behaviour in the study area. It is often useful to allow for a range of travel distances in the calculation and express that range in probabilistic terms as discussed in the Commentary.

The annual probability of the landslide and probability of spatial impact may be considered together in qualitative terms as likelihood of impact on the element at risk being considered.

6 CONSEQUENCE ANALYSIS

6.1 ELEMENTS AT RISK

The elements at risk will include:

- Property, which may be subdivided into portions relative to the hazard being considered.
- People, who either live, work, or may spend some time in the area affected by landsliding.
- Services, such as water supply or drainage or electricity supply.
- Roads and communication facilities.
- Vehicles on roads, subdivided into categories (cars, trucks, buses).

These should be assessed and listed for each landslide hazard.

For some cases, other risks may also have to be considered. For example:

- Environmental, where the elements at risk are environmental (rather than man made), such as forests or water bodies.
- Social, where the consequences of the landslide may have an impact on social conditions, such as the cost of disruption to traffic where roads are affected.
- Political, where the consequences may not be acceptable in political terms.

6.2 TEMPORAL SPATIAL PROBABILITY ($P_{(T:S)}$)

When the elements at risk are mobile (e.g. persons on foot, in cars, buses and trains) or where there is varying occupancy of buildings (e.g. between night and day, week days and weekends, summer and winter), it is necessary to make allowance for the probability that persons (or a particular number of persons) will be in the area affected by the landslide. This is called the Temporal Spatial Probability**.**

For where the elements at risk are mobile it is proportion of a year (between 0 and 1.0) in which a person, car or bus will be below or on the landslide when it occurs. For occupancy of buildings it is a calculation of the proportion of a year (between 0 and 1.0) which the number of persons being considered occupy the building, or the area of the building likely to be impacted.

These calculations should allow for the possibility that the persons may have warning of trhe impending landslide and may evacuate the area. Each case should be considered by taking account of the details of the situation. Generally persons on a landslide are more likely to observe the initiation of movement and move off the slide, than those who are below a slide which falls or flows onto them unless the rates of movement are slow.

6.3 EVALUATION OF CONSEQUENCE TO PROPERTY

6.3.1 Estimate the extent of damage likely to property arising from each of the landslides.

This requires an understanding of the landslide characteristics and experience in assessing the likely impact on property. The consequences are often calculated using the vulnerability ($\mathbf{V}_{(Prop:S)}$) of the elements at risk to the landslide.

The factors which most affect vulnerability of property are:

- The volume of the slide in relation to the element at risk.
- The position of the element at risk, e.g. on the slide, or immediately downslope.
- The magnitude of slide displacement, and relative displacements within the slide (for elements sited on the slide).
- The rate of slide movement.

It should be noted that the vulnerability refers to the degree of damage (or damage value in absolute or relative terms) which is judged to be likely if the landslide does occur.

As discussed below, the assessment should be based on a quantitative estimate to enable clarification of the judgment which for a qualitative assessment may be subject to considerable interpretation.

6.3.2 Estimate the indicative cost of the damage.

This requires use of indicative costs of building and remedial works. Frequently, broad brush ‘guesstimates’ will suffice, but the ‘guesstimate values’ and basis should be documented. Some guidance is given in the Commentary. It should not be necessary to use a quantity surveyor to establish a more accurate estimate as usually the broad brush guesstimate will suffice for allocation of a consequence term in a qualitative scheme such as in Appendix C.

The indicative cost of damage is to be the Total Cost as this is the most relevant to the owner. Components to be considered comprise:-