- Design finalisation and formal consent process.

The optimal time to undertake an audit process is when the design has reached a stage where the outcomes can be clearly evaluated, such as after initial refinement and prior to finalisation. This will also allow the design to be formally tested against the objectives of the project and with regard to other critical matters such as safety (see Section 5.4 Auditing).

Once the design is finalised and all the relevant approvals have been granted it must not be retrospectively revised in a manner that would contradict the approved plan at later stages. Any potential future taking in charge issues related to design geometry and layouts should be fully resolved as part of the consent process.

*Construction and Monitoring*

The design phase will largely conclude once any relevant approvals have been granted and all technical specifications have been formalised, it is recommenced that the design team participate in the project through to its completion and periodically monitor its performance.

During the construction phase it is recommended that the design team/planning authorities carry out periodic inspections to ensure that the project is being carried out in accordance with the approved design. This will not only assist in ensuring the objectives of the project are fully implemented, but will reduce the potential for error and abortive or wasteful works.

Periodic monitoring is recommended, particularly where innovative design techniques and/or untested materials have been used. Post-construction performance monitoring should be focused on the safety record and vehicle operating speeds to ensure that project objectives have been met. Design teams/roads authorities are encouraged to make such findings publicly available so as to add to the growing body of work that informs more integrated design solutions.

The issue of maintenance is also of primary concern for many roads authorities, particularly where higher specification materials are used. Many local authorities within the UK have issued specific streetscape design guidance that detail a palette of street furniture, materials and finishes that are acceptable to planning authorities.[11] Part B of the *Adamstown Street Design Guide* (2010) also provides examples of accepted standards. It is recommended that local authorities collate and issue similar guidance to encourage better quality 'workmanship' and to simplify the maintenance regime.

11 Examples include the *Camden Streetscape Design Manual* (2005) and *Streetscape Design Manual for Nottingham City Centre* (2006).

## 5.4 Auditing

### 5.4.1 Road Safety Audits

Auditing processes in Ireland are generally in the form of a Road Safety Audit (RSA). TII has published a set of standards[12] that define the role of, and outline the process for carrying out a RSA. The primary purpose of a RSA is to identify potential hazards and how they could affect road users using the following criteria:

- Does the design layout create confusion or ambiguity for road users that could lead to potential road traffic accidents?
- Is there too much, or too little information for road users?
- Is there too little, or too much visibility, or an obstruction to road users' view?
- Does the layout create hazards or obstacles to road users that could contribute to an increased risk of injuries?

If the answer is 'yes' to any of these questions, then it is deemed that the safety of the scheme could be compromised and remedial measures may be required to remove a potential or actual deficiency.

Within Ireland it is mandatory to carry out a RSA on any permanent change to the road layout on National Roads. The standard is commended to roads authorities for use in preparation of their own road schemes on Regional or Local roads' and it is common practice for local authorities to require an RSA for all road schemes. *Circular RLR 16/2008, Road Safety Audits and Road User Audits* issued by the Department of Transport also required that roads authorities carry out such audits on schemes funded or co-funded by the Department.

The implementation of the *Manual for Streets* (2007) in the UK has raised many issues in relation to the application of RSA. These issues are also further addressed in the UK *Manual for Streets 2* (2010).[13] These manuals note that the application of RSA standards require a different perspective when applied within an integrated street environment. Concerns are raised that the RSA process is predisposed to segregated/conventional design solutions that may detract from the sense of place, reduce levels of pedestrian amenity and, in some cases, actually reduce safety levels, as 'where the appearance is one of safety, individuals may drop their guard and accidents ensue'.[14]

To reduce the possibility of conflict with this Manual, the audit team responsible for carrying out a RSA:

- Must take full cognisance of the principles, approaches and standards contained within this Manual.
- Should not recommend any actions that will reduce ease of movement for pedestrians/cyclists in favour of motor vehicles or seek to add or remove measures that may result in the operating speed exceeding the intended design speed.
- Should promote the creation of a self-regulating street environment.
- Should have a clear understanding of the objectives of the design.

The RSA should, where appropriate, also be part of a larger *Quality Audit* (see Section 5.4.2 Quality Audits), this may assist in identifying many of the issues highlighted above.

12 Refer to GE-STY-01024 Road Safety Audit (2017).

13 Refer to Sections 3.7 of the UK *Manual for Streets* (2007) and 4.5 of the *UK Manual for Streets 2* (2010).

14 Refer to the UK *Highway Risk and Liability Claims: A Practical Guide to Appendix C of the Roads Board Report* (2009).