TRAFFIC SIGNAL DESIGN REQUIREMENTS:

STANDARD DOCUMENTS:

DESIGN REQUIREMENTS:
1. Engineering Certification – All Signal Design Drawings must show the person who drew, checked, designed, verified and must be signed off by an RPEQ Electrical Engineer. Names to be in full not initials. Drawing to be at 1:500 Scale for A3. Provide A3 originals on permanent paper – RPEQ signature in blue. Final AutoCAD file also to be provided.
2. Design Standard – All Traffic Signal Drawings must be designed in accordance with current Department of Transport & Main Roads (DTMR) Standards.
3. Controller Type – The design must specify a DTMR approved Signal Controller e.g. ECLIPSE (EC1-62-8), DTM416 Detector Table. Controller should typically be placed to reduce likelihood of damage from errant vehicles, preferably adjacent a substantial fence or wall and be readily accessible by maintenance vehicles.
4. Lantern Type – The design must specify LED Lanterns.
5. Cable Size – The current new Cable Size is to be 36 core/19 core overhead, not 29/19. 29 core cable may be used for existing traffic signal modifications where this cable is already installed.
6. Detector Loops – Counting is to be provided for all lanes including slip lanes. Right turn lanes with filter movements to have multiple loops with diode connection for counting, unless safety becomes an issue where a single loop with no filter will be provided.
7. Turning Lanes Versus Pedestrians – Where possible, exclusive turning lanes should be considered, especially when the turning movements are in conflict with pedestrians. Exclusive turn lanes provide the flexibility of putting a delay on the turn movement when a pedestrian signal is triggered compared with putting a delay to shared lane group arrangement. Moreover, this also provides the opportunity to install all the necessary ‘Aspect Lanterns’ that would allow safe and efficient signal operations.
8. Right Turn Lanes – Where longer storage lengths for right turn lanes are required (for example 100m), serious consideration should be given to provide double right turn lanes, if the geometry allows, to improve capacity and efficient operations of the signals.
9. Phase Diagrams – In addition to point h, phasing arrangements should include all alternative movements to allow more flexibility in operating the traffic signals including signal coordination. This arrangement also allows for the installation of all the relevant signal equipment such as Aspect Lanterns.
10. Signal Group Numbering – In numerical order, start with:
   - Main road ‘through’, first the left–hand approach then right–hand;
   - Side road ‘through’ first top approach, then bottom approach if applicable;
   - Main road ‘right–turns’, left then right;
   - Side road ‘2 right–turns’, then bottom;
   - Main road ‘left–turns’, left then right;
   - Side road ‘2 left–turns’, then bottom;
   - Pedestrian group/s across side road/s, top then bottom;
   - Pedestrian group/s across main road, left then right.
11. Detectors – Traffic loops shall be numbered clockwise from the controller, followed by counting loops also clockwise from the controller then queue loops if applicable.
12. Detector Table – Vehicle inputs are to be in numerical order with no gaps from the top of the table, starting with general traffic loops followed by counting, then queue loops, followed by external contacts including push buttons other than basic pedestrian; train detect/train conflict; fire detect/fire cancel; radar or optical sensor (pedestrian vacate); and so on. ‘Pedestrian’ push buttons are to be located in numerical order starting from input 24 and proceeding through 23, 22 and so on. This will suit a majority of installations using Eclipse controller detector cards which have only 24 LED inputs. If ‘vehicle’ and ‘pedestrian’ inputs total more than 24, then the pedestrian buttons will be located at the bottom of the table starting from input 32.
13. Bicycle Provision – Where required provide count loops on main road, and push button on side road. For buttons, a short post will often be required, located closer to the kerb. This will typically be fed from the primary signal hardware location through its adjacent pit, with 6 core cable. Station No will be for example 6s, with 6 being the primary location.
14. Most Arms – If required are generally placed at approach sides. 6.5m outlets shall be used only where necessary, for example where approach curve/sight line requirement, or on very wide approaches. Otherwise, OH lantern need only be over the kerb side lane to minimise lane closures for maintenance, with 5m suitable for most locations.
15. Joint Use – Liaise with the road lighting designer for possible locations as either joint use pole or joint use mast arm. Identify mounting heights and outlets on drawing.
16. Overhead Lanterns – Where the posted speed is 60km/h generally use 200mm lanterns with 300mm lanterns used where over 60km/h or special case.
17. Supply Connections – Identify Energex asset with either ‘SUPPLY POLE P----- OR ‘SUPPLY PILLAR U----------’ text with leader arrow. For communications connection, identify the asset, eg ‘TELSTRA PIT’ (use appropriate pit symbol) with leader arrow.
18. Survey Table – Survey Table identifying survey stations with relevant coordinates to be shown on pits, conduits and footings drawing where setting out of footings and pits by coordinates is given.