



Access to the Port of Liverpool Study

# **Non-Technical Summary**

**Study undertaken by**

WSP



MDST



ekosgen



**On behalf of**

Department for Transport



Highways Agency



NWDA



Sefton Council



Liverpool City Council



Merseytravel



Peel Ports



# Introduction

**The Port of Liverpool is one of the UK's major international gateways.** It is the fifth busiest English port by tonnes of cargo (30m tonnes in 2009), the UK's fourth ranked container port and the leading port for container trade with Ireland. A diverse but balanced range of goods and commodities are handled at the port. **The port also makes a significant contribution to the Merseyside economy and is a vital source of employment for the local community.** These aspects emphasise the importance of efforts to secure the long term potential of the port.

There are already plans in place to develop a **Post-Panamax container terminal at the port which would allow the largest container ships to call at the port.** In June 2011 Peel Ports published the **Mersey Ports Master Plan, A 20 Year Strategy for Growth**, for the Port of Liverpool and the Manchester Ship Canal. This consultation document presents further details of the plans for investment in port facilities and supporting resources. The introduction of **distribution warehousing** at the port, as identified in the Master Plan, has further potential to increase port related traffic.

However, **a significant constraint to the development of the Port of Liverpool is traffic congestion in the local area**, and the associated impacts of this congestion on the operation and future growth of the port. There was therefore a clear need to investigate how access to the port could be improved and establish the potential to minimise the transport of freight by road, through the development of a long term port access strategy.

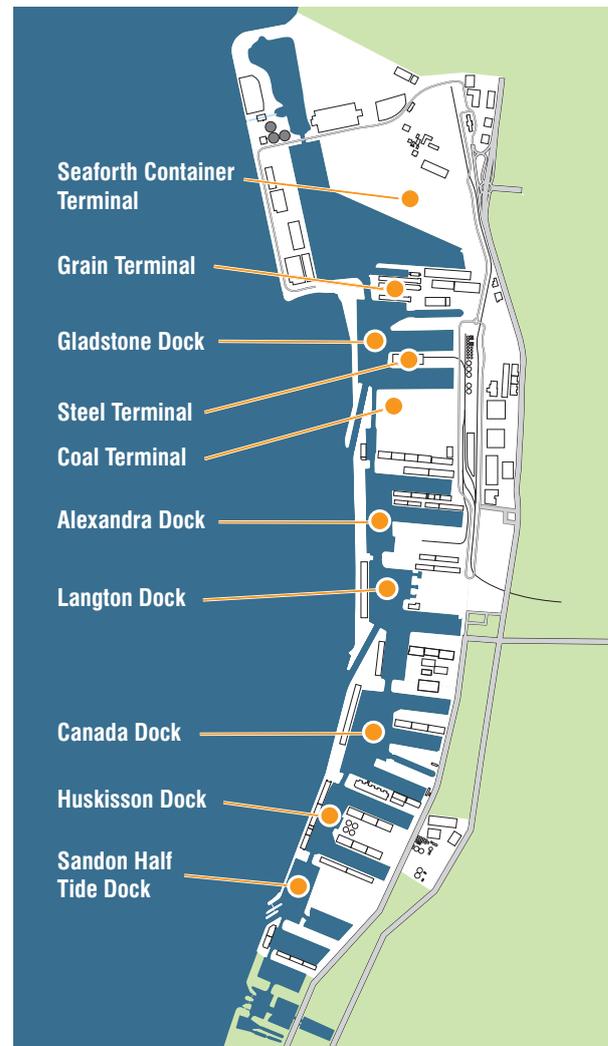
WSP, MDS Transmodal and ekosgen, a team of transport, freight, and economic specialists were commissioned by the North West regional authority, 4NW, and later Sefton Council to undertake a detailed study of access to the Port of Liverpool. **A broad spectrum of organisations have been involved in the study** from the outset including **Merseytravel, Liverpool City Council, North West Development Agency, the Highways Agency and Peel Ports.** These organisations

have been actively involved throughout the project, informing and steering the study from inception to conclusion. The study team has also regularly engaged with a broad range of other stakeholders.

## The Study Area

The Access to the Port of Liverpool Study has **primarily focused on the Liverpool Docks area**, shown in Figure 1. This area includes the Seaforth Dock and container terminal in the north of the port estate and the docks to the south of this point, up to and including the Sandon Half Tide Dock.

FIGURE 1: LIVERPOOL DOCKS



The study has also considered the role of the wider Mersey Ports area, including the Manchester Ship Canal, in developing the access strategy for the port. Figure 2 presents the wider area context.

FIGURE 2: PORT OF LIVERPOOL AND MANCHESTER SHIP CANAL

(Source: Mersey Ports Master Plan, June 2011)



## Existing Access Arrangements

### Highways



The Seaforth Dock Gate at the western end of the A5036 is the main road access point to the Liverpool Docks. There are four main routes to/from the Port, namely:

1. **A5036** – Princess Way/Church Road/Dunnings Bridge Road to/from the M57/M58/M62;
2. **A5058** – Miller's Bridge/Balliol Road/Breeze Hill /Queens Drive to/from the M62;
3. **A580** – East Lancs Road to/from the M57/M62; and
4. **A565** – Rimrose Road/Derby Road to/from Liverpool City Centre/south Liverpool/M62.

The main access route to the port, carrying around two thirds of port traffic, is the A5036.

Construction of a new highway link between Thornton and Switch Island is proposed to start in the autumn/winter of 2012. Transport modelling in support of the planning of this road concluded that the new link was likely to modestly improve traffic conditions on the A5036, mainly at the Switch Island end.

### Rail



The Liverpool Docks are connected by the Bootle Branch rail line and have the following rail-connected facilities:

- Intermodal rail freight terminal (Seaforth Dock);

- Coal (E.ON, Gladstone Dock);
- Steel (Gladstone Dock);
- Paper (between Gladstone and Alexandra Docks); and
- Steel scrap (EMR, Alexandra Dock)

Mainline access to the Bootle Branch line is via the Chat Moss Mainline that runs between Liverpool and Manchester. This line connects to the West Coast Main Line at Earlestown / Newton-le-Willows.

There is also a disused branch line that connects to the Canada Dock.

**Waterways**



Three different kinds of waterborne freight are relevant to this study:

1. Barge services between Liverpool Docks and facilities along the Manchester Ship Canal (MSC). Barge services currently operate along the MSC, in particular between Seaforth and Irlam. **The plans identified in the Port Master Plan for Port Warrington and Port Salford could see greater use of barge services** along the MSC.
2. Coastal shipping services between Liverpool Docks and the rest of Great Britain. These are services carrying containers or other freight between the port and other GB regions and Ireland where there are suitable port facilities and major population/industrial centres to ensure that there is a an economically viable amount of traffic, such as with the Clyde, Belfast and Dublin.
3. Short sea shipping services between Liverpool Docks and the rest of Europe apart from

Ireland. These are services carrying containers between the port and other parts of Europe such as Iberia and the Mediterranean.

Greater use of the waterways would reduce the number of trucks on the highway network.

**Other Modes of Transport**

Walking, cycling and public transport are important modes of travel to work and are generally well provided for in the area surrounding the port. However, the large amount of traffic on the highway network, the high proportion of HGVs and both perceived and real security and safety issues limit their potential for employees working in the port.

The remainder of this document summarises the key findings and conclusions of the Port Access Study.

## The Findings of the Study

Four key questions formed the basis of the study process:

- i. How is the port forecast to grow in the future?
- ii. What are the implications of this growth for the local transport network?
- iii. What potential is there to transfer port related traffic to rail, water and other transport modes?
- iv. What are the transport access options to accommodate this growth?

**i. How is the port forecast to grow in the future?**

Increased activity is expected at the port in the future. This will include:

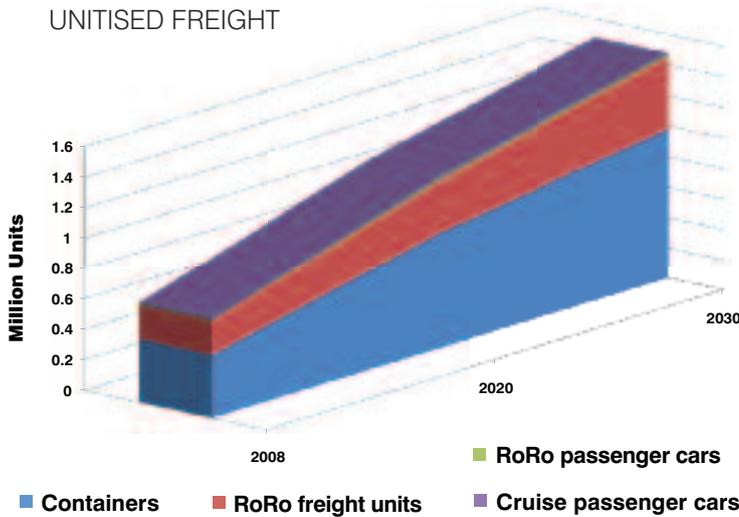
- Growth in the quantity of freight being handled at the port; and
- Growth in employment at the port.

**Freight Growth**

**The major area of growth in existing port traffic is forecast to be in containers and roll-on roll-off (RoRo) freight** units (unitised freight).

Relatively slower growth is forecast for most other commodity types (non-unitised freight), see Figures 3 and 4.

FIGURE 3:  
SUMMARY FORECAST OF  
UNITISED FREIGHT



Other developments at the port would attract **new sources of activity**. There are a number of sources of port traffic in addition to those currently handled which have been considered in reaching conclusions for this study. The main one is the development of large warehouses within the existing and potentially expanded port estate, termed **port centric distribution**. This study assumes that 200,000 sq.m of distribution centres will be located at Liverpool Docks. While the warehousing generates additional HGV traffic on the local road network, it provides critical mass for the development of additional rail freight, deep sea container and Irish Sea RoRo services. Significant employment opportunities are also expected as a result, potentially generating up to approximately 1500 jobs.

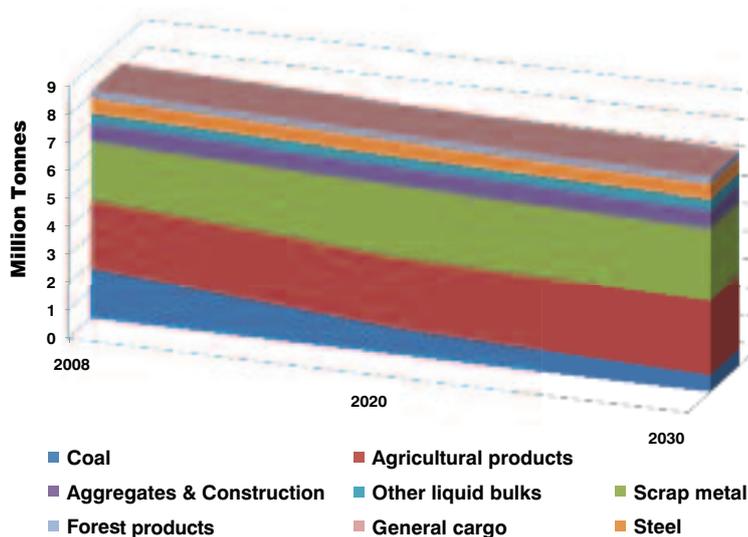
**The forecast growth would create significant changes in the way that goods are carried to, and distributed from the port.** New facilities and services including a new road/rail freight terminal associated with the port centric distribution development and barge services along the Manchester Ship Canal are expected to increase the amount of goods transported by more sustainable modes of transport. The port based developments will enhance the national importance of the port and therefore change the transport of port traffic from a regional to a more national distribution, increasing freight transport distances and making rail and water transport more economically viable.

**Employment Growth**

Port employment data highlights that approximately 85% of employees working at the port live in Merseyside. Within Merseyside there is a clear focus of employee origins in the vicinity of the port with the Sefton and Liverpool districts being home to approximately two thirds of port employees. Key residential areas include Waterloo, Seaforth, Litherland, Orrell Park, Walton, Everton, Anfield and Wavertree.

The potential economic benefits resulting from improved accessibility to the Port of Liverpool, in particular the employment benefits to Merseyside, could be significant.

FIGURE 4: SUMMARY FORECAST OF NON-UNITISED FREIGHT



It has been estimated that the port growth and developments within the port complex and delivered through the Mersey Ports Masterplan have the potential to support approximately 6,000 new jobs. Whilst none of the planned developments within the port complex and the associated employment impacts are solely dependent on the transport interventions, each package of transport interventions delivered as part of the access strategy for the port will influence economic activity and job creation at the port.

In addition to the employment created through the Port Masterplan, additional

jobs will be created through the construction of new transport infrastructure, further benefiting the Liverpool and Sefton economies.

Delivery of the transport interventions will also support the economic regeneration of Liverpool and Sefton, tackling the high levels of deprivation within these areas. The transport interventions will help to make Merseyside and the Liverpool City Region more productive and better able to compete with other areas in the UK.

## ii. What are the implications of this growth for the local transport network?

Increasing highway congestion is currently affecting journey time reliability and freight transport costs, particularly in south Sefton/north Liverpool, the “Area of Pressure”, see Figure 5. The road network within this area of pressure performs a range of different functions. In particular:

- It is a local network serving local communities;
- The highways are important to supporting regeneration. The aim of the NWDA’s Atlantic Gateway initiative was to promote economic regeneration at the port and at key development sites situated adjacent to the main transport corridors in the area, which is primarily the A5036 Dunnings Bridge Road;

- The roads are used by vehicles travelling to and from Liverpool City Centre; and
- The roads are part of a strategic network providing national routes to the Port of Liverpool.

**Furthermore, economic growth can lead to increasing demand for transport, with higher levels of people and freight movements across all modes of travel.**

**The increase in Port related traffic** (see below for further details), **the underlying trend of traffic growth and other new development traffic will increase pressure on a highway network that is already at capacity during peak travel times.** Without investment in highway infrastructure of some form, there is unlikely to be an improvement to the situation or the level of forecast investment at the port.

As the highways are fulfilling a number of roles the study aimed to identify a package of measures that will support the growth of the Port whilst minimising the impact on the surrounding area.

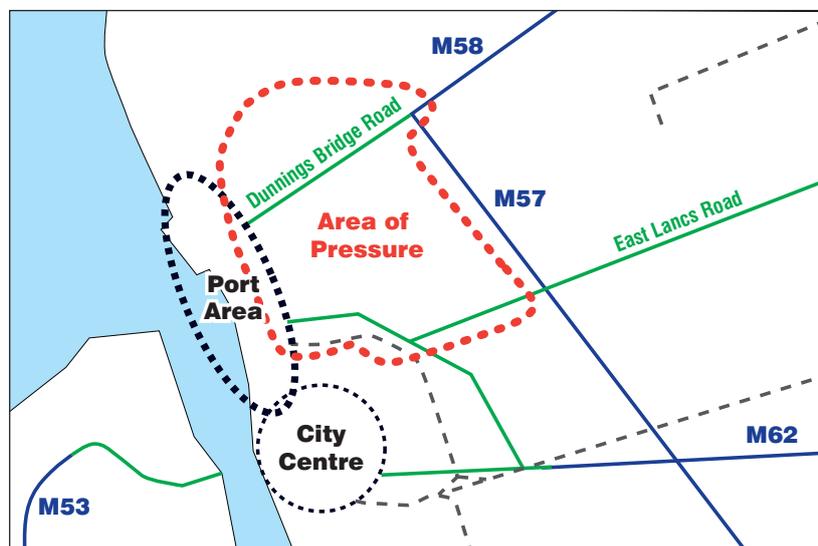
**Currently there is spare capacity on the rail network that can meet the needs of the port in the immediate future.** The main constraint to the further development of intermodal rail freight services is the current rail terminal capacity within the port itself. In addition, the availability and suitability of rail facilities at the destination/origin end will influence rail freight

use, in particular intermodal road/rail terminals in the Midlands and South East.

**The Manchester Ship Canal has potential for greater use.**

The introduction of freight facilities, in particular at Port Warrington and Salford, is expected to generate greater use of this inland waterway. Although these sustainable freight modes can play a key role in the short / medium term, a longer term highway solution is still forecast to be required.

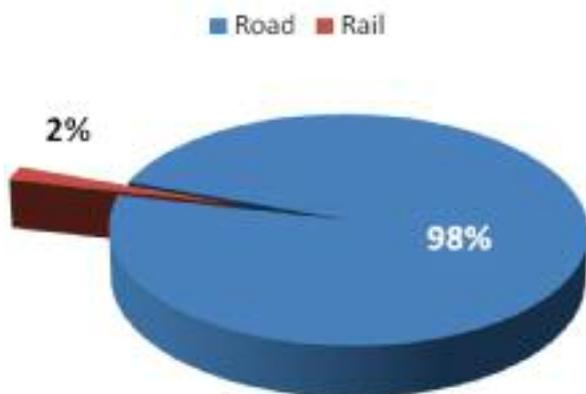
FIGURE 5: AREA OF PRESSURE



### iii. What potential is there to transfer port related traffic to rail, water and other transport?

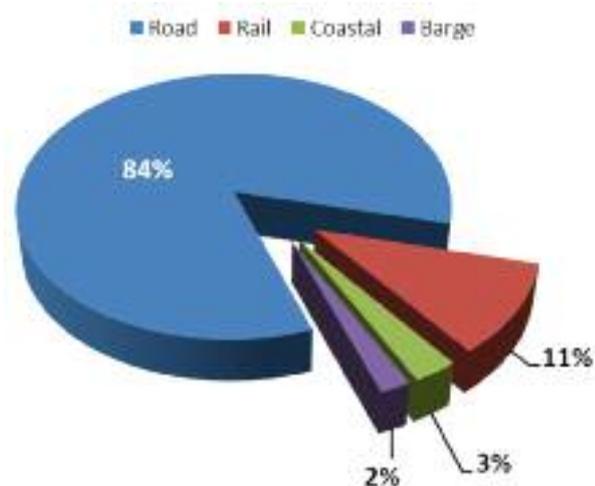
The way goods are transported to and from the port today and how that could change as the port continues to grow was assessed. This included identifying the proportion of freight that would be transported by road, and the more sustainable distribution options of rail, barge and coastal shipping.

FIGURE 6: PROPORTION OF FREIGHT TRANSPORTED BY DIFFERENT MODES – EXISTING SITUATION



\* Unitted Freight Only

FIGURE 7: PROPORTION OF FREIGHT TRANSPORTED BY DIFFERENT MODES – FORECAST 2030 SITUATION



\* Unitted Freight Only

The study highlights (see Figures 6 and 7) that there is significant potential for a shift towards more sustainable distribution of goods from the Port of

Liverpool. **The proportion of freight transported by sustainable distribution options (rail, barge and coastal shipping) is forecast to increase from its current level of 2% to 16% by 2030.**

Rail freight is forecast to have a more significant role with 11% of port traffic being transported by this mode.

Despite the high levels of shift from road freight to sustainable freight transport, with the growth of the port, there is forecast to be a significant increase in HGVs accessing the port by 2030. Currently, an average of about 350 HGVs enter or leave the port every hour. By 2030, this could increase to about 800 HGVs or more. Table 1 below summarises the forecast increase in volumes of HGVs by 2030 with and without investment in sustainable freight infrastructure. This highlights the significant increase in HGV traffic that is forecast.

TABLE 1: 2030 FORECAST INCREASES IN HGVs

	Forecast Average Hourly Increase in HGVs*
<b>No investment in sustainable freight infrastructure</b>	<b>500</b>
<b>With investment in sustainable freight infrastructure</b>	<b>430</b>

\* Unitted Freight Only

The shift to sustainable modes of transport will also generate significant benefits. In particular, journey time savings through decongestion and carbon reduction benefits are forecast. Analysis of the environmental benefits highlights that whilst the total amount of carbon emitted by the Port of Liverpool increases with its forecast growth, the carbon generated per container reduces significantly by approximately 20% between 2008 and 2030 levels.

### iv. What are the transport access options to accommodate this growth?

A “long list” of all potential options for improving access to the port were considered. The list of options primarily included water-borne and rail

freight facilities, local sustainable transport solutions, measures to co-ordinate/consolidate road freight, traffic management and highway capacity interventions. A sifting exercise was then undertaken to identify the options with the greatest potential for satisfying the objectives of the study.

In line with the objective to maximise the movement of freight traffic from the port by sustainable modes (i.e. rail, inland waterways, short sea shipping and co-ordinated/consolidated road freight), packages of schemes were developed, firstly from sustainable transport interventions, followed by highway interventions. Furthermore, the highway schemes were considered in the following order:

1. better management of the existing situation;
2. local improvements; and
3. new highway capacity.

Four packages of measures were formulated based upon this approach:

- Package 1 – Maximum investment in a range of sustainable transport Interventions (see Table 2);
- Package 2 – Includes the (Package 1) sustainable transport interventions along with targeted highway interventions on the A5036 corridor;

TABLE 2: PACKAGE 1 INTERVENTIONS

Improve loading gauge clearance to W12 for pallet-wide containers from Port to WCML
Re-instate rail connection to Canada Dock from existing inland connection
Develop rail connection to Canada Dock by extending existing port rail network southwards
Increasing capacity of existing intermodal terminal to accommodate longer trains and additional sidings
Doubling rail access line on port estate
Signalling improvements on Bootle Branch Line to increase capacity for the long term
Assist in creating commercial conditions for daily barge service to Port Salford via Port Ince and Port Warrington
Assist in creating commercial conditions for increased coastal shipping
Develop rail shuttle service to/from port (for all non-Merseyside container traffic) to/from inland port on outskirts of Merseyside (e.g. Port Warrington?)
Rail connection to the Post Panamax Terminal
Travel Planning Measures/Toolkit
HGV parking/holding area/Park & Ride
Enhanced signage – including VMS on key approach routes
Environmental measures eg: noise barriers, enforced Air Quality Management Zones
Contribution to Passenger Transport, Walking and Cycling Enhancements
Measures to reduce delay to traffic from the opening of the swing bridges in Warrington

- Package 3 – Includes the (Package 1) sustainable transport interventions along with more extensive highway interventions, including widening on the A5036 corridor; and
- Package 4 – Includes the (Package 1) sustainable transport interventions along with a new Port Access Link, accompanied with environmental enhancements to the A5036 between Netherton Way and the Hawthorne Road junctions. The enhancements include landscaping and street works as well as introducing a 30mph speed limit and HGV ban/restriction on the section between Netherton Way and Hawthorne Road.

The appraisal of the packages has been undertaken at a strategic level in line with Department for Transport guidance. A strategic appraisal was considered appropriate given the stage of the project and in recognition of the study’s relatively high-level objectives. **A further detailed appraisal of the highway improvement packages will be required to further develop and refine the proposals.**

**The appraisal exercise concludes that a combined package of sustainable transport interventions and highway measures delivered over the period up to 2030 will derive the greatest benefits.**

# Delivery Strategy and Timescales

The delivery strategy and associated timescales for the access interventions is summarised in Figure 8.

The study highlights that traffic congestion is a current problem for vehicles travelling to and from the port and for other traffic on the surrounding highway network. Therefore, firstly measures need to be introduced to secure a shift of some of the traffic (particularly container traffic) from road to rail and waterborne freight. Secondly, there should be investment to improve local sustainable transport to benefit existing and future port employees and those living and working in the North Liverpool and South Sefton area. In the period up to 2020 sustainable freight and local sustainable transport measures are expected to be sufficient to accommodate growth in traffic to and from Liverpool Docks, as well as background and planned growth in other traffic.

The traffic assessment carried out for this study suggests that by 2020 the A5036 and other sections of the local highway network are likely to

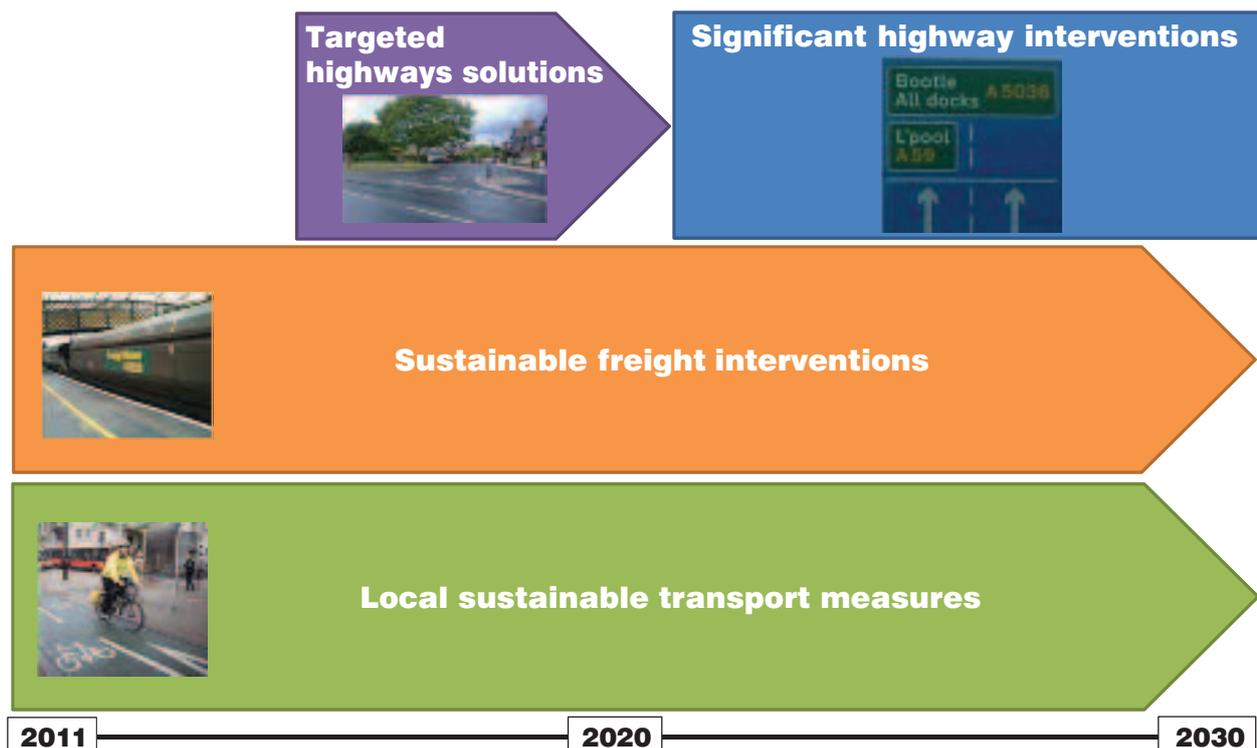
have reached their “tipping point”. This means that congestion is a serious problem that is reducing the attractiveness of the port and causing a problem for the local area. This is due to:

1. the underlying trend of traffic growth;
2. other new development traffic; and
3. the increase in Port related traffic.

Therefore, from 2020 onwards, additional measures related to the local highway network are more likely to be required. Whether the highway interventions are taken from Package 2, 3 or 4 will be dependent on further in depth modelling and analysis. Road-based interventions after 2020 would have the benefit of accommodating greater growth of the port and port-based distribution, which would bring significant employment opportunities, while avoiding increasing levels of congestion and environmental pollution.

The highway interventions will form part of an overall strategy for managing the transport network, which will be developed in partnership between the Highways Agency, Sefton Council and other key stakeholders.

FIGURE 8: DELIVERY STRATEGY & TIMESCALES



## Next steps

A series of key recommendations has been made to build on the work undertaken for the study. These are:

1. Detailed planning for the development of a Funding and Implementation Strategy, in particular for the local sustainable transport measures and sustainable freight interventions (Package 1), to be taken forward through partnership working between Peel Ports, Department for Transport, Network Rail, Sefton Council, Liverpool City Council, Merseytravel and in consultation with the Highways Agency.
2. A working group to be established that meets on a regular basis to continue driving the findings of this study forward.
3. Ongoing engagement with other key stakeholders to be continued.
4. A request to be made to the Department for Transport to provide the Highways Agency with a remit to investigate the feasibility of a major infrastructure improvement to the trunk road network around the North Liverpool Docks, with a view to implementing a preferred solution post 2020.
5. A more detailed modelling and appraisal exercise to be undertaken at the appropriate stage in developing the package of highway interventions.





### **Further Information**

If you require any more detailed information on the study please contact:

**[www.sefton.gov.uk/APLStudy](http://www.sefton.gov.uk/APLStudy)**

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