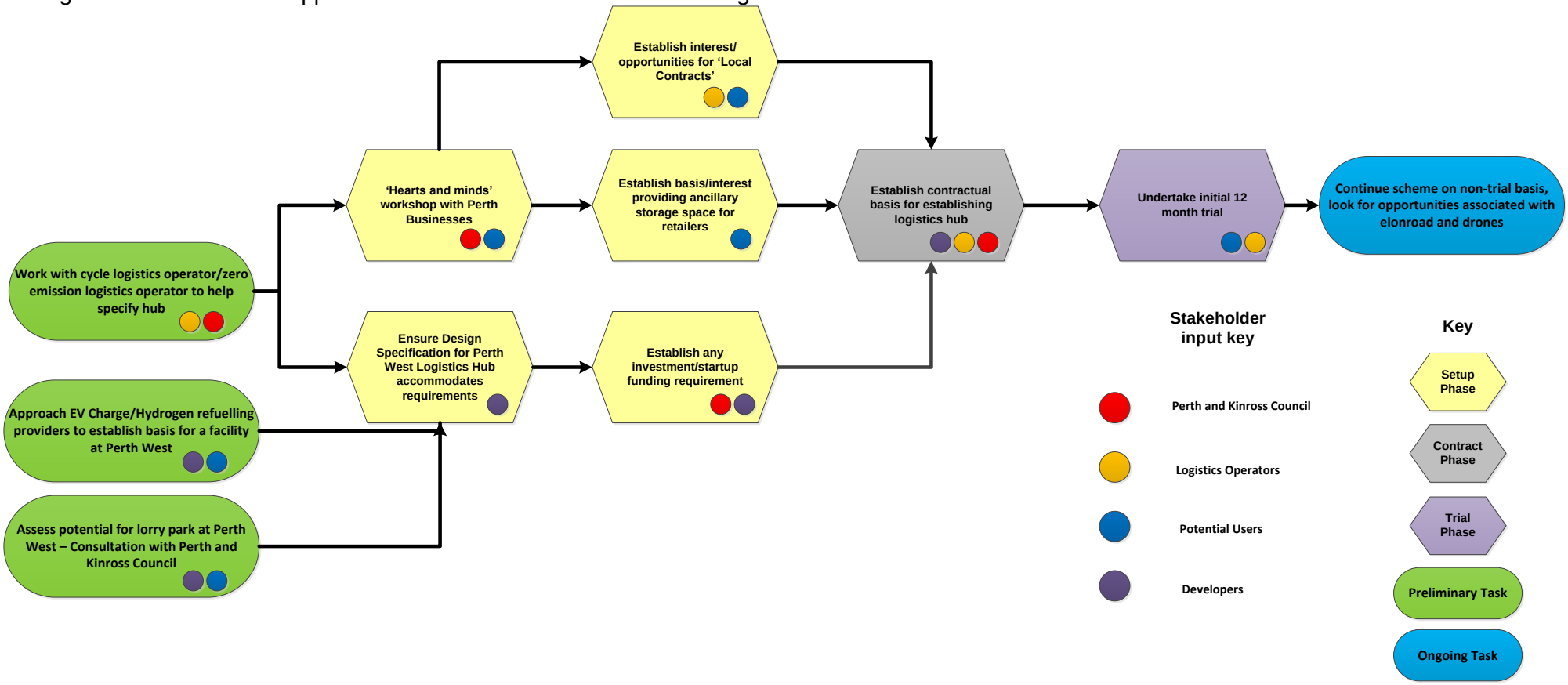
- Urban Consolidation Centre
- Waste/Recycling facility
- Dropboxes
- Alternative fuels station (E.g., Hydrogen and Electric charging, integrated with a digital platform)
- Warehousing
- Rest Area
- Drones

Recommendations and Next Steps
It is recommended that the initial approach is to start with a relatively small operation that can be upscaled and grows organically. Once established, further functionality and facilities can be added and local businesses see the benefit of the initiative, which generates further business and benefits.

The range of public and private sector opportunities presented through the unique make up of Perth City Centre, surrounding suburbs and wider rural settlements, will help to provide the hub with a potential solid foundation to build a sustainable logistics chain stemming from it to the city centre and beyond. Perth has a high proportion of independent retailers which are less likely to be tied to complex supply chain arrangements, displaying a high degree of flexibility to consider a consolidation centre type arrangement.

Perth and Kincross Council has a significant role to play in setting a supporting policy context for this intervention as well as ensuring the delivery of the required enabling infrastructure. Funding may also be needed, and again public sector partners can support the introduction of a Sustainable Logistics Hub. Integrating the Logistics Hub with the Perth Innovation Highway would strengthen the case for a ‘Smart District’ concept to help secure wider investment.

The figure below shows the approach that can be taken to deliver the Logistics Hub.



Recommended Approach to delivering a Logistics Hub

1. Introduction

1.1 Introduction

This report has been developed by AECOM to determine the feasibility of a logistics hub/consolidation centre at Perth.

AECOM was appointed by SEStran to develop a logistics framework for Perth West to explore and demonstrate how efficient cargo distributions in urban areas can be achieved.

1.2 Background

Perth was chosen as the demonstration city for this approach due to its size as a medium (50,000 people) scale city located at the centre of the Scottish trunk road network. The city faces many of the same challenges as other cities around climate change, air quality and congestion, a growing online business and retail sector leading to increasing parcel and good deliveries, and a city centre that is dealing with changing consumer patterns.

Perth & Kinross Council (PKC) have a clear and progressive policy framework to deliver positive, place based solutions to these challenges, though investment and collaborations that enhance the quality of life for its communities and deliver skills development and career opportunities, which in turn will help to transform Perth into the smartest, greenest city in Europe.

This project has been driven by concepts from the SURFLOGH initiatve (Smart Urban Freight Logistics Hubs, further detail in Section 3), which focuses on introducing a 'system and supply chain approach' in developing hubs instead of focusing on location. SURFLOGH, along with City of Groningen (The Netherlands), the South East Scotland Transport Partnership (Scotland), Edinburgh Napier University Transport Research Institute (Scotland), the City of Mechelen (Belgium) & the City of Boras (Sweden) offer the opportunity for variety of stakeholders to exchange knowledge and implement results within urban logistic systems.

A significant development has been proposed for the city which provides an opportunity to build on SURFLOGH principles and deliver a more sustainable Perth. Perth West[2] development covers 240 hectares of land on the western edge of Perth zoned for residential and commercial development.

A key element of this will be the logistics hub, which has been proposed as a regional logistics hub and consolidation centre/La Milo facility.

This report will consider the feasibility of a consolidation centre at this site and how it can be realised operating as a going concern.

1.3 Scope

The scope for this study, which is co-funded by the EU's Interreg VB North Sea Region Programme 2014-2020[3] (with an extension to 2023), aims to build a more sustainable transport system and understanding of when and how businesses and consumers can be encouraged to switch to more sustainable modes of freight transport.

[2] https://www.perthwest.com/
[3] https://northsearegion.eu/

As part of creating a Logistical Framework for Perth, several key tasks will be undertaken to complete the study:

- Development of a communication & stakeholder engagement plan and a subsequent undertaking of a series of stakeholder workshops.
- Develop a business model plan that identifies and assesses logistics services options and sets out the resultant opportunities, dependencies, barriers, costs and sources of revenue
- Identify the key logistics facilities, land use distribution & design principle and regulations needed
- Identify key modes to be used (vehicle type, fuel source, size etc.) for deliveries as well as routes and links to other sites

1.4 Study Objectives

An initial set of objectives have been produced for this study:

- Explore the potential business case for sustainable logistics at Perth & strategic projects Perth West
- Understand the potential freight flows and size of the commercial opportunity
- Engage with key stakeholders
- Develop a sustainable business plan for a city consolidation centre and last mile eco system and infrastructure for the Perth West site using the SURFLOGH concepts

1.5 Report Structure

The report is structured as follows:

- Chapter 2: Sets out the background to the city of Perth and Perth West
- Chapter 3: Provides the background to the context for the SURFLOGH initiative
- Chapter 4: Provides the policy context for the initiative
- Chapter **Fout! Verwijzingsbron niet gevonden.**: Outlines feedback from stakeholder engagement
- Chapter 6: Establishes the addressable market
- Chapter 7: Outlines models of operation
- Chapter 8: Summary and Recommendations

2. Perth and Perth West

2.1 Perth

The City of Perth is located in central Scotland on the banks of the River Tay, situated in the Perth and Kinross Council area. It has a population of nearly 50,000[4] and is a relatively small city with a historic compact urban centre.

The City Centre is located on the west bank of the River Tay and acts as the key retail and commercial hub, with a focus on retail, office and hospitality activity, for the city's population as well as the nearby smaller settlements. Aside from the large number of retailers, key trip and freight activity generators in the city include:

- Perth Royal Infirmary (medical supplies, pharmaceutical, stationary, cleaning products)
- Perth and Kinross Council (stationary, cleaning products, office supplies)
- Perth Museum and Art Gallery (stationary, cleaning products, office supplies)
- HMP Perth (stationary, cleaning products, office supplies, laundry)
- Inveralmond Industrial Estate (situated in close proximity to the city boundary)

Congestion is a key issue within the city centre, which is exacerbated due to loading and unloading activity which predominantly takes place on-street, except for St John's Shopping Centre which has dedicated off-street loading areas.

Access to Perth is facilitated through the Scottish Trunk Road Network which includes the A9 and M90.These major roads provide links to Stirling and Inverness (via the A9) and Edinburgh (via the M90). Other connections include the A90 to Dundee and Aberdeen and the A85 to Oban, therefore allowing Perth to act as a 'gateway' to the north from the Central Belt.

Figure 1: A85 Smeaton's Bridge

Due to its geographical and strategic position within the Trunk Road Network it has the potential to become a significant location for freight operators, many of which have depots located in the Central Belt. Perth is also served by a rail station located to the south of the City

[4] *"Mid-2020 Population Estimates for Settlements and Localities in Scotland". National Records of Scotland. 31 March 2022. Retrieved 31 March 2022.*

Centre. Regular Services are provided which link to locations such as Dundee, Edinburgh, Aberdeen, Inverness and Glasgow. Cycling infrastructure within Perth is limited, however the retail core is pedestrianised, which provides an area for safe cycling.

2.2 Perth West

As discussed, Perth West is a major development proposed for the city, which will be built with sustainability at its heart. It will cover an area of 240 hectares of land on the western edge of Perth, providing residential and commercial development opportunities.

Perth West will look to accelerate the clean inclusive growth of Perth through investment in infrastructure and land that enables climate change adaptation, skilled employment opportunities and public amenities to come forward at speed.

The location and scale of the project presents a unique opportunity to deliver a step change in the transition of Scottish cities to a zero-carbon economy, through infrastructure, land uses and a governance model focused on skills development & job creation. Figure 2 shows the location of a proposed logistics hub.

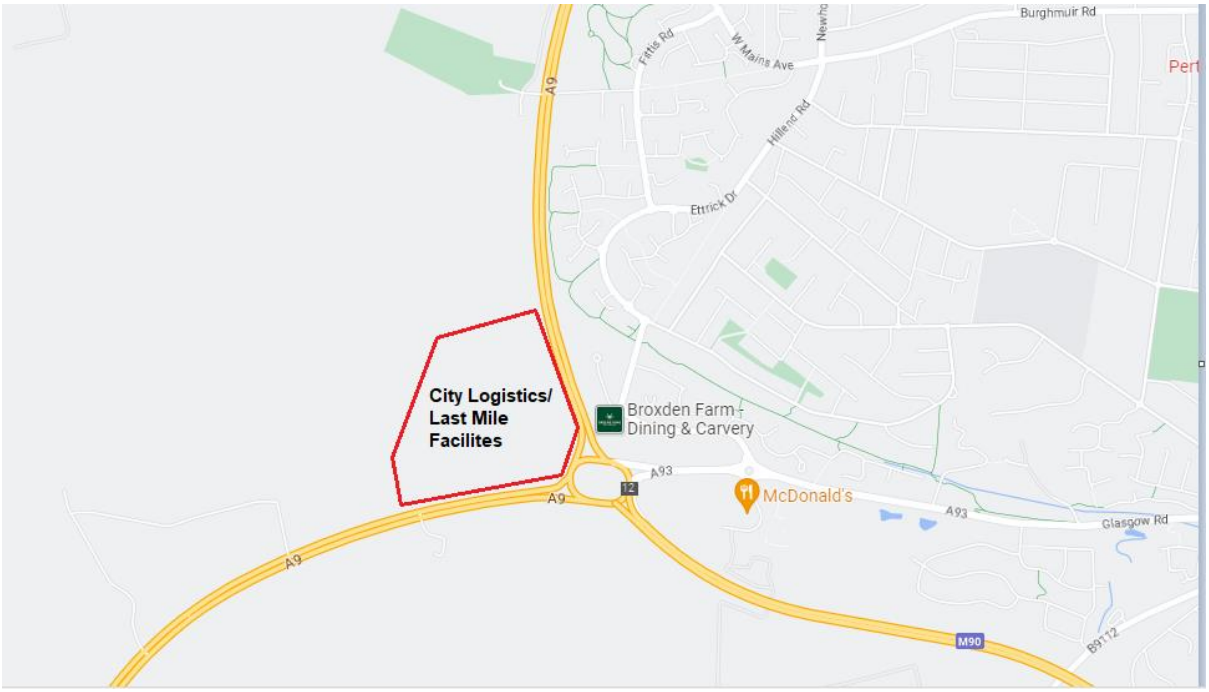


Figure 2: Perth West Site

Through collaboration between UK & Scottish Governments, Perth & Kinross Council (PKC), local businesses and academic institutions, there is an ambition to position Perth as one of the smartest, greenest cities in Europe. The plan is to achieve this through the design and delivery of energy and mobility infrastructure to develop commercial land and integrated residential neighbourhoods.

There are several components to Perth West Including:

- DR.ECO Renewables Park – *Working with PKC, industry and academic institutions, a city scale smart energy network is being developed. DR.ECO forms an early phase of this infrastructure*
- Lamberkin Village Urban Innovation – *Lamberkin Village will offer an inter-generational housing mix, along with a broader range of tenures and new delivery models, connected by a pedestrian and cycle-friendly street network to create walkable neighbourhoods*
- The Perth Innovation Highway – *a corridor that connects existing and planned city mobility and full fibre strategies with renewable energy sources*
- The Perth Eco Innovation Park – *26 hectares of commercial land will be designed and delivered as a 'knowledge hub'*

2.3 Perth West Logistics Hub

As part of the Perth West development a City Logistics/Last Mile hub is proposed, close to the Broxden Junction, which is anticipated to serve the wider Perth West development and Perth City Centre. The hub is located close to the proposed Neighbourhood Centre and is at the 'gateway' to Perth from the south. There are industrial units proposed to the immediate west of the Logistics Hub, along the northern boundary of the A9.

The Logistics Hub will create space for holding goods as well as transfer between freight vehicles and dedicated consolidation centre vehicles (or other conveyances). Figure 3 overleaf shows the extent of the site, with approximately 10,000m ^{2} provided for city logistics/last mile facilities.

Figure 3: Perth West Plan, southern extents

3. SURFLOGH and the Benefit of Sustainable Urban Logistics

As highlighted earlier, this study has been developed in partnership with SURFLOGH (Smart Urban Freight Logistics Hubs), a North Sea Region Programme which aims to build a more sustainable transport system and understanding of when and how businesses and consumers can be encouraged to switch to more sustainable modes of freight transport.

The core challenge of the project is to achieve a more efficient cargo distribution in urban areas, and thereby maintain efficiency in long distance transport. To promote efficient logistics sustainably, the focus is on optimizing the interaction between hubs and urban logistics system in smaller and medium-sized cities and city networks.

SURFLOGH is innovative as it introduces a 'system and supply chain approach' in developing these hubs, as opposed to past projects that focussed on location - making them really 'smart'. By establishing city labs a transnational platform is created, bringing various actors together to exchange knowledge, work on new pilot projects and implement the results within policy strategies and urban logistic systems.

SURFLOGH stimulates and facilitates sustainable 'green' logistics solutions in an urban context. The cities of Mechelen (Belgium), Groningen (the Netherlands), Boras (Sweden) and Edinburgh, and the regional hub in Drenthe (in the Northern Netherlands) are the main testing grounds for the project pilots.

SEStran and the SURFLOGH project have provided funding to explore and adapt these principles at Perth and the surrounding area.

As part of the SURFLOGH project, SEStran and Edinburgh Napier University were tasked with the development of a business model framework and case studies for each of the five regional pilots. This has been refined and tailored to fit the context of the SURFLOGH pilot projects, resulting in the 'PESSO' model relating to Policy, Environment, Strategy, Structure and Operations. This is shown in **Figure 4.**

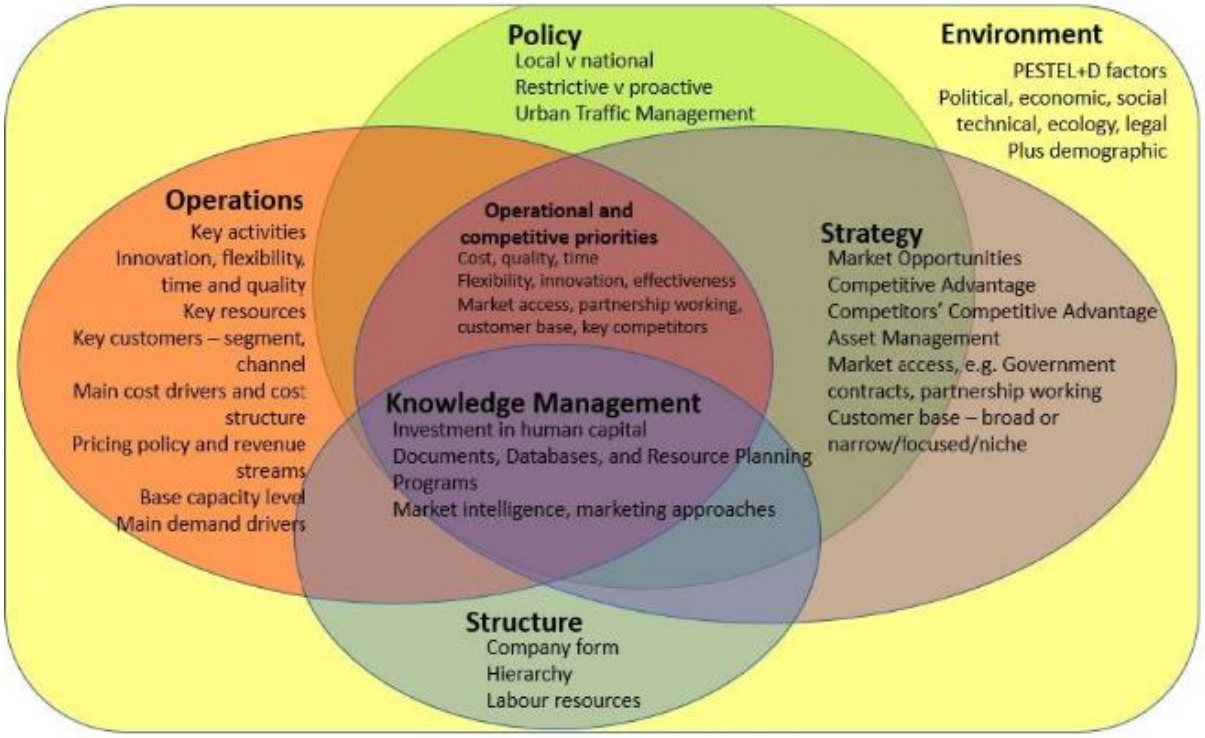


Figure 4: PESSO Model Diagram

Further refinement has resulted in the SURFLOGH Business Model Canvas, where key questions and issues to be examined are grouped under 10 value headings:

- Customer segments
- Customer relationships
- Channels
- Key partners
- Key activities
- Key resources
- Cost structure
- Revenue streams
- Policy perspectives

This research has used the principles of the SURFLOGH Business Model Canvas (see Appendix A) to develop the business model for a logistics hub at Perth West, ensuring consistency with the approach taken with other SURFLOGH pilots.

This study was informed by lessons learned from the project pilots and partners responsible for setting up and ongoing operations have provided invaluable input into the shaping of these findings.

The SURFLOGH approach and support was beneficial in the following ways:

- SURFLOGH partners have been invaluable in highlighting important lessons from other pilot schemes including success factors and potential pitfalls
- SURFLOGH partners have advised on the approach to delivering the feasibility study, including identifying who and how to engage with stakeholders and potential sources of data
- SURFLOGH partners visited Perth and contributed to workshops, helping outline opportunities for any potential logistics hub for the city
- SURFLOGH colleagues were able to 'sell' the concept of a consolidation centre to local policy makers by using real world examples and proven benefits from the pilot schemes
- The Business Model Canvas has been used to outline and refine thinking around potential operational models as well as setting out findings

The University of Borås Innovation Lab held on the 27th April 2022 helped establish a sustainable logistics framework for Perth West, applying SURFLOGH principles and concepts to create a route map for how to deliver a sustainable logistics solution at the site.

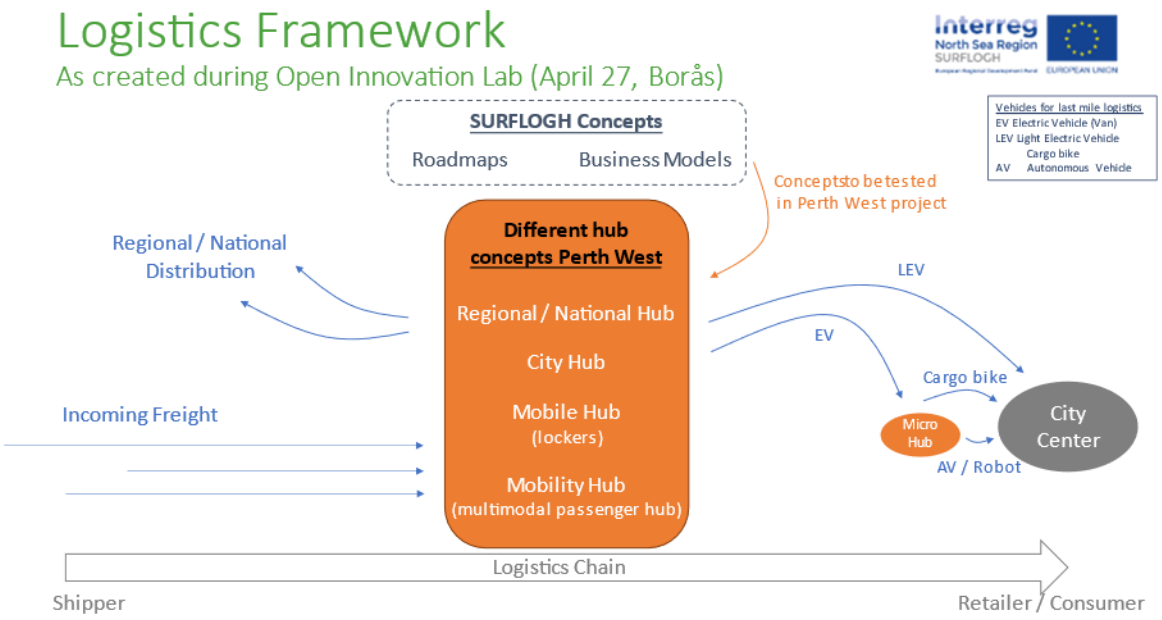


Figure 5: Logistics Framework Developed at Boras Innovation Lab

It is thanks to SURFLOGH partners that the recommendations outlined in this report have benefited from input from real-world examples and approaches elsewhere.

4. Policy Context

The development of a sustainable logistics hub aligns with key policy at the National, Regional and Local Level. This section outlines how this proposal will satisfy associated objectives and contribute to a greener, more efficient, and safer future.

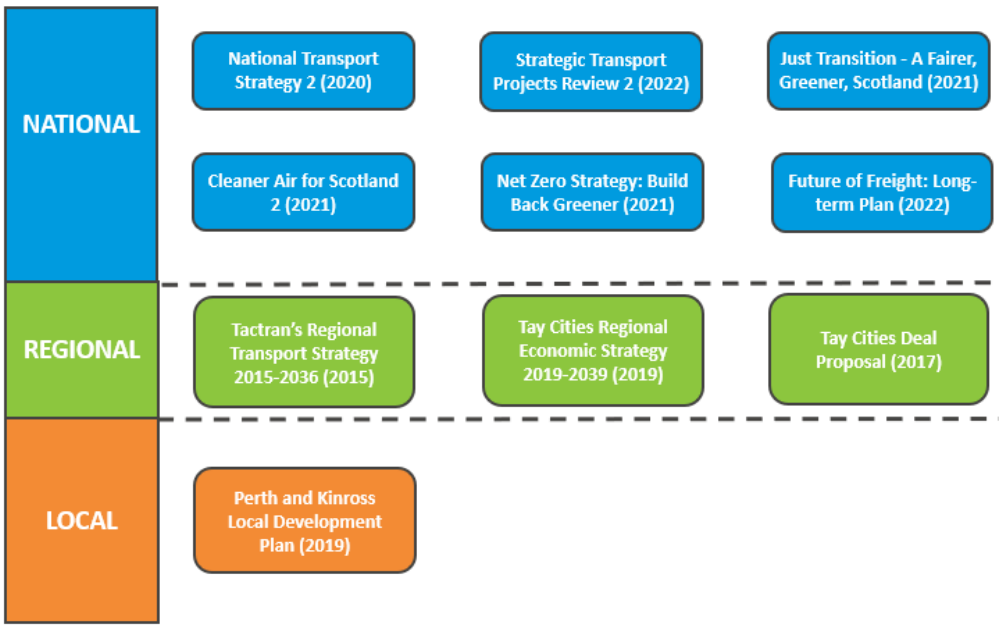


Figure 6: Diagram of Related Policy

4.1 National

The National Transport Strategy[5] (NTS) sets out the vision for Scotland's transport system for the next 20 years. It is a Strategy for the whole transport system (people and freight) and considers why we travel and how those trips are made, by including walking, wheeling, cycling, and travelling by bus, train, ferry, car, lorry and aeroplane. It promotes the efficient and sustainable freight transport for the movement of goods and outlines that emissions generated by the freight sector are considerable and how we must work collaboratively to develop an effective solution to addressing adverse greenhouse gas and air quality impacts, such as looking at options for last-mile delivery which a consolidation centre/logistics hub at Perth West would represent.

The second Strategic Transport Projects Review (STPR2)[6] proposes many options for achieving that aim and Recommendation 27 (Behavioural change and modal shift for freight) and 28 (Zero emission vehicles and infrastructure transition) potentially align with options for the logistics hub at Perth West.

Just Transition - A Fairer, Greener, Scotland[7] outlines the need to build infrastructure, transport and communities that support efforts to decarbonise, to enhance biodiversity and which are resilient in the face of the impact of climate change that we are already experiencing. The Scottish Government's Cleaner Air for Scotland 2 (2021)[8] sets out the Scottish Government's air quality policy framework for the next five years and a series of actions to deliver further air quality improvements provides a commitment to collaborate and engage with the freight

[5] National Transport Strategy 2, 2020 https://www.transport.gov.scot/our-approach/national-transport-strategy/
[6] Strategic Transport Projects Review 2, 2022 https://www.transport.gov.scot/our-approach/strategy/strategic-transport-projects-review-2/
[7] Just Transition - A Fairer, Greener, Scotland, 2021 https://www.gov.scot/publications/transition-fairer-greener-scotland/
[8] [8] Cleaner Air for Scotland 2, 2021 https://www.gov.scot/publications/cleaner-air-scotland-2-towards-better-place-everyone/

industry and retailers to explore the options for, and the associated logistics of, 'last/first mile' delivery approaches and also collaborate with the private sector to identify effective pragmatic solutions on the uptake of zero and ultra-low emission vehicles.

Net Zero Strategy: Build Back Greener[9] commits the UK to reducing greenhouse gas emissions across the economy to reach net zero by 2050. Freight and logistics is a key part of that and the UK supports and encourages modal shift of freight from road to more sustainable alternatives.

Future of Freight[10], outlining the long-term plan for freight across the UK, provides the Government's objectives to ensure that freight is cost efficient, reliable, resilient, valued by society and environmentally friendly. The plan acknowledges that by 2050 freight and the logistics sector must achieve net zero, whilst ensuring the demand by society is met. The Government is committed to transforming the last mile into an efficient and sustainable delivery system through supporting e-cargo bikes and ensuring that the planning system encourages sustainable freight where possible.

4.2 Regional

The Regional Transport Strategy 2015-2036[11] developed by Tactran sets out a vision for improving the region's transport infrastructure, services and other facilities over the period to 2036. Their vision is to deliver a transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all. It seeks to maintain and enhance the economic prosperity of the region by supporting efficient movement of freight within or through it. The strategy promotes the implementation of more efficient and environmentally friendly urban logistics, including considering the implementation of logistics service centres in the region's main towns and cities.

The Tay Cities Regional Economic Strategy 2019-2039[12] and accompanying Tay Cities Deal[13] Proposal set out a regional strategy and more detailed proposals for programmes and projects in relation to a City Deal investment submission supporting economic growth in the region. It highlights the need to support ongoing development of the Perth West Eco-Innovation Park providing integrated and enabling infrastructure in the mobility, energy and data sectors along a 6km Innovation Highway.

4.3 Local

The Perth and Kinross Local Development Plan (adopted 2019)[14] provides guidance to residents, developers and investors, and allows stakeholders, including the public, to be involved in shaping the future of their area. The Local Development Plan provides the framework against which planning applications are assessed. It outlines the need to prioritise the sustainable movement of freight. It also outlines the need for a reservation of land for a potential Park & Ride in association with the A9 junction, which could be combined with a logistics hub.

[9] Net Zero Strategy: Build Back Greener, 2021 https://www.gov.uk/government/publications/net-zero-strategy
[10] Future of Freight: Long-term Plan, Department for Transport, 2022 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1085917/future-of-freight-plan.pdf
[11] Tactrans's Regional Transport Strategy 2015-2036 https://tactran.gov.uk/projects/regional-transport-strategy/
[12] Tay Cities Regional Economic Strategy, 2017
[13] Tay Cities Deal, 2017 https://www.taycities.co.uk/
[14] Perth and Kinross Local Development Plan, 2019 https://www.pkc.gov.uk/article/15042/Adopted-Local-Development-Plan

4.4 Summary

This review outlines the extent to which a sustainable logistics hub at Perth aligns with national, regional and local aspirations for a more sustainable future, where freight and logistics is able to support economic growth.

The option to utilise zero emission vehicles either as HGVs, vans or cycle logistics ensures that these proposals can help meet wider targets for decarbonisation of the transport sector as well as promoting active travel with associated health and wellbeing targets. Therefore, there can be considered an excellent policy fit of this concept with existing national, regional and local ambitions.

5. Stakeholder Engagement and Feedback

Consultation with key stakeholders is vital to ensure that any logistics hub at Perth West addresses the needs of those who will use it and reflects the priorities of the developers, the local authority, business, the freight and logistics sector and those who live and work in Perth.

To secure buy-in for the initiative, an inception meeting with 17 invitees was held in Perth on the 24th of August 2022 with SEStran, Perth and Kinross Council, Tactran and representatives from SURFLOGH to ensure there was public sector interest for the Perth West Project.

The meeting included:

- Background on Logistic Hubs and Case Studies
- Research around Consolidation Centres
- Study scope
- Study approach

Jonathan Cowie, of Edinburgh Napier University and the Transport Research Institute, provided an overview of the work that had been conducted into the viability of Urban Consolidation Centres (UCC). The presentation outlined the key findings which stated the SURFLOGH Business Model Canvass was useful in identifying critical factors in successful business models. The successful business model identified in SURFLOGH is built around Elkington's ideas of 'triple bottom line' and inevitably is owner controlled, built from the bottom up and includes partners.

Mark Richardson of Ristol Consulting (working with the Perth West Developer) provided an overview of the project's focus which is to explore at a European scale, models, governance and the implementation of city / region logistics system, with a focus on the hub to city/town centre relationship to promote efficient and sustainable logistics in smaller and medium-sized cities, city regions and networks.

Attendees were provided with the national and local context for Perth in terms of the makeup of the Scottish transport footprint. The project drivers were outlined which included: An aligned and supportive policy context, Tay Cities Region Clean Growth and project connections, and project partners in key sectors. All enable an eco-system to deliver: clean HGV fuel, smart mobility, place based solutions, partnerships and distributed energy and storage.

There was also an overview of SURFLOGH project aims, which are to stimulate sustainable, efficient cargo distribution in urban areas by optimizing the interaction between hubs and urban logistics systems in smaller and medium-sized cities and city networks. It was stated that there is a current growing demand from customers and citizens, growing congestion in cities and regions and growing volumes for logistics providers.

This was coupled with the aim of citizens to focus on liveability, cities and regions on policies around zero emissions, and logistics providers to be sustainable Innovation. A range of location and hub types were outlined. However, it was highlighted that the region has a key role to play through the development of a vision and strategy for sustainable city logistics to help facilitate and promote the use of either type of distribution centre, along with key stakeholder engagement.

A city tour was then undertaken which introduced the group to Perth and associated issues and opportunities relating to freight and goods movements. The tour also provided attendees with an opportunity to gain a more in depth understanding of the make-up of the city centre of Perth.

Figure 7: Walking Tour of Perth led by representatives of Perth and Kinross Council

Following the presentations, a stakeholder workshop was undertaken, facilitated by AECOM and SEStran, to establish key policies and potential barriers and mitigation factors that need to be considered.

Figure 8: Workshop breakout session

The following section provides a summary of the comments which were provided during the workshop across the 6 key questions/themes of what, who, why, how, policy, barriers and mitigations. The comments outline the areas participants believed are key for the logistics hub.

What?
The following are examples given of the types of products that could be handled by the hub:

- Art museum pieces
- Food delivery (e.g Deliveroo, Just East etc)
- Food waste collection
- Medical files and records
- Pub and restaurant items (food, drink etc)
- Library books

Who?
The following are examples of the types of companies and organisations which were highlighted as potential occupiers for the Hub:

- DPD (who have a parcel shop in Perth)
- Perth Traders Association
- Local restaurants and retailers
- The farming sector (agricultural products)
- Supermarkets
- National / Regional / Local Logistics companies

Why?
During the engagement session a range of reasons why the logistics hub would be beneficial for the city were outlined. The reasons were wide-ranging and examples are provided below:

- Air Quality issues
- Reduce congestion
- Better streets and places
- Meeting climate change targets
- More liveable streetscapes
- Support local economy

How?
A range of ideas were identified as to how the logistics hub could be successful. The following provide an insight into the type of ideas that were highlighted during the session:

- Cargo bikes, autonomous vehicles, low emission vehicles and electric vans and bikes
- Collaborative working
- Combine with mobility hubs
- Create a market
- Frequent stakeholder engagement to attract small businesses
- Research, policy trials, design
- Street design and development of active travel corridors

Policy
The following are a few examples of the policies and strategies which were outlined during the engagement session and has been used as a base for the policy review for the study:

- STPR
- NTS
- National Planning Framework 4 (NPF4)
- Climate Act 2019
- Planning Act 2019
- Local Development Plan 3
- Air Quality Act
- Regional Transport Strategy

Barriers and Mitigation
The following are a few examples of the potential barriers and mitigations that were outlined during the engagement session:

- Funding
- Political Support
- Stakeholder Engagement
- Resistance to modal shift
- Knowledge of local supply chains
- Buy in from small businesses.

Following the workshop further consultation was undertaken to assess the level or support for the initiative and explore successful models elsewhere.

Retail Sector

The other SURFLOGH case studies have demonstrated that retailers in a city of this size offer the potential for delivering a throughput of parcels of significant enough volume to sustain a logistics hub. The project team therefore undertook engagements with Perthshire Chamber of Commerce and the Perth City Leadership Forum, as well as surveys with retailers in Perth.

Perthshire Chamber of Commerce is based in Perth and provide a valuable asset to businesses and undertakes business support, lobbying and representation, mentoring, networking, advice, profile and awareness raising, training, seminars, events, exploring, identifying and creating business opportunities and driving business through the local network. They represent over 400 businesses in the city and its environs.

The Chamber were very supportive of the concept of a logistics hub at Perth West and felt that it would benefit their members whilst helping deliver a more sustainable Perth. A lack of storage space in some shops was noted and that congestion was an issue in the city. Retailers are happy to receive goods from any operator if they arrive in a timely manner and in good condition and shops frequently receive multiple deliveries per day. Many shops now sell goods online and as such there are incoming and outgoing packages.

The Lead for City Centre Regeneration highlighted that deliveries were undertaken by multiple couriers per day and that Perth had many independents that are not tied to a particular supply chain contract.

Individual surveys with retailers outlined how important timely, reliable and frequent deliveries are. It was felt a logistics hub could provide this and solve problems associated delays (which have a significant impact on businesses). Any logistics hub/consolidation centre would need to be at least as efficient as current delivery methods to be attractive to users.

Overall, it was felt that a sustainable logistics hub would be an asset to Perth and help address environmental issues.

Freight and Logistics Sector

As part of this engagement, it is important to consult representatives of the freight and logistics sector to understand any issues or opportunities associated with a logistics hub/consolidation centre at Perth West.

The Road Haulage Association (RHA) is a member-led trade association supporting people and businesses in the road transport industry. They offer a voice for members to work with governments, policy makers, and local authorities across the UK on the issues most important to them. The majority of their members are small and medium-sized enterprises (SME) but they also represent larger firms across the sector.

The RHA representative (Policy Director for Scotland, Wales and Northern Ireland) was keen to discuss the potential for a logistics hub/consolidation centre at Perth West.

The RHA did not identify any significant barriers to using a consolidation centre as road freight operators would be happy to deliver to the proposed site rather than an alternative location if directed to do so. They believed the site is well placed in relation to existing traffic flows including to/from Glasgow/Stirling, Edinburgh and locations further north on the A9.

They also felt that the strong strategic location of the site would potentially be an alternative fuels recharging/refuelling station or provide lorry parking.

There is a shortage of lorry parking sites on the A9 and it was felt that a facility at Perth West would generate revenue for any wider offer and would help reduce freight crime and ensure drivers are well rested and able to undertake their duties effectively.

Broxden roundabout was identified as a congestion hotspot and as such efforts to reduce vehicle movements would help address delays. Overall, feedback from the RHA suggested there was potential for a successful logistics hub at the proposed site at Perth West given its location and opportunity for ancillary functions to support the freight sector.

Zedify is a cycle logistics and zero emission vehicle cargo delivery company which started in Cambridge but now has operations in Edinburgh and Glasgow. More detailed feedback has fed into later sections of this report (e.g. operational arrangements), however it was clear from discussions that there was potential for a cycle logistics operation at Perth West given the location of the proposed hub and the compact nature of the city, making it an easy cycling distance for deliveries to and from the city.

Whilst the proposed logistics hub is not rail connected and there is unlikely to be a business case to warrant such a significant investment, the presence of a new rail terminal (comprising two sidings and a head shunt as well as a gantry crane) associated with Highland Spring at Blackford on the A9 offers opportunity for goods to be moved from the rail head to the logistics hub for final delivery. The rail head is approximately 15 miles from Perth West. The terminal is open access and as such there is an opportunity for use by organisations other than Highland Spring. Discussions with the Russell Group and Highland Spring revealed they were keen for others to use the terminal.

As such, there may be scope for rail freight to be incorporated into the operational model associated with the logistics hub/consolidation centre.

Summary

Overall, there was strong support for the concept of a logistics hub in Perth, with reduced HGV movements in the city likely to bring significant benefits such as lower levels of congestion, better air quality and enhancing the city as a place to live and work.

As this section has shown, there are a lot of potential types of freight movements associated with the logistics hub and further investigation is needed to explore these ideas and identify a robust, self-sustaining business model that helps achieve a variety of policy objectives in relation to model shift and decarbonisation.

By consulting with those (and their representatives) who are likely to generate demand for deliveries, as well as those who may undertake these deliveries, it was clear that there is interest in the concept and that ancillary and supporting facilities can help boost the business case and provide further benefits.

What is clear that the concept of a sustainable logistics hub has broad support and is felt to be feasible, further work is required to explore potential generators of associated freight movements as well as potential delivery models. The rest of this report explores these themes and outlines recommendations for next steps.

6. Customer Segments and Relationships

Following the described research and consultation, it has been possible to identify different customer segments that could generate demand and throughput of a logistics hub/consolidation centre.

The A85, a key east-west route from the Logistics hub to Perth City Centre experienced an Annual Average Daily Flow of 1,388 Light Goods vehicle and 178 Heavy Goods Vehicles in 2018.[15] Reducing these flows would help improve the well being of those who live and work on key routes into and out of the city.

6.1 Households

The Perth West development offers a unique opportunity to develop Perth on a more sustainable basis, not just from an infrastructure perspective but also developing a sustainable ethos that the whole city embraces. The National Records of Scotland estimates that the Perth and Kinross Council Area has 70,315 households, which has grown by approximately 12,000 since 2001[16].

The shift to home deliveries, a trend exacerbated by the COVID pandemic, means that households are significant generators of deliveries. It is not uncommon for a single household to be visited by several different freight operators a day. Perth generates a significant number of home deliveries per day and associated parcels are usually carried by major operators such as DPD, Evri and Amazon. Whilst these companies are generally resistant to collaborating with competitors, there is a growing willingness to work with 3rd parties on a last mile basis with many operators exploring the use of cycle logistics and electric vans.

A logistics hub could also perform the role of facilitating reverse logistics/returns as well as being a site for drop box collections or returns. The central location of the hub and easy access from the Trunk Road network and Motorway network means that it is accessible for residents not just in Perth but the wider Tayside area.

6.2 Retail

Retail activity is centred on streets such as South Street, the pedestrianised High Street and Mill Street. St John's Shopping Centre houses covered retail units including national chains. Perth has a relatively high proportion of independent (non-chain) shops, which are less likely to be tied to fixed or more complex supply chain arrangements. The Perth and Kinross Town Centre and Retail Study (2016) stated that there were 645 units in Perth City Centre[17]. Whilst not all of these will be occupied (Scottish high street retail vacancy rates was 14.8% in Q1 2023[18]), there are still a significant number of potential customers for any logistics hub to serve in the city.

[15] Department for Transport, Site number 50824 https://roadtraffic.dft.gov.uk/manualcountpoints/50824
[16] National Records of Scotland Website Accessed 11/05/23 https://www.nrscotland.gov.uk/files/statistics/council-area-data-sheets/perth-and-kinross-council-profile.html#household_estimates
[17] Perth and Kinross Town Centre and Retail Study (2016) https://www.pkc.gov.uk/media/46389/Perth-and-Kinross-Town-Centre-and-Retail-Study/pdf/Perth__Kinross_TC___Retail_Study_2016-final_report.pdf?m=637356811201370000
[18] Insider Website Accessed 11/05/23 https://www.insider.co.uk/news/empty-scottish-retail-units-a-29826839

This flexibility means that there is greater scope to consider a consolidation centre type arrangement. National chains such as Marks and Spencer are likely to service their stores with fully laden articulated HGVs with limited benefit and scope for combining with other loads. St Catherine's Retail Park is located on the edge of the city centre, which accommodates national chain stores such as Carpetright, Dunelm and Halfords.

6.3 Manufacturing/Trade

Inveralmond Business Park contains industrial units containing a variety of businesses but predominately those focused on the manufacturing, waste/recycling and automotive sectors. It is located on the northern edge of the city and can be accessed from the A9/A912 Inveralmond Roundabout. Given its location, there may be scope for deliveries from the south of Perth to be consolidated and stored at the logistics hub.

Given the likely bulky and heavy nature of these goods then it is unlikely that cycle logistics or walking deliveries would be suitable for serving the business park, which is approximately 3.5km distance from the proposed logistics hub site. This would have to undertaken by larger (potentially zero carbon) vehicles such as HGVs or vans.

6.4 Public Sector

National Health Service

Perth Royal Infirmary is a district hospital and serves a population of around 182,000 across the City of Perth and the wider Perth and Kinross area and is managed by NHS Tayside. It is a large hospital, with over 250 beds located to the west of the City Centre off Jeanfield Road and is approximately 2km from the proposed logistics site. The hospital generates a significant amount of waste as well as demand for medical supplies and other items (e.g., stationary, food/drink) which could be handled by a logistics hub.

Given its proximity to the hospital, items could be held at the logistics hub and brought on demand or on regular shuttle runs. This would free up storage space at the hospital and potentially reduce the number of delivery vehicles travelling to/from the site.

Murray Road Hospital is a mental-health facility located to the east of the Tay and incorporates the Rohallion Secure Care Clinic. As with Perth Royal Infirmary it will generate a significant amount of waste/recycling as well as demand for medical supplies and other items (e.g., stationary, food/drink) which could be handled by a logistics hub, however it is further afield at 5km from the proposed logistics hub site. There may be synergies serving both sites and opportunities for consolidation of associated deliveries.

Perth and Kinross Council

Perth and Kinross Council is the local government council for the Perth and Kinross council area of Scotland employing around 6,000 people.

The current Perth and Kinross council headquarters are located in Perth at 2 High Street, at Tay Street, although many public enquiries and council services are handled from the nearby Pullar House at 36 Mill Street.

These offices are likely to generate significant movements of deliveries including:

- Personal deliveries for staff
- Stationary, office supplies, paper etc
- Food/drink
- IT equipment

In addition, Council buildings generate waste and recycling that requires collection and processing. This could be combined with collections from businesses and other organisations to reduce the number of associated HGV movements.

HMP Perth

HMP Perth is located 1km south of the city centre and accommodates over 600 prisoners. Like other facilities it will generate demand things such as Stationary, office supplies, paper etc, Food/drink, parcels and laundry.

6.5 Further Afield

The proposed logistics hub location represents the gateway to not just Perth but wider Perth and Kinross, Fife, the Highlands, Dundee, Angus and Aberdeen and Aberdeenshire. Goods destined for locations further afield, which often originate from distribution centres located in the central belt could be consolidated at Perth and then fewer HGV movements would be required to take them to their final destination (see Figure 9).

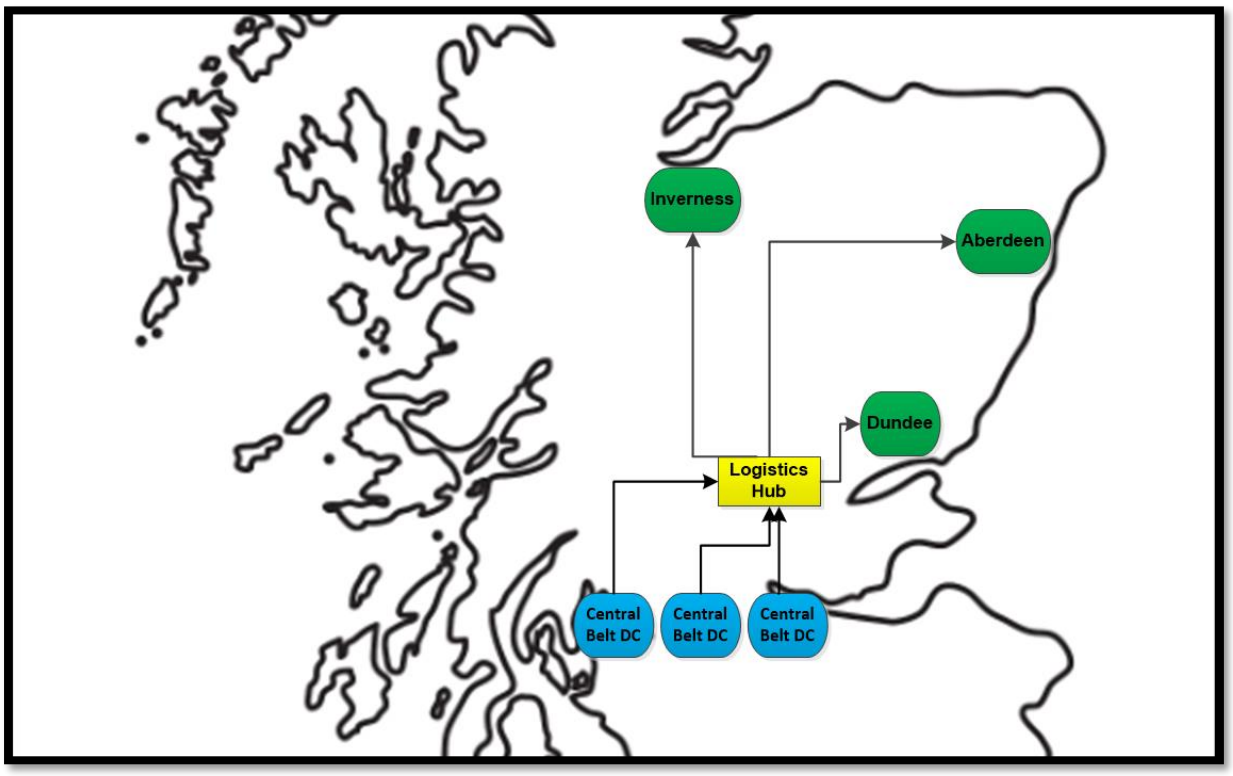


Figure 9: Regional/Sub National Consolidation Associated with Perth Logistics Hub

This would have the impact of significantly reducing road miles, with resultant environmental and economic benefits associated with lower emissions and congestions and well as enhancing the wellbeing of those who live and work alongside routes.

7. Operational Models

Following the stakeholder engagement and exploration of the addressable market, this section outlines potential operational models, drawing on SURFLOGH research:

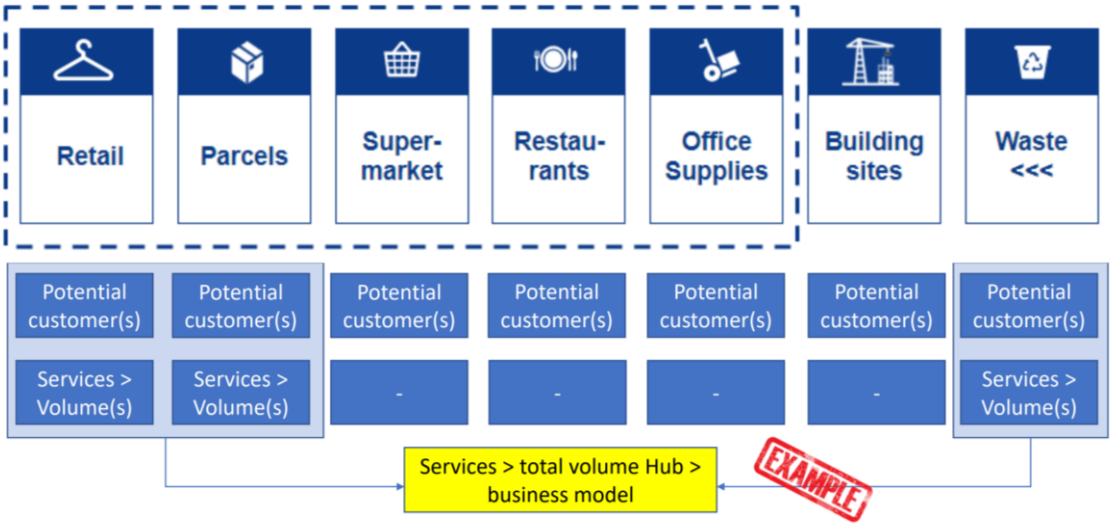


Figure 10: Example of Business Models developed by SURFLOGH

7.1 Urban Consolidation Centre (UCC)

A consolidation centre is effectively a transhipment point where goods are delivered to for onward movement by a dedicated vehicle (or vehicles). Often, these vehicles are alternatively fuelled (e.g. electric) or the hub is served by walking or cycling deliveries. Indoor space is required for storage of goods before final movement, staff facilities (e.g. toilets/office space) and enough space for larger vehicles to manoeuvre and load/unload as well as associated consolidation centre vehicles to wait.

Often, a small industrial unit has enough capacity, given that goods are generally not stored for long before being loaded onto the next vehicle and as such turnover is high and there are regular shuttle-runs delivering goods to customers.

As discussed, consultation with cycle logistics operators Zedify suggests that there is scope for an operation in Perth given the proximity of the proposed site and compact nature of the city. Figure 11 demonstrates Zedify's model when compared with the traditional means of delivering parcels and associated benefits. Figure 2

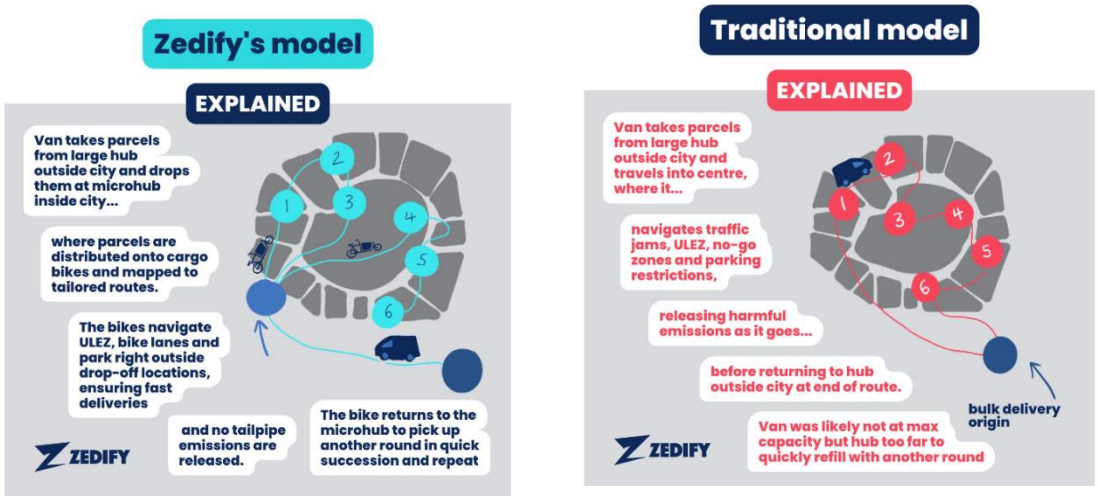


Figure 11: Cycle Logistics Model vs traditional model (copyright Zedify)

The SURFLOGH model helps those establishing logistics hubs consider the types of clients that an initiative may serve. This includes how the location and type of hub influences the potential customer base, dedicated versus multi-client model (or both), potential business models and the role of the municipality or region.

7.2 Waste Disposal Unit / Recycling Centre

An additional concept is the development of Waste Disposal Unit / Recycling Centre. Consultation highlighted that recycling waste is often collected regularly throughout the week. The coordination of a hub that can facilitate the movement of this waste away from the city centre could help to improve the sustainability of Perth. If the logistics hub is able to handle waste and recycling (for processing elsewhere) then vehicles or other conveyances delivering goods have the potential to remove items such as packaging or waste, reducing the need for an additional vehicle to handle this movement and thus bringing amenity and environmental benefits.

This could also act as an income stream for the hub, strengthening its business case. For Perth it could also help to lower levels of congestion throughout the city with less frequent deliveries and collections occurring on a large scale as the delivery of goods and collection of waste can be done in tandem. However, for this operation to be successful it would require procedures to be put in place to ensure there is limited scope for contamination of other goods.

Additional complementary measures can be implemented to enhance the Logistics Hub in a range of practices. This section outlines options which can be explored alongside a consolidation centre and provide further revenue.

However, if the logistics hub is to offer ancillary services (such as dropboxes, refuelling or use of drones) to generate additional revenue then the land requirements will be higher. If a refuelling hub is provided, which can be used by the consolidation centre vehicles and provide public access, then consideration will be needed as to how these can be safely accommodated.

7.3 Warehousing

The provision of warehousing has significant potential for Perth. As discussed, many of the retail units in Perth are in historic buildings, with little space for storage. This means inventories can be limited, reducing resilience and potentially affecting sales.

By providing warehousing space (for a fee) and linking that to the consolidation centre/logistics hub service the hub could act as remote warehouse, with retail units able to quickly re-stock using the regular shuttle runs associated with the logistics hub.

7.4 Refuelling (electric charging that can also link to Elonroad)

If the dedicated logistics hub vehicles use alternative fuels, charging / refuelling points will need to be provided. By providing a facility this will enable the hub to be sustainable whilst simultaneously helping improve air quality and lower emission levels for Perth. Furthermore, the additional element of refuelling points has the potential to be available for the general public as well as freight operators who are making long journeys to places such as Inverness and Aberdeen, which in turn could help provide a revenue stream for the hub.

Figure 12: Electric Charging Point

7.5 Elonroad: Lund University Research

Linking to refuelling, specifically for electric vehicles, research has been carried out by Lund University on a concept known as Elonroad. Elonroad is a holistic charging solution for all electric vehicles – commercial or private, light or heavy and autonomous - to use while driving or parked. The system can be used to build charging infrastructure such as electric roads, charging stations and opportunity chargers at stops and loading bays.

The conductive strip can be placed within the road surface with minimal disruption, while vehicles can be retrofitted with a conductive applicator that is deployed by the vehicle to allow for electric charging. The benefits of this technology are:

- Smaller batteries
- Extended range
- No need to stop and charge
- Increased alignment with legislation
- Safe design for all users
- Space saving
- Easy to install

The installation of the conductive strips to provide an 'electric highway' linking the Hub with Perth City Centre increases the potential for sustainable and net-zero deliveries as an integrated energy, mobility, digital platform to drive the decarbonisation of urban freight through innovation and skills development. This connects climate adaptation with economic investment.

This would align with the Perth Innovation Highway, proposed to link the Perth West development with the city centre (see Figure 13).

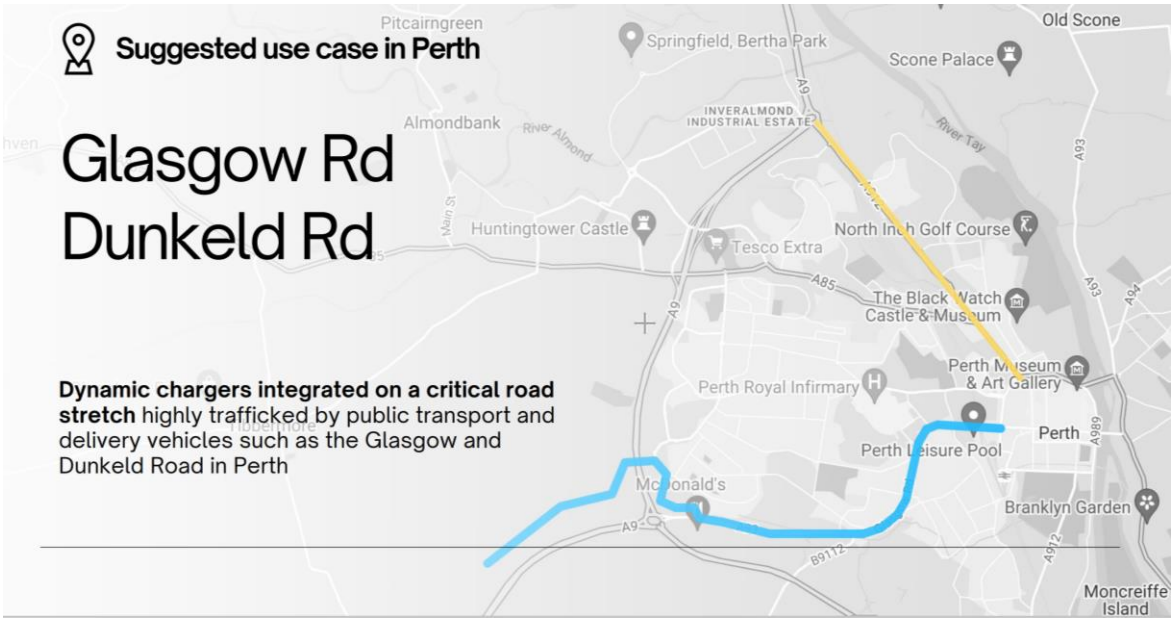


Figure 13: Perth Innovation Highway alignment

Figure 14 identifies the key takeaways from the Elonroad research, which has helped informed the recommendations and next steps covered in this report.

Figure 14: Elonroad research findings

7.6 Rest Stops

There are legal requirements for HGV drivers to take breaks when undertaking long journeys. For drivers coming from the north of Scotland such as Inverness it would take 4.5 hours and they would therefore need to take a rest. The installation of safe rest facilities for HGV drivers would help to boost the profile of the hub and provide revenue for the operation. Through the development of a safe rest facility this has the potential in turn to promote the use of the hub for deliveries into Perth for operators, with drivers dropping goods off there able to rest after finishing their delivery.

This aligns with national policy, with Transport Scotland's second Strategic Transport Projects Review STPR2 (2022) stating that '*Providing adequate lorry parks would contribute to improving road safety, reducing crime and would significantly improve working conditions for HGV drivers. It also avoids disruption to other users in locations not designed to accommodate lorry parking. Rest and welfare facilities are a key part of national and international road freight infrastructure, and provision of these to an appropriate standard are therefore fundamental to ensuring safe, efficient and effective supply chains. Improvements to these would therefore also help support the Scottish economy and its growth.*'

7.7 Drop Boxes / Lockers

There are several dropboxes / lockers in place across Perth operated by companies such as Amazon. Customers can opt to collect parcels from these facilities rather than their own address and delivery costs are typically lower. This is because there is less time and money spent delivering to individual properties and these savings can be passed on. Customers are typically given a code to use which releases the door and the parcel can be collected.

In addition, several parcel companies, such as Evri, work with retail outlets (typically newsagents) as 'Parcelshops' where goods can be collected or returned. This is a type of consolidation and helps reduce road miles undertaken by delivery vehicles and fulfils many of the objectives of a consolidation centre.

Again, the proposed logistics hub location is well placed to intercept goods destined for Perth given its position at a key gateway to the city. Revenue could be generated by working with parcel companies to locate a set of lockers at the hub or using it as a Parcelshop which would be an advantageous location for many commuters travelling by car. The optimal approach would be a facility that could be shared by multiple parcel companies.

SURFLOGH partners in Drenthe and Mechelen helped pioneer this concept, with chilled lockers allowing the storage of perishable goods at Drenthe and Mechelen installing 3 large and 63 smaller package lockers at 47 locations throughout the city, allowing lockers to be accessed by foot from much of the city.

Figure 15: Amazon Dropbox

7.8 Drones

Consultation with Drone Consultants DLT suggested that there may be scope for limited application of drone deliveries at Perth West in the medium to long-term, as legislation is revised to allow drones to be operated beyond the line of sight. The rural nature of Perth's hinterland means that some time-sensitive items such as pharmaceuticals could be distributed from Perth West, which would require a 5m x 5m area for take-off and landing.

It should be noted that noise pollution associated with the drones could impinge on nearby residents. The need for a runway for larger drones would preclude their use at this location due to land availability.

7.9 Case Study: Cycle Logistics in Edinburgh

Case Study: Zedify, Cycle Logistics

The SUFLOUGH previous case studies demonstrate that cycle logistics can an effective way of moving goods, helping reduce congestion, carbon emissions and improve air quality by encouraging shift from motorised vehicles such as vans and HGVs. The relatively compact nature of Perth means that the city is accessible by cargo bike/trike and as such is likely to be feasible for this measure.

Consultation with cycle logistics operator Zedify suggested that there was potential for a cycle logistics operation in Perth. Zedify was established in Cambridge and has depots across the UK including Glasgow and Edinburgh. It is a rapidly growing, with plans for further expansion and new depots opening in 2023. They are a trusted partners of several national carriers including Fedex, Evri and Yodel with the number of parcels delivered ranging from between 500 to 2,000 per day at the Christmas period.

The Depot Manager at the Edinburgh branch outlined the nature and scale of their operations and if it could work in Perth. Zedify felt the city could support a cycle logistics operation. Success factors included:

- Compact nature of city – Entire area could be covered by bike
- Good location for proposed logistics hub (parcel operators travelling up from depots in the South (e.g. Glasgow)
- Relatively affluent customer base

Any prospective cycle logistics operation would benefit from good quality cycle infrastructure. Whilst there are lanes marked out on major roads and traffic free trails in the city it would benefit from improved and continuous cycle facilities to provide a competitive advantage when compared to conventionally fuelled delivery vehicles.

Logistics Hub Design

A cycle logistics hub should provide the following:

- Secure space for bike storage (internal and external)
- Space for racking so items can be scanned, sorted and prepared for deliveries
- Showers
- Lockers
- Bike Repair area
- Options for charging bikes
- Good quality staff room
- Private office area
- Sufficient space for growth and to avoid disrupting neighbours

Equipment

Any cycle logistics depot will need equipment to support the riders and ensure a successful operation. These include:

- Electric assist cargo bikes – these need to be robust and are likely to be a mix of box bikes and larger trikes
- Racking for parcels

- Parcel tracking/scanners to register successful deliveries.

It should be noted that there is a long lead time for new cargo bikes/trikes, which can affect the ability of cycle logistics operations to scale up quickly.

Recruitment

There is often significant interest in roles in cycle logistics, with a recent job advertisement for the Edinburgh depot attracting approximately 200 applicants. The difficulty is attracting quality applicants who are punctual, not fazed by volume of work or weather.

Maintenance

Having a nearby bike shop or knowledge of bicycle/cargo bike maintenance is essential as the bikes are used extensively and parts wear and break. Perth has several bike shops which could be used to ensure cargo bikes are maintained.

Revenue

As discussed elsewhere, a key source of revenue is likely to be parcels dropped off by national carrier for final delivery by cargo bike/trike. A cycle logistic operator is paid an amount per parcel delivered and a Service Level Agreement will be agreed to ensure that targets are met.

Established cycle logistics providers are likely to have the confidence of the major parcel delivery companies and a growing awareness of the need to work towards net-zero and demonstrate to customers of their green credentials has led many companies to explore cycle logistics for last mile deliveries. Many of these organisations are partnering with third parties to provide these services. Companies such as Amazon, Wayfair, Zara and DHL are all exploring how they can incorporate cycle logistics into their business model.
There is also scope for reverse logistics, reducing 'empty running' of cycle bikes/trikes and developing further revenue streams. Zedify collect used Nescafe coffee pods as well as old tyres, inner tubes, batteries and clothes.

Local deliveries are also a source of revenue and work such as delivering flowers, magazine, food and beer are all being undertaken by cycle logistics in Scotland.

Support

Through consultation with Sustrans, they have outlined their support for the use of cycle logistics for last mile delivery and the increased use of electric and cargo bikes.

7.10 How the options align with the PESSO Framework

Table 1 demonstrates how the operational models described align with the PESSO framework.

Initiative	Customer segments and relationships	Key partners	Key activities	Key resources	Cost structure	Revenue streams	Policy perspectives
Consolidation Centre – Cycle Logistics	Parcels, local deliveries, pharmaceuticals	Major parcel carriers, local businesses, public sector	Local movements, typically under 2 miles from depots	Riders, management, small depot (100-200m^2, bikes (£4-5k each), security	Can be self-sustaining if work with major parcel carriers. May need initial subsidy/start up costs	Major parcel carriers, local businesses, NHS, cargo bike hire	Feeds into active travel;, modal shift, reduces road miles and decarb/air quality commitments
Consolidation Centre – Vans/HGVs	Parcels, local deliveries, pharmaceuticals, bulkier goods	Major parcel carriers, local businesses, public sector	Often serve particular urban centre, but can distribute to a wider area	Drivers, vehicles, larger depot (up to 1,000m^2), charging/refuelling infrastructure, security	Often operate with subsidy due to lack of willingness for freight operators to co-operate for a variety of reasons	Major parcel carriers, local businesses, NHS, education sector	Feeds into modal shift, reduces road miles and decarb/air quality commitments (if zero emission vehicle)
Warehousing	All types of goods can be stored in a warehouse (assuming ability to store temperature controlled items)	Freight and logistics sector, local businesses	Can provide storage space for local businesses or for freight sector generally	Warehouse with suitable space and access for HGVs. Size dependent on demand but can be of significant scale	Construction, staffing and operation of warehousing.	Retailers, freight and logistics sector renting space	Lack of warehousing in optimum areas nationally, strengthens resilience of town centres
Refuelling	All road users	Infrastructure providers, local authority, Transport Scotland	Option to provide electric chargers and/or hydrogen refuelling facility focused on freight sector	Recharging points and/or hydrogen refuelling station	Rapid expansion of (particularly e-charging facilities) sector means that a partner may be willing to fund	Users will pay for charging/refuelling. A shop could be provided for extra revenue	Helps transition to zero emission/carbon future
Lorry Park	Road Freight Sector (HGV drivers who need to take a break and/or rest overnight)	Lorry park operators, road freight sector	Provide safe and secure lorry parking on key strategic route. Provide facilities to wash, eat and relax.	Space for HGVs to park, shower/toilets, security measures, staffing, hot food options, communal area for drivers. May need large area (e.g 150 spaces is approx. 30,000m^2 based on Newark lorry Park)	Can be self financing but significant set up and development costs (can be £20m-£30m depending on size/scale)	Charges for parking and other facilities such as food/drink or truck wash	Lack of lorry parking nationally and on A9.
Drop Boxes / Lockers	Parcels	Major parcel carriers, local businesses, households	Place for parcels to be dropped off and collected securely without needing to travel into Perth city centre	Relatively small area and space in front of lockers required	Can be self-sustaining if work with major parcel carriers.	Parcel carriers or local businesses may wish to reduce transport costs and time associated with deliveries to drop off/pick up parcels at key strategic site.	Reduced road miles associated with freight sector

Table 1: PESSO Framework

8. Summary and Recommendations

8.1 Conclusions

This report has shown Perth West has the potential to accommodate a facility that can provide a blueprint for further hubs to be created across the UK. A sustainable logistics hub at Perth aligns with national, regional and local aspirations for a more sustainable future, where freight and logistics is able to support economic growth, whilst simultaneously helping to improve air quality for Perth City Centre.

The range of public and private sector opportunities presented through the unique make up of Perth city centre, surrounding suburbs and wider rural settlements, will help to provide the hub with a potential solid foundation to build a sustainable logistics chain stemming from the Hub to the city centre and beyond. As discussed, Perth has a high proportion of independent retailers which are less likely to be tied to complex supply chain arrangements, displaying a high degree of flexibility to consider a consolidation centre type arrangement.

8.2 Benefits

The benefits of a logistics hub at Perth West could be wide ranging, if the enterprise was successful in encouraging a shift from conventionally fuelled freight vehicles to zero emission vehicles and cycle logistics. These benefits would be further enhanced if the initiative was successful at consolidating loads, thereby reducing freight vehicle flows in the city and potentially beyond. Benefits include:

- Reduced congestion – the highway network in and around Perth is congested at peak times, with key strategic roads such as the A9 and M90 and major radial routes into the city including the A93, the A85 and the A912. Reducing the number of vehicle movements can help improve junction capacity, journey time reliability and journey times overall. This will improve the efficiency of the supply chain, as well as boost the economy of the city, with congestion being a drag on economic performance.
- Reduced Carbon Emissions – Hydrogen and electric vehicles are zero emission at the tailpipe and as such are much less carbon intensive than conventionally fuelled vehicles. Cargo bikes are even more efficient on carbon, being largely people-powered. This will help achieve national, UK and global climate goals and support the decarbonisation of the freight sector
- Improved Air quality – Whilst newer freight vehicles have much cleaner engines than older models, emissions of particulates from the freight sector are still significant, with a growing understanding of how particulates from tyres and braking is contributing to poor air quality. There are still many older HGVs and vans on the roads that are more polluting than the more modern Euro VI engine equivalent. Zero emission vehicles and cargo bikes are less emitting than conventionally fuelled freight vehicles. Better air quality can have significant public health benefits.
- A better place to live and work – Reduced congestion, noise pollution from vehicles and positive public health outcomes all serve to make Perth a better place. There is less visual intrusion from larger vehicles and reduced traffic flows provide the opportunity to reallocate roads space to active travel and other public realm.
- Road Safety – If cycle logistics is explored then there may be a positive effect on road safety, with lower speeds and weight associated with cargo bikes meaning the severity of any collisions are likely to be less pronounced.

- Promoting Active Travel – Cycling is an excellent form of exercise and cycling regularly can have significant health benefits. Highly visual cycle logistics operations can help promote healthy lifestyles and attract people to a role where active travel is the primary activity
- Exemplar role – Whilst cycle logistics is increasingly common in major cities in the UK, it is rare in smaller towns and cities. Perth could provide a case study of how a sustainable logistics hub could work in such an environment and potentially inspire similar enterprises elsewhere
- Economic boost - A logistics hub would be an employer, with jobs created in management and delivery roles. There may also be work generated for local bike shops and a more efficient supply chain would benefit local businesses. Ancillary functions such as warehousing space may enable established businesses to expand or improve their resilience

8.3 Recommendations and Next Steps

It is recommended that the initial approach is to start with a relatively small operation that can be upscaled and grows organically. Once established, further functionality and facilities can be added and local businesses see the benefit of the initiative, which generates further business and benefits.

In has been shown that a cycle logistics facility needs only 100m^2-200m^2 of space. As long as sufficient land is provided for growth, then the initial footprint of the sustainable logistics hub need not be of significant size.

The local authority should play a key role in the development of this initiative, from creating supporting policy to helping identify sources of funding as well as bringing to together the stakeholders required to make it a success. Figure 16 outlines the role a local authority can play.

Figure 16: Local Authority Role

There is sufficient land allocated to the logistics hub to accommodate a consolidation centre operating larger vehicles, charge points and storage/office functions. Therefore, the site is 'future proofed' and able to expand as volumes rise.

Figure 17 overleaf demonstrates the recommended approach to establishing the basis for a Logistics Hub at Perth West.

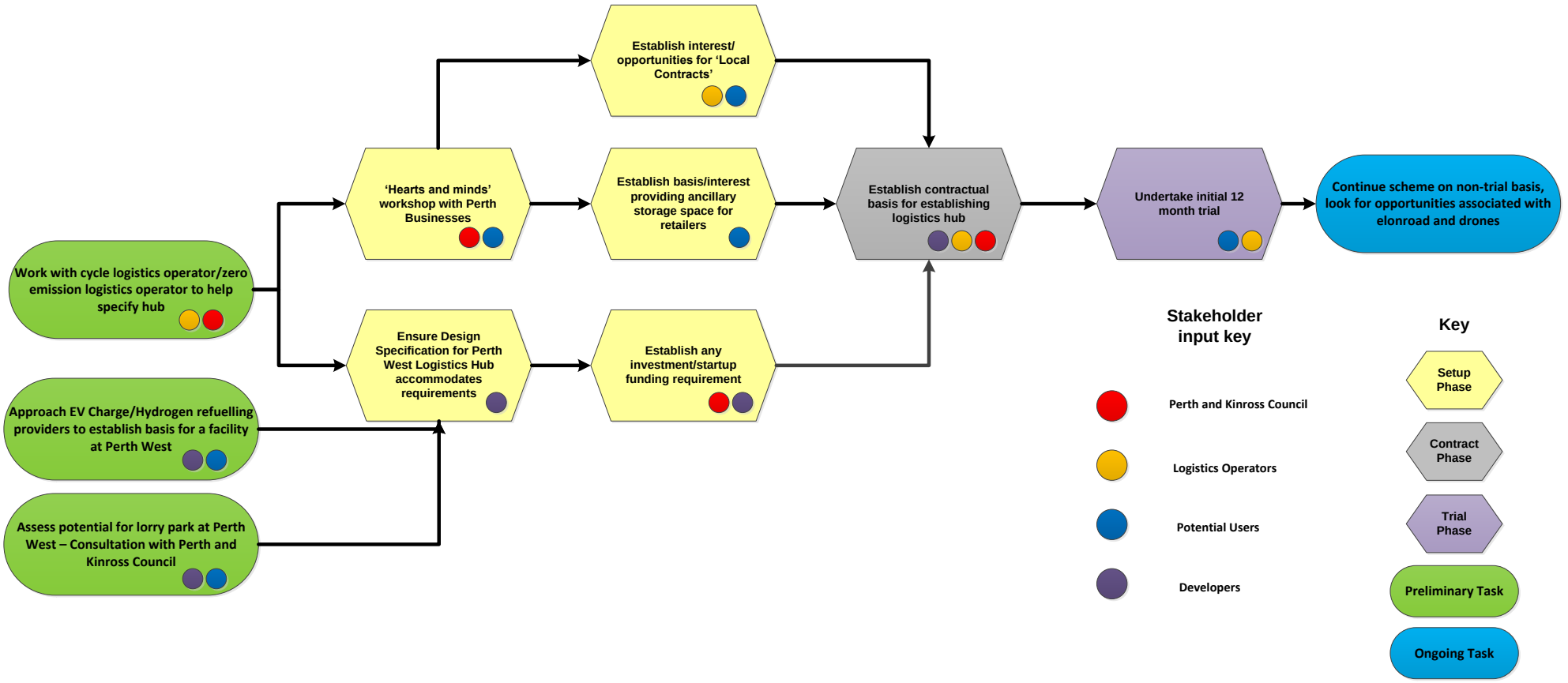


Figure 17:Recommended Approach to establishing Logistics Hub at Perth West

Short term action 0-3 months

Identify partners
It is not envisaged that the logistics hub will be operated by Perth and Kinross Council or the John Dewar Lamberkin Trust (Perth West Developers) and therefore a partner/tenant will need to be identified. Consultation with established providers who can bring their existing clients with them would potentially create a viable business at an early stage. These include cycle logistics providers or other sustainable operators.

These providers can also help further inform the design requirements of the logistics hub/consolidation centre by identifying the required storage space and facilities needed to run a successful operation which has scope for growth.

If electric charging is needed then the site needs to have sufficient electrical capacity to charge electric vans and HGVs. This will need to be considered as part of wider initiatives looking at the infrastructure needed locally, regionally and nationally for electric vehicles (and hydrogen fuelling sites) to ensure the coverage required to aid transition to alternative fuels is appropriate.

Working with end users
Working with local businesses is important to ensure the success of the initiative by identifying potential business in the form of 'local contracts' (such as the examples provided in Edinburgh – e.g flowers, magazines, beer etc) and other business opportunities.

Efforts should also be undertaken to maximise all opportunities, including the public sector organisations identified in this report. This includes the NHS and PKC both of which will generate delivery and servicing activity as well as waste.

Whilst opposition to having goods delivered by zero-emission means is not anticipated (and is likely to be strongly supported) it is recommended that a campaign/workshop is undertaken with Perth retailers to obtain 'buy-in' and establish the basis for ancillary functions such as warehousing and reverse logistics/waste collection. Again, this should feed into the design specification for the logistics hub.

Exploring scope for supporting measures
As discussed, there are several potential supporting measures that could ensure the viability of and provide synergies with a consolidation centre type operation.

In addition, the scope for an alternative fuel station should be established by working with established providers to ensure that the site has the requisite infrastructure to support EV charging for freight (and other) vehicles and/or hydrogen refuelling stations.

Whilst a lorry park is less aligned to the sustainability objectives of Perth West than other activities and may require a significant amount of land it is a strong location for a dedicated lorry parking area, (despite not forming part of the associated planning application) and could be a strong driver of revenue addressing a shortfall in Scotland. Discussions should be undertaken between Perth and Kinross Council and the developer to consider the feasibility of this option.

Medium term actions (3-6 months)

Establish design requirements
This should all feed into the design specification for the Logistics Hub. It is recommended that the design is future proofed to provide flexibility for growth and the introduction of additional ancillary functions such as warehousing.

Longer term actions (6-12 months)

Establishing the basis of a trial
The Logistics Hub/consolidation centre has the potential to be self-funding and operate without support, however there may be a requirement to subsidise it as it builds up volume. Therefore, the nature of this support and associated contractual arrangements need to be established and agreed before ensuring the success of an initial trial.

Monitoring and innovation
Perth West has bold ambitions when it comes to innovation and technology. Whilst some of the proposed interventions may be in their infancy, the development can act a testbed for new and emerging technologies. Therefore, it is recommended that monitoring is undertaken to ensure that these are incorporated into any trial where possible, which includes any developments relating to the electric road and drone technology.

Growing the business
Once established, scope for widening the remit of the hub should be explored, investigating the hub acting as a regional consolidation centre serving wider Perthshire and beyond. As discussed, the site is well located to intercept strategic movements and once confidence in the initiative has been established, then working with a road freight operator to widen the scope and scale of the project could generate wider benefits.

There may also be synergies with the proposed mobility hub (potentially representing a park and ride, public transport and active travel hub). For example, cycle cargo bikes could be hired out when not needed by logistics hub, which can be used by a variety of uses.

8.4 Funding

As discussed, there will be start-up and ongoing operating costs of a sustainable logistics hub at Perth West. A significant challenge of this type of initiative is determining how it is funded. If there is a strong short term business case, then it can be delivered without subsidy. A developer may provide the facility, charge rent to the occupier (a logistics operator) who then generates revenue direct from customers.

Some of the wider measures such as lorry parking could also be wholly developer led and operated.

However, in order to establish the initiative, there may be a requirement to provide help with start-up costs including equipment and staffing.

Potential sources of funding include:

- Sustrans – Places for Everyone funding for the creation of infrastructure that makes it easier for people to walk and cycle for everyday journeys. Perth and Kincross Council could apply for funding with a freight operator to provide equipment such as cargo bikes or the provision of infrastructure to enhance the competitive
- Energy Savings Trust – E-bike loans and grants and Business ChargePoint funding as well as electric van
- The Smarter Choices, Smarter Places (SCSP) initiative was developed to encourage more people to reduce their car use in favour of more sustainable alternatives such as walking, cycling and public transport. – it has previously been used to support cycle logistics in Edinburgh

Integrating the concept of the logistics hub with the Perth Innovation Highway could help secure wider funding relating to decarbonisation and help sell the scheme as an element of a zero carbon and ‘Smart District’.

Appendix A: SURFLOGH Business Model Canvas