According to some observers, transportation policy in the United States is now at a crossroads. Rather than a cross-roads, however, maybe a more appropriate analogy is to a widening canyon. On one side are the policies that intentionally or otherwise support continued and increased use of the private automobile. On the other side are the environmental, political, and economic constraints that prohibit building the thousands of lane-miles logically necessary to accommodate the demand growing on the first side. Because American society appears unwilling to close the canyon by building all of those lanes and roads, investigation must be made into ways to address the other side of the gap—to reverse the trend towards increased automobile. In searching for methods to achieve this goal, it is instructive to look at examples provided by some of our neighbors in the world community. Although the "New World" can boast of many of today's innovations, perhaps in this context it is the "Old World" that has taken the lead.

In this vein, both the Netherlands and the United Kingdom provide excellent examples of how the transportation canyon can be closed by reducing the need for the automobile. To be sure, both countries are culturally distinct from the U.S. Nevertheless, the dominance of northern European influences in North America suggests that these differences are not as great as one might expect. Moreover, the demographic make-up of the Netherlands, the U.K., and the U.S. are roughly comparable (OEEC 1994).

THE NETHERLANDS

Current land use and transportation policies in The Netherlands spring forth from two seminal plans completed by the national government in the late 1980s: the Second Transport Structure Plan, and the Fourth Report on Physical Planning in The Netherlands. Together, these two plans have significantly changed the course of the country's outlook on land use and transportation.

THE SECOND TRANSPORT STRUCTURE PLAN

The Second Transport Structure Plan is probably best summed up by its cover, which depicts a pendulum swinging from left to right, changing from a car wheel to a sunflower. The plan paints a bleak picture, showing a trend...
towards a 70% increase in car use between 1990 and 2010, with concomitant increases in congestion, air pollution, carbon dioxide production, and road fatalities. Against this trend, the plan sets as an overall goal the development of a "sustainable society," which it defines as "[a] society which meets the present generations' needs without jeopardizing future generations' abilities to meet theirs." To accomplish this, the plan calls for a cut in the growth of auto use to only 35% (i.e., a halving of the expected increase) through 2010. According to the plan, achieving this goal will require an aggressive set of policies, including:

- new land use policies: all new industrial development must take place in locations appropriately served by transit;
- parking restrictions: businesses and public facilities located in areas well-served by transit (known as "A" and "B" locations, see below) will be restricted to between 10 and 40 spaces per 100 employees/ visitors; and
- major investments in transit capital improvements: an $11+ billion investment through 2010.

The plan also includes numerous policies on transportation pricing, telecommuting, flex-time, bicycle facilities, and freight movement. As aggressive as these measures are, however, the Plan acknowledges that they nevertheless will fall short of the plan's goal, reducing the increase in car use to only 50%.

THE FOURTH REPORT ON PHYSICAL PLANNING IN THE NETHERLANDS

The Fourth Report on Physical Planning in The Netherlands, originally released in 1988 and then updated as the Fourth Report "Extra" in 1991, sets land use policy for the entire nation. Although not legally binding, the Fourth Report establishes the standards against which regional and local plans are evaluated.

The Fourth Report incorporates a shift in national land use policy that began in the 1970s. Prior to that time, going back as far as the 1950s, the national attitude towards growth was known as "bundled deconcentration"—a planned shift in new growth away from major urban centers to relatively under-populated areas in the northern and eastern provinces (Hall 1992). The growth was frequently targeted towards "new towns," i.e., towns that were entirely new, or were so small prior to the new growth that their former character was completely eclipsed. Although the intention was to establish in these towns a rough balance between housing and jobs, most ended up with substantially more houses than jobs. This necessitated a great deal of commuting, frequently by automobile. In fact, by the time of the Third Report on Physical Planning in The Netherlands (the 1970s predeces-
HOUTEN

Houten is a suburb located approximately 5 km outside of Utrecht. In 1979, the town contained a population of 4,000. However, that same year the national government designated Houten a new town, or “growth center.” Since then, Houten has grown to approximately 28,000.

Houten was specifically designed to encourage inhabitants to make local trips via bicycle or on foot. The central area of the town includes a rich mixture of business, government, institutional, cultural, retail, and high density residential uses. The rail station is the central focus for the town, and is surrounded on both sides by broad pedestrian plazas. This central area is itself surrounded by 16 neighborhoods, each with direct bicycle and pedestrian access to other neighborhoods and to the central core. While pedestrians and bicyclists have a straight shot to town, automobile drivers do not. The town’s street plan is based on a series of narrow, disconnected lanes, with access between neighborhoods allowed only by means of a roadway running around the town’s perimeter.

The impact of the town’s design on reducing car trips is impressive, even by Dutch standards. On average, Houten households make 25 percent fewer vehicle trips than the national average for suburban households. When compared to two other suburbs with similar characteristics, but with more traditional street patterns, Houten showed a 4 to 22 percent reduction in auto mode shares for shopping trips.

Policies & Places: Land Use and Transport in The Netherlands and the United Kingdom Page 3
that sites with good transit access are finite in number and should be reserved for uses likely to generate high levels of transit ridership. Second, that sites with good road access are also in limited supply and should be reserved for low density business uses, particularly those with a high reliance on short distance freight hauling (e.g., warehouses). Third, that the financial stability of transit service depends on high ridership levels, which can only come from moderate to high density land uses within close proximities to the service (Hilbers and Verroen).

The policy is implemented through a three step process. The first step is to classify property in a given jurisdiction according to the degree of transit and road access. The second step is to identify types of businesses that have relatively high employee densities and/or large numbers of daily visitors. The final step is to match the higher intensity businesses with the sites receiving higher levels of transit service.

Accessibility of place. The objective of the initial property classification is to geographically categorize lands into one of three location types: A, B, or C. The Ministry of Housing, Physical Planning and the Environment describes these three location types as follows:

"A-locations are accessible by public transport from a considerable distance away. They are situated near rail, underground/metro, tram, and bus service intersections, and near intercity rail stations. Their location guarantees a rapid connection to national public transport networks. Good accessibility for motorized traffic is of secondary importance. . . . Parking is strictly regulated in order to restrict car-use by commuters (no more than 10-20%). A-locations are easy and pleasant for pedestrians, for users of public transport and for cyclists. . . . Shops and other amenities in the neighbourhood have the feel of a large town or city, with the result that such a location provides an attractive living and working environment."

"B-locations are situated at the junction of public transport networks at urban or urban district levels. These junctions can include suburban stations just outside cities, major metro stations and (high speed) tram halts, as well as the intersections of bus services in smaller towns. B-locations are situated on a main urban trunk road or near the turnoff for a motorway. They offer relatively few facilities for long-term parking. . . . The use of public transport and the bicycle is encouraged in each case by the organisation of space. The attractions of this type of location are formed by their good accessibility by public transport and their moderately good accessibility by car. It is the aim in these locations to strive for a maximum percentage of car-users among commuters of 35%."

"C-locations make no specific requirements with regard to public transport. . . . C-locations are situated in the immediate vicinity of a motorway turnoff, in particular near 'major transport axes.' Parking is geared towards businesses with a relatively limited
number of employees, in particular companies directed towards the supply and conveying of goods by road. C-locations are situated in, or at the edge of, urban regions.* (VROM 1992)

To classify sites into these three categories, local jurisdictions developed a tool known as the "accessibility profile." Initially, the profile relied on a simple measure of distance to a non-highway transit, typically using 800 meters from a rail station and 2000 meters from a highway as the primary criteria. Locations less than 800 meters from a city's central rail station were classified as A locations; those less than 800 meters from a minor rail station and within 2000 meters of a highway were classified B locations; and those more than 800 meters from rail, but less than 2000 meters from a highway were classified as C locations (Hilbers & Verroen, Verroen and Jansen 1992).

The strength of this approach was that it took only "a look on a road map and a time schedule for Public Transport" to determine the accessibility profile of a location (Hilbers & Verroen). Predictably, however, the approach's simplicity was also its major drawback: it did not reflect a number of additional variables that significantly affect transportation mode choice, including congestion levels, parking restrictions, and trip lengths. As a result, many sites were classified as B locations, despite the fact that they had such good auto accessibility that car use was nearly as high as in C locations. According to Hilbers & Verroen, this led to "A-type companies at so called B type locations with a C-type of car use. That is exactly what the [ABC] policy tries to prevent."

Because of these limitations, a new method has emerged called "actual accessibility." Under this approach, parking restrictions, congestion, and transit service levels are incorporated through the estimation of time and costs of travel between all zones for each mode, and through the calculation of travel distances between all zones. Although more complicated than the former method, the actual accessibility approach does a better job of classifying sites as A or B that will likely achieve the car use targets identified for those location types (20% for A locations, 35% for B locations) (Hilbers and Verroen).

Mobility of business. Parallel to accessibility profiles are a series of "mobility profiles" developed by jurisdictions to segregate businesses into different categories, depending on the nature and amount of their transportation needs. As Van Hout points out, "the mobility profile is the counterpart of the accessibility profile; their relation to one another is one of supply and demand" (1991). Through the mobility profile process, the transportation needs of a particular business are determined by analysis of employee densities, numbers of visitors, the need to conduct business with the use of a car, and reliance on the transport of goods. The objective is to determine the potential of a given business to accomplish its objectives through means other than the use of automobiles.

The task of completing mobility profiles has been facilitated by a series of classifications that aggregate businesses with comparable mobility characteristics. In a 1991 study by Verroen and Jansen, 62 different business classifications were identified using a standard government classification system, modified through the use of statistical data, interviews, and surveys.

In the 11th century, the town of Zoetermeer had a population of 35. By 1962, that number had only grown to 9,000. In that same year, however, the provincial government requested the town to develop a plan for a new town with a target population of 100,000. This new city, which in 1992 had a population of nearly 103,000, is based on a series of 12 rail stations for the Sprinter, an electric hybrid between light rail and more traditional heavy rail technologies. The Sprinter provides for intra city circulation via a modified figure 8 travel pattern, plus a direct connection to The Hague, 10 km to the west.

The center of the new city is located across a small take from the historic town, and is the location of numerous retail outlets (including an American style "festival mall") and most of the city's civic and cultural institutions. All Sprinter service is funneled through this center, where the station is located directly under City Hall and adjacent to the city's main library.

Each station area outside of the city center contains a series of local services, retail establishments, neighborhood institutions (schools, day care facilities, local libraries, etc.), and higher density housing (3-4 stories). Although the city does have its share of Corbusier-style "apartment slabs" from the 1960s (Van der Wal 1985), the proportion of high to low rise housing was changed in the early 1970s from 70/30 to 50/50. Hence, in the station areas built after 1970, as the distance from the station increases, the density decreases, so that after one 1

*continued on page 6
For ease of application, these 62 categories were clustered into 11 main business types. Employee densities per 1000 square feet amongst these 11 business types ranged from .14 for agricultural firms to 3.1 for offices and high density industry. Visitor densities per 1000 square feet ranged from .1 for agricultural firms to 6.2 for public facilities. Other factors taken into account included the necessity to car use, average employee commuting distance, and the importance of freight hauling.

Because this system provides average values across entire classes of businesses, it is relatively easy to administer. As with accessibility profiles, however, this aggregate approach masks a wide degree of variation between individual businesses. According to Verreau and Jansen, the aggregate classifications account for only about 50 to 70 percent of the total variation within each of the indicators used to create the aggregated mobility profile. This has led some to urge that mobility profiles be based on a scoring system applied to individual businesses, rather than on the average values of an entire business group (Verreau and Jansen 1992).

Matching businesses with locations. Once locations and businesses are classified, the final step in the ABC process is the matching of business mobility profiles to the accessibility profiles within a jurisdiction. The objective is to arrive at a system that yields the maximum reduction in unnecessary car travel while still providing road accessibility for those firms heavily dependent on cars for business use and/or on road freight for the hauling of goods.

Ideally, those businesses with high employee and/or visitor densities, and with low dependence on autos and trucks should be sited at A locations. Conversely, businesses with low densities and high dependence on autos and trucks should be sited at C locations. Businesses somewhere in between these extremes—e.g., those that are relatively dense but are highly dependent on car or truck use—should be sited in B locations. As with other parts of the ABC policy, however, these idealized matches are not always workable. Hence, a system of location priorities has been developed to provide flexibility and to accommodate variations in individual circumstances.

Implementation. As discussed above, the ABC policy emerged as national policy in the late 1980s/early 1990s. As national policy alone, ABC has already had a significant effect in areas directly controlled by the national government. For example, government plans directing the location of future office facilities and public institutions now incorporate the ABC system. This has already had an effect on the location of new court houses around the country, and on the site for the recently constructed headquarters for the Ministry of Housing, Physical Planning and the Environment (see below). Also, the ABC policy is being used to prioritize government spending in such areas as contaminated industrial site remediation, noise mitigation, and infrastructure investment, including the $11+ billion in transit capital improvements noted above (Van Huij 1991; VROM 1994b).

As important as these measures are, however, the ABC policy would have a limited effect if it remained only an instrument of the national government. Comprehensive implementation requires that the policy be directed at the shape of municipal planning and zoning, which in turn will guide the decisions made by private businesses. Although the ABC policy has been on the scene for approximately five years, it is still in the process of fi-
tering down to the local level. As of January 1994, the Ministry of Housing, Physical Planning and the Environment reported that six of Holland's 13 provinces had yet to incorporate ABC into provincial planning instruments (VROM 1994b). This delay has in turn caused delays in the adoption of metropolitan policy plans (curiously translated as "plans of attack"). It is these plans that form the basis for modifying locations, setting priorities for transportation improvements, and constructing governmental, educational, and medical facilities (VROM 1994b). Only a few of these plans had been completed at the beginning of 1994.

Policy effectiveness. For all the immense effort already invested, and yet to be invested, in the development and implementation of the ABC policy, it is a fair question to ask whether it has been effective to date. Unfortunately, because the nature of the developed landscape changes at a relatively slow rate, the effects of location policy on transportation behavior can only be measured in the longer term—certainly much longer than the few years that ABC has been in existence. Moreover, the effects of location policy alone are difficult to isolate from other variables that effect behavior, such as parking availability, transportation cost, proximity to large employment centers, and tax structure (VROM 1994b).

Nevertheless, information gathered by Verroen and Jansen indicates that ABC will likely be quite effective once implemented. The authors surveyed a number of businesses in and around The Hague, and, using the mobility profile system outlined above, classified each according to the most suitable location type (i.e., A, B, or C), irrespective of actual location. Actual locations were then classified by accessibility profile into either A, B, or C. Finally, the location suitability of each business was compared to its actual location. The results, outlined in Table 1, show that car mode shares vary by about 20 percent for both business type (A, B, or C), and location type (A, B, or C). In other words, a business located in an A location and with a mobility profile indicating A as the most suitable location, attracts approximately 20 percent fewer car trips than an A business located in a C location, or a C business sited in an A location. Interestingly, the difference between A and B locations is much greater than the difference between B and C locations. This suggests that the degree of highway accessibility has a larger impact on transportation behavior than the degree of transit accessibility (Verroen and Jansen 1992).

The ABC policy's effectiveness is also demonstrated by the recent relocation of the offices for the Ministry of Housing, Physical Planning and the Environment. Previously, the ministry's offices were located at a number of dispersed sites throughout the country, each with varying degrees of transit accessibility. The new offices, however, are directly adjacent to the central railway station in The Hague. A before and after survey conducted by the ministry shows that employee commuting by auto has dropped from 41 percent to only four percent, while commuting by rail has increased from 25 percent to 57 percent, and bus/tram use has gone from nine percent to 20 percent. See Table 2.

Another valid question to ask at this point is: How far away is the current built environment from the idealized urban form envisioned by ABC? In 1991, 57% of the businesses in The Hague surveyed by Verroen and Jansen were sited in locations deemed unsuitable by their mobility pro-

### Table 1: Comparing Accessibility and Mobility Profiles of Various Businesses In The Hague

<table>
<thead>
<tr>
<th>Accessibility Profile of Business Location</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Av.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>32%</td>
<td>56%</td>
<td>55%</td>
<td>46%</td>
</tr>
<tr>
<td>B</td>
<td>44%</td>
<td>72%</td>
<td>54%</td>
<td>57%</td>
</tr>
<tr>
<td>C</td>
<td>50%</td>
<td>71%</td>
<td>76%</td>
<td>69%</td>
</tr>
</tbody>
</table>

### Table 2: Employee Mode Choice Before and After Relocation of Ministry of Housing, Physical Planning and the Environment

<table>
<thead>
<tr>
<th>Mode</th>
<th>Before Relocation</th>
<th>After Relocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto</td>
<td>41%</td>
<td>4%</td>
</tr>
<tr>
<td>Rail</td>
<td>26%</td>
<td>57%</td>
</tr>
<tr>
<td>Bus/Tram</td>
<td>9%</td>
<td>20%</td>
</tr>
<tr>
<td>Bike</td>
<td>22%</td>
<td>18%</td>
</tr>
<tr>
<td>Walk</td>
<td>3%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: VROM 1994b.
The historic city of Delft is the site of research conducted in 1980s on the relationship between the frequency of bicycle use and the provision of bicycle facilities. In the 1980s, bicycle facilities in The Netherlands were largely neglected. Few new facilities were constructed during the decade and many were in fact eliminated to provide extra road space for automobiles. During the same period, bicycle use declined nation-wide, while auto use increased substantially. Partially in response to the energy shortage of the early 1970s, the Dutch government established a dedicated fund for the construction of new bicycle paths and lanes. By 1985, the national government had spent more than $280 million from this fund.

In Delft, these funds were used to construct a bicycle network including several tunnels and bridges for bicycles, plus approximately 25 km of new bike lanes and paths. To gauge the effect of these improvements, the Ministry of Transport and Public Works conducted a study evaluating before and after effects of the improvements, and comparing a study area within the network of improvements with a control area not within the network. The study found that in the control area, mode choice shifted in favor of the automobile by 10% at the expense of transit ridership. In the study area, however, auto trips decreased, while the mode share for bicycles increased by 6 to 8 percentage points. Overall, the new bicycle network is partially accountable for an increase in bicycle mode share from 40 to 43 percent (Hartman 1990).

files. Not surprisingly, most of these businesses were sited in C locations or in a residual location category ("R location") having neither highway nor transit access. Through investments in transit facilities and services, however, transit access for many of these sites can be significantly improved, thereby converting them from C or R locations into A or B locations. It is estimated that by merely constructing the transit capital improvements currently listed in local transportation plans, the business/location mismatch would be reduced to 37 percent. Adopting strict land use regulations that allow for business relocation only on suitable sites would further reduce the mismatch to 27 percent. According to rough calculations, this reduction in business/location mismatch could result in an 8 percent reduction in auto mode share overall (from 60 to 52) (Vervoorn and Jansen 1992).

Political implications. From the perspective of an outsider, it is difficult to accurately assess the political health of any policy. Nevertheless, the following points are apparent.

The ABC policy, when first introduced, was not popular with a number of business interests or with local and provincial governments in less urbanized areas. Predictably, the business community was distraught over the policy's limitation on freedom of movement and the effect that might have on economic growth. This displeasure was reflected in newspaper headlines such as "Alders' location policy curbs investment," and "Alders makes office building unprofitable." Non-urbanized local governments were upset over the perceived loss of business development that would occur from a policy as rigid as the ABC (VROM 1994b).

Even in urbanized areas, the ABC policy has not reduced the usual competition for new development amongst various municipalities within a single metropolitan area. Given the transit accessibility will vary significantly across a region, the ABC policy sets up a framework of winners and losers for A-type businesses: transit rich jurisdictions will also be rich in A and B locations, and will, hence, be in a better position to attract high intensity businesses. Transit poor jurisdictions, on the other hand, will also be poor in A and B locations and, hence, be at a competitive disadvantage. This assumes, of course, a perfect implementation of the policy. What, in fact, seems to be occurring in at least some cases is that the disparity in transit resources has not led to a geographic shift in business activity, but to a less than perfect implementation of policy. In other words, transit poor jurisdictions are allowing A and B type businesses onto C locations (Tanja 1994, VROM 1994b).

Nevertheless, despite these initial negative assessments, today's political currents are moving towards acceptance of the ABC policy, a willingness to work with it, and, in the case of some businesses, a realization that it might actually be beneficial. It appears that at least some of this shift can be attributed to the national government's commitment to invest more than $11 billion in transit capital improvements through 2010. In a country as small as The Netherlands, this amount of investment is significant. One can hardly travel anywhere in the Randstad, for example, without observing a half dozen or more major transit improvements under construction. As beneficial as this construction is to the environment, the most important impact of these investments, from a business- and local government point of view, is that they "create" more A and B locations. As each one of these
improvements is made, the land surrounding it is transformed from being a C or R location into an A or B location.

An excellent example of this effect can be seen in the major reconstruction of the central station in Leiden. One of the objectives of the project is to place the multi-lane arterial that currently passes in front of the station into a tunnel. Once the arterial is underground, dozens of acres of land will suddenly become available for commercial development, all of it with a location designation of A. Moreover, the Leiden central station has more trains passing through it than all but the largest cities in The Netherlands, this newly created commercial property will have superior access and, hence, should be quite marketable.

THE UNITED KINGDOM

Land use planning is a time-honored tradition in the United Kingdom probably more than in any other European country. This tradition has its roots in the British passion for the countryside—a passion evidenced, for example, in WWII military recruitment posters portraying images of the countryside to stir patriotic fervor. It was, in fact, the conclusion of that war that set the stage for the cornerstone of today's British planning system: the Town and Country Planning Act of 1947 (Hall 1992). Over the years, the Act itself has been replaced and many of its ideas amended and, in some cases, negated (e.g., provisions that nationalized the right to develop private land). Nevertheless, the Act established for the first time a national framework for the planning and development of land, and made possible important innovations such as the series of greenbelts surrounding and containing the country's major cities (Hall 1992).

As important as the countryside is to the British, however, the suburban development pressures experienced in the U.S. since the 1960s have been evident in the U.K. as well, though perhaps to a lesser extent. Between the 1950s and 1980s extremely high rates of growth in population and in car ownership helped to fuel massive migrations to the rural districts beyond the green belts of major urban areas, despite strict policies in favor of urban containment. This trend received a significant boost during the Thatcher era of the 1980s. In 1986, for example, the Thatcher government disbanded the governmental units most effective at controlling outward growth—the Greater London Council and the metropolitan county councils surrounding six additional major urban areas. Although reorganization in the mid-1980s partially reversed the decentralization trend, Professor Peter Hall notes that it was during the Thatcher era that “the English landscape was transformed by major edge-of-town industrial estates, warehousing units, hotels and superstores” (1992).

This trend towards decentralization was coupled with, indeed facilitated by, an ambitious road building program rivaling the interstate highway program in the U.S. As with land use planning, the shift towards increased road building was facilitated by Prime Minister Thatcher, who once referred to her conservative constituency as "the great car-owning democracy" (Wenban-Smith 1993). The hallmark of this policy trend was the 1989 government white paper titled "Roads for Prosperity," which pro-

Redditch

The town of Redditch is located south of Birmingham, at the end of one of the regional rail lines that serve the West Midlands. Although the town has long historical roots, it was selected in 1964 to be the location of significant new growth, and was hence deemed to be a "new town." The new portion of the town was planned around a series of busways, which, in addition to providing transit service, serve as the focus for local services and more intensive land use types and densities. See Figure 4. The busways also define the location of the town's residential areas, all of which were designed to be no further than 1/2 mile away from a bus stop (Redditch).

In 1984, Redditch was compared to Milton Keynes. The study showed that Milton Keynes, built at a density of 12 persons per hectare, supported bus service at average frequencies of 30 minutes with 42% of operating costs covered by government subsidy. On the other hand, Redditch, built at 23 persons/hectare, supported 10 minute frequency bus service, and relied on subsidies for only 6% of the operating costs (Potter 1984).
jected a 142% traffic increase by 2025, and proposed an $18 billion road construction program to match it (AMA 1990). See Figure 5. The Thatcher government's preference for the automobile was also evidenced by decisions to de-regulate bus services and to sell off major portions of British Rail to the private sector.

The result of all of these trends has been a marked increase in automobile use. In fact, between 1960 and 1990 the number of vehicle kilometers traveled per year tripled. Interestingly, the percentage of trips made by car between the mid 1970s and the mid 1980s remained relatively stable. While demand increased substantially during that period, however, was the average length of car trips, which went up by 51%. The resulting increase in vehicle kilometers driven is largely responsible for the 35% increase in CO₂ emissions from road vehicles that occurred between 1979 and 1989. This increase boosted transportation's share of total CO₂ emissions in the U.K. from 13% in 1979 to 20% in 1989 (ECOTEC 1993).

Concern over this increase in CO₂ emissions, and emissions of various air pollutants, coupled with increasing concern over reducing road expenditures and in revitalizing city centers, has led British land use and transportation policy makers to shift course away from the automobile. This shift is seen most directly in recent government planting policy guidance notes concerning the location of new retail and employment developments. The shift is also apparent in new government policies on transport investment, but to a lesser degree.

RETAIL LOCATION: PLANNING POLICY GUIDANCE 6

In the British planning system, planning policy guidance notes (PPGs) outline national government policies on different aspects of planning. Local planning authorities must take the PPGs into account when adopting local plans. The PPGs may also be used to determine the outcome of individual applications and appeals.

PPG 6 sets out the government's policy regarding retail development, particularly the issue of locating such development in town centers or at the urban fringe. The guidance note, the current version of which was adopted in March 1993, arose out of a concern about the growth of "out-of-town" shopping centers and their effects on traffic growth and on the economic vitality of town centers. Throughout the 1970s and 1980s, the number of retail establishments nationwide decreased while the amount of floor space per establishment increased. See Figure 6. Approximately 90% of the retail floor space created between 1971 and 1981 was located in town. However, during the building boom between 1987 and 1992, only 34% of the new retail space was located in town, the remainder at various out of town locations. In 1993, only 6% of local government planning directors considered their town centers to be "vibrant"; 64% felt their town centers were stable or declining (URBED 1994).

The objectives of PPG 6 are two-fold: (1) "to sustain or enhance the vitality and viability of town centres," and (2) "to ensure the availability of a wide range of shopping opportunities." In preparing development plans and analyzing individual applications, the guidance note requires local authorities to consider the effect the development will have on the social and economic vitality of the town and the character and appearance of the town center.
economic well being of existing town centers. Also, local authorities must "ensure that access is likely to enable a choice of transport mode, and that the location will not result in an unacceptable increase of CO₂ and other polluting emissions . . . Usually this is likely to mean locating retail development in or next to existing town centres and concentrations of people." This latter requirement is included specifically to work towards the objectives of "sustainable development" outlined at the Rio Summit of 1992.

**BUSINESS AND RESIDENTIAL LOCATION: PLANNING POLICY GUIDANCE 13**

PPG 13, simply titled "Transport," is arguably the most important development in British planning for some time. Although the current version of the guidance note, adopted in March 1994, is technically a replacement of an earlier document with the same number and name, it is so radically different from its predecessor that it is in reality a completely new guidance note. Whereas the earlier document was limited to relatively minor issues such as the provision of road-side service areas, the new guidance note contains detailed planning directives aimed at reducing the need to travel, especially by car. To meet this goal, PPG 13 requires local authorities to adopt planning and land use policies to:

- promote development within urban areas, at locations highly accessible by means other than the private car;

- locate major generators of travel demand in existing centres which are highly accessible by means other than the private car;

- strengthen existing local centres— in both urban and rural areas—which offer a range of everyday community, shopping and employment opportunities, and aim to protect and enhance their viability and vitality;

- maintain and improve choice for people to walk, cycle or catch public transport rather than drive between homes and facilities which they need to visit regularly; and

- limit parking provision for developments and other on or off-street parking provision to discourage reliance on the car for work and other journeys where there are effective alternatives."

**HOUSING LOCATION**

PPG 13 establishes a series of location priorities for new housing that are somewhat similar to those contained in The Netherlands' Fourth Report, described above. The first priority is to locate the "maximum amount" of new housing in existing larger urban areas where it is easily accessible to a wide mixture of different uses (e.g., schools, shops, recreational facilities) and to alternative transportation modes. This first priority is to be particularly focused on the "conversion and reuse of existing properties," i.e., in-fill and redevelopment. Only when these sites are unavailable can the second

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**Newcastle**

Newcastle is part of the Tyne and Wear conurbation, located in the northeastern part of England. The region was the first in Britain to fully integrate all of its transit services, thereby allowing smooth and convenient transfer between modes. During the 1970s and early 1980s, Tyne and Wear had a single regional government that had responsibility for both transportation and land use decisions. This combined authority was used extensively to support the construction of a new subway system (Metro) throughout the region in the early 1980s.

With the subway's opening in 1984, a substantial majority of the land within the region was no more than a 40 minute commute from the city center. This degree of accessibility is attributed for the region's relative success in promoting transit ridership. In 1985, Tyne and Wear transit authorities estimated that ridership increased 10% between 1974 and 1985. This, despite a substantial decrease in population and a significant increase in car ownership during the same period (Lewis 1986).
priority be utilized, which allows housing to be located in peripheral areas, but only where well served by transit. Like the Fourth Report, PPG 13 moved away from the development of new towns, particularly discouraging the development of small new settlements (those less than 10,000 dwelling units within 20 years). Although not specifically stated in the guidance note, this move away from new towns appears to be for the same reason as the Dutch policy shift: a failure of new towns to attract sufficient levels of employment, making them very reliant on automotive travel, especially for work trips.

In addition to location, PPG 13 directs local authorities to plan for new housing in ways that will maintain overall densities, and, where appropriate, increase them. It also warns against creating housing-only enclaves, urging instead that a variety of different uses be juxtaposed in close proximity to each other.

**BUSINESS LOCATION**

The influence of Dutch land use policy in PPG 13 is probably most obvious in the area of business location. Here, the guidance note urges local authorities to locate employment- or travel-intensive businesses on sites easily accessible by transit. The less intensive businesses are to be located in areas without such accessibility. This formulation, while being consistent with plain common sense, is unmistakably inspired by the Netherlands' ABC policy.

Although PPG 6 is the primary guidance note on retail location, PPG 13 addresses the subject as well, emphasizing several areas briefly mentioned in the earlier guidance note. Specifically, PPG 13 refines the preference for town center retail locations by stating that if such a location is not available or feasible for larger developments, local planners should “seek edge-of-centre sites, close enough to be readily accessible by foot from the centre and which can be served by a variety of means of transport.” PPG 13 also urges the location of convenience retail in “local and rural centres,” again reinforcing the notion of use mixing as a way of reducing auto reliance.

One area addressed by PPG 13 that is not specifically covered by ABC is the issue of leisure, tourism, and recreation. The guidance note points out that it is in this area that travel rates are increasing the fastest, a phenomenon also evident in the U.S. Given this trend, PPG 13 urges local planners to locate major new attractions (e.g., sports arenas) in areas readily accessible by transit. Smaller scale attractions such as cinemas and theaters are to be sited in town center locations to reinforce their viability, especially during the evening hours.

**POLICY EFFECTIVENESS**

As noted above, land use patterns change slowly. Given the recent adoption dates of PPGs 6 and 13, it is far too soon to judge their effectiveness on the built environment and on travel behavior. Nevertheless, there are indications that the guidance notes, if effectively implemented, will significantly reduce expected increases in auto use. In fact, a recent study co-sponsored by the U.K. departments of Environment and Transport indicates that a number of policies included in PPGs 6 and 13—particularly those promoting...
higher development densities and greater land use mixing—could lead to reduced auto use. The study notes that three-quarters of all trips made in the U.K. are under five miles in length, a practical distance for bicycle use; a third of the country's trips are less than one mile long (i.e., walking distance) (ECOTEC 1993). See Figure 7. These figures indicate a substantial potential for shifting trip modes away from automobiles to bicycles and walking.

**POLITICAL IMPLICATIONS**

Like measuring policy effectiveness, it is a bit premature to assess the political implications of PPGs 6 and 13. Experience with similar initiatives in the U.S. (e.g., the Oregon Transportation Planning Rule) shows that the political fortunes of such measures cannot be gauged at the time of their adoption. Rather, such assessments are only possible at the time of implementation, when choices have to be made that will effect the interests of real parties in specific circumstances. Although full implementation of the PPGs is not expected until 1996, both guidance notes have the type and amount of support that seems likely to help them weather the storms that are sure to occur during implementation.

Given that the guidance notes are instruments of the government, it is not remarkable that the government supports them. What is remarkable are the steps taken by the government that will make it difficult for it to back away from that support when the going gets tough during implementation. First of all, both PPGs have been included as cornerstones for the U.K. commitment to sustainable development under the Rio treaty. Hence, any prospect of diluting support for the PPGs is not just a matter of domestic policy, but also an issue of compliance with international treaty obligations. Second, a report recently issued by the Royal Commission on Environmental Pollution strongly endorsed both guidance notes, thereby giving them the imprimatur of a non-partisan "blue ribbon" commission.

Such reports have a history of carrying great weight in British policy (Hall 1992). Finally, when the public review draft of PPG 13 was in circulation, the Department of Transport decided to become a co-signatory of the guidance note, along with the Department of Environment. This unprecedented move gives PPG 13 a substantial political boost by indicating united support from two agencies that would normally be expected to having varying views on land use and transportation.

Political support from the private sector is a bit more measured. Several of the country's major retail chains have begun to indicate some support of the guidance notes (Quinn 1994). However, this support appears to be based on the (mistaken) assumption that the guidance notes will not apply to them. Some attribute the lack of vocal opposition from retailers to the perception that the market for out-of-town shopping centers is already saturated. For these observers, "the horse is already out of the barn" (Swann 1994).

Despite any reservations with the private sector, local governments appear to be strongly supportive. In fact, many localities were turning down a significant number of out-of-town retail projects long before PPGs 6 and 13 were on the books. Many of these decisions, however, were overturned on appeal for lack of national policy support. Hence, for some, the adoption of the two guidance notes is seen as a ratification of a decision-

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**Figure 7. Trip Lengths in the U.K. by Percentage of All Trips**

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making practice already underway at the local level (Burton 1994).

**TRANSPORT POLICY**

The British government began the 1990s with a proposal for doubling the size of the country's trunk road program (Royal Commission 1994). By 1994, concerns about global climate change (largely inspired by the Rio Summit in 1992) had shifted national policy sufficiently to allow the publication of PPG 13 with the blessings of the Department of Transport (DoT).

Some believe that DoT's participation in PPG 13 had less to do with a desire for real change and more to do with providing political cover for the department's road building program. These are, however, more recent indications that national transportation policy truly is moving away from the road dominant position of the Thatcher era.

The first step in this direction came in 1992 when the Birmingham City Council and the West Midlands Passenger Transport Executive sponsored a "package approach" for funding both road and transit improvements (Choudhury and Lichfield 1993). This approach brought together all of the transportation authorities in the West Midlands region, both road and transit, to negotiate a single package of road and transit projects for funding by the national government. Prior to this, all proposed projects were submitted directly by each authority to the government, which would then pick and choose projects as it saw fit. This resulted in very few transit projects getting funded. With the package approach, the region makes the first determination of the split between roads and transit, thereby limiting the government's ability to second guess regional priorities. The approach also provides for a great deal of funding flexibility between the different modes. Although initially resisted by the government, the package approach has now become national policy, and has resulted in more funding for transit projects (Wenham-Smith 1993).

Another important step away from the Thatcher era policies came in March 1993 with the government decision to raise fuel taxes by 10%. This was quickly followed by another 10% increase the subsequent November, and an announcement that taxes would be increased 5% per year in the future. These increases are expected to result in carbon dioxide emissions in the year 2000 that are 4% less than the projected trend.1

This was then followed, in the fall of 1994, with the publication of the report from the Royal Commission on Environmental Pollution, mentioned above. This volume, subtitled "Transport and the Environment," contains more than 300 pages of analysis of problems and proposed solutions. Amongst its many bold proposals, the report recommends a halving of the national budget for road construction and maintenance, with the remaining funds to be used for alternative transportation modes (Royal Commission 1994).

Finally, in a long-awaited report, the government sponsored Standing Advisory Committee on Trunk Road Assessment (SACTRA) released findings in December 1994 indicating that the construction of new

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1 While this is an impressive achievement, estimates show that this amounts to only a third of the CO2 reductions needed from road transportation to comply with the targets in the Rio treaty (Royal Commission 1994).
roads often leads to the generation of extra traffic (SACTRA 1994). This finding is in contradiction to former government positions that maintained there was no link between road construction and increased travel. Although government press releases attempted to minimize the importance of the SACTRA report, many observers see the report as the beginning of a government reversal from the earlier ambitious road building schemes.

CONCLUSION

The first automobile was built in Germany at the end of the nineteenth century. Americans took that technology and applied to it methods of mass production and distribution that have facilitated near universal auto ownership in the U.S. today. Similarly, the first shopping centers were the arcades and gallerias developed in places such as Brussels and Milan in the mid-nineteenth century. Again, American methods of development and duplication have resulted in mega-malls being built across the entire North American continent. As these mass produced versions have re-crossed the Atlantic and planted themselves in the lands of their distant cousins, many European communities are discovering important ways to enjoy the benefits of the original technology, while avoiding the negative impacts of the modern American equivalents. Perhaps history will repeat itself, and Americans will also import and then mass produce some of these solutions as well. The emerging policies and examples outlined here from The Netherlands and the United Kingdom would be a good place to start.
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