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# A Sustainable Community Profile

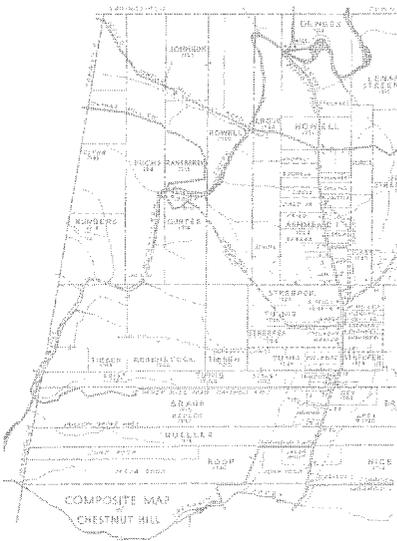
*Muscoe Martin*

Chestnut Hill, Pennsylvania, a community of 10,000 people in northwest Philadelphia, is often cited as an example of successful traditional town planning. Chestnut Hill has a long history as an attractive, pedestrian-oriented suburb with a distinctly urban character; its mix of land uses are compactly distributed on a street grid anchored by a shopping avenue; and the architectural fabric and wooded landscape combine to produce a graceful, human-scaled community.

Chestnut Hill can also be seen as a sustainable community in a number of ways. The most common definition of sustainable, in this context, is “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>1</sup> Sustainable community design has typically focused on developing design strategies for more efficient utilization of energy, resources and waste in order to reduce the damage to the natural environment caused by development.

Chestnut Hill reflects many of these sustainable attributes. The community is well served by public transportation. Walkable distances to shopping and transit stops reduce the need for automobiles. A wide range of housing size and type mixed together accommodates a community of diverse households. The character of the natural environment has been preserved by land conservation and sensitive urban design.

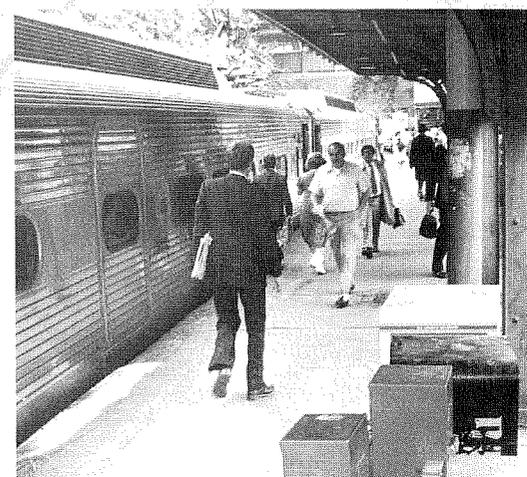
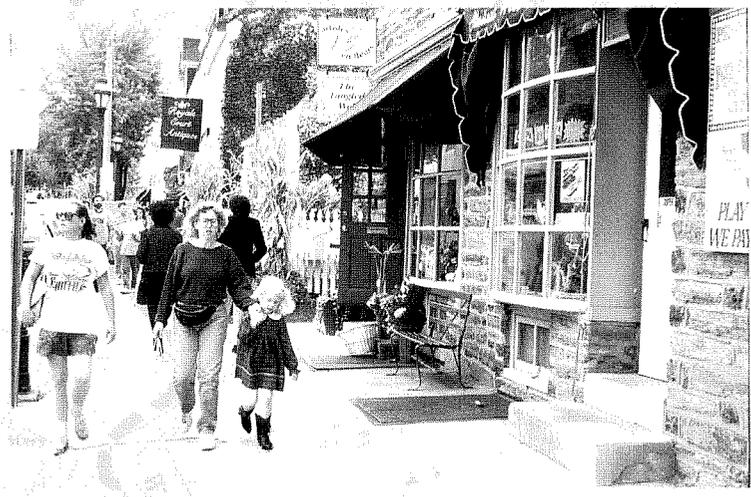
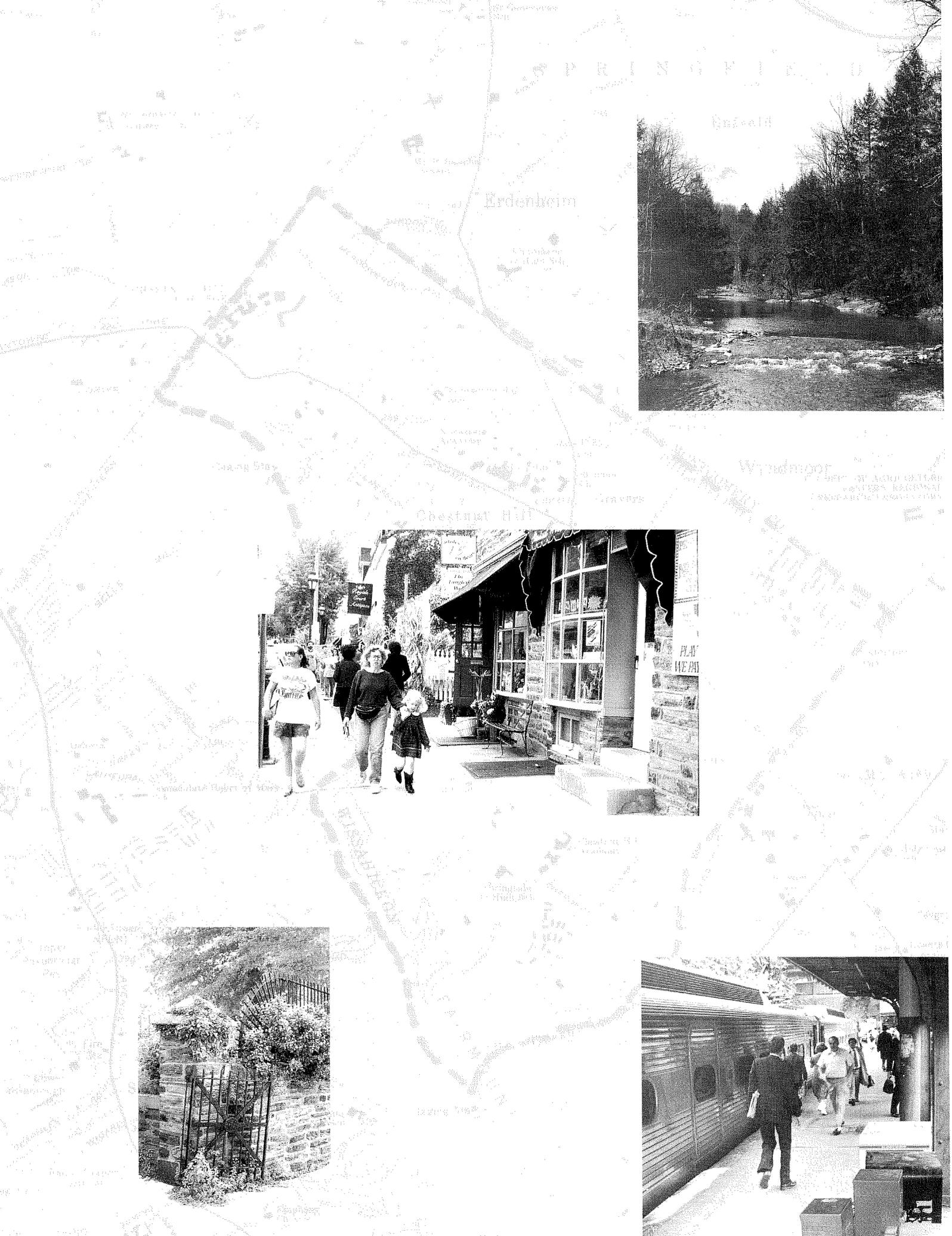
There are also many attributes of Chestnut Hill that are not sustainable. The older housing stock is not particularly energy efficient and efforts to utilize newer sustainable technologies have been limited. In spite of the accessible transit system many residents commute by car, either by



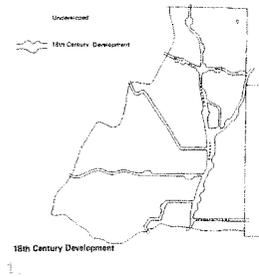
Above: Chestnut Hill land subdivision, eighteenth century. (Chestnut Hill Historical Society)

Opposite page, clockwise from top right: Wissahickon Creek ravine, Germantown Avenue commercial district, Chestnut Hill West commuter rail station, a “Wissahickon-style” garden.

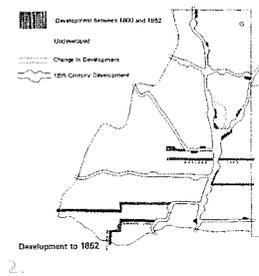
(Illustrations courtesy Muscoe Martin unless indicated otherwise)



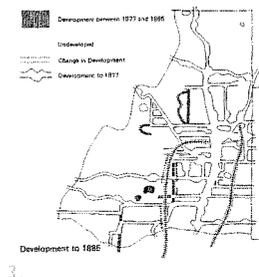
1. Eighteenth-century development. Sources: Christian Lehman, *Description of Roads in Germantown Township, 1751*; Hannah Bonner Roach, "The Back of Germantown," *The Pennsylvania Genealogical Magazine* 20:2 (1956): 126-127.



2. Development to 1852. Sources: J.C. Sidney, *Map of the Township of Germantown, 1848*; R. P. Smith, *Map of the Vicinity of Philadelphia from Actual Surveys, Camden, Lloyd Van Derveer, 1852*.

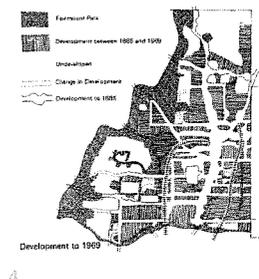


3. Development to 1885. Source: G. M. Hopkins, *Atlas of the 22nd Ward, Philadelphia, 1885*.



4. Development to 1969. Source: Field survey.

Drawings from Willard S. Detweiler, Jr., *Chestnut Hill: An Architectural History (Philadelphia: Chestnut Hill Historical Society, 1969)*.



choice or need. The residential density, while higher than comparable suburbs, is arguably too low to justify the transportation infrastructure. There is a lack of affordable housing for lower-income families.

What is often neglected in thinking about sustainable community is the relationship between community and place. The community must derive some sustenance and inspiration from the place. When the physical attributes of a place attract a wide variety of people eager to inhabit that place as willing members

of the community, not just as individuals, the community will be motivated to care for that place. This communal appreciation grows from a love of the land from which comes a respect for the interdependence of the natural and the man-made. Without this shared concern for its long term-survival, no place can be truly sustainable, no matter how energy efficient or resource conserving.

Chestnut Hill possesses the seeds of sustainability in its strong sense of shared ideals rooted in the physical place, and offers valuable lessons to those concerned with the way we imagine, build and inhabit our communities. By analyzing this place based on sustainable criteria, we can gain a broader understanding of the success and longevity of traditional suburbs such as Chestnut Hill, as well their potential as models for sustainable development.

## The Culture of Community

For a century, Chestnut Hill's inhabitants, inspired by the natural beauty of the place, have come together as a community to conserve it. The landscape of Chestnut Hill is defined by the Wissahickon and Cresheim creek valleys to the south and west and the thickly wooded streets of the higher ground. In the mid-1800's, the Wissahickon Creek ravine and the summer breezes on the hill made the area an attractive vacation retreat for wealthy Philadelphians, who escaped the hot, crowded city for the cooler microclimate and sublime rural landscape.

In the nineteenth century much of the two creek valleys was annexed into Philadelphia's Fairmount Park. The preservation of this beautiful natural feature before most land development had occurred helped conserve one of Chestnut Hill's most distinctive landscapes and maintain its wooded character. These parklands have inspired a vigorous conservation movement; in the 1920s, this activism successfully mobilized to ban automobiles from the upper Wissahickon Valley.

Chestnut Hill's activist spirit was aroused again when some of the larger estates were sold for subdivision. Citizens created the volunteer Chestnut Hill Community Association, which is still actively concerned with new development and its affect on the nature of this place. The association wields significant influence over local issues of transit, traffic, police and city services, and, most importantly, land use. The association has developed design guidelines and processes for community review of proposed development with the goals of "preserving and enhancing the physical character of Chestnut Hill."<sup>2</sup> Although community review does not always lead to good architecture, proposed developments are forced to address the urban design issues that give Chestnut Hill its character.

## Land Use, Housing and Transportation

A healthy ecosystem supports a diversity of life and activity. Similarly, a healthy community is home to a diverse population and provides a mix of employment, shopping and recreation opportunities. Chestnut Hill has a relatively wide range of land uses — shopping, parks, offices, restaurants, health care institutions and light industry — arranged in a pedestrian-scaled, walkable townscape amid large areas of protected open space.

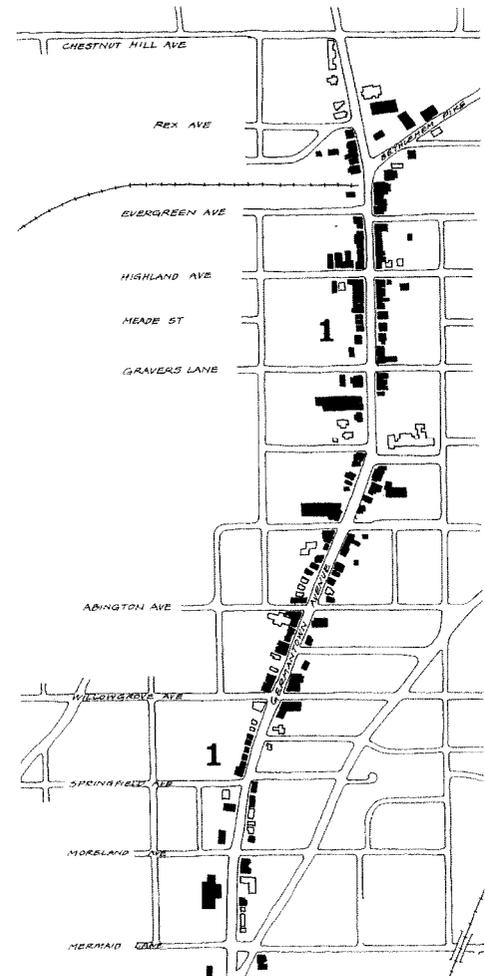
Chestnut Hill's main street, Germantown Avenue, is the major route through the community and the spine of the business district. This shopping street is the image most non-residents have of Chestnut Hill — an upscale, diverse, enjoyable place to shop. Although there are a number of boutiques, galleries and antique stores along the avenue, there are also hardware stores, shoe repair shops, bank branches, small grocers and dry cleaners, which serve residents' basic needs.

Elsewhere, the street patterns, lot sizes and dwelling types extend the pedestrian-friendly, human-scaled character of Germantown Avenue. The early streets were laid out in a grid, roughly parallel to Germantown Avenue, following original eighteenth-century land divisions. This grid was extended by city surveyors in the late nineteenth century, deforming only at the edges, where the topography becomes dominant. The grid provides multiple routes to most local destinations, connects neighborhoods within Chestnut Hill and helps distribute traffic evenly. Most streets have sidewalks and children can walk or bike to parks or friends without crossing major thoroughfares.

Residential development is concentrated near the commercial and transit spine. Densities range from 7-12 dwelling units per net acre, contributing to the relatively urban character of this part of town. Lot size varies from 2,500 square feet (a typical row house lot) to one-half acre.

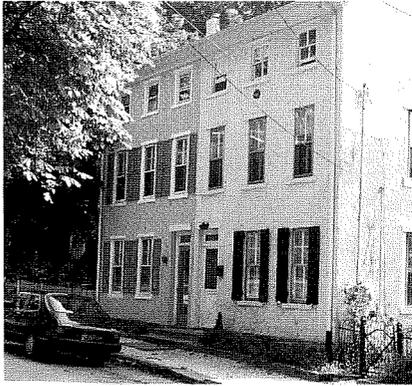
A diversity of housing types is an important characteristic of a sustainable community because it can accommodate higher densities and a range of household types within a traditional town character of front yards, distinct neighborhoods and open space. The higher density and mix of households, in turn, supports a wider range of transportation, service, shopping and recreation options and help justify investments in transportation and other infrastructure.

The blocks of compact Philadelphia row houses east of Germantown Avenue were developed in the nineteenth century for shopkeepers and clerks, and for artisans and domestic servants employed in the larger houses and estates. Beyond that area is a wide zone of diverse housing where large and small single-family houses, twins, attached row houses and occasional apartment buildings coexist in a lively mix. Further



Germantown Avenue's two- and three-story buildings constitute an almost solid commercial and retail frontage and create a pleasant pedestrian environment for a mile and a half. ("Chestnut Hill Community Association Land Use Guidelines," 1982)





1

Chestnut Hill's varied house types provide living places for a diverse population.

1. Early nineteenth-century row houses.
2. Mansion on the edge of town.
3. Twentieth-century twin houses.
4. Twentieth-century twin houses.

Streetcars and busses along Germantown Avenue connect Chestnut Hill to Center City Philadelphia.



2

from the avenue, lots and houses are larger and grander, particularly on the north and west edges of town, where the topography interrupts the grid and affords spectacular building lots.

Chestnut Hill has the highest median house price in Philadelphia, which is a measure of both its success as a desirable community and its failing as a sustainable one. That affluent families can be attracted to a diverse, town setting instead of a more exclusively zoned, limited access suburban subdivision is encouraging. However, the lack of more housing opportunities for lower-income families limits claims of diversity. Similarly, although nearly twelve percent of Chestnut Hill residents are African American, most live in and around one development in the northeast corner. Few blacks own businesses or are involved in the community association.

Although these divisions are being blurred by changing demographics, they remain as legacies of Chestnut Hill's history as a wealthy two-class suburb. The rapid increase of two-income families has enabled a new group of middle-class homeowners to purchase the small and mid-sized houses in the west side of town. Young singles and couples are attracted by Chestnut Hill's proximity to downtown and its relatively urban character. One of the few apartment buildings taller than three stories has become very popular with retirees, due to its easy walk to both a train station and Germantown Avenue.

One of the main tenets of sustainable communities is convenient access to mass transit. Chestnut Hill is extremely (some argue extravagantly) well served by commuter rail to center city Philadelphia, with two lines and six stations, a streetcar line and busses. However, the recent growth of employment outside of downtown has begun to erode the effectiveness of this infrastructure.

The commuter lines were built by private ventures eager to develop real estate and generate commerce in Chestnut Hill.



3



4

Their proximity was justifiable in the pre-automobile era when the only way to the station was by foot or horse. At the top of the hill, where the streetcars turn around, the two terminal stations of the east and west commuter lines lie within one-half mile of each other. One can transfer from here to other bus lines connecting cross-town and suburban routes to these 100-year-old transit lines.

Some 80 percent of Chestnut Hill residences and virtually all employers are within a quarter mile of a transit stop. This exceptional access to public transportation benefits many groups of people, from commuters and shoppers to kids and older people, who gain a freedom of mobility not available in automobile-oriented suburbs. Several stations on the two commuter lines have park-and-ride lots, providing transit access to many residents living beyond walking distance as well as non-residents from farther suburbs.

Although transit use by Chestnut Hill residents appears reasonably strong (on average 1,300-1,400 people ride the commuter trains from Chestnut Hill each day<sup>3</sup>), it could be higher. One reason may be that the drive to downtown Philadelphia takes about 30 minutes and can be made on relatively uncongested parkways and other surface routes. Another reason is that one quarter of Chestnut Hill residents commute to work outside of downtown Philadelphia. This trend, increasingly common in areas where the growth in jobs is mainly in the far suburbs, calls into question the current value of the public transit infrastructure of railroad suburbs.

### Nature, Resources and Architecture

Sustainable design attempts to make evident the connections between the natural and constructed worlds. One way to accomplish this is by using building material and architectural

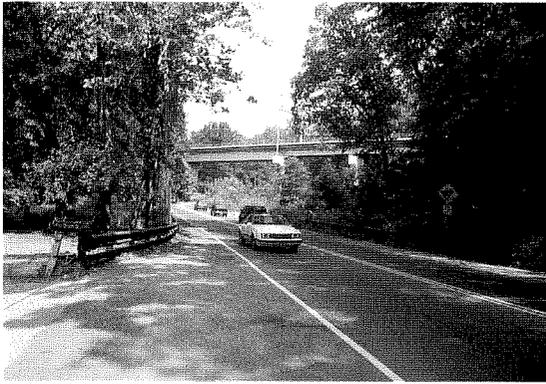
character that relate to the climate and landscape of a place. There are several such aspects of Chestnut Hill's buildings that create a common identifiable fabric.

Chief among these is the widespread use of locally quarried limestone schist for foundations, exterior building walls and landscape elements. Chestnut Hill stone, ubiquitous in the steep Wissahickon Creek ravines and the bane of many local gardeners, demonstrates an immediate connection between land and building and provides a literal grounding of the man-made to the natural place. Later development has not always followed these patterns as the local stone became less available and fashions of architecture and landscape design changed.

Chestnut Hill gardeners have always preferred landscaping with indigenous species, either from familiarity, affection or availability. In the early part of this century, Chestnut Hill provided a thriving business to a large nursery specializing in native plants. More recently, the use of native trees for street planting became institutionalized in community guidelines.

A Wissahickon style of garden has developed, designed to represent the native elements (trees, water and stone) and structure of the Wissahickon ravine. "Gardens are conceived more as usable spaces than display for houses."<sup>4</sup> (This is a particularly valuable feature for smaller dwellings in denser neighborhoods as outdoor space can often be used in this temperate climate.) Natural patterns of planting are followed: native understory species such as dogwood and laurel find their appropriate position beneath indigenous canopy trees — an idealized forest in the yard.

Most of the development of Chestnut Hill's infrastructure and buildings occurred when little attention was given to conservation of energy and natural resources. The buildings, although generally solidly built, are poorly insulated. Overt use of renewable energy, such as solar or wind power, is rare.



Cresheim Valley Road is part of a network of streets that provide convenient access to Center City, draining ridership from commuter rail lines (one of which runs on the viaduct that crosses the road).

Several characteristics of Chestnut Hill's residential construction, however, provide a measure of heating and cooling efficiency. The shared party walls of the smaller attached and semi-attached houses lower energy use by reducing the surface area of walls exposed to the weather. The stone foundations and walls used in many older structures act as thermal mass, modulating the diurnal temperature swings, especially in the summer. Combined with the countless large deciduous shade trees and beneficial breezes, this permits many houses to remain comfortable for much of Philadelphia's hot, humid summers without air conditioning.

The street grid of Chestnut Hill is oriented almost exactly 45 degrees from the cardinal points. This orientation is considered ideal for passive solar energy utilization; it provides an egalitarian solar access for nearly all lots and permits each side of a structure to see the sun at some time of the year.<sup>5</sup> This configuration provides great flexibility in planning residences to accommodate both the sun and street exposure. Although buildings designed specifically as "solar" are few, many older houses feature sun rooms and solariums.

Curbside recycling is very successful in Chestnut Hill. Composting and leaf mulching are widespread and curbside pickup of yard wastes for community composting is offered. These resource conservation activities help balance the energy inefficiency of the housing stock and, because they are community efforts, also encourage among residents and a sense of interdependence.

## The Lessons of Chestnut Hill

This analysis raises questions about both the sustainability of the traditional town model and the ability of sustainable communities to maintain an amenable scale and character. Chestnut Hill, while not a completely sustainable community, does offer encouraging lessons to planners of sustainable communities:

- The natural environment is a critical framework for a sustainable community. A place not tied to the climate, topography, soil or water will always be working against natural systems and teaching the wrong lessons.

Few urban or suburban communities have natural features with the beauty of the Wissahickon Creek, but something must be there in the land to infuse the community with a spirit of place and a respect for the natural environment. One question is the location of sustainable communities based solely on transportation or similar infrastructure.

- Sensitive urban design can reinforce and enhance the qualities of the natural environment. A community that acknowledges the natural edges of a place, takes advantage of the favorable physical characteristics and balances urban infrastructure requirements with natural features can create visible connections between nature and the built environment, helping to foster an understanding of the relationships between natural systems and human settlements.

- Urban design patterns that encourage mixed uses and housing diversity will be able to accommodate changes in economic characteristics or demographics. Places that can absorb change will have a better ability to endure through time.

- Places that provide a variety of opportunities for face-to-face encounters (in Chestnut Hill, the train stations, Germantown Avenue, the farmer's market) enable residents to interact and the community to recognize itself.

For Chestnut Hill to evolve into a healthy, sustainable community, it must address a number of social and technological challenges, both at the community and regional level:

- Chestnut Hill is a middle class to upper class community. How can it accommodate less affluent residents?

- Residential densities, although higher than in comparable suburbs, are lower than recommended by sustainable community guidelines. Can the density of a traditionally planned town support and justify the infrastructure investment required for it to be sustainable and, at the same time, provide housing for all incomes? Conversely, how could the densities that would support an effective transit system be accommodated without adversely affecting Chestnut Hill's unique environment?

- How can an established community with a mature architectural fabric like Chestnut Hill incorporate newer, more sustainable technologies such as solar and wind energy, waste

recycling and composting, urban agriculture? Should these technologies be imposed on existing structures, or should other ways be found to balance the conservation of resources? Community design review, which now focuses on maintaining the scale, texture and style of Chestnut Hill, may be a tool for helping designers connect the man-made to natural landscape and incorporate sustainable technologies.

- Transit-oriented developments can lead to reduced automobile use and more mobility for multi-generation communities, and they can be successful commercial destinations. But suburbs whose transit systems are tied to downtown destinations are having difficulty accommodating work-related trips because of shifting employment patterns.

This points to a number of challenges: Transit systems must be adaptable as conditions change over time; conversely, land development must build on existing infrastructure investment; transit networks must be extended in new directions to provide transportation to workplaces now accessible only by car.

The word *sustainable* has roots in the Latin *subtenir*, meaning “to hold up” or “to support from below.” A community must be supported from below — by its inhabitants, present and future. Certain places, through their peculiar combination of physical, cultural and, perhaps, spiritual characteristics, inspire people to respect and care for their community. These are the places where sustainability has the best chance of taking hold.

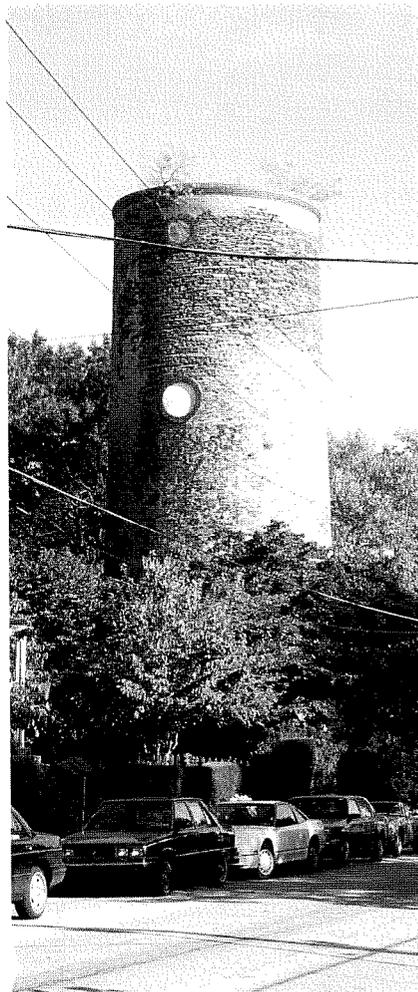
**Notes**

1. World Commission on Environment and Development (headed by G. H. Brundtland), *Our Common Future* (Oxford, U.K.: Oxford University Press, 1987). Although this is the most cited definition, I prefer Wendell Berry’s more evocative interpretation of sustainability: “our wish that human freedom and pleasure may last.” Wendell Berry, *Sex, Economy, Freedom and Community* (New York, San Francisco: Pantheon Books, 1993).
2. “Chestnut Hill Land Use Guidelines” (Chestnut Hill Community Association Land Use Planning Committee, 1982), 1.
3. Data provided by Southeastern Pennsylvania Transit Authority. This figure is for all riders boarding at stations within Chestnut Hill and does not distinguish between residents and non-residents.
4. “Chestnut Hill Land Use Guidelines,” 18.
5. I am indebted to Terry Jacobs for this observation.

**Sources**

David R. Contosta, *Suburb In the City: Chestnut Hill, Philadelphia, 1850-1990*, (Columbus: Ohio State University Press, 1992).

Willard S. Detweiler, Jr., *Chestnut Hill: An Architectural History* (Philadelphia: Chestnut Hill Historical Society, 1969).



Until the late nineteenth century, Chestnut Hill drew water from a nearby spring and stored it in this tower, still part of the town’s landscape.

A “Wissahickon-style” garden.

