Transport for Greater Manchester

Role Profile

Role: **Graduate Engineer (Level 1) / Engineer (Level 2) (UTC)**

Directorate: **Highways**

Salary Band: **Career Grade 6 / 7**

Post reference: **HW109**

Job Evaluation Date: 22/09/20 (Engineer Level1)
06/07/20 (Engineer Level 2)

Role statement or purpose:

For the Engineer Level 1 Post
To deliver the design and modelling of traffic signal crossings and simple traffic signal junctions. To oversee the installation and operational effectiveness of junctions and related traffic control systems, ensuring timely completion of schemes to required quality and within budget provision, which comply with statutory and regulatory obligations

In addition for the Engineer Level 2 Post
To deliver the design and modelling of complex traffic signal junctions. Oversee the installation and operational effectiveness of junctions and related traffic control systems, ensuring timely completion of schemes to required quality and within budget provision, which comply with statutory and regulatory obligations. Provide training, guidance and support to junior members of staff within team and offer advice to scheme developers on traffic implications.

Reports to: Engineering Manager

	Key Role Outputs (KROs) *these set out what must be achieved for the post holder to be successful in the role*	**Key Actions for the Engineer Level 1 post** *These set out how the KROs will be achieved – the activities required.*	**Key Actions for the Engineer Level 2 post.** *These set out how the KROs will be achieved – the activities required.*
1.	Effective and efficient design, modelling and specification of traffic signals and related traffic control and monitoring systems.	• Undertake the assessment of highway scheme proposals to develop and deliver the design of simple traffic signal junctions, pedestrian crossing and other traffic control and monitoring systems using traffic modelling programmes,	• Undertake, using own experience and initiative, the assessment of highway impacted scheme proposals to develop and deliver the design of complex traffic signal junctions, pedestrian crossing and other traffic

		Computer Aided Design (CAD) and other design tools, as necessary. • Comply with all appropriate design standards, legislation, codes of practice and other technical standards relating to traffic signals, control and monitoring systems and highway design. • Provide guidance to non-highway staff, clients and stakeholders involved in the scheme delivery to ensure simple projects achieve client requirements within cost, quality and time constraints.	control and monitoring systems using traffic modelling programmes, Computer Aided Design (CAD) and other design tools, as necessary. Identify opportunities to trial innovative methods of traffic control systems. • Comply with all appropriate design standards, legislation, codes of practice and other technical standards relating to traffic signals, control and monitoring systems and highway design. • Provide in-depth advice, guidance and support, to justify schemes being proposed to other staff and stakeholders involved in the process to ensure complex projects and schemes achieve client requirements within cost, quality and time constraints.
2.	Procurement and installation of traffic signals, traffic monitoring and associated equipment.	• Deliver safe and efficient traffic control schemes to required quality, time and cost standards by undertaking the design, procurement and supervising their installation; • Deliver the appraisal and assessment/ modelling requirements of simple junctions to required time, quality and cost standards. • Provide technical input in the development of business cases to justify the benefits of traffic signal and monitoring installations. • Prepare quotations for the delivery and development of traffic modelling and/or	• Deliver the safe and efficient traffic control schemes, including complex layouts, to required quality, time and cost standards by undertaking the design, procurement, and supervising their installation. • Deliver the appraisal and assessment/ modelling requirements of junctions, including complex layouts, to required time, quality and cost standards. • Technical input to, and the development of, business cases using own experience to demonstrate and justify to a wide variety of audiences the

		quotations for simple traffic signal schemes within agreed budget profiles with clients. • Monitor design and delivery expenditure to ensure successful delivery of simple projects within specified time, quality and cost requirements.	benefits of traffic signal and monitoring installations. • Prepare quotations using experience and initiative, for the delivery and development of traffic modelling and/or quotations for complex traffic signal and schemes, including fee proposals with clients • Monitor design and delivery expenditure to ensure successful delivery of complex projects within time, quality and cost requirements that you have agreed
3.	Design, optimisation, assessment and commissioning of new and existing traffic signals, control schemes and systems, including adaptive control	• Commission new simple traffic signal control systems including undertaking assessments to ensure their correct operation and safety. • Provide and interpret traffic modelling data to demonstrate implications of design proposals. • Confirm safe operation of signals and associated equipment. • Commission, with guidance and support, optimisation systems such as SCOOT and MOVA.	• Commission and assess traffic signal control systems, including complex layouts, to ensure optimum operation and safety. • Provide and interpret complex traffic modelling data to demonstrate implications of design proposals.
4.	Commission traffic signals and associated equipment	N/A	• Commission and assess, new complex traffic signal control and monitoring systems. • Confirm safe and efficient operation of traffic signals and associated equipment. • Commission optimisation systems such as SCOOT and MOVA.
5.	Traffic signals and associated equipment operated and monitored.	• Monitor the operation of traffic signals and associated equipment, including visits to on-street installations.	• Monitor the operation of traffic signals and associated equipment using the UTC in-station.

		• Investigate and assess problems and complaints, report any identified issues and make recommendations of remedial action. • Develop effective signal control strategies. • Developing and input data for SCOOT/MOVA, or similar optimisation systems.	• Undertake visits to on-street installations. • Investigate and assess problems and complaints, report any identified issues and make recommendations of remedial action, providing justification. • Reduce congestion and delay by developing and programming effective signal control strategies. • Improve efficiency of traffic signals by interpreting and analysing complex output data from the UTC in station. • Provide operational support to the Control Centre ensuring that timely interventions to signal timings are implemented to deal with dynamic traffic conditions and incidents. • Develop and input SCOOT and MOVA model data. • Ensure optimal operation of SCOOT and MOVA systems by analysing complex output data.
6.	Project Monitoring.	• Prepare scheme delivery reports within agreed timescales. • Maintain accurate records in accordance with recognised procedures. • Input data for the Highways directory of signal equipment and other technical information and data. • Monitor projects taking corrective action as necessary, and ensure all work is delivered within agreed time, quality and budget requirements.	• Prepare and finalise scheme delivery reports within agreed timescales. • Maintain accurate records in accordance with recognised procedures. • Prepare and input data for the Highways directory of signal equipment and other technical information and data. • Monitor projects taking corrective action as necessary, and ensure all work is delivered within agreed time,

			quality and budget requirements.
7.	Communication of scheme design, installation and operation. Provision of traffic data and modelling data.	• Prepare information to present to stakeholders detailing the outcome of scheme development, assessment design and operation, by use of written reports and verbal presentation. • Present highly technical and complex data in a manner that is comprehensible to all stakeholders. • Attend and input into meetings with the general public, elected members, stakeholders including the Greater Manchester Districts, other public bodies, developers and contractors. • Develop and maintain successful relationships with stakeholders. • Provide accurate and timely reports regarding traffic signal data to GMP, Solicitors and traffic consultants.	• Prepare and present information to stakeholders detailing the outcome of scheme development, assessment, design and operation by use of written reports and verbal presentation. • Present highly technical and complex data in a manner that is comprehensible to all stakeholders. • Represent TfGM at meetings with the general public, elected members, stakeholders including the Greater Manchester Districts, other public bodies, developers and contractors • Develop and maintain successful relationships with stakeholders. • Provide accurate and timely reports regarding traffic signal data to GMP, Solicitors and traffic consultants.
	Compulsory Outputs (COs) *these set out what must be achieved for the post holder to be successful in the role*	**Key Actions for both levels** *These set out how the COs will be achieved – the activities required.*	
C1	Ensure you comply with all applicable organisational legislation and policy:	• TfGM Safety Management System (In particular section SMS 201 Roles and Responsibilities) • Dignity at Work policy; • Risk management • TfGM policies and procedures • Equality and diversity legislation • TfGM Vision & Values • Act in accordance with TfGM's behaviours and competencies • Chapter 8 – working on roadways • G39/1 – Working in the vicinity of DNO equipment	

		• Bus and Tram Operator contractual management • Information assurance and security in line with Cabinet Office requirements
C2	Any other reasonable duties as required from time to time	Occasional out of hours and weekend working. Willing to work outside.

Key Interdependencies	
Key Contacts	• Highways Senior Management • Greater Manchester Districts • Greater Manchester District officers and elected members • National Highways • TfGM Internal Departments including PMS, Metrolink, Bus and Rail, Communications, Strategy, Road Safety • TfGM External Partners including KAM (Metrolink Operator), Bus Operators • TfGM Suppliers • National Bodies such as National Highways, DfT, ORR • Third-party contractors and developers • Statutory Undertakers • GM Police • Members of the Public • TfGM Programme Management Services • Developers
Direct reports	For Engineer Level 2 provide support and guidance to Engineer Level 1 and Apprentices.
Budgetary responsibility	Delivery of projects within project management constraints of cost, time and quality.
Location	TfGM, 2 Piccadilly Place, Piccadilly, Manchester, M1 3BG

Office Use Only	**Updated**	**Updated**	**Updated**	**Updated**	**Updated**
Created					
By: Ed Coventry 19/06/24					

Transport for Greater Manchester

Person Specification

Engineer – Urban Traffic Control – Level 1 and Level 2 Career Grade
(Knowledge, skills and experience required at selection stage)

E	**Essential Experience:**	Level Required	
		Engineer Level 1	Engineer Level 2
E1	Knowledge and experience of traffic and highway engineering design and the operation and modelling of traffic signals, monitoring and associated equipment.	Basic	Intermediate
E2	Knowledge and experience of different types of traffic signal operation and control systems such as SCOOT and/ or MOVA. Their operation, optimisation and diagnostics.	N/A	Intermediate
E3	Knowledge, understanding and experience of all legislation relating to traffic and highway engineering and traffic signal operation and modelling.	Basic	Intermediate
E4	Understanding of the use of computer systems and programmes related to traffic and highway engineering design and traffic signal operation and monitoring.	Intermediate	Intermediate
E5	Experience of dealing with multiple stakeholders including members of the public.	Basic	Intermediate
E6	Knowledge and awareness of the safety implications of working with traffic signals, monitoring and associated equipment.	Intermediate	Significant
E7	Experience of using numerical data to aid decision making and carry out analysis of day-to-day events.	Basic	Intermediate
E8	Experience of decision making and risk analysis in a fast-moving environment.	N/A	Intermediate
E9	Ability to monitor expenditure to ensure that financial targets are met.	Basic	Intermediate
E10	Experience of preparing clear, concise and well-structured reports for a variety of audiences, including the ability to analyse and interpret complex data.	Basic	Intermediate
E11	Able to communicate face-to-face to a variety of audiences in an effective manner to ensure satisfactory outcomes are achieved, adapting messages as required.	Intermediate	Intermediate
E12	Negotiating ability to ensure satisfactory outcomes are achieved.	Basic	Intermediate
D	**Desirable experience:**		
D1	Project management experience; particularly in understanding project management principles, cost monitoring and control and financial management.	Desirable	Desirable

Transport for Greater Manchester

EQ	Essential Qualifications – Technical, Vocational or educational:		
EQ1	An MSc, Degree, BTEC, HND or HNC in Civil, Electrical, Electronic or Mechanical Engineering or other numerate discipline such as Physics, Mathematics or Geography appropriate to the technical aspects of this post.	Full qualification	Full qualification
DQ	**Desirable Qualifications:**		
DQ1	Membership of an appropriate professional Institution.	Desirable	Desirable
EA	**Essential Attributes:**		
EA1	The ability to work effectively as part of a team involved in the development, design and operation of traffic signals and associated equipment.	Basic	Intermediate
EA2	Ability to deliver projects to time, cost and quality standards.	Basic	Intermediate
EA3	Use initiative to investigate and analyse traffic problems and develop and agree solutions with stakeholders.	Intermediate	Intermediate
EA4	Effective written and verbal communication skills, adapting the style of communication as necessary to meet the needs of all stakeholders.	Basic	Intermediate
EA5	Ability to establish and maintain accurate records and reporting systems.	Basic	Intermediate
EA6	Self-motivation and personal drive to complete tasks to required timescales and quality standards.	Essential	Essential
EA7	Flexibility to adapt to changing workload demands and new organisational challenges with a willingness to work outside normal office hours to assess and ensure the network is operating efficiently.	Essential	Essential
EA8	Proven ability and experience of dealing with and managing multiple stakeholders including members of the public.	Basic	Intermediate
EA9	Experience of preparing clear, concise and well-structured reports for a variety of audiences, including the ability to analyse and interpret complex data.	Basic	Intermediate
EA10	Able to work to tight deadlines and meet funding and operational targets.	Basic	Intermediate
EA11	Proven negotiating ability to ensure satisfactory outcomes are achieved.	Basic	Intermediate
EA12	To be a role model to staff, with personal behaviour epitomising the stated values and behaviours of TfGM.	Essential	Essential
EA13	Personal commitment to ensure services are equally accessible and appropriate to the diverse needs of service users.	Essential	Essential
EA14	Sets clearly defined objectives and plans well in advance and takes account of risk and changes;	Basic	Intermediate

	manages time effectively in order to deliver against milestones and commitments.		
DA	**Desirable Attributes:**		
DA1	Experience of working in the operation and design of traffic signals or significant experience in traffic engineering of which a major part should have included the design and implementation of traffic signal schemes.	N/A	Desirable
DA2	Project management experience; particularly in understanding project management principles, cost monitoring and control and financial management.	N/A	Desirable

Basic:	Ability to provide at least one example and an understanding of the relevant task/ principle
Intermediate:	Ability to provide more than one example and an understanding of the relevant task/ principle
Significant:	Ability to provide a number of examples and an in-depth understanding of the relevant task/ principle
Essential:	Ability to provide evidence of ability to undertake the relevant task

Notes on progression through the career grade

- Progression beyond the bar to the higher grade will depend on both individual competency and whether there is a business requirement to operate at the higher level. It is not automatic.

- Post holders are considered for progression where there is evidence that they meet the criteria.

- Managers should ensure that all employees affected fully understand how career grades work, how they will be assessed and what criteria and levels of performance are required.

- Managers must assess the performance of all career grade post holders on a regular basis, during one-to-one meetings and at their performance review. Criteria for assessments must be fair, objective and consistent with the career grades.

- A career grade is not related to performance related pay. Progression through a career grade is dependent upon an employee performing against agreed criteria and will be discussed with the line manager. To help the employee progress, training needs should be identified though the performance review process and one to one meetings.