(publan) concept whereby a nationwide Wireless Internet Service Provider (WISP) builds a nationwide infrastructure of WLAN access points in selected hotels, restaurants, airports, or coffee shops, and then charges a monthly subscription fee to users who wish to have always-on Internet access in those select locations. Other recent ideas suggest that WLANs could be used to provide access for the last 100 meters into homes and businesses, in competition with fixed wireless access, and in competition with IMT-2000. Certainly, the price point for WLAN hardware is far below 3G base stations and fixed wireless millimeter wave equipment. However, the WLAN spectrum is unlicensed, and unless judicious frequency planning and radio engineering is employed, careless WLAN deployments in buildings or neighborhoods could become saturated. This again points to the need for WLAN deployment strategies that use knowledge of the interference and propagation conditions, such as shown in Figure 2.13.

It is instructive to investigate how a futuristic WLAN system might work in a typical neighborhood if WLAN access points were mounted on lamp poles along the street. Consider the neighborhood shown in Figure 2.15, where three homes are located in a heavily wooded area. In [Dur98], measurements were conducted in several homes and in different types of foliage using street-mounted lamp-post transmitters in the 5.8 GHz band. Houses were measured for WLAN signal strength, both outside the house (for an externally mounted Customer Premises Equipment (CPE) antenna at roof height and at head height) and inside the house (at head height to represent a cordless phone or portable antenna). Figure 2.16 shows actual measured path loss values for various antenna heights within the house. Note that the street-mounted transmitter is

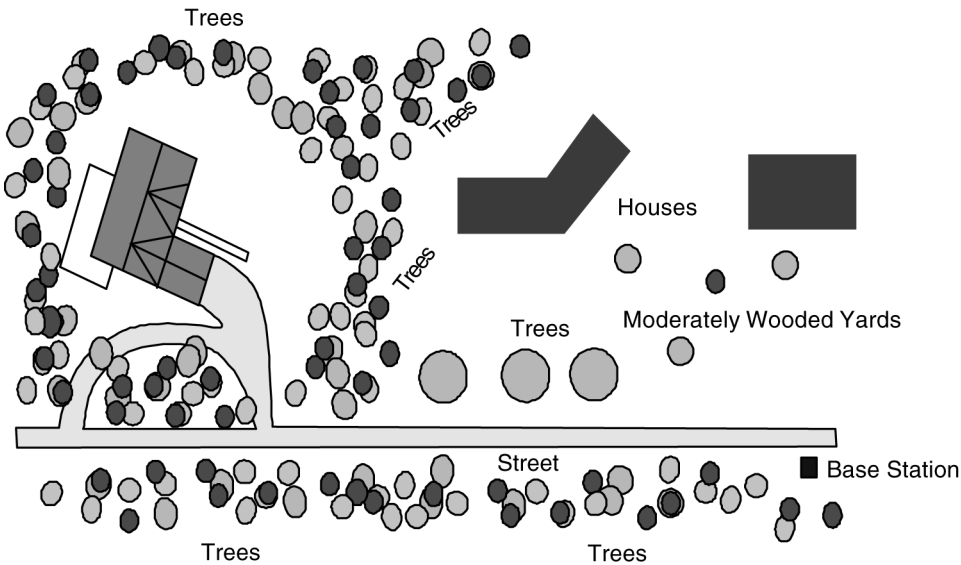

Figure 2.15 A typical neighborhood where high speed license free WLAN service from the street might be contemplated [Dur98b].