concern in the sulphur-particulate complex. As with the gaseous pollutants, the long-range transport of particulate matter should only be viewed as a concern when violation of the ambient air quality standards occur.

1.4.2 Visibility

Effects of transboundary air pollution on visibility are related to fine particle air quality and only indirectly to acidic deposition. The major precursors of acid deposition that can significantly affect visibility are sulphuric acid and various ammonium sulphate aerosols. These form a large fraction of the fine particle loadings that dominate visibility impairment from anthropogenic sources. Available data do not suggest that nitrates (predominantly in the vapour phase) play a significant role in impairment of visibility, but visible brown plumes from NO_2 have been reported at a distance of 100 km from a few isolated point sources.

From available information on background and incremental fine particle loadings and relative humidity, estimates of visibility impacts (reduction in visual range and contrast, discolouration from haze or plumes) can be made. Analysis of airport data indicate a substantial decline in regional summertime visibility in the eastern U.S. and portions of southern and eastern Canada between 1950 and 1975, with stable or small improving trends since that time. These changes may be associated with changes in the level and distribution patterns of sulphur oxide emissions.

Areas such as those found in western North America, are the most sensitive to visibility degradation. Usually, good visibility is valued most highly in natural settings such as parks and wilderness areas. Any area, however, with normal viewing distances of a mile or more may be affected by episodic regional haze carrying acid precursor substances. Studies of the value of visibility and public perception indicate that the public cares about visibility and is willing to pay for maintaining or improving it. Accurate economic assessments are not, however, available for eastern North America.

1.5 MAN-MADE STRUCTURES

Certain airborne chemicals can accelerate deterioration of materials. There is evidence that materials in urban areas of Europe and North America have suffered and are suffering from exposure to these pollutants. Materials at risk include statuary and structures of cultural value as well as commonly used construction materials. In the present discussion, exterior surfaces are the focus of interest.

It is reasonable to assume that acidic deposition due to long-range transport and transformation of air pollutants contributes somewhat to material effects. Current understanding of material decay