

Unit 43: Transport Planning

Unit code:	Y/600/8599
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

This unit aims to enable learners to gain a knowledge and understanding of transport planning together with the role of relevant legislation, taking into account the characteristics of different goods in transit and how this may affect the journey. This unit will also enable learners to gain knowledge of more specialist transport equipment as well as the standard equipment used when planning transport for logistics.

● Unit introduction

Transport planning is one of the most important roles within the worldwide and UK transport industries today. With the UK set to become a central logistics hub with the further development of the Thames Gateway, there will be an increasing requirement for people in the industry who can help maintain the flow of goods by maximising transport planning.

This unit has been designed to focus on transport planning relating to UK freight transport work. Learners will investigate the role of transport, the cost, service, productivity, legal and safety and operating requirements. They will also investigate the use of transport equipment, including how to select from various options appropriately.

● Learning outcomes

On completion of this unit a learner should:

- 1 Understand the role of transport
- 2 Know transport planning in relation to current legislation
- 3 Understand the use of the standard and peripheral transport equipment used in logistics
- 4 Know current national legislation that affects transport planning.

Unit content

1 Understand the role of transport

Role and definition: the transport links in supply chains eg moving goods; definition of transport including types of carrying vehicles eg temperature-controlled containers; transport modes eg road, rail, air, sea, inter-modal; why road transport is dominant in the UK; importance of speed, cost and reliability variables to users

Products (goods) carried: types of product in each mode eg raw materials, work in progress, finished goods; care of products, minimising damage and loss; supply/demand variables; size/weight/value/throughputs of products handled eg out of gauge/overweight goods requiring special permits for road movement

Costs, productivity and service: fixed and variable costs; trade-offs with service levels; key performance indicators; measurement of operations; analysing service levels; customer service sampling; making improvements

2 Know transport planning in relation to current legislation

Planning and organising flow of goods: principles of transport planning, trade-offs between cost, speed and reliability, origin of supply/collections eg from suppliers; origin of demand/deliveries eg to customers; road infrastructures eg motorways; loading/unloading of products, time or distance minimising in journey planning, fixed day or irregular scheduling

Health and safety: overviews of health and safety legislation – the Health and Safety at Work Act 1974 (HASAWA), The Control of Substances Hazardous to Health 2002 (COSHH), Manual Handling Regulations, Lifting Operations and Lifting Regulations 1998 (LOLER); roles and responsibilities eg managers, staff; risk assessments, accident awareness programmes eg driver training; safety of equipment and individuals, potential hazards eg collisions, movement of loads, falls, injuries sustained whilst loading and unloading; vetting and training of personnel, safety short cuts eg driving too fast, insecure loads, manually lifting excessive weights

3 Understand the use of the standard and peripheral transport equipment used in logistics

Mechanical handling equipment: use of tail lifts, pallet trucks, cranes, roller floors in loading/unloading, advantages and disadvantages

Manual handling equipment: pallet trucks, sack carts, advantages and disadvantages

Types of transport vehicle equipment: uses of different types of vehicles eg number of axles, gross vehicle weights, maximum lengths and widths; advantages and disadvantages

Types of transport body equipment: uses of specific types of bodies eg flat/platforms, van, curtain-sided, tankers, tippers, demountable/drop bodies; advantages and disadvantages

Specifying transport equipment: advantages and disadvantages of purchasing as opposed to leasing transport equipment; outright purchase, contract hire/operating lease, financial lease, hire purchase/lease purchase, short-term rentals, contracting out ie financial issues, operational issues, strategic issues

4 Know current national legislation that affects transport planning

Legislation: importance of transport planning and operations ie vehicle legislation eg construction and use; effects of vehicle legislation on transport planning eg gross weight of vehicles; driver legislation eg driver hours; effects of driver legislation on transport planning eg double shifting of vehicles; operator legislation eg operator licensing eg 'O' licence (operator's licence), PCV licence (passenger carrying vehicle) LGV licence (large goods vehicle); insurance; effects of operator legislation on transport planning eg carrying other people's goods; other applicable legislation eg when carrying temperature controlled products; road traffic regulations – Road Traffic Acts 1988 and 1991, Road Traffic (Consequential Provisions) Act 1988, Road Traffic Offenders Act 1988, Road Traffic (Foreign Vehicles) Act 1972; Management of the Health and Safety at Work Regulations 1992 (Northern Ireland), logistics health and safety regulations – Health and Safety at Work Act (Northern Ireland) Order 1978, Dangerous Substances (Conveyance in Road Tankers and Tank Containers) Regulations 1981, Road Traffic (Carriage of Dangerous Substances in Packages etc) Regulations 1986, Control of Substances Hazardous to Health Regulations (COSHH) 2002; environmental and anti-pollution controls eg handling and management of waste, vehicle emissions, packaging and labeling regulations

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 explain the role of transport in the supply chain [IE1]		
P2 examine the type of goods carried by different modes of transport [EP1]		
P3 describe the principles of transport planning in organising the flow of goods [CT2]	M1 explain the principles of transport planning for organising the flow of goods	D1 justify recommendations for good transport planning
P4 outline the health and safety measures applicable to transport planning [IE3]		
P5 discuss the specific use of a range of transport equipment [IE2]	M2 analyse the advantages and disadvantages of using different forms of transport equipment.	
P6 examine the methods used in the procurement of transport equipment [CT6]		D2 evaluate the methods to procure transport equipment in terms of short, and long, term implications.
P7 identify the relevant national legislation that needs to be considered when planning transport. [RL4]		

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills which are embedded in the assessment of this unit. By achieving the criteria, learners will have demonstrated effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Tutors delivering this unit have opportunities to use a wide range of techniques. Lectures, discussions, seminar presentations, site visits, supervised practical activities, research using the internet and/or library resources, and the use of personal and/or industrial experience, are all suitable. Delivery should stimulate, motivate, educate and enthuse learners. Visiting expert speakers could add to the relevance of the subject.

Learners should be encouraged to read an appropriate range of documents and library/internet source material relating to the unit content. Overall delivery of the unit should be supported by the use of case studies and other industry-related documents.

The learning outcomes are linked and form a logical, consistent and progressive structure, starting with the role of transport in the supply chain and various transport modes followed by the principles of transport planning and associated health and safety issues. The range of transport equipment, the unit ends with uses and national legislation.

This unit has been designed to develop learners' appreciation of the importance of freight transport planning. Group discussion and case studies should be used, as these will help learners to link the unit with their experiences. The learning outcomes for this unit require learners to undertake research in a work-based environment. To enable research skills to be developed effectively learners should be introduced to as many different forms of research as possible.

The use of role play, discussion groups and presentations will give learners an opportunity to bring the topic 'to life'.

Learners will benefit from visits to warehouses and from guest speakers directly involved in transport planning across a range of establishments in the logistics industry. Visitors will provide an excellent, current industry perspective. Specialists in the area of health and safety legislation may also be useful sources of information for learners.

Group activities are strongly recommended, but tutors will need to ensure that individual learners have equal experiential and assessment opportunities.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way of planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Tutor explanation: introduction to the unit.
Tutor explanation/class discussion: what is the role of transport in the supply chain?
Tutor input: modes of transport and products carried.
Class exercise: group work on modes and products followed by short presentations to the class – tutor to facilitate.
Tutor input: factors influencing the transport of goods.
Class exercise: group work: 'how to carry a product' followed by short in-class presentations – tutor to provide briefs and facilitate.
Tutor explanation/class discussion: costs, productivity and service – procedures.

Topic and suggested assignments/activities and/assessment

Learner activity: investigating possible problems followed by a brief group discussion – tutor to facilitate.

Tutor explanation – case studies: modes, products and potential issues.

Tutor input: principles of transport planning.

Tutor explanation/class discussion: factors influencing transport planning.

Learner activity: Investigating into transport planning issues for a given brief followed by a brief group discussion – tutor to facilitate.

Tutor explanation/class discussion: potential health and safety issues.

Tutor input: health and safety legislation.

Learner activity: investigating into legislation relevant to transport planning followed by short presentations to the class – tutor to facilitate.

Guest speakers: From a large logistic organisations or professional bodies – health and safety issues in transport planning .

Preparation for assignment.

Assignment 1: Principles of Transport Planning – covering P1, P2, P3, P4, M1 and D1

Tutor explanation/class discussion: transport equipment.

Tutor input: mechanical and manual handling equipment: types and uses.

Tutor input: vehicles and bodies: types and uses.

Class exercise: group work on transport equipment and their uses followed by short presentations to the class– tutor to facilitate.

Learner activity: visit to a warehouse: learner to make notes on type and use of equipment.

Tutor explanation/class discussion: how to procure the equipment?

Tutor input: procurement methods – pros and cons.

Learner activity: choosing the procurement method though research and group discussion followed by short presentations to the class – tutor to provide briefs and facilitate.

Tutor input: national legislation.

Class exercise: investigating relevant national legislation followed by a brief group discussion – tutor to facilitate.

Preparation for assignment.

Assignment 2: Transport Equipment and Legislation – covering P5, P6, P7, M2 and D2

Review of unit delivery and assessment.

Assessment

To achieve this unit, learners will be expected to provide evidence from observation of performance, questioning, progress reviews, feedback from colleagues, team members and managers, discussions and other practical experience. Case studies may be useful, particularly in areas that are not experienced regularly by all learners.

Evidence for this unit may be gathered from a variety of sources, including well-planned investigative assignments, case studies or reports of practical assignments.

There are many suitable forms of assessment that could be used, and centres are encouraged to consider and adopt these where appropriate. Some examples are suggested below. However, these are not intended to be prescriptive or restrictive, and are provided as an illustration of the different forms of assessment evidence that would be acceptable.

Some criteria could be assessed directly by the tutor during practical activities. If this approach is used, suitable evidence from guided activities would be observation records or witness statements. Guidance on the use of these is provided on the Edexcel website.

Evidence for learning outcomes can be achieved through well-planned assignments and projects. These will usually be undertaken individually but it is possible to introduce elements of teamwork into the collection or collation of data or in simulations of the planning process such as public consultation or inquiry. Where available, workplace evidence can be incorporated provided that is appropriate and authenticated as the learner's own work. Integrative assignments will help to link this unit with other units. The volume of evidence required for each assessment should take into account the total number of assessments and the design of the overall teaching programme.

Formative assessments should be used throughout the unit, giving learners the opportunity to receive developmental and constructive guidance and feedback. This will allow them to gain an understanding of their personal achievement and the methods they can use to develop their learning.

Formative assessment should consider diverse sources of evidence. These may come from activity-based projects, observation and questioning, peer/tutor/logistics organisation witness testimony or personal statements. Group or individual planning and implementation documents are also an invaluable source of evidence.

The structure of the unit suggests that the grading criteria may be fully addressed by using two assignments. The first assignment would cover learning outcomes 1 and 2 (P1, P2, P3, P4, M1 and D1) and the second given learning outcomes 3 and 4 (P5, P6, P7, M2 and D2).

The learners should be provided a brief which will give them an opportunity to explore systems, procedures and legal requirements in a real world context.

To achieve a pass grade, learners must meet the seven pass criteria listed in the grading grid.

For P1, learners must be able to explain the role of transport in the supply chain. They must include various transport modes and carrier types as well as cover important national aspects of transport. Overall, learners should be able to demonstrate their understanding of the role of transport through research and real world examples. Evidence for this criterion could be by a report supported by suitable examples.

For P2, learners must be able to examine the kind of goods carried by different modes of transport. This is essentially a detailed 'mapping' exercise and should be set as an extension to P1. Evidence for this criterion could be a report/presentation and/or oral questioning.

For P3, learners must be able to describe the principles of transport planning when organising the flow of goods. Learners should clearly demonstrate their understanding of the factors influencing transport planning and possible trade-offs. Suitable evidence approaches are the same as for P1.

For P4, learners must outline the health and safety measures to be taken into account in transport planning. This should include health and safety legislation and organisational procedures and policies with the aim of ensuring safety during operations. Evidence for this criterion could be a report/presentation and/or oral questioning.

For P5, learners must be able to discuss the specific use of a range of transport equipment. Learners must discuss both manual and mechanical handling equipment as well as vehicle types/bodies. Evidence for this criterion could be a report/presentation and/or oral questioning.

For P6, learners must be able to examine the methods used to procure transport equipment. This must include at least outright purchase, leasing, and hiring. Suitable evidence approaches are the same as for P1.

For P7, learners must be able to describe the relevant national legislation that needs to be considered when planning transport. Evidence for this criterion could be a report/presentation and/or oral questioning.

To achieve a merit grade, learners must meet all of the pass grade criteria and the two merit grade criteria.

For M1, learners must explain the principles of transport planning when organising the flow of goods. This can be set as an extension to P3. Suitable evidence approaches are the same as for P1.

For M2, learners must analyse the advantages and disadvantages of using different forms of transport equipment. This can be set as an extension to P5. Suitable evidence approaches are the same as for P1.

To achieve a distinction grade, learners must meet all of the pass and merit grade criteria and two distinction grade criteria.

For D1, learners must be able to evaluate the principles of transport planning and make recommendations for good transport planning, including justifications for their recommendations. The brief provided should give learners opportunities to carry out this evaluation. Learners should also include some real world examples. This can be set as an extension to P3/M1. Suitable evidence approaches are the same as for P1.

For D2, learners must be able to evaluate the methods used to procure transport equipment in terms of short-and long-term implications. The brief provided should give learners opportunities to carry out such an evaluation. Learners should also include some real world examples. This can be set as an extension to P6. Suitable evidence approaches are the same as for P1.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, M1, D1	Principles of Transport Planning	You have recently joined a national logistics organisation. Your manager has asked you to carry out research into the role of transport planning, with a view to improve existing practices. Most of the goods are domestic appliances and other non-perishable items.	A portfolio/report explaining role of transport and containing description of principles of transport planning. For higher level achievement, an evaluation of these principles along with recommendations and justifications will be included.
P5, P6, P7, M2, D2	Transport Equipment and Legislation	You have recently joined a national logistics organisation. Your first report was well received by management. Your manager has now asked you to carry out research into the specific use of transport equipment, as well as relevant national legislation.	A portfolio/report containing a description of various equipment and its specific use as well as relevant national legislation. For higher level achievement, an analysis and evaluation of the equipment, in terms of their use and procurement methods will be included.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

Achievement of the learning outcomes of this unit will contribute towards the skills, knowledge and understanding of several units of the National Occupational Standards for:

- Supply Chain Management
 - ◇ Unit S9: Plan the transportation of supplies
 - ◇ Unit M24: Select transportation methods for supplies.
- Traffic Office
 - ◇ TO1: Contribute to the maintenance of a healthy, safe and productive working environment
 - ◇ TO2: Improve the customer relationship
 - ◇ TO5: Investigate the suitability of collection or delivery points for loading and unloading
 - ◇ TO7: Allocate the resources for the transportation of loads
 - ◇ TO9: Manage the movement of loads

- Logistics Operations Management
 - ◇ Unit LOG2: Promote and maintain health, safety, and security in logistics operations
 - ◇ Unit LOM2: Promote compliance of logistics operations with legislation, regulations, and organisational procedures
 - ◇ Unit LOM4: Optimise the use of logistics resources
 - ◇ Unit LOM6: Utilise transport modes in logistics operations
 - ◇ Unit LOM8: Develop relationships with logistics customers
 - ◇ Unit LOM9: Improve the quality of logistics operations.

Essential resources

Learners will benefit from having access to logistics outlets and sufficient library and/or internet resources to allow them to research the current activities of logistics organisations.

Visits to and/or visiting speakers from logistics organisations will be helpful. Learners should have access to a learning resource centres with a good range of logistics trade journals, local and national newspapers and specialist periodicals.

Tutors will need to ensure that learners have up-to-date information regarding local and national logistics organisations.

Health, safety and welfare issues must be considered at all times and risk assessments should be undertaken for all site visits used in the delivery or assessment of the unit. Access to suitable development sites may require permission from the owner, especially if learners need to visit the site for research.

Employer engagement and vocational contexts

The use of vocational contexts is essential in the delivery and assessment of this unit. Much of the work can be set in the context of case studies of local employers. Learning outcomes 2 and 3 lend themselves well to investigating industrial practices.

Indicative reading for learners

Textbooks

Carter, Price and Emmett – *Stores and Distribution Management, 4th edition* (Liverpool Academic Press, 2004) ISBN 9781903500057

Hibbs J – *An Introduction to Transport Studies, 2nd edition* (Kogan Page, 1999) ISBN 9780749429461

Lowe D – *Pocket Guide to LGV Drivers' Hours and Tachograph Law, 3rd edition* (Kogan Page, 2006) ISBN 9780749445683

Lowe D – *Management of Dangerous Goods Safety Manual, 2nd edition* (Kogan Page, 2000) ISBN 9780749430214

Rushton A, Croucher P and Baker P – *The Handbook of Logistics and Distribution Management, 3rd edition* (Kogan Page 2006) ISBN 9780749446697

Journals and magazines

Commercial Motor (Reed)

Distribution (DMG)

Distribution Business (UK Transport Press)

Motor Transport (Reed)

Websites

www.berr.gov.uk

The Department for Business Innovation and Skills

www.ciltuk.org.uk

The Chartered Institute of Logistics and Transport

www.fta.co.uk

Freight Transport Association

europa.eu/index_en.htm

Europa – The European Union online

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	discussing/analysing the specific use of a range of transport equipment evaluating procurement methods justifying recommendations for good transport planning
Creative thinkers	making recommendations for good transport planning examining methods to procure equipment.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Team workers	working on and presenting joint research outcomes
Reflective learners	appraising and improving their own work.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	investigating transport equipment
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	investigating relevant legislation
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	preparing reports and presenting results of their research
Bring together information to suit content and purpose	presenting the results of their investigations
Present information in ways that are fit for purpose and audience	presenting information using a variety of methods
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	explaining the role of transport
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	discussing the specific use of transport equipment.