



PD11

Transport Planning Techniques

Standards

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PD11

Transport Planning Techniques

Unit purpose and aim

This option unit presents the technical processes involved in transport planning. It provides technical knowledge on the quantitative processes which under-pin the transport planning process. It incorporates the development of strategic plans at a national regional and local level.

Elements

- PD11-1 The Transport Planning Process
- PD11-2 Development and Implementation of Strategies and Plans
- PD11-3 Appraisal, Evaluation and Monitoring Techniques

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Element PD11-1

The Transport Planning Process

Learning Outcomes

The learner will:

- 1.1. Understand the basic economic concepts of supply and demand.
- 1.2. Know the principle stages in the transport planning process.
- 1.3. Understand data collection techniques and their advantages and disadvantages.
- 1.4. Understand the advantages and disadvantages of the different forecasting techniques.
- 1.5. Understand the principles of network design and the appropriate modelling techniques.

Assessment Criteria

The learner can:

- 1.1.1. Analyse the relationship between supply and demand in a given system.
- 1.2.1. Apply appropriate analytical methods to given scenarios.
- 1.3.1. Implement appropriate sampling processes and techniques.
- 1.4.1. Forecast the impact of change on transport networks.
- 1.5.1. Apply appropriate models to the design of a network.

Indicative Content

Economic concepts of demand and supply	Factors that influence demand and supply. Interrelationship between demand and supply.
Principal stages in the transport planning process	Trip generation; trip distribution; modal split; network building; trip assignment. Generalised cost.
Data collection techniques	National traffic data; traffic surveys; sampling procedures & techniques; observational counts; household surveys; intercept surveys.
Forecasting techniques	Deriving future trip generation. Determining trip distribution: deterrence functions; matrix estimations. Modal split: diversion curves; logic models. Assignment: straight assignment; capacity restraint.
Network design and modelling techniques	Models: strategic transportation; land-use interaction; road traffic assignment; public transport passenger; multi-modal. Models in a design network.

Element PD11-2

Development and Implementation of Strategies and Plans

Learning Outcomes

The learner will:

- 2.1. Understand the process for the development of transport strategies and plans.
- 2.2. Know how to identify and define network operational problems.
- 2.3. Understand the strengths and limitations of public and private funding mechanisms.
- 2.4. Know the approval procedure for transport projects.
- 2.5. Understand the processes of performance monitoring and policy review.

Assessment Criteria

The learner can:

- 2.1.1. Develop plans from a given strategy.
- 2.2.1 Identify and correct network problems.
- 2.3.1. Compare and contrast alternative funding mechanisms.
- 2.4.1. Initiate approval procedures for a range of transport projects.
- 2.5.1. Implement a policy review.
- 2.5.2. Monitor performance against expected outcomes.

Indicative Content

Transport plans and strategies	National, regional and local policy and strategy; content of local transport plans; government guidance on local plans; transport investment; updating local transport plans.
Network operational problems	Lack of mobility; hazards. Accident “black spots”. Congestion; delays. Infrastructure capacity/limitations. Inter-modal compatibility. Operational constraints. Demand and supply conflicts. Identification of local, regional and national transport issues/problems.
Funding	Public/private sector finance; DBFO. Private funds: availability; timing; price; risk. Public sector: advantages; problems; government guarantees; shadow costs.
Approval procedures	Local authority powers; planning requirements; the Transport and Works Act; public consultation; public enquiries.
Performance monitoring and policy review	Government requirements; targets set in local transport plans; best value. Policy review in context of: development plan; annual updating of local transport plan; regional transport strategy.

Element PD11-3

Appraisal, Evaluation and Monitoring Techniques

Learning Outcomes The learner will:	Assessment Criteria The learner can:
3.1. Understand the importance of project appraisal and evaluation.	3.1.1. Select and implement appropriate evaluation techniques.
3.2. Know the requirements for detailed project definition.	3.2.1. Define the scope and depth of a project.
3.3. Understand the characteristics of project evaluation.	3.3.1. Identify project options and define evaluation methodology.
3.4. Understand the importance of evaluating project costs, benefits and other outcomes.	3.4.1. Evaluate project costs and benefits. 3.4.2. Evaluate other project outcomes.
3.5. Know the steps needed to implement a project.	3.5.1. Implement reduced risk strategies

Indicative Content

Appraisal and evaluation techniques	Financial; economic; social; environmental impact. Requirements from evaluation and appraisal: investors; public.
The requirements for detailed project definition	New approach to appraisal (NATA). Definition of objects to investment.
Characteristics of evaluation	Evaluation methodology; identifications of options; evaluation of options. Do nothing/do minimum option.
Evaluating project costs, benefits and other outcomes	Costs: construction and operating costs; land-take; pollution; severance; increased travel distance; visual intrusion; noise; loss of habitat; impact of project consideration/development on other routes and modes of transport. Benefits: time savings; accident reduction; enhanced environment. Benefits in the distant future: time scale; net present value; opportunity costs; sensitivity tests; risk. NATA environment. Other outcomes: economic impact; Integration; accessibility; social implications.
Project implementation	Time scale; project management; design process; tender process; approvals; land acquisition; compulsory purchase; contract. Transport and Works Act.