| Competence Area | Competence Name | Description of Competence | Levels of Achievement of Competence | | | | | Assessment evidence required |
|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| **Domain 1 Policy, Legal, and Health, Safety & Environment** | | | | | | | | |
| **1.1 Policy** | **1.1.1 DfT national & regional policy** | Government, regional and local transport policy: its structure, organisation and effect on society and the environment. | Be aware of national regional and local transport policy, and its implications for society and the environment. | Understand the principles of national regional and local transport policy, and its implications for society and the environment. | Under supervision, deploy your grasp of national, regional, and local transport policy when developing TfL policy. | Deploy your grasp of national, regional, and local transport policies when developing TfL policy. | | Demonstrate your knowledge / competence through your work, through short reports and/or at your Performance Management Review. (TPQ4 unit 6.1. TPQ3 unit 6) |
| | **1.1.2 Mayoral Transport Strategy (MTS), RNMP** | The Mayor's Transport Strategy (MTS) and principal policy documents relating to transport, and their impact. | Be aware of the MTS and its impact on TfL activities. | Know and keep up to date with the broad thrust of the MTS and these policies relating to integrated transport, sustainable development, planning for the main transport modes, 'slow' modes, role of technology, freight transport, environmental issues and plan assessment. | Contribute to the monitoring and review of changes in the MTS. Under supervision, deploy your grasp of MTS when developing TfL policy. | Monitor & review changes in the MTS. Deploy your grasp of MTS when developing TfL policy. | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. (NTQ5 unit 1. NTQ4 units 6, 7) (TPQ4 unit 6.2. TPQ3 unit 6) |
| | **1.1.3 Structure of GLA and London boroughs** | Structure and roles of regional partners, e.g. TfL, GLA, LDA, MPS, LFEPA. London Govt. structure, Borough liaison, Boro Partnerships, LIPs, BSPs. | Be aware of the structure and roles of local Government and regional partners, e.g. TfL, GLA, LDA, MPS, LFEPA, and their activities and relationships. | Know how Boroughs are structured and managed, understand the electoral process and responsibilities and powers of elected representatives.Know the type of work undertaken within the GLA and each Directorate within TfL and Surface in general and Streets in particular. Know about these other bodies and their activities and relationships. | Under supervision, deploy your grasp of this issue when developing TfL policy. | Deploy your grasp of this issue when developing TfL policy. | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. (TPQ4 unit 6.1) |
| | **1.1.4 Funding of transport schemes in London** | Schemes development and funding. | Be aware of the means by which schemes in London are developed, promoted and funded. | Understand the means by which schemes in London are developed, promoted and funded. | Under supervision, deploy your grasp of this issue when developing TfL policy | Deploy your grasp of this issue when developing TfL policy | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. (TPQ4 unit 6.4) |
| | **1.1.7 Bus industry** | The bus industry | Be aware of the structure and operation of the bus industry and the funding arrangements for improvements to bus fleets and services and for implementation of bus priority measures. | Understand the structure and operation of the bus industry and the funding arrangements for improvements to bus fleets and services and for implementation of bus priority measures. | Under supervision, deploy your grasp of this issue when developing TfL policy | Deploy your grasp of this issue when developing TfL policy | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **1.1.5 Freight industry – road, rail, river, air** | UK freight transport | Be aware of the characteristics of the UK freight transport market and the factors that affect mode choice, route planning and service operation. Understand the issues and incentives involved in the Government's ambition for a smaller proportion of freight - mileage to be road- based. | Understand the characteristics of the UK freight transport market and the factors that affect mode choice, route planning and service operation. Understand the issues and incentives involved in the Government's ambition for a smaller proportion of freight to be carried by road. | Under supervision, deploy your grasp of this issue when developing TfL policy | Deploy your grasp of this issue when developing TfL policy | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. (TPQ4 unt 6.1) |

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| | **1.1.6 Provision of network management policies** | Network Management policies | Be ware of what these policies are and how they operate. | Know what these policies are and how they operate. | Contribute to the establishment of network management policies | Establish network management policies | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. (NTQ5 unit 6) (NTQ4 unit 6) (TPQ4 unit 6) |
| **1.2 Legal** | **1.2.1 Contract law, construction law, law of tort** | Understanding and application of contract law, industry standard conditions of contract, european and local procurement regulations. | Be aware of procurement processes and procedures. | Have a working knowledge of European and local procurement procedures, and the content of standard industry conditions of contract. | Be able to operate procurement processes and apply conditions of contract under supervision. | Fully understand and apply procurement processes, select appropriate industry conditions of contract, modify and apply these to relate to individual projects. | Fully understand and apply best practice, be recognised amongst piers as a source of sound advice and inovation in resolving difficult issues. | Evidence of personal involvement in preparation of contract documentation, procurement processes, assessment of tenders, award and management of contracts, including settlement of disputes and litigation processes. |
| | **1.2.15 Local Government Acts** | Understanding and application of the Local Government Acts, their broad scope and provisions, especially S101 of the 72 Act. | Be aware of the legislation and the broad areas which it covers. | Have a working knowledge of the key provisions of the Local Government Acts especially those provisions relating to highways and transportation. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.2 GLA Act** | Understanding and application of the Greater London Authority Act and its implications for Highway and Traffic Authorities in London | Be aware of the legislation and the broad areas which it covers. | Knowledge of the provisions of the Act, especially how it modifies provisions of the Highways and Road Traffic Regulation Acts. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.3 Highways Act 1980** | Understanding and application of the various Duties and powers relating to maintaining the highway, and asserting public right to unobstructed use of the highway etc. | Be aware of the legislation and the broad areas which it covers. | Knowledge of the provisions of the Act, especially which provisions rest with the Local Authority and which with the Highway authority. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.16 Railways and Transport Safety Act** | Understanding and application of the provisions of the Act, especially in relation to it's impact on the Highways Act 1980. | Be aware of the legislation and the broad areas which it covers. | Knowledge of the provisions of the Act, especially the duty to safeguard against the dangers of ice or snow. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.13. Traffic Management Act 2004** | Understanding and application of the provisions of the Act, especially the Network Management Duty. | Be aware of the legislation and the broad areas which it covers. | Knowledge of the provisions of the Act, especially the network management Duty. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |

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| | **1.2.5 Road Traffic Regulation Acts** | Understanding and application of the various Duties and powers relating to Road Traffic Regulations. | Be aware of the legislation and the broad areas which it covers. | Knowledge of the provisions of the Act, especially Traffic Management Orders and their application. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, including drafting/checking complex traffic regulation orders. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, TMO's, short reports, and/or at Performance Review. |
| | **1.2.9 Traffic signs regulations and general directions.** | Understanding and application of the provisions of the regulations | Be aware of the regulations and the broad areas which they cover. | Knowledge of the regulations and their application. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Regulations in relation to own area of responsibility. | Fully understand and apply the provisions of the regulations in relation to own area of responsibility, identify weaknesses in them and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, TMO's, short reports, and/or at Performance Review. |
| | **1.2.10 Local Authorities (Traffic Orders)(Procedures) Regulations 1996.** | Understanding and application of the provisions of the regulations | Be aware of the regulations and the broad areas which they cover. | Knowledge of the regulations and procedures. | Be able to apply the regulations under supervision. | Fully understand and apply the provisions of the Regulations in relation to own area of responsibility. | Fully understand and apply the provisions of the regulations in relation to own area of responsibility, identify weaknesses in them and contribute toward adressing these. | Evidence of personal involvement in applying the procedures within your work area, through correspondance, TMO's, short reports, and/or at Performance Review. |
| | **1.2.4. Environmental Protection Act** | Understanding and application of the provisions of the Environmental Protection Act, especially statutory nuisance and its application to the highway. | Be aware of the legislation and the broad areas which it covers. | Knowledge of the provisions of the Act, especially statutory nuisance and the difering roles of theEPA and highway authority. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.6 Town & Country Planning Act** | Undrstanding and application of the provisions of the Town and country planning Act, especially relating to provisions impacting on the highway and to Section 106. | Be aware of the legislation and the broad areas which it covers. | Knowledge of the Act, and how it affects TfL's activities. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.17 Planning applications** | Understand the requirements to make planning applications for highway works, and/or protecting TfLs interests in relation to 3rd party applications. | Be aware that planning consent can be required for TfL works and/or the impacts that 3rd party applications may have on the transport infustructure. | Have a knowledge of planning application procedures and the information reqiured. | Assist in the preparation of planning applications and/or responding to 3rd party applications under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **1.2.14. New Roads and Street Works Act** | Understanding and application of the provisions of the Act, especially notification processes. | Be aware of the legislation and the broad areas which it covers. | Knowledge of this Act and how it affects TfL's activities. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.12 Public Utilities procedures** | Track possession, electricity connection/disconnection, and utility diversion procedures. | Be aware of the need to: obtain track posessions when working in the vicinity of the railway; procure electrical supply / disconnection to street furniture etc; identify the location of / divert utilities apparatus. | Knowledge of track possession procedures, electricity C/D procedures, procedures for diverting utilities apparatus. | Be able to apply the procedures under supervision. | Fully understand and apply these procedures to own area of work. | | Evidence of personal involvement in applying these procedures within your work area, through correspondence, short reports, and/or at your Performance Management Review. (TPQ4 units 6.1, 7.1, 7.3) |
| | **1.2.11 Disability Discrimination Act** | Understanding and application of the provisions of the Act, especially provisions relating to accessability. | Be aware of the legislation and the broad areas which it covers. | Knowledge of this Act and how it affects TfL's activities especially in relation to thethose with a mobility difficulty and the visually impaired. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.8. Transport & Works Act** | Understanding and application of the provisions of the Act. | Be aware of the legislation and the broad areas which it covers. | Knowledge of this Act and how it affects TfL's activities especially in relation to major transport schemes. | Be able to apply the legislation under supervision. | Fully understand and apply the provisions of the Act in relation to own area of responsibility. | Fully understand and apply the provisions of the Act in relation to own area of responsibility, identify weaknesses in the legislation and contribute toward adressing these. | Evidence of personal involvement in applying the provisions of the act within your work area, through correspondance, short reports, and/or at Performance Review. |
| | **1.2.7 TfL Local Land charge procedures** | Understanding and application of TfLs procedures for responding to Local land charge enquiries. | Be aware of the procedure and the area which it covers. | Knowledge of Land charge procedures especially relating to matters of 'blight' and potential claims for loss or damages. | Be able to apply the procedures under supervision. | Fully understand and apply the procedures in relation to own area of responsibility. | | Evidence of personal involvement in applying the provisions of the procedures wiithin your work area, through correspondance, short reports, and/or at Performance Review. |
| **1.3 Health, Safety & Environment** | **1.3.1. TfL's HSE policy** | | Be aware of TfL's HSE policy | Know and understand TfL's HSE policy | Contribute to the management/implementation of TfL's HSE policy | Manage/implement TfL's HSE policy | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. (NTQ5 unit 5) (NTQ4 unit 5) (NTQ3 unit 4) |
| | **1.3.2. TfL's HSE management systems** | | Be aware of TfL's HSE management systems | Know and understand TfL's HSE management systems | Contribute to the implementation of TfL's HSE management systems | Take responsibility for TfL's HSE management systems | | |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **1.3.3 Health & Safety law, construction HSE law** | Safety Audits. | Be aware of the scope & procedures for TfL safety audits | Know about the scope and procedures of a Safety Audit. Understand the relevance and resourceing needs of safety audits and the various stages at which audits are carried out. Know the breadth of the requirements for each stage and the relevance of each safety audit. | Contribute to TfL safety audits | Carry out TfL safety audits | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. |
| | **1.3.4 Health & Safety law, construction HSE law** | Application of Health and Safety at work | Be aware of Health & Safety law, construction HSE law | Understand the responsibilities for health and safety matters which apply at different management and staff levels throughout the organisation and know how your own responsibilities need to be met both in and out of the office. Know how to respond in an emergency. | Be able under supervision to manage one's work responsibilities in accordance with H&S laws and best practice. | Be able to manage one's work responsibilities in accordance with H&S laws and best practice. | | Demonstrate your knowledge/competence through your work, through short reports and/or at your Performance Management Review. (NTQ5 unit 5) (NTQ4 unit 5) (NTQ3 unit3) |
| | **1.3.5 CDM regulations** | General | Be aware of the CDM regulations | Know abut the CDM regulations, and how they operate. | Be able under supervision to manage one's work responsibilities in accordance with the CDM regulations and best practice. | Be able to manage one's work responsibilities in accordance with the CDM regulations and best practice. | | Demonstrate your knowledge/competence through your work, through short reports and/or at your Performance Management Review. Relevant assessed courses include: NEBOSH CDM Cert (3 days) NEBOSH const. Cert (21 days) |
| | **1.3.6 CDM regulations** | CDM Regulations: Stakeholder responsibilities | Be aware of client responsibilities under CDM of clients, designers, contractors and CDM co-ordinators. | Know and understand responsibilities under CDM of clients, designers, contractors and CDM co-ordinators. | Under supervision, manage client/designer/contractor/ CDM coordinator responsibilities under CDM. | Manage client/designer/contractor/CDM coordinator responsibilities under CDM. | | Demonstrate your knowledge/competence through your work, through short reports and/or at your Performance Management Review. |

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|---|---|---|---|---|---|---|---|---|
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| **Domain 2 Transport & Travel Planning** | | | | | | | | |
| **2.1 Transport & Travel Planning** | **2.1.12 Development of Objectives** | Objectives | Be aware of the process for the development of strategies and their implied schemes. Be aware of the role that each stage contributes to the whole, its appropriate use and limitations. | Understand the manner in which the objectives of a strategy or scheme can be carried through the various stages of a study and reflected in the development of the options to be assessed. | To have assisted in and contributed to, the development of objectives of a strategy or a scheme at all stages through the development of options to scheme identification. | Be able to generate and develop objectives appropriate to the problem being addressed. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **2.1.13 Development of Targets** | Targets | Be aware of the process for the development of targets for objectives. Be aware of the limitations and caveats that may apply. | Understand the need for a translation of the objectives into 'targets' against which the options can be evaluated. | To have gained experience under supervision in the development of targets for different types of strategies and options | Be able to set targets appropriate to the strategy or scheme under consideration. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **2.1.14 Development of Strategy** | Strategy Development | Be aware of the process for the development of strategies and implied schemes, use of appraisal frameworks or other methods of comparing options, and the appropriate situations for their use. | Gain experience in the generation and development of strategy options, recognising the contributory role of problem identification and the possible role of the client, interested parties and the general public. | Experience, under supervision, in the generation and development of transport strategy options, recognising the contributory role of the client, other parties and the general public. | Be able to generate and develop transport strategy options and assess their suitability in addressing the objectives and targets. | | Records from at least two of the following strategy studies: Multi-modal strategy for corridor or region; Integrated transport strategy for an urban area; Route management strategy for a road corridor. |
| | **2.1.1 Policies & Plans** | National, London and local policies and of the plans of the public transport operators. | Be aware of all policies relevant to an area of work and how they relate together. Be aware of the background and historical development of the policies so that their purpose can be substantiated. | Understand the relevance of national, London and local policies and of the plans of the public transport operators in the development of these strategies. | To have gained experience in the development of policies including discussions with politicians and stakeholders | Be able to develop and set policies involving all relevant stakeholders and the political process | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. (NTQ5 unit6) (NTQ4 unit 2) (TPQ4 unit 12) (TPQ3 unit12) |
| | **2.1.15 Scheme development** | Scheme Development | Be aware of the process for the development of schemes, the use of different techniques and the need to involve stakeholders. | Understand the process for the development of schemes, different techniques, and able to identify stakeholder groups. | Experience, under supervision, in the development of deliverable schemes from transport planning options, recognising the need to resolve problems, the role of the client, other parties and the general public. | Experience in generation and development of planning options, and deliverable schemes from planning options, recognising the contributory role of problem identification and role of the client, other parties and the general public. | | Records from at least two of: New or modified highway design; New or modified junction design; Comprehensive traffic management. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **2.1.2 Modal choice** | Modal choice models. | Be aware of the role of a multi-mode mode and be able the need for such a model in a study. Be aware of the different approaches and number of modes needing to be modelled and the implied limitations of the approaches being considered. | Understand the basic structure of modal choice models and the ways in which the factors which affect modal choice decisions are incorporated into the modelling process. Understand the factors that affect mode choice, route planning and service operation in | Have experience the use of output from modal choice models including interpretation of the results against a consideration of the factors which affect modal choice decisions and the way they are incorporated into the modelling process. | Be able to specify, use and interpret the output from multi-mode models. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. (TPQ4 unit14) (TPQ3 unit 14) |
| | **2.1.3 Multi-modal studies** | Application of webTAG (Transport Analysis Guidance) (DEFRA) | Be aware of the process for the development of strategy options using GOMMMS and be aware of its limitations and appropriateness to the different types of options likely to be encountered. | Understand the assessment procedures set out in the DfT's Guidance on the Methodology for Multi-Modal Studies (GOMMMS) and the means by which each element of the recommended appraisal summary table should be assessed. | To have gained experience, under supervision, of the assessment procedures set out in the DfT's Guidance on the Methodology for Multi-Modal Studies (GOMMMS) and have experienced assessment of each element of the recommended appraisal summary table. | To be able to carry out a full GOMMMS assessment for different types of options. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. (TPQ4 unit14) (TPQ3 unit 14) |
| | **2.1.10 Growth factors** | Growth factors. | Be aware of the different approaches to growth factor derivation and the appropriateness of each approach to different situations and any consequent limitations. | Understand the options available for the production of growth factors for use in traffic, public transport or multi-modal studies and how these factors are used in the modelling process. Understand the effect of demand management strategies and the effect | To have gained experience under supervision of the development and use of growth factors in different situations. | Be able to specify and use appropriate approaches to growth factor derivation following consideration of relevant issues. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **2.1.4 Alternative transport systems** | Alternative public transport systems. | Be aware of the attributes of alternative public transport systems, and how their characteristics compare with travel by private car. | Understanding the attributes of alternative public transport systems, and how their characteristics compare with travel by private car. | Have undertaken, under supervision, the assessment of an alternative public transport system or service. | Be able to undertake an assessment of an alternative public transport system or service and make recommendations as a consequence. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. (TPQ4 unit14) (TPQ3 unit 14) |
| | **2.1.5 Route planning/bus types** | Bus planning | Be aware of the factors to be taken into consideration in the planning of bus routes and services. | Understand the factors to taken into consideration and know how to quantify them for the planning of bus routes and services. | Have undertaken, under supervision, the assessment of a new bus route and service. | Be able to plan bus routes and make recommendations as a consequence. | | Present records of your work showing planned bus routes. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **2.1.6 Operational assessment** | Assessment techniques and frameworks; performance indicators; and options. | Be aware of the techniques used to assess options, and the DfT New Approach to Appraisal. | Know how the impact of alternatives can be evaluated through framework assessment, aspects to include, and the principles of the prediction process. Understand the role of performance indicators and recognise the differences against framework assessment methods. Know what steps can be taken to reach a preferred solution. Know how to carry out an operational assessment of alternative options. Identify the resources required to support a new or improved service. | Under supervision, prepare a comparison of the operational assessment of public transport options. | Undertake an option assessment, demonstrating the selection of appropriate techniques, and evaluation of suitable criteria. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. Present records of solutions chosen, and of assistance given to clients. |
| | **2.1.11 Capacity** | The concept of capacity and factors influencing it in public transport modes and interchange facilities. | Be aware that transport facilities have a finite capacity and have an awareness of factors likely to affect capacity. | Understand the concept of capacity in relation to the highway networks, public transport and to parking provision. Know what factors influence these capacities, recognise the scope for influencing capacity and appreciate how to interpret over-capacity situations and the need to address shortfalls in capacity. | Under supervision apply the concept of capacity in the development of a transport based scheme. | Apply the concept of capacity in the development of a transport based scheme. Demonstrate which factors were varied in the development to optimise or balance capacity against an other criteria. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **2.1.7 Congestion charging/road user charging** | The principles of congestion and road user charging. | Be aware of the principles of congestion and road user charging. | Know the principles of congestion and road user charging, and how they are applied in London | Under supervision apply the principles of congestion and road user charging. | Apply the principles of congestion charging and road user charging. | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. |
| | **2.1.8 Development control** | Approval procedures for developments. | Be aware of the approval procedures for developments. | Know the procedures involved in gaining approval for developments that have transport implications. | Participate in the scrutiny of transport proposals for a planning application | Take responsibility for the scrutiny of transport proposals for a planning application | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. |
| | **2.1.9 Monitoring** | Monitoring in the planning process. | Be aware that the monitoring of traffic related to development can be important in the planning process. E.g. grampian conditions | Understand the role of monitoring in the planning process. | Assist in a monitoring exercise for a development proposal. | Undertake a monitoring exercise for a development proposal. | | Demonstrate your understanding through reference to your project work. Show evidence of how technical outcomes were evaluated, including examples of assessment reports. This may relate to the: impact of policy measures over a period of time or to the impact of a scheme through a Before & After study. |
| **2.2 Travel Demand Management** | **2.2.1 School travel plans** | Travel plans to encourage the use of sustainable modes for travel to and from schools. | Awareness of the impacts of School Travel Plans particularly on car usage, health and road safety. | Knowledge of process required to develop school travel plan including stakeholder engagement. | Assist in development of school travel plans. | Be able to prepare school travel plans | | Present records of completed and approved school travel plans. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **2.2.2 Business Travel Plans** | To understand the key objectives of the Workplace Travel Plans (WTP) | Awareness of the impacts of Workplace Travel Plans particularly on car usage, health and road safety. | To have a working knowledge of TfL Workplace Travel Plan Guidance | Assist in development of Workplace Travel Plans. | Be able to prepare workplace travel plans; Be able to assist in the recording and evaluation of completed travel plans. | | Demonstrate an understanding of the core components of a WTP. Be able to support the relationship managers in implementing Good Practice. Assess a completed WTP. |
| | **2.2.3 Car clubs** | Introduction of car clubs to reduce car ownership and use | Awareness of the benefits of introducing a car club. Awareness of the requirements for a successful car club. | Knowledge of the set up process including finance, legal requirements, operational requirements, parking needs and appropriate TROs | Assist in the development of a car club. | Co-ordinate the setting up of a car club. | | Present records of agreed car club schemes. |
| | **2.2.4 Monitor impact of Travel Plans** | Research and Monitoring of TDM outcomes | | To understand and be able to use the i-TRACE monitioring system | | Training and application of i-TRACE for either WTP or STP | | Use of i-TRACE to enter data on travel plan outputs and outcomes. |
| | **2.2.5 Development of a business case** | TfL criteria for the completion of a BCA | | To understand the essential criteria to complete a TDM project business case to TfL requirements | | To draft a TDM project buisness vase | | Completed business case |

| Competence Area | Competence Name | Description of Competence | Levels of Achievement of Competence | | | | | Assessment evidence required |
|---|---|---|---|---|---|---|---|---|
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| **Domain 3 Business Skills** | | | | | | | | |
| 3.1 Business planning | 3.1.1 Business process analysis | Production of a business plan. | Be aware of the use and benefits of preparing business plans for TfL activities. | Understand the various aspects involved in the production of a business plan for a project. Know how the financial details of a proposal are calculated. Understand the information and data requirements and analysis systems and processes to demonstrate | | Establish a business plan & marketing strategy | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. (NTQ5 unit 7) Submit completed business plan. |
| | 3.1.2 Sources of funding | | | Know about funding sources, and how they are accessed. | | Plan transport project funding | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. (NTQ4 unit 23) (TPQ4 unit 6.4) |
| | 3.1.3 Risk analysis (Monte Carlo) | | | | | Be able to use risk analysis tools and techniques. | | Present records of completed risk analyses. |
| | 3.1.4 Capital, maintenance & operating costs | Capital, maintenance and operating costs. | Awareness of differences between capital, maintenance and operating costs. | Understand the basic techniques used in the calculation of capital, maintenance and operating costs. Know the sources of data for the costs of these items in the case of major and minor schemes. Demonstrate an appreciation of the role of price bases, price | Assist in the calculation of scheme costs | Use basic techniques to calculate scheme costs. Use appropriate methods to discount costs over the life of a scheme | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | 3.1.9 Comparison Costs & Benefits | Comparison of scheme costs and scheme benefits. | Be aware of the techniques and tools available for the comparison of scheme cost and benefits. Be aware of where and how costs and benefits are likely to accrue and how they are evaluated | Understand the different methods of comparing scheme costs and scheme benefits and the circumstances under which each is appropriate. | Under direction be able to undertake an appropriate cost benefit analysis for a scheme . | Select appropriate techniques and tools for the evaluation and comparison scheme options. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | 3.1.10 Non-standard evaluation | Non-standard evaluation techniques. | Be aware of the limitations of standard evaluation techniques and the availability of non-standard processes. | Know what factors to incorporate and how to use these factors in the evaluation of a scheme which does not lend itself to the use of standard evaluation packages. | Under direction be able to undertake an appropriate evaluation using non-standard techniques. | Select an appropriate non-standard methodology and apply it to a scheme evaluation. | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. |
| | 3.1.11 Economic analysis | Financial and economic analysis and assessment. | | Know how to carry out a financial analysis and understand the differences between financial and economic assessments. | | | | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **3.1.5 Prepare monthly forecasts** | Capital and revenue budgets | Be aware of the use of budgets in the financial management of TfL activities. | Know what information is required to formulate a monthly budget forecast and how to present the information. | Prepare draft monthly capital and revenue budgets. | Be able to prepare and agree monthly capital and revenue budgets. | | Present records of agreed budgets. |
| | **3.1.6 Manage budget reviews** | Review of Budgets | Be aware of the benefits of budget reviews | Know the structure of the budgets and elements of the budget interact. | | Be able to manage budgets reviews. | | Records of budget reviews that you have managed. |
| | **3.1.7 TUBA, COBA ? put in economic assessment?** | TUBA, COBA and equivalent spreadsheet methodology. | | Know how to check the logic of your results ' and be able to adapt the program output, for example, in the evaluation of phased solutions. | | Be able to evaluate the user costs for a multi-modal or 'highways-only' proposal by means of the Department for Transport's programs, TUBA and/or COBA, or by use of an equivalent spreadsheet method. | | Present records of agreed costs of such proposals. |
| | **3.1.8 LIPs, BSPs** | | | | | | | |
| **3.2 Procurement, contacts & commercial** | **3.2.1 Procurement strategy, tools & procedures** | | | Know how these procedures operate. | | Be able to procure good & services by use of these procedures. | | Present records of goods & services procured. (NTQ5 unit 10) (NTQ4 units 12, 13, 14, 15, 16) (NTQ3 units 7,8) (TPQ4 unit 4.1) |
| | **3.2.2 Procurement relationships** | | | Know the principles and purposes of these relationships. | | Be able to develop and maintain productive procurement relationships. | | Present records of productive procurement relationships. (NTQ5 unit 4) |
| | **3.2.3 Risk management** | | | Know the principles of commercial risk management. | | Be able to apply the principles of commercial risk management. | | Present records of commercial risk management. (NTQ5 unit 5.2) |
| | **3.2.4 Manage & process supplier invoices** | Financial control and project performance monitoring. | | Understand your Directorate's systems for financial control and project performance monitoring. Know the relevance of time sheets, cost and project summary sheets. | | Be able to manage supplier invoices and process them for payment. | | Present records of invoices passed and payments made. |
| | **3.2.5 Highway Maintenance & Works Contact** | | | | | | | |
| | **3.2.6 Contract form knowledge & drafting** | | | Know about the principles of contract drafting. | | Be able to draft contracts. | | Present records of contracts that you have drafted. (NTQ4 unit 15) (TPQ4 unit 4.2) |
| | **3.2.7 Issue penalty points and remedial notices** | | | | | | | |

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|---|---|---|---|---|---|---|---|---|
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| | **3.2.8 Measurement & valuation** | | | Know about relevant methods of measurement and how to prepare valuations. | | Be able to apply methods of measurement in order to prepare valuations. | | Present records of valuations that you have prepared. (NTQ4 unit 24) |
| | **3.2.9 Check monthly payment applications** | | | Know how to check monthly payment applications. | | Be able to check monthly payment applications. | | Present records of payment applications that you have checked. (NTQ4 unit 24) |
| | **3.2.10 Claims** | Contracts and claims management | | Know the principles of contractual claims. | | Be able to prepare and agree contractual claims. | | Present records of contractual claims that you have prepared and agreed. (NTQ5 unit 15) (NTQ4 unit 24) |
| | **3.2.11 Manage third party claims against TfL** | | | Know how to deal with claims made against TfL. | | Be able to deal with claims made against TfL. | | Present records of claims against TfL that you have settled. (NTQ5 unit 13) (NTQ4 unit 19) |

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| **Domain 4 Surveys & Communication** | | | | | | | | |
| **4.1 Engineering surveys** | **4.1.1 Topographical surveys** | Carry out topographical surveys | Be aware of the principles of topographical surveys. | Understand the principles of topographical surveys. | Be able to contribute to topographical surveys. | Be able to carry out topographical surveys. | | Present records of topographical surveys that you have carried out. |
| | **4.1.2 Geotechnical surveys** | Carry out geotechnical surveys | Be aware of the principles of geotechnical surveys. | Understand the principles of geotechnical surveys. | Be able to contribute to geotechnical surveys. | Be able to carry out geotechnical surveys. | | Present records of geotechnical surveys that you have carried out. |
| **4.2 Traffic surveys** | **4.2.1 Traffic data collection** | Plan and specify traffic volume surveys. | Be aware of the various techniques and their limitations, and be able to describe the situations where they might be used. | Understand the technique, how it is applied and the constraints and criteria affecting its use. Understand the need for good quality data and the reliability of the different methods of data collection. | Contribute to planning and specifying surveys. | Specify types of traffic count surveys needed to specific study requirements; plan and organise surveys. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. (NTQ4 unit 11) (NTQ3 unit1) (TPQ4 unit 8.2) (NTQ4 unit 9) (TPQ3 unit 8) |
| | **4.2.2 Postal & destination surveys** | Identify the need for, plan and specify questionnaire surveys | Be aware of the various techniques and be able to describe the situations where they might be used. Be aware of the limitations of each technique and the resulting data. Have taken part in a survey. | Understand the technique, how it is applied and the constraints and criteria affecting its use. Understand the Data Protection Act and when it will apply to survey data. | Has been involved in specifying and planning surveys and could reproduce a similar data collection process | Specify techniques, plan and organise surveys, to meet specific study requirements without close supervision. Ability to draw up customised survey forms and questionnaires. | | Present records of postal questionnaires than you have carried out. (NTQ4 unit 11) (NTQ3 unit1) (TPQ4 unit 8.2) (TPQ3 unit 8) |
| | **4.2.3 Roadside & household interviews** | Identify the need for plan and specify road side interview surveys | Be aware of the various techniques and be able to describe the situations where they might be used. Be aware of the limitations of each technique and the resulting data. Have taken part in a survey. | Understand the principles of roadside & household interviews. Understand the technique, how it is applied and the constraints and criteria affecting its use. Understand the Data Protection Act and when it will apply to survey data. | Has been involved in specifying and planning surveys and could reproduce a similar data collection process | Be able to carry out roadside & household interviews. Specify techniques, plan and organise surveys, to meet specific study requirements without close supervision. Ability to draw up customised survey forms and questionnaires. | | Present records of roadside & household interviews that you have carried out. (NTQ4 unit 11) (NTQ3 unit1) (TPQ4 unit 8.2) (TPQ3 unit 8) |
| | **4.2.4 Preference & intention surveys** | Identify the need for, plan and specify preference and intention surveys | Be aware of the various techniques and be able to describe the situations where they might be used. Be aware of the limitations of each technique and the resulting data. | Understand the way in which stated preference surveys are structured and conducted and how the results from such surveys are used in modelling work. Understand the Data Protection Act and when it will apply to survey data. | Has been involved in specifying and planning surveys and could reproduce a similar data collection process | Specify techniques, plan and organise surveys, to meet specific study requirements without close supervision. Ability to draw up customised survey forms and questionnaires. | | Present records of preference surveys that you have carried out. (NTQ4 unit 11) (NTQ3 unit1) (TPQ4 unit 8.2) (TPQ3 unit 8) |
| | **4.2.5 Report on traffic surveys** | Process, analyse and interpret traffic survey data | Be aware of the various techniques and their limitations, and be able to describe the situations where they might be used. | Understand the way the different data sets complement each other and how the different approaches to data collection should be used. | Contribute to planning and organising surveys, and interpreting results. | Specify techniques, plan and organise surveys, to meet specific study requirements, and interpret results. | Undertake survey design based on data definition and its usage, data capture methodology, understanding of sampling requirements, timescales, tender process, bid selection, survey finalisation, public relations, contractor supervision, and monitoring. | Present records of traffic surveys to which you have contributed; data that you havre processed; and situations analysed with problems identified. (NTQ4 unit 11) (NTQ3 unit 1) (TPQ4 unit 8.2) (TPQ3 unit 8) |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **4.2.6 Journey time and moving observer surveys** | Identify the need for, plan and specify Journey time surveys | Be aware of the various techniques and be able to describe the situations where they might be used. Be aware of the limitations of each technique and the resulting data. | Understand the technique, how it is applied and the constraints and criteria affecting its use. | Has been involved in specifying and planning surveys and could reproduce a similar data collection process | Specify techniques, plan and organise surveys, to meet specific study requirements without close supervision. Ability to draw up customised survey forms and questionnaires. | | |
| | **4.2.9 Speed surveys – spot speeds/radar etc** | Identify the need for, plan and specify speed surveys | Be aware of the various techniques and be able to describe the situations where they might be used. Be aware of the limitations of each technique and the resulting data. | Understand the technique, how it is applied and the constraints and criteria affecting its use. | Has been involved in specifying and planning surveys and could reproduce a similar data collection process | Specify techniques, plan and organise surveys, to meet specific study requirements without close supervision. Ability to draw up customised survey forms and questionnaires | | |
| | **4.2.7 Attitudinal surveys, market research** | Identify the need for, plan and specify attitudinal surveys and market research | Be aware of the various techniques and be able to describe the situations where they might be used. Be aware of the limitations of each technique and the resulting data. | Understand the technique, how it is applied and the constraints and criteria affecting its use. Understand the Data Protection Act and when it will apply to survey data. | Has been involved in specifying and planning surveys and could reproduce a similar data collection process | Specify techniques, plan and organise surveys, to meet specific study requirements without close supervision. Ability to draw up customised survey forms. | | |
| | **4.2.8 Junction surveys** | Identify the need for, plan and specify queue length, delays, saturation flow surveys | Be aware of the various techniques and be able to describe the situations where they might be used. Be aware of the limitations of each technique and the resulting data. | Understand the technique, how it is applied and the constraints and criteria affecting its use. | Has been involved in specifying and planning surveys and could reproduce a similar data collection process | Specify techniques, plan and organise surveys, to meet specific study requirements without close supervision. Ability to draw up customised survey forms. | | |
| **4.3 Consultation** | **4.3.1 Manage enquiries from the public** | Manage enquiries from the public | Be aware of the need to keep the public informed and the benefits that should arise. | Know how to manage enquiries from the public and the processes to be followed including departmental instructions on how enquiries should be handled and by whom. | Deal with enquiries from the public after clearance from supervisor/manager. | Be able to manage enquiries from the public. | | Present records of enquiries that you have managed. |
| | **4.3.2 Public consultation** | Carry out a public consultation exercise | Be aware of public consultations and their purposes. | Understand the principles of public consultation, and the various methods for consulting with the general public or special interest groups. | Contribute to public consultations. | Ability to specify and organise a public consultation event to meet study needs without supervision. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. Present records of your contributions. (TPQ4 unit 11) (TPQ3 unit 11) |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **4.3.3 Prepare & present technical reports** | Prepare and present the results of a public consultation | Be acquainted with the need to carry out public consultation in support of transport proposals and the approaches used. | Understand the need for consultation reports, both written and verbal, and the different techniques available for presenting results. | Have taken part in in a public consultation event and have analysed the results and produced a report under supervision. | Be able to prepare & present technical study reports without supervision tailored to meet target audience. | | Present technical reports that you have prepared.<br><br>Management review, formal feedback and achievement of desired outcomes - i.e. stakeholder buy-in. |
| | **4.3.4 Media Liaison** | Manage media involvement in a consultation event | Be acquainted with the need and value of media involvement in consultation work and the consequences of this. Be aware of the different media opportunities and the benefits of their use in different circumstances and the political considerations. | Understand the information requirements of the different forms of media. Understanding political considerations when liaising with the media. | Have liaised with the media on a scheme or study and prepared a media response under supervision. | Have involved the media in a consultation event and be able to prepare a media response on a specific issue without supervision. | | Demonstrate your understanding through reports of public events that you have attended. |
| **4.4 Public Enquiries** | **4.4.1 Public Inquiries** | Prepare & give evidence to public inquiries | Be aware of the role of public inquiries in the planning system. | Know the general format of the Public Inquiry system and attend an inquiry into a transport improvement scheme or for a planning application which has significant transport implications.Understand the role of the public at the decision-making stage of a proposal for transport system improvements. | Assist in the preparation of evidence for an expert witness. Attend the PI and support the witness | Act as an expert witness at a public inquiry. | | Attend public meetings and public consultation exhibitions associated with a proposed scheme. Demonstrate your understanding through reports of public events that you have attended. (TPQ4 unit 11.4) |
| **4.5 Performance Monitoring** | **4.5.1 Performance indicators, outputs & targets** | Methods of measuring performance | Be aware of the use of performance monitoring and how it can effect service provision and funding | Understand the principles of these indicators & tools. | Assist with work using performance indicators. | Be able to apply these indicators & tools. Demonstrate an understanding of the factors that affect the measures of performance. | | Present records of analyses that you have carried out. |
| | **4.5.2 KPIs, Best Value** | Application of KPIs (e.g. business, HSE, societal) to achieve best value | Be aware of the use of best value indicators and how the are used in Local Government. | Understand the principles of these indicators & tools. | Assist in work associated with best value indicators. | Be able to apply these indicators & tools. | | Present records of analyses that you have carried out. |
| | **4.5.3 Reporting: Scorecards & dashboards** | Methods of reporting | Be aware of the use of Scorecards, balanced scorecards, dashboards | Understand the principles of these indicators & tools. | Assist in work associated with reporting performance. | Be able to apply these indicators & tools. | | Present records of analyses that you have carried out. |

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| **Domain 5 Urban Design** | | | | | | | | |
| **5.1 Urban & landscape design** | **5.1.1 Understand the principles of good design** | There are 7 main principles as set out in a document called By Design, Staff should know what these are and how they relate to TfL projects | Know that these principles exist and that they are relevant for most schemes and places | Know how to assess if a scheme designed by others represents good design. Know how to require good design within projects | Under supervision, be able to prepare, assess or require good urban and landscape designs. | Be able to prepare, assess or require good urban and landscape designs. | Be able to design schemes themselves or suggest improvements to existing proposals. | Present records of urban and landscape designs that you have prepared, required or assessed. (NTQ4 units 20,21) (NTQ3 units 12,13) (TPQ4 unit 13) TPQ3 unit 13) |
| | **5.1.2 Policy objectives of good design** | Good design can help create safer, more inclusive and sustainable places. These objectives are set out in London plan, TfL and national policy. Staff would know what these objectives are, and how best to meet them. | Awareness of where relevant objectives and polices are set down, how to interpret them and ensure they are adhered to. | Knowledge of key policies and objectives. Understanding of how these relate to TfL projects. Know what the policies say in general terms and where they can be found. | Under supervision, be able to identify key policies and objectives and ensure their work is based on these. | Be able to identify key policies and objectives and ensure their work is based on these. | In-depth knowledge of policies, and the ability to help monitor and amend these if needed. | Explain key design policies and explain how they relate to individuals job. |
| | **5.1.3 Ensuring good design as a client** | Understand how to ensure design quality within Tfl systems and procedures. | Know what PERRs is and when it might be used | Understand how to use PERRS within project management and cost benefit analysis proposals | Under supervision, be able to apply PERRS on all relevant projects. | Be able to apply PERRS on all relevant projects. | Be able to evaluate the usefulness of PERRS and advise on its use. | Provide examples of here PERRs has been used. |
| **5.2 Application of TfL's streetscape guidance (incl exceptions procedures)** | **5.2.1 Streetscape guidance** | | | Know how to apply streetscape guidance amd exceptions procedures. | | Be able to apply streetscape guidance. | | Show how you applied this guidance in your designs. |

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|---|---|---|---|---|---|---|---|---|
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| **Domain 6 Environmental Design** | | | | | | | | |
| **6.1. Environmental and sustainability policy** | **6.1.1 Environmental and sustainability policy** | EU, national, Mayoral & TfL environmental and sustainability policies | be aware of the importance of these policies and the need to consider the impact of all TfL projects and operations. | Be familiar with Mayoral and TfL policies, including all Mayoral environmental strategies, and understand how these policies are translated into TfL's projects & operations. Understand environmental legislation and when to consult TfL's legal, planning and environmental professionals. | Be qualified to advise on environmental and wider sustainabe issues under supervision. Note: Engineers/PMs are expected to be competent to K level. | Be qualified to advise on environmental and wider sustainabe issues, and able to supervise others.Note: this competence applies to Environmental specialists | Be able to develop TfL policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. Note: this competence applies to Environmental Specialists | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |
| **6.2. Environmental assessment** | **6.2.1 Environmental assessment** | Environmental Assessment Procedures, including EIA (statutory & non-stat), SEA (and how it fits into Sustainability Appraisal | Be aware of the need for considering environmental impacts of TfL operations and projects and statutory requirements. | Be aware of the different procedures and when statutory requirements apply. Know and understand TfL's ACORN guidance regarding EIA. | Be able to support the management of project EIAs. | Be able to manage project EIAs. | Be able to develop TfL's policy, strategy and standard procedures, troubleshgoot across TfL and act as expert witness at PI. Note: this competence applies to Environmental Specialists | Demonstrate your knowledge through your work, through short reports and/or at your Performance Management Review. (NTQ4 unit 18) (NTQ3 unit 11) (TPQ4 unit 7.4) (TPQ3 unit 7.4) |
| **6.3. Environmental factors affecting transport design** | **6.3.1 Biodiversity** | Take account of biodiversity when carrying out transport designs | Be aware of the importance of this environmental factor and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on this factor. Understand environmental law relating to this factor, and the need to consult TfL's environmental professionals | Be qualified to advise on this environmental factor, under supervision. | Be qualified to advise on this environmental factor, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.2. Climatic factors (including energy)** | Take account of climatic factors when carrying out transport designs | Be aware of the importance of these environmental factors and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on these factors. Understand environmental law relating to these factors, and the need to consult TfL environmental professionals | Be qualified to advise on these environmental factors, under supervision. | Be qualified to advise on these environmental factors, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.3. Cultural heritage** | Take account of cultural heritage factors when carrying out transport designs | Be aware of the importance of this environmental factor and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on this factor. Understand environmental law relating to this factor, and the need to consult TfL's environmental professionals | Be qualified to advise on this environmental factor, under supervision. | Be qualified to advise on this environmental factor, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.4 Landscape & Townscape** | Take account of landscape & townscape factors when carrying out transport designs | Be aware of the importance of these environmental factors and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on these factors. Understand environmental law relating to these factors, and the need to consult TfL's environmental professionals | Be qualified to advise on these environmental factors, under supervision. | Be qualified to advise on these environmental factors, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **6.3.5 Material assets** | Take account of material asset factors when carrying out transport designs | Be aware of the importance of these environmental factors and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on these factors. Understand environmental law relating to these factors, and the need to consult TfL's environmental professionals | Be qualified to advise on these environmental factors, under supervision. | Be qualified to advise on these environmental factors, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.6. Air quality** | Take account of air quality factors when carrying out transport designs | Be aware of the importance of this environmental factor and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on this factor. Understand environmental law relating to this factor, and the need to consult TfL's environmental professionals | Be qualified to advise on this environmental factor, under supervision. | Be qualified to advise on this environmental factor, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.7. Noise & vibration** | Take account of noise & vibration factors when carrying out transport designs | Be aware of the importance of these environmental factors and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on these factors. Understand environmental law relating to these factors, and the need to consult TfL's environmental professionals | Be qualified to advise on these environmental factors, under supervision. | Be qualified to advise on these environmental factors, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.8. Population & human health** | Take account of population & human health factors when carrying out transport designs | Be aware of the importance of these environmental factors and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on these factors. Understand environmental law relating to these factors, and the need to consult TfL's environmental professionals | Be qualified to advise on these environmental factors, under supervision. | Be qualified to advise on these environmental factors, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.9. Soils** | Take account of soils factors when carrying out transport designs | Be aware of the importance of these environmental factors and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on these factors. Understand environmental law relating to these factors, and the need to consult TfL's environmental professionals | Be qualified to advise on these environmental factors, under supervision. | Be qualified to advise on these environmental factors, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |
| | **6.3.10 Water** | Take account of water factors when carrying out transport designs | Be aware of the importance of these environmental factors and the need to consider the impact of all TfL projects and operations on it. | Be familiar with Mayoral and TfL policies, including relevant Mayoral environmental strategies, and understand how TfL's projects & operations impact on these factors. Understand environmental law relating to these factors, and the need to consult TfL's environmental professionals | Be qualified to advise on these environmental factors, under supervision. | Be qualified to advise on these environmental factors, and be able to supervise others. | Be able to develop TfL's policy, strategy and standard procedures, troubleshoot across TfL and act as expert witness at PI. | |

| Competence Area | Competence Name | Description of Competence | Levels of Achievement of Competence | | | | | Assessment evidence required |
|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| **Domain 7. Traffic design** | | | | | | | | |
| **7.1. Traffic schemes** | **7.1.1 Design schemes** | Devise engineering schemes to improve the flow of motorised traffic. | Be aware of the type of schemes that will affect the flow of traffic. | Know how traffic engineering measures and their interaction affect the flow of traffic and how they can be used to solve identified problems. | Assist in the development of traffic engineering schemes to reduce congestion and improve the throughput of traffic. | Select appropriate engineering measures to reduce congestion and improve the throughput of traffic. | | Present records of traffic schemes that you have designed. NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **7.1.2 Speed limits** | Determine and apply speed limits. | Be aware of the factors involved in the selection of speed limits and the effects of changes in speed limit. | Know how to apply speed limits. | Under supervision apply speed limits | Be able to apply speed limits. | | Present records of speed limits that you have applied. |
| | **7.1.3 Junctions – layout, design, operation** | Design appropriate junctions using standard software tools (ARCADY PICADY LINSIG TRANSYT | Be aware of the types of junction control available a and the relative advantages and disadvantages of each type. | Know how to optimise a junction layout balancing the demands of user groups. Know how to input data, run the programs, carry out checks, and interpret the resulting output. | Under supervision design and test junction designs | Be able to select appropriate junction control methods. Be able to design road junctions. Be able to use standard programs for assessment of the operational performance of various road junction arrangements. | | Present records of road junctions that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **7.1.4 Sign design & marking (TSRGD)** | Design signs and lines for inclusion in traffic engineering schemes | Be aware of the part signs and lines play in traffic engineering schemes and the regulations that control their use and enforcement | Understand the use of the Traffic Signs Manual and the Traffic Signs Regulations and the standard sources of design parameters for the parking and manoeuvring of vehicles. Understanding the application of Traffic Orders for signing, road markings and on-street parking and the form which such orders take. Know how to design signs and markings. | Under supervision apply the regulations and other information to design signing schemes and take out appropriate orders | Be able to design signs and markings. | | Present records of signs and markings that you have designed. |
| | **7.1.5 Traffic calming schemes** | Design schemes that will restrict traffic speeds | Be aware of engineering measures that control vehicle speeds | Understand the techniques used to control traffic speeds by physical means and how they can be combined to form a coherent traffic calming scheme. | Under supervision contribute to the design of a traffic calming scheme | Be able to design effective traffic calming schemes | | Present records of traffic calming schemes that you have designed. (NTQ units 20,21) (NTQ3 units 12,13) |
| | **7.1.6 Movement bans** | Implement movement bans | Be aware of the use of movement bans and their likely impacts | Know how to evaluate the impact of a movement and the actions required to restrict movements e.g. TROs | Under supervision evaluate the impact of a movement ban and the actions required to restrict movements e.g. TROs | Evaluate the impact of a movement ban and the actions required to restrict movements e.g. TROs | | |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **7.1.7 Cycles & motorcycles** | Design facilities for cycle and motorcycles | Be aware of the needs of riders and the features that can assist them. | Have an understanding of the needs of riders and the features that can assist them and how they can be provided within traffic engineering schemes. | Under supervision be able to produce designs for cycles & motorcycles. | Be able to produce designs for cycles & motorcycles. | | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| **7.2. Pedestrians /disabled** | **7.2.1 Designing for pedestrians** | | Awareness of what is needed to design for pedestrians, such as tools, guidance and dimensions (or where to find out more). | Have a general understanding of the needs of pedestrians within street design | Be able to produce designs for pedestrians, under supervision. | Be able to produce designs for pedestrians. | Each individual is likely to differ. Examples might include; able to train others, able to troubleshoot across the organisation, able to improve organisational performance, develops TfL policy, strategy or standard procedures. | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **7.2.2 Pedestrian crossings** | | Awareness of what is needed to design for pedestrians, such as tools, guidance and dimensions. | Have a general understanding of the needs of pedestrians, which includes disabled people, within street design | Be able to produce designs for pedestrians, under supervision. | Be able to produce designs for pedestrian crossings, with the ability to adapt the designs where needed in different circumstances. | Each individual is likely to differ. Examples might include; able to train others, able to troubleshoot across the organisation, able to improve organisational performance, develops TfL policy, strategy or standard procedures. | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **7.2.3 Facilities for the disabled** | | Awareness of what is needed to design for disabled people, such as tools, guidance and dimensions (or where to find out more). | Have a general understanding of the needs of pedestrians, which includes disabled people, within street design | Be able to produce designs for disabled people, under supervision. | Be able to design facilities for disabled people. | Each individual is likely to differ. Examples might include; able to train others, able to troubleshoot across the organisation, able to improve organisational performance, develops TfL policy, strategy or standard procedures. | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **7.2.4 Disability audit** | | Awareness of what is needed to cater for disabled people, such as tools, guidance and dimensions. | Know the main design areas and recommended practice. Types of infrastructure and facilities that are needed in different situations, including crossings (both controlled and uncontrolled), public transport waiting areas and interchanges, and footway design | Be able to produce designs for disabled people, under supervision. | Be able to design facilities for disabled people, and have an awareness of what is needed to cater for disabled people accurately. | Each individual is likely to differ. Examples might include; able to train others, able to troubleshoot across the organisation, able to improve organisational performance, develops TfL policy, strategy or standard procedures. | (NTQ4 units 20,21) (NTQ3 units 12,13) |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **7.2.5 Pedestrian Environment Review Software** | | Awareness of what is needed to design for pedestrians, such as tools, guidance and dimensions. | Know the main design areas and recommended practice. Types of infrastructure and facilities that are needed in different situations, including crossings (both controlled and uncontrolled), and footway design, etc. | Be able to audit environment for pedestrians, under supervision. | Be able to design facilities for pedestrians, including disabled people, and have an awareness of what is needed to cater for all types of pedestrians accurately. | Each individual is likely to differ. Examples might include; able to train others, able to troubleshoot across the organisation, able to improve organisational performance, develops TfL policy, strategy or standard procedures. | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| **7.3 Cycles** | **7.3.1 Designing for cyclists overview** | General background on cyclists needs within streets | Be aware of the needs of cyclists within street design. | Have a general understanding of the needs of cyclists within street design, including routes, access and parking | Assist in the development of schemes that are sympathetic to the needs of cyclists. | Develop schemes that are sympathetic to the needs of cyclists. | | LCDS 1 (Overview for managers, designers and others involved in infrastructure design) |
| | **7.3.2 Designing for cyclists procedures** | Knowledge of the procedures and processes in cycle infrastructure design | Be aware of the procedures and processes in cycle infrastructure design. | Knowledge of stages in the design of cycling infrastructure including the CRISP design procedure. Know the main design areas and recommended practice. Types of infrastructure and facilities that are needed in different situations, including tracks, shared access | Assist in the development of schemes that include cycle infrastructure. | Develop schemes that include cycle infrastructure. | | LCDS 2 ( Introduction for planners, engineers and similar designers involved in design of streets that are used by cyclists) |
| | **7.3.4. On carriageway facilities** | Specialist understanding of on-carriageway cycle facilities | Be aware of the role of on carriageway facilities for cyclists. | Knowledge of the design requirements of on carriageway cycling routes and facilities, including lanes, ASLs, traffic calming measures | Assist in selection of cycle facilities and assist in the design. | Ability to design and judge best option for on-carriageway cycling routes and facilities, including lanes, ASLs, traffic calming measures | | Test/assessment |
| | **7.3.5. Off carriageway facilities** | Specialist understanding of off-carriageway cycling facilities | Be aware of the role of off-carriageway cycling facilities. | Knowledge of the design requirements for off carriageway cycling facilities including cycle tracks, shared-use paths, cycle crossings of all types including Toucans | Assist in the selection and design of off-carriageway facilities including cycle tracks, shared-use paths, cycle crossings of all types including Toucans | Ability to design and judge the best option for off-carriageway cycling routes and facilities, including cycle tracks, shared-use paths, cycle crossings of all types including Toucans | | Test/assessment |
| | **7.3.6. Legal issues** | Cycle legal issues including enforcement | Be aware of the legal and enforcement issues associated with cycling facilities. | Understand legal cycling design and enforcement issues, including: Shared-use, HAs65 Notices, Cycle Tracks Act, TROs, etc | Assist in the application of appropriate TROs or other legal processes. | Demonstrate the application of appropriate TROs or other legal processes. | | |

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| | **7.3.7. Cycle auditing** | Cycle and NMU auditing | Be aware of the use of cycle and NMU auditing | Understand the auditing process and who is responsible for carrying out the audit. | Assist in an NMU or cycle audit. | Ability to carry out systematic cycle and non-motorised user audits including the identification of problems for cyclists | | Test/assessment |
| | **7.3.8 Catering for cyclists** | Parking | Be aware of the need for cycle parking and the forms of parking facilities available. | Know the design requirements for cycle parking facilities. | Assist in the design of cycle parking facilities | Ability to design on-street cycle parking and know options for town centre, station, business and residential parking | | Test/assessment |
| **7.4 Buses** | **7.4.1 Designing for buses & service vehicles** | Design schemes that accommodate buses and service vehicles. Design specific bus facilities. | Be aware of the needs of bus passengers and how bus facilities are incorporated into the street. | Know the physical and operational requirements of buses and service vehicles. | Under supervision be able to design bus facilities and to accommodate buses within other schemes | | | |
| | **7.4.2 Bus priority: Bus lanes: SVD** | Design schemes that give priority to buses. | Be aware of physical measures that can be used to give priority to buses eg bus lanes. Be aware of vehicle detection technologies for bus priority (Selective Vehicle detection and automatic vehicle location) | Know the requirements for the layout, development and implementation of physical bus priority measures. | Under supervision design a physical bus priority measures. | Design a physical bus priority measure. | | |
| | **7.4.3 Stops/controls** | Design bus stops | Be aware of the requirements of vehicles and passengers at bus stops | Know the requirements of vehicles and passengers at bus stops in a variety of situations. This includes location of stops, layout of bus bays, borders, requirements for bendy buses etc | Under supervision develop appropriate bus stop designs | Develop and design appropriate bus stop designs. | | |
| | **7.4.4 Bus shelters** | Locate and design appropriate bus shelters | Be aware of the factors that affect the location and design of bus shelters e.g. Number of passengers, footway widths, aesthetics, bus stop locations etc | Know how to select location and design of bus shelters | Under supervision develop appropriate bus shelter designs | Develop appropriate bus shelter designs | | |
| **7.5 Parking** | **7.5.1 Parking design** | Design parking facilities and parking controls | Be aware of the factors that affect the location and layout af parking facilities and the use of parking controls | Understand the factors that affect the location and layout of parking facilities. Understand the appropriate standards and policies for the design and implementation of parking facilities. Understand the requirements for the use of TROs | Under supervision develop and design parking facilities and parking control regimes. | Develop and design parking facilities and parking control regimes. | | |

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| | **7.5.2 Parking controls: Parkmap** | | | | | | | |
| | **7.5.3 Enforcement, wardens, CCTV** | Ensuring compliance with the provisions of TMOs | Awareness of the need to build in enforcement to the process. | Understanding of the various enforcement options available under criminal or civil powers together with their costs and benefits. | Able, under supervision, to assess the requirements for and impact of enforcement and to build into the project plan. | Able to develop and secure an enforcement regime to secure an acceptable level of compliance with any schemes as part of implementation. | | |
| | **7.5.4 Loading bays** | | | | | | | |
| **7.6 Road Safety** | **7.6.1 Road safety engineering** | Accident investigation and prevention techniques. | Awareness of the benefits, in terms of casualty reductions, road safety engineering can deliver and have a board understanding of the principles involved. | Understanding of road safety measures and their effectiveness in different situations. Also need an understanding of the effects on different road users, plus knowing how to interpret casualty data and identify "high risk" sites. | | Ability to identify "high risk" sites and the most appropriate measures. Ability to assess the effectiveness of the measures on different road user types and in different conditions (e.g. wet roads at night, etc.) | | Check the effectiveness of schemes, using the TADS system which compares casualties "before" & "after". |
| | **7.6.2 Road Safety Audit (RSA)** | Audit of road schemes to develop designs with minimum impact on road safety. | Awareness of the benefits of road safety audit. Awareness of the stages of design at which RSA should be carried out. Awareness of procedures for commissioning an RSA. | Understanding the road safety audit process. Knowledge of appropriate RSA standards and guidelines. !0 days formal road safety training (RoSPA or equivalent) | Act as RSA team observer. | Two years road safety engineering experience and five audits as an observer to operate as an audit team member. Four years road safety engineering experience plus experience as a team member to operate as a team leader. Two days road safety related CPD | | Certification of 10 days formal training. And on going CPD. Audit reports as observer and team member. |
| | **7.6.3 Education, training & publicity for RSOs** | | | Understanding of education, training & publicity measures and their effectiveness in different situations and with different groups. Also need an understanding of the effects on different road users. | | Ability to identify "high risk" road user groups and the most appropriate measures to reduce their risk. Ability to assess the effectiveness of the measures on different road user types. Design programmes of road safety education, training & publicity to maximise casualty reductions from the budget. | | Difficult to assess quantitively, but look at casualty reductions over time; especially for the road user groups targeted in campaigns. Feed back and focus groups can be used, but at a cost that has to be included in the original initiative budget. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| 7.7. Freight | 7.7.1 Loading/unloading; servicing issues | | | | | | | |
| 7.8. Trams | 7.8.1 Route Planning – segregated / on street | | | | | | | |
| | 7.8.2 Signal design and priority | | | | | | | |

| Competence Area | Competence Name | Description of Competence | Levels of Achievement of Competence | | | | | Assessment evidence required |
|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| **Domain 8 Signal design** | | | | | | | | |
| **8.1 Signal design** | **8.1.1 UTC theory** | The UTC computer network, fixed time/SCOOT theory, identifying and reporting of faults, signal timing plan, and system alarms. | Awareness of validating SCOOT links, network design, fine tuning, UTC and VA Bus Priority, building database, junction control, SPRINT and PROMPT design work. | Knowledge of validating SCOOT links, network design, fine tuning, UTC and VA Bus Priority, building database, junction control, SPRINT and PROMPT design work. | Under supervision, validate links, undertake network design, fine tune systems, understand UTC and VA Bus Priority, build database, undertake junction control, undertake SPRINT and PROMPT design work. | Validate SCOOT links, undertake network design, fine tune systems, understand UTC and VA Bus Priority, build database, undertake junction control, undertake SPRINT and PROMPT design work. | | Demonstrate your knowledge through your work, short reports and/or at your Performance Management Review. |
| | **8.1.2 Signal design & priority** | Bus Priority (SVD) Non-UTC | Awareness of commissioning bus priority, commissioning VA and UTC sites, siting beacons and an understanding of different types of bus priority and how to install | Knowledge of commissioning bus priority, commissioning VA and UTC sites, sitting beacons and an understanding of different types of bus priority and how to install | Under supervision, able to commission bus priority, commission VA and UTC sites and how to site beacons | Able to commission bus priority, commission VA and UTC sites and how to site beacons | | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **8.1.3 Pelicans, Puffins & Toucans** | Understanding and designing of different types of signalled crossing | Awareness of the design pelicans, puffins and toucans; consideration of issues relating to design, and different types of crossing layouts | Knowledge of the design pelicans, puffins and toucans; consideration of issues relating to design, and different types of crossing layouts | Under supervision, able to design pelicans, puffins and toucans; consider issues relating to design, and different types of crossing layouts | Able to design pelicans, puffins and toucans; consider issues relating to design, and different types of crossing layouts | | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **8.1.4 Signalled roundabouts** | Applying TRANSYT to signalled roundabouts | Awareness of application of TRANSYT to signalled roundabouts | Knowledge of application of TRANSYT to signalled roundabouts | Under supervision, able to apply TRANSYT to signalled roundabouts | Able to apply TRANSYT to signalled roundabouts | | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **8.1.5 Vehicle detection** | | | | | | | (NTQ4 units 20,21) (NTQ3 units 12,13) |
| **8.2 Signal operations** | **8.2.1 UTC - Tools and Techniques** | Development and application of UTC tools and techniques to ensure efficient delivery of Network Management Objectives. | Awareness of UTC Tools and Techniques.<br>Understanding of related CDM Designer and Client duties.<br>Knowledge of Site Health and Safety. | Understanding of UTC Tools and Techniques. | Under supervision, able to design and apply UTC traffic control tools and techniques, by undertaking:<br>- SCOOT loop siting (CDM).<br>- Commission new and modified signal installations onto the UTC System. | Able to design and apply UTC tools and techniques, by undertaking:<br>- SCOOT loop siting (CDM).<br>- Commission new and modified signal installations<br>- Construct, validate and fine tune SCOOT plans and data.<br>- FT plan commissioning<br>- Develop UTC contingency signal timing plans in support of LTCC. | | Pass end-of-second-year UTC training assessment.<br><br>Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **8.2.2 UTC - Network Management & Operations** | Deliver effective network management and day-to-day operational activity through UTC. | Awareness of the principles of UTC Network Management, UTC Dept's Network Management Objectives, TfL Network Management Plans, MTS; legislation, standards and guidelines, as they relate to UTC. | Understanding all of these; DTO and UTC Terms of Reference; inter-departmental dependencies. | Under supervision, able to apply complex UTC network management techniques; undertake UTC timing reviews; construct and validate UTC/SCOOT plans and data. | Able to apply complex UTC network managment techniques; Proactively react to unusual on-street events and emergencies by producing UTC contingency timings which mitigate the effects. | | Pass end-of-second-year UTC training assessment. Demonstrate your understanding through your work, short reports and/or at your Performance Management Review. |
| | **8.2.3 UTC - Systems** | Development & delivery of UTC hardware, software & databases. | Awareness of UTC;signal controller specifications; Knowledge of key health and safety hazards, risks, control measures when working on/near the carriageway. | Understanding the UTC System; signal controller specifications; data transmission methods. | Under supervision: commission data transmission upgrades, pedestrian facilities, junctions onto the UTC database; audit UTC controller specifications; design and implement developments to the UTC system. | Commission data transmission upgrades, pedestrian facilities and junctions onto the UTC database; audit UTC controller specifications; design and implement developments to the UTC system; acceptance testing software upgrades; produce Customer Requirement Specifications for UTC System development. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **8.2.4 Fault control theory** | | | | | | | |
| | **8.2.5 Fault control** | Site and Fault Management Database (SFM) | | | | | | |
| | **8.2.7 R&D – the future of signals** | | | | | | | |
| **8.3 Signal technology** | **8.3.1 Variable message signs** | | | | | | | |
| | **8.3.2 Telecommunications** | | | | | | | |
| | **8.3.3 Cameras** | | | | | | | |

| Competence Area | Competence Name | Description of Competence | Levels of Achievement of Competence | | | | | Assessment evidence required |
|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| **Domain 9 Highway Design (including roads, structures, tunnels, lighting, sign foundations and drainage)** | | | | | | | | |
| **9.1 Road design** | **9.1.1 UKPMS** | Moved to 11.4 | | | | | | |
| | **9.1.2 Road design theory & practice, DMRB** | Design Manual for Roads and Bridges. Design guidance and guides to good practice. | | Understand the use of the relevant sections of the Design Manual for Roads and Bridges relating to the design of different elements of a highway network. Understand the principles of safety in design. Understand the review procedures required. Understand the use of 'design guidance notes' and 'guides to good practice' in the development of schemes. | | | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **9.1.3 HAMP** | Moved to 11.4 | | | | | | |
| | **9.1.4 Road geometrics** | | | | | | | |
| | **9.1.5 Pavement design** | Carriageway and footway design / spec | | Know the principles of carriageway and footway design. | | Be able to design carriageways and footways. | | Present records of carriageways and footways that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| **9.2. Drainage design** | **9.2.1 Drainage design** | | | Know the principles of drainage design. | | Be able to design drainage systems. | | Present records of drainage systems that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| **9.3. Lighting design** | **9.3.1 Lighting design** | Lighting design | | Know the principles of lighting design. | | Be able to design lighting systems. | | Present records of lighting systems that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| **9.4. Structures design** | **9.4.1 Structures design theory & practice, DMRB** | Design Manual for Roads and Bridges. Design guidance and guides to good practice. | | Understand the use of the relevant sections of the Design Manual for Roads and Bridges relating to the design of different elements of a highway network Understand the principles of safety in design. Understand the review procedures required. Understand the use of 'design guidance notes' and 'guides to good practice' in the development of schemes. | | | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **9.4.2 Piling & foundation design** | | | Understand the principles of piling & foundation design (including sign foundations) | | Be able to carry out piling & foundation design. | | Present records of piles and foundations that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **9.4.3 Pier & deck design** | | | Understand the principles of pier & deck design. | | Be able to carry out pier & deck design. | | Present records of piers and decks that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | **9.4.4 Barrier design** | | | Understand the principles of barrier design. | | Be able to carry out barrier design. | | Present records of barriers that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| **9.5. Tunnel design** | **9.5.1 Tunnel design** | | | Understand the principles of tunnel design. | | Be able to carry out tunnel design. | | Present records of tunnels that you have designed. (NTQ4 units 20,21) (NTQ3 units 12,13) |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| 9.6. Design details | 9.6.1 Construction detailing | | | Know the principles of construction detailing. | | Be able to produce construction details. | | Present records of construction details that you have produced. (NTQ4 units 20,21) (NTQ3 units 12,13) |
| | 9.6.2 Works specifications | | | Know the principles of works specifications. | | Be able to produce works specifications. | | Present records of works specifications that you have produced. (NTQ4 unit 22) (NTQ3 unit 14) |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| **Domain 10 Modelling and IT** | | | | | | | | |
| **10.1 Detailed modelling** | **10.1.1 Modelling theory– mathematical modelling** | | Be aware of the different types of transport model and be able to describe the most appropriate uses for the various types of model. | Know the differences between the various methods of modelling and the relevance of each technique. including the elements of transport modelling available in each package. (eg trip generation, modal split, trip distribution, assignment…) | Have been involved and assisted in the specification of a modelling process | Fully understand and be able to specify an appropriate modelling strategy for given use or study. | | |
| | **10.1.2 Four stage models: trip generation, trip distribution, modal split, assignment** | Travel demand and forecasting models | Basic understanding of the four stages of traffic modelling: trip generation, trip distribution, model split and assignment. | Understand each component of a classical four stage transport model. Understand the effect of different socio-economic factors upon each stage of a four stage transport model. | Under supervision, use travel demand forecasting models. | Be able to use travel demand forecasting models, preferably LTS or models based on the TRIPS package, to predict the impact of new highway or public transport schemes. | Directs and organises teams in the use of travel demand forecasting models, (e.g. LTS) or models based on the TRIPS package, to predict the impact of new highway or public transport schemes. | Present records of your use of these models. (NTQ4 unit 8) (NTQ3 unit 5) (TPQ4 units 9, 13) (TPQ3 unit 9) |
| | **10.1.3. LTS** | London travel demand forecasting model | Basic understanding of LTS traffic assignment modelling. | Know how the different components of the model have been calibrated and how the traffic origin-destination matrices for the different modes are produced. | Under supervision, use LTS model. | Be able to use LTS travel demand forecasting model to predict the impact of new highway or public transport schemes. | Directs and organises teams in the use of LTS travel demand forecasting model, to predict the impact of new highway or public transport schemes. | Present records of your use of these models. |
| | **10.1.4. Parking demand** | | Be aware of the issues affecting parking demand | Know what factors should be considered and the methods which can be employed in modelling to predict parking demand associated with major traffic generators, town centres and roadside service areas. | Under supervision have carried out a parking demand assessment. | Be able to predict parking demand. | | Present records of parking demands that you have predicted. |
| | **10.1.5 Using Traffic Model Output** | | Be aware of the basic limitations of the different modelling approaches. | Understand how modelling outputs are used to inform policy and/or infrastructure improvements. Understand the limitations of modelling techniques and know how to interpret the results obtained from models. | Under supervision, able to evaluate results from two different traffic modelling products/platforms and justify or advise against a proposed scheme based on specific results from the model output. | Be able to evaluate results from two different traffic modelling products/platforms and justify or advise against a proposed scheme based on specific results from the model output. | N/A | Present records from two different types of traffic model output you have personally generated and be able to discuss results critically. |

| Competence Area | Competence Name | Description of Competence | Levels of Achievement of Competence | | | | | Assessment evidence required |
|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **10.1.6. Highway assignment** | Computerised road and/or public transport networks. | Basic understanding and awareness of the different types of highway assignment model, and their application. | Know how to built, calibrate and validate highway assignment models. | Under supervision, be able to build, calibrate and validate highway assignment models. | Be able to build, calibrate and validate highway assignment models. | • Leads in the development of a variety of complex highway assignment models.<br>• Recognised representative in this field and represents business area (Directorate) as an highway assignment modelling expert at forums both internally and externally<br>• Coaches others in this field | Present records of models that you have built, calibrated and validated in at least one of the next two software packages. |
| | **10.1.7. Highway assignment: VISSUM** | Highway assignment software package | Basic understanding and awareness of the VISSUM highway assignment model, and its applications. | Demonstrate knowledge of how the network and junction geometry and control are defined. | Under supervision, be able to use VISSUM to solve highway assignment problems. | Be able to use VISSUM to solve highway assignment problems. | • Leads in the development of VISSUM highway assignment models.<br>• Recognised representative in this field and represents business area (Directorate) as a VISSUM highway assignment modelling expert at forums both internally and externally<br>• Coaches individuals in this field | Present records of models that you have built, calibrated and validated in at least one of the next two software packages. |
| | **10.1.8. Highway assignment: SATURN** | Highway assignment software package | Basic understanding and awareness of the SATURN highway assignment model, and its applications. | Demonstrate knowledge of how the network and junction geometry and control are defined. | Under supervision, be able to use SATURN to solve highway assignment problems. | Be able to use SATURN to solve highway assignment problems. | • Leads in the development of SATURN highway assignment models.<br>• Recognised representative in this field and represents business area (Directorate) as a SATURN highway assignment modelling expert at forums both internally and externally<br>• Coaches individuals in this field | Present records of models that you have built, calibrated and validated in at least one of the next two software packages. |
| | **10.1.9 Basic Signal modelling (pencil & paper)** | Signal control | Basic understanding and awareness of basic manual modelling | Know the significance of y and Y values and the definition of practical reserve capacity of an isolated junction. | Under supervision, able to work out the critical cycle length, critical signal phase y values and stage lengths of a simple isolated junction. | Work out the critical cycle length, critical signal phase y values and stage lengths of a simple isolated junction. | N/A | Work out basic junction control parameters when traffic flows and lane saturation flows are known. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **10.1.10. Signal Control of Isolated Junctions** | Signal control of isolated junctions | Basic understanding/awareness of LINSIG and its application. | Know how a LINSIG model is built and what data is needed for it. | • In support of schemes, timing reviews and operations, constructs LINSIG models of junctions under supervision<br>• Completes technical tasks independently and more complex ones under supervision. | In support of signal schemes, timing reviews and operations, constructs detailed LINSIG models. Audits 3rd party models without supervision. Coaches others | • Directs and organises teams in the development of models in support of schemes, time reviews and operations<br>• Applies knowledge of modelling to a variety of complex situations<br>• Recognised representative in this field and represents their business area | Demonstrate experience through work and short reports |
| | **10.1.11. Signal Control of Isolated Junctions** | Signal control of isolated junctions | Basic understanding/awareness of OSCADY and its application. | Know how an OSCADY model is built and what data is needed for it. | • In support of schemes, timing reviews and operations, constructs OSCADY models of junctions under supervision<br>• Completes technical tasks independently and more complex ones under supervision. | In support of signal schemes, timing reviews and operations, constructs detailed OSCADY models. Audits 3rd party models without supervision. Coaches others | • Directs and organises teams in the development of models in support of schemes, time reviews and operations<br>• Applies knowledge of modelling to a variety of complex situations<br>• Recognised representative in this field and represents their business area | Demonstrate experience through work and short reports |
| | **10.1.12. QUADRO MOVE TO COBA AND TUBA** | | | Understand the principles and operation of the QUADRO program. Know when QUADRO is applicable and demonstrate your ability to interpret the output produced by the program. | | | | |
| | **10.1.13. Network Modelling: TRANSYT/ TRANED** | Use of models for the optimisation of networks of signal controlled junctions | Basic understanding of the components of signal control timing plans that can be optimised using TRANSYT/TRANED | Know the steps taken to built a TRANSYT link-diagram and model.<br>Understanding the limitation of use of TRANSYT/TRANED. | In support of schemes, timing reviews and operations, constructs and validates detailed TRANSYT/TRANED models of networks, under supervision. | In support of schemes and timing reviews and operations, constructs and validates complex TRANSYT/ TRANED models without supervision and audits 3rd party models. | • Directs and organises teams in the development of TRANSYT/TRANED models in support of schemes, time reviews and operations<br>• Recognised representative in this field and represents their business area | Demonstrated through reports, model build/validation and model audit. |

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|---|---|---|---|---|---|---|---|---|
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| | **10.1.14 ARCADY** | Use of ARCADY in the design of conventional roundabouts | • An awareness of ARCADY and its application | Knows which factors affect the capacity of a conventional roundabout. | Under supervision, able to use modelling packages for design or audit purposes. | Able to use modelling packages for design or audit purposes. | • Directs and organises teams in the development of ARCADY models in support of schemes, time reviews and operations<br>• Applies knowledge of ARCADY modelling to a variety of complex situations<br>• Recognised representative in this field and represents their business area | Demonstrate experience through work and short reports |
| | **10.1.15. PICADY** | Use of PICADY in the design of priority (give way) junctions | • An awareness of PICADY and its application | Knows which factors affect the capacity of the approaches of a typical give way junction. | | Demonstrate experience in the use of the modelling package for design or audit purposes. | • Directs and organises teams in the development of PICADY models in support of schemes, time reviews and operations<br>• Applies knowledge of PICADY modelling to a variety of complex situations<br>• Recognised representative in this field and represents their business area | Demonstrated through reports, model build/validation and audit |
| | **10.1.16. Micro-simulation, e.g., VISSIM** | The accurate representation of traffic interactions using micro-simulation | Awareness/ appreciation of applications where detailed micro-simulation may be beneficial. | Understand the process of building, calibrating and validating a micro simulation model. | • In support of schemes, timing reviews and operations, constructs VISSIM models of networks, under supervision | • In support of schemes, timing reviews and operations, constructs VISSIM micro-simulation models without supervision and audits 3rd party models.<br>• Coaches others in VISSIM modelling | • Directs and organises teams in the development of VISSIM models in support of schemes, time reviews and operations<br>• Applies knowledge of micro-simulation modelling to a variety of complex situations<br>• Recognised representative in this field and represents their business area | Demonstrate through records and validation reports of own work. |

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| | **10.1.17. Pedestrian modelling: Legion, VISSIM** | Pedestrian facilities design aided by micro-simulation | Awareness/appreciation of applications where detailed pedestrian modelling may add value | Understand which factors affect pedestrian level of service.<br>Understands the limitations of current micro-simulation models in representing pedestrian movements | Under supervision, construct models of networks. | In support of traffic management schemes which seek to achieve balance between the needs of people moving on foot and other travel modes (e.g. freight, private or public transport), is able to use micro-simulation models to quantify performance indices. | • Directs and organises teams in the development of models in support of schemes, time reviews and operations<br>• Recognised representative in the field of pedestrian modelling | Demonstrate experience through work and short reports |
| | **10.1.18. 3D micro-simulation modelling** | 3D Modelling: design of 3D objects in microsimulation modelling | Awareness of steps necessary to render in 3 D. | Able to build simple 3D objects. | Build 3 D objects and render them with digital photographs | Build complex/multi-façade 3D renderings | Able to insert 3 D renderings into micro-simulation models and produce movie files for presentations | Presentation of files created |
| | **10.1.19. Environmental modelling** | | | | | | | |
| **10.2 IT** | **10.2.1 IT Skills** | It is unclear which/what IT skills/competencies should be included here. A specific IM department is tasked with managing all IT/IM issues and general staff are discouraged from undertaking IM-related roles/duties. | | Recognise the inter-related roles of complex calculations, including computer generated results, simple check procedures and experienced judgements. | | | | Present records of judgements that you have made. |
| | **10.2.2 Maps** | Maps | | Understand the advantages and disadvantages of conveying information graphically, - compared with the use of tables or text, in various circumstances. Know how to use scales and appreciate when different forms of graphical representation are most appropriate | | Be able to read and use plans, drawings, Ordnance Surveys sheets, and other forms of pictorial representations. Be able to generate drawings or other graphical output in association with support staff. | | Present records of drawings and graphics that you have produced and/or been responsible for. |
| | **10.2.3 GIS** | GIS | | Understand the capabilities of Geographical Information System programs for accessing, processing and presenting data. Appreciate the potential pitfalls of using GIS as well as its potential advantages. | | | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. |
| | **10.2.4 AUTOCAD** | | | | | | | |
| | **10.2.5 ITIS** | | | | | | | |

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| | **10.2.6 Londonworks** | Assignment notifications of schemes and works from promoters.Trip generation data. Use to advance plan programmes and co-ordinate works. | | Understand the capabilities of Londonworks software for accessing, processing notifications, notices and advance plans. | | Undertaking assessment of schemes and works using Londonworks, opportunities for advance planning and noticing and permitting works.Gain experience in the use of sources of trip generation data in relation to new development proposals. Be able to use these sources to inform new proposals. | | Demonstrate your understanding through your work, through short reports and/or at your Performance Management Review. Present records of data that you have used. |
| **10.3 Strategic modelling** | **10.3.1 Accessibility modelling – PTAL, CAPITAL** | Use and development of accessibility modelling. | | Understand the meaning of accessibility in the context of strategic modelling and appreciate the difference between the various types of accessibility modelling. | In support of others, use accessibility models to assess the effect of major transport schemes or strategic transport initiatives on accessibility. | Use accessibility models to inform policy development and to asses the effect of major transport schemes or strategic transport initiatives on accessibility. | • Directs and organises teams in the use of accessibility modelling.<br>• Designs and develops new ways of measuring accessibility.<br>• Recognised representative in thie field of accessibility modelling. | Present records of your use of these models. |
| | **10.3.2 Public transport modelling** | Use of public transport assignment models | | Understand the use of public transport assignment models, eg: RAILPLAN, in the appraisal of major transport schemes or strategic transport initiatives | In support of other, or under supervision, be able to apply public transport assignment models to predict the effect of major transport schemes or strategic transport initiatives on travel in London. | Be able to apply public transport assignment models to predict the effect of major transport schemes or strategic transport initiatives on travel in London. | Directs and organises teams in the use of public transport assignment models to predict the effect of major transport schemes or strategic transport initiatives on travel in London. | Present records of your use of these models. |

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| **Domain 11 Operations & Delivery** | | | | | | | | |
| **11.1 Site management** | **11.1.1 NRSWA/TMA** | Use of NRSWA and TMA | Be aware of these Acts and their implications | Understand these Acts and their implications | Under supervision, deploy your grasp of these Acts when managing sites | Deploy your grasp of these Acts when managing sites | | |
| | **11.1.2 NMD, NA/NMG** | | | Understand role of these and other TMA concepts, and how they improve traffic management . | | | | Demonstrate collaboration and co-ordination in own work. |
| | **11.1.3. Environmental management plan** | Use of EMPs | Be aware of EMPs and their implications | Understand EMPs and their implications | Can implement EMPs under supervision | Can implement EMPs | | Records of EMPs carried out |
| | **11.1.4 Manage safety on site** | | Be aware of the principles of H&S management on site. | Understand the principles of H&S management on site. | Contribute to the setting up, management & improvement of H&S systems on site | Set up, manage & improve H&S systems on site. | | Present records of your management of H&S on site - Safety file, hazard identification, risk assessments, toolbox talks, safety audits. Relevant assessed courses include CSCS H&S test and CHSG site mgmt cert (6 days) (NTQ4 unit 5, NTQ3 unit 4) |
| | **11.1.5 Plan & manage temporary traffic schemes** | Temporary traffic management | Be aware of TSM Chapter 10 and its implications | Understand TSM Chapter 10 and its implications. Know how to plan & manage temporary traffic schemes. | Contribute to the planning & management of temporary traffic management schemes | Be able to plan & manage temporary traffic schemes. | | |
| | **11.1.6 Manage streetworks activities** | Road surfaces, utilities, lighting, pavements, etc. | Be aware of streetworks activities | Know how to plan & manage streetworks activities. | Contribute to the planning & management of streetworks activities. | Be able to plan & manage streetworks activities. | | Present records of traffic schemes that you have planned & managed. |
| | **11.1.7 Manage streetworks activities** | | | Know how to plan & manage street works activities. | | Be able to plan & manage street works activities. | | Present records of streetworks activities that you have planned & managed. NTQ4 unit 17) (NTQ3 unit 9) |
| | **11.1.8 Signing & guarding** | Design appropriate timings, distances for the implementation of Portable signals for temporary highway works. | Have an awareness of this work | Know how to design & plan portable signs | Contribute to the planning & designing of signing schemes | Be able to plan & design signing schemes. Can identify and put forward options to mitigate impacts of Highway works when portable signals are required. | | Demonstrate your understanding through your work. |
| | **11.1.9 Works Planning and Coordination** | Plan and coordinate work on site | Be aware of the methods to plan and coordinate work on site | Know how to plan and coordinate work on site | Contribute to the planning & coordination of work on site | Be able to plan and coordinate work on site | | |

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| | **11.1.10 Supervision & Inspection** | Supervise work on site and carry out inspections | Be aware of how to supervise work on site & carry out inspections | Know how to supervise work on site & carry out inspections | Under supervision, be able to supervise work on site & carry out inspections | Be able to supervise work on site & carry out inspections | | Demonstrate your understanding through your work. (NTQ4 unit 17) (NTQ3 unit 9) |
| **11.2 Quality Assurance** | **11.2.1 Manage the quality system** | Quality control processes within Business Management. | | Read, understand and comply with the QA procedures of the Project Plan for projects on which you are engaged. | | Work to the quality control processes within the Business Management System. Be able to manage projects in accordance with TfL's QA systems & procedures. | | Present records showing how you managed QA on your projects. |
| | **11.2.2 Auditing processes** | Design audit | | | | | | |
| | **11.2.3 Manage & implement document handling** | | | | | | | |
| | **11.2.4 Auditing of suppliers** | | | | | | | |
| **11.3 Emergency planning** | **11.3.1 Emergency planning** | Identify and put forward options (plan B) to mitigate impacts | | Know how to identify and design alternative options to minimise the impact of works. | | Be able to prepare alternative options | | Demonstrate your understanding through your work. |
| | **11.3.2 Communication, data theory & application** | | | | | | | |
| | **11.3.3 Command & control systems** | | | | | | | |
| | **11.3.4 Major incident response** | | | | | | | |
| | **11.3.5 Event planning** | | | | | | | |
| | **11.3.6 Develop & implement operational systems** | (PAS56, BS 7799, ISO 17799, ISO 27000) | | | | | | |
| | **11.3.7 COMET** | | | | | | | |
| | **11.3.8 LTCC** | | | | | | | |
| | **11.3.9 LESLP** | | | | | | | |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| **11.4. Highway Asset Management (this includes roads, structures, tunnels, lighting, sign foundations & drainage)** | **11.4.1. AIMS** | | | Understand how AIMS works | | Can apply the principles of AIMS | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |
| | **11.4.2. Asset valuation** | | Be aware of the factors to be taken into account in valuing the highway asset. | Understand asset valuation | Has assisted or carried out under supervision, the valuation of the highway asset or part of the asset. | Can value assets | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |
| | **11.4.3 UKPMS** | UK Pavement Management System | Has an appreciation of the different modules comprising ukPMS and the role that they play within the overall process | Has an understanding of the ukPMS modules used in TfL/London Boroughs and know the reasons for their use. | Has assisted in the use of ukPMS and assessed and interpreted the results with supervision. | Can carry out full ukPMS assessments and be able to interpret the results for trend and scheme priority purposes. | | |
| | **11.4.4 HAMP** | Highway Assessment Management Plan | Be aware of HAMP | Know how to use HAMP | Under supervision, apply HAMP to manage assets | Apply HAMP to manage assets. | | |
| | **11.4.5. Asset deterioration** | | Be aware of the factors to be considered in deterioration modelling and optimisation of investment | Have an understanding of the relationship between the factors used in models such as ukPMS | Has carried out under supervision, deterioration modelling and assessment of the effect of different intervention levels. | Can carry out modelling & optimisation | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |
| | **11.4.6. Whole life costing** | | Be aware of the factors to be considered in whole life costing. | Have an understanding of the relationship between the factors used in models such as ukPMS | Has carried out under supervision, a whole life costing assessment | Can carry out whole life costing | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |
| | **11.4.7. Monitor condition of assets** | | Be aware of the information needed for asset monitoring and its use. | Understand the principles of asset monitoring and the relationships that need to be established. | Has monitored the condition of a highway asset, under supervision, and identified any change and the likely reasons for this. | Can carry out asset monitoring | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |
| | **11.4.8. Inspect condition of assets** | | Be aware of the different condition measuring techniques including both machine based and visual surveys and the strengths and limitations of each. | Understand the principles of asset inspection and how they are used in management systems such as ukPMS. | Has carried out a highway assessment under supervision and analysed the results. | Can carry out asset inspection | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |

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|---|---|---|---|---|---|---|---|---|
| | | | A Awareness | K Knowledge | S Partial competence | P Performance C = K + P | X Expert | |
| | **11.4.9. Load assessment and testing** | | Be aware of the different methods of load assessment for carriageways and the strengths and limitations of each. | Understand the principles of load assessment & testing and what each approach will add to understanding the problem. | Has assisted in the load assessment and testing of the highway including consideration and interpretation of results of results. | Can plan asset maintenance and draw up an asset management plan. | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |
| | **11.4.10. Plan asset maintenance** | | Be aware of how the different assessments of highway condition contribute to an asset maintenance plan. | Understand the principles of planning asset maintenance and how they relate together and complement each other. | Has assisted or carried out under supervision, the creation of a asset management plan. | Can plan asset maintenance and draw up an asset management plan. | | Demonstrate your understanding/competence through your work, through short reports and/or at your Performance Management Review. |