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Housing and Highway Planning in Israel: An Environmental Debate

Deborah F. Shmueli

Summary. The interrelated planning issues of housing and transport are subjects of controversy in Israel, as the country prepares for a population increase of 2.5 million by the year 2020. The debate is framed by the options for each—in housing, high-rise versus mixed-height building; for the proposed National Highway, its desirability and, if implemented, the route. The author urges a judicious mix of low- and medium-rise housing channelled toward the periphery of the country, rather than the high-rise, high-density concentration that government policy currently encourages. Closely tied to planning for housing, is the strategy to be used in timing the construction of the Highway segments and locating their interchanges. Changing the sequencing of construction of the proposed National Highway to begin in the periphery instead of in the densely populated centre, would encourage development in areas of greater land availability.

Introduction

Housing location and density, and highway development are interrelated planning issues that engender considerable controversy in Israel today. The debate is framed by the options for each—in housing, high-rise versus mixed-height building; for the proposed National Highway, its desirability and, if implemented, the route and its interchanges.

The point-of-view of this author is that the Israeli setting can accommodate some of its expected population increases through a judicious mix of low- and medium-rise housing. Directly related to this strategy is that of the sequence and direction of the building of the Highway. Initiating road construction in the periphery of the country and moving toward the centre (rather than starting at the centre as proposed by the government), would encourage housing development in areas of greater land availability. Moreover, selection of interchange sites should take into account their development potential for Arab as well as Jewish population centres.

Background to Israeli Planning

To better understand the current debate, it is helpful to review the evolution of planning in Israel. Planning for population growth and distribution, housing, employment and transport have been matters of national policy since the establishment of the State in 1948. This continued pre-State planning policies, when Zionist institutions directed Jewish pioneering, agricultural settlements (kibbutzim—collectives, and moshavim—co-operatives) to geographically strategic areas in the north, the central coastal plain and the south.
Because governance in Israel up until now has been highly centralised, planning has followed suit. It is centralised, hierarchical and statutory.

Immediately after the establishment of Israel, the waves of immigrants were so overwhelming that there was not time for the new government to implement a systematic national planning policy. Immigrants were either housed in abandoned Arab towns or were hastily placed in transitional tent cities (maaborot), many on the sites of former British army camps.

By the mid 1950s, however, centralised institutions combined to establish new rural settlements, for the most part moshavim and kibbutzim, and urban development towns mainly in the Galilee and Negev periphery. This process has been described as ‘developmental planning’ (Hill, 1986) and produced the road infrastructural and settlement patterns of modern Israel. Most of the towns which were viewed as central place service centres for the surrounding villages, have remained small or medium in size (ranging from approximately 5000 to 25 000 in population). Their demands on the environmental structure have generally been limited. Until the mid 1980s, very few planning mechanisms, national or local, had been implemented in Arab villages and towns, although their population increased five-fold between 1948 and 1990 (Khamaisi, 1993).

Pressures for Decentralisation

Centralised planning and land management in Israel reflected its socialist beginnings, and the dependence of immigrants, most of whom arrived impoverished, on government resources. Domestic and international trends since the mid 1980s have weakened the socialist ideology. The economic philosophy of the Labour Party, which now supports privatisation, differs from that of the conservative Likud party only in its continued support of a strong trade union movement and welfare safety net.

Bureaucratic decentralisation and political reform that would give greater power to regional and local forms of government have been much slower in coming. Nevertheless, the radical political, economic and strategic changes that have taken place in the past decade, including privatisation of large-scale enterprises owned by the government and the General Confederation of Labor (Histadrut) are beginning to have an impact on the planning process. The unprecedented growth of high-tech industry and financial services, fuelled by the market economy and international trade, has shifted the emphasis to urban activities. Kibbutzim, and to a lesser extent moshavim, have become industrial, commercial and tourist centres, and some moshavim have opened separate residential real estate developments. Cities, while still dependent on central governmental funding, are seeking to exercise greater independence in social and economic spheres.

As rigid central government planning interventions and controls have been relaxed, immigrants are no longer being directed to particular settlement areas. The housing market is now more than 80 per cent private, and the government has begun to sell public housing units to its current occupants. The most recent wave of ex-Soviet Union arrivals (750 000 since 1989) have been given rental allowances and the opportunity to buy government-built units at very low prices, rather than public housing, as was the case for earlier immigrants. A vestige of older, central planning was the purchase (mostly imported) by official agencies of 27 000 mobile caravans (trailer homes) as temporary housing (National Plan for Temporary and Mobile Housing) for immigrants from the former Soviet Union and Ethiopia. Most of these units were spurned by the new arrivals, many were never occupied, and a good number have been re-sold overseas. This failed policy demonstrates the inability of central planners readily to dictate life-style choices in today’s Israel.

This is not to say that the central government institutions do not continue to play an important role. As Alterman (1995) pointed out, the government agencies involved in
national planning and land management still retain the legal powers to make major decisions that influence where people will settle. Most of the new suburban and ex-urban centres, as well as new cities, are built on national, not private land.

Transport and road building are also in the national public domain. Design and direction of new highways and selection of interchanges remain major factors in directing the location of an expanding population. At year end 1995, there were 1,459,000 vehicles in the country, and they increase at an average rate of 100,000 per annum (Central Bureau of Statistics, 1996). The two-car family, which is to be found in central cities as well as in the suburbs and ex-urbs, would not be the choice of most land use and transport planners, but it is a phenomenon with which they must work.

It is in this context that the current debate on the nature of future housing location and density strategies, population distribution and highway planning is taking place. The environmental consequences of the alternative choices are at the centre of much of the discussion.

The Debate

The imperative of population dispersal stems from Israel’s rapid population growth rate and limited land area. The 1983 population of 4.0 million had grown to 5.6 million by 1995, with a forecast of 8.0 million by 2020. Two-thirds of the current population live in the rapidly coalescing conurbation of metropolitan Tel Aviv, Central, Haifa and Jerusalem districts. Density is particularly high in Tel Aviv at 6717 per sq km, as compared to the periphery—55 in the Southern District and 212 in the Northern District (Central Bureau of Statistics, 1996).

In implementing a strategy for population distribution, there is intense debate over whether population growth in the periphery or the outer metropolitan fringes should be concentrated in high-rise urban cores, or in new low- and medium-rise urban, suburban and ex-urban centres. In a country where land is so scarce and population has increased so rapidly because of recent immigration, resolution of this issue is immediate and pressing.

The housing/population strategy question is compounded by the inadequate transport infrastructure. The severe traffic congestion in the major urban areas is a constant frustration of Israeli life. The long-standing proposal for a trans-national highway (known as National Highway 6) is designed as a by-pass for through traffic to relieve traffic congestion in the centre, and to facilitate population dispersal to the metropolitan fringes and the periphery.

The factions attempting to influence the direction that housing and transport development will take, do not fall into the usually anticipated categories. Although commercial developers and builders, as expected, support dense, high-rise urban concentrations in the centre of the country and the developing periphery on the grounds of infrastructure efficiencies, planners and environmentalists are divided as to the optimal mix of agglomeration patterns and housing styles (Hirschberg, 1996). Some accept high-rise as the price for preserving open space and see clustering as an opportunity to improve public transport. However, this vision is not universally accepted (see, for example, Weitz, 1994). People are expressing their desires through action. The demand for low-density residential communities outside the major urban centres far exceeds the current supply (Gonen, 1995). Some planners advocate a planning approach which they feel provides a more environmentally sensitive solution calling for low-density suburbia/ex-urbia, interspersed with low- and medium-rise large towns and cities.

Similarly, while government planners favour the National Highway as a major instrument for ameliorating traffic problems, encouraging population dispersal and meeting national defence needs, environmentalists are divided. Many oppose the highway on the grounds that it will scar the landscape and have a negative impact on existing land-
use patterns. Another objection is based in the contention that the expressway will lead to increased automobile dependence. Others favour the highway as a tool for dispersing the population, but seek to guarantee a minimum of encroachment on rural lands.

The Environmental Impact Statement (EIS) Process

Planning for both residential development and transport infrastructure is differentially affected by the environmental impact assessment process introduced into the Israeli statutory planning system in the mid 1970s. Most transport projects require Environmental Impact Statements. This is not the case for residential developments. Of the 158 cases for which EIS were submitted between 1982 and April 1994, 32 per cent were for transport facilities. Nearly all of the rest were divided among wastewater treatment facilities and landfills, quarries, industry, power facilities (between 11 and 15 per cent each) and others. Only two EIS were submitted for residential development (Brachya, 1993; Feitelson, 1994).

Thus, the complex EIS process slows the development of transport projects, while not affecting residential development that is responding so quickly to private demand. This causes a spatial imbalance. Residential development moves ahead and, with it, the increasing demand for new roads and environmental infrastructure. At the same time, such residential development often encroaches on existing or planned facilities and may lead to worsening traffic congestion. Thus, when new road proposals are submitted, they face wider opposition (Feitelson, 1994).

The National Outline Scheme for Population Concentration

The official plan (National Outline Scheme No. 31, 1992–97) calls for massive concentrations of population in four metropolitan impact areas—Haifa, Tel Aviv/Central District, Jerusalem, Beersheba—through the erection of strings of outlying secondary metropolitan centres (see Figure 1). These will lie between the metropolitan cores and the outer fringes of the rural periphery. Preference is given to extending Haifa (North) and Beersheba (South) as secondary metropolitan areas in this plan. Urban concentrations of population within currently rural areas are to be encouraged through high-rise, high-density building. This is offered as alternative to scattering small development towns throughout the periphery—the basis for post-independence planning strategies which focused on the establishment of a hierarchy of small, central service and new rural settlements (Gonen, 1993; Gradus, 1983; Gradus and Stern, 1980; Kipnis, 1987; Reichman, 1977; Shachar, 1971). A major feature of the Scheme is to expand to populations of 50,000 and more in many of the smaller cities within the four metropolises, making them the nodes for new secondary metropolises. A new National Outline Scheme (No. 35) is already being prepared.

Making common cause with these government planners and with the builders, are many environmentalists, whose main focus is the much needed preservation of green space. The remaining open areas within the country’s centre, from Hadera to Gedera and east to Modiin, surely require protection. Half of the country’s construction still takes place there, and the Jerusalem, Haifa and Beer-sheba areas account for approximately another quarter. Supported by highway and other infrastructure development, this concentration in the centre has created an extremely congested and degraded environment, both along the seashore and the very narrow interior coastal plain.

Building High-rise

The theory behind the advocacy of high-rise building in secondary metropolitan centres is that it will reduce congestion in the metropolitan fringes and preserve open space in the periphery. It is ironic that the result may be to diffuse congestion to large numbers of outlying urban points, substituting environmental pressure in one type of geographical
Figure 1. Israel: peripheral growth and current metropolitan impact areas.
High-rise construction has found favour in the government as well as with private construction interest-groups, which are promoting the concept of 20-storey skyscraper-cities along the model of high-rise centres that have been built outside the cores of Singapore, Hong Kong and Bangkok (Petersburg, 1995). The public debate over high-rise already rages from central Tel Aviv to Netanya to the south Carmel coast, where 50–60-storey buildings are being promoted as the even more efficient versions of the 30–40-storey high-rise blocks, a few of which already exist and many of which are being planned. The debate is likely to become fiercer as new high-rise cities are proposed for the other outlying metropolitan centres.

There is widespread concern that the open space that is so important for recreation, aesthetics, agriculture, ecological and environmental purposes in Israel’s centre, is continually eroding (Feitelson, 1995). However, environmentalists may find that their backing of high-rise building in the periphery offers no guarantee of open space preservation. Seashores, streams and parks are particularly attractive to high-rise builders, who can command high prices for buildings located at green space borders that will endanger those spaces.

Israeli society and its decision-makers should not gloss over the costs of high-rise living. These include the risk of natural catastrophes like earthquakes and coastal erosion, or missiles and terrorist bombs; the heat sink that envelops skyscraper cities; the pollution that chokes walled-off streets; the blocking of sunlight and views; and the problems of rapid run-off and sewage disposal that characterise extensively paved areas. Nor should negative social impacts be underestimated—overdependence on elevators that puts at risk the aged and infirm, the inhibitions to social interconnections, and the high cost of construction, maintenance and security.

Mixed-level Building as Alternative to High-rise in the Periphery

As Israel’s present centre continues to be exposed to pressures for higher buildings, the challenge is to find alternatives to the high-rise pressures for the outer metropolitan and intermediary rural periphery zones destined for much of the predicted population growth.

Targets for such concentrated growth are the new city proposed for Iron in Wadi Ara, and the expansion of existing cities and towns like Carmiel, Afula or Yokneam Ilit in the North; Rosh HaAyin and Hod HaSharon in the centre; currently underdeveloped parts of Modiin and Beth Shemesh in the Jerusalem corridor; and Kiryat Gat in the south. For example, Carmiel’s population of approximately 40 000, is projected at 120 000 and more for the year 2020 (see Figure 1).

What then is the alternative? One such strategy for expanding the country’s current core areas is through low- to medium-rise, ex-urban and suburban developments that would be satellites of a selected number of nearby towns and medium-sized urban centres, and a few larger cities. In this context, Kipnis (1989), has advocated the emerging ‘rurban’ communities of Israel’s north and noted their role as a vehicle for regional development. He cited two factors to account for the popularity of this type of settlement, known as the yishuv kehillati (community settlement), which already range in population from 1000 to over 5000. The attractions are personal, life-style desires for low-rise housing and homogeneous communities. Dozens of kibbutzim, moshavim and private agricultural villages (moshavot) can also become cores for planned residential ex-urbia, and a few are now on the way to fulfilling this function. Their already-fragile agricultural bases can be turned fully to industrial, recreational, health and educational service economies (Maor, 1996). Kipnis’ conclusion was that both rurban settlement and new towns are complementary processes in regional development strategies.

The arguments against the spread of ex-urbia have been that it would use up the rural periphery and require more costly infrastructure (Vinshai and Lapidot, 1980). The
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expensive argument had validity in the 1970s and 1980s when most of the costs of the agricultural settlements and development towns were borne by public monies (Gonen, 1993; Kellerman, 1993). Today, the rurban communities that are being built, while on national land, are privately financed. Their larger size offers some economies of scale as compared to the earlier settlements which tended to have populations of 250–1000. In addition, the comparative cost is lowered if the environmental costs of building skyscraper cities and feeder highways are included. Green space can be preserved through careful siting of new community settlements.

A complement to the suburbs and ex-urbs could be smaller cities of 50 000, and 4–6 cities in the 100 000–150 000 population class at the outer edges of the metropolitan impact area, with limited high-rise cores and connected, medium-density neighbourhoods. Carmiel, Iron, Modiin and Kiryat Gat have already been identified as growth poles. These and one or two other large cities would support nearby suburbs and ex-urbs, and would reduce the need for long-distance commuting. Such cities might combine limited skyscraper cores with clusters of neighbourhoods, allowing for green space between them. They would have various combinations of lower-rise and 5–8 or 12-storey buildings. These cities would act as the collectors for road traffic from ex-urbs, providing jobs and services or offering public transport nodes for those people transferring to metropolitan cores from cars to buses or light rail.

Penetrating the rural hinterland in this way would be analogous to the Dutch planning approach to the expansion of the Randstad—the huge conurbation of western Holland (see Figure 2). Population growth is being absorbed into the two adjoining Ijssalmeer polders through a mixed urban system. Villages have 2-storey houses, towns 2–5-storeys and larger cities (of 50 000 to 100 000 in population) have combinations of 2–5 and 12-storey units. The growth is limited to 15 per cent of the total land area, as agriculture, recreation and woodland are preserved in the rest of this ‘Green Heart’, and environmental controls are tight. Since most of the new populace is within one hour’s driving radius of the Randstad cities, the new urban places have become, in effect, discrete cells in an overall metropolitan system (Badcock, 1994; Clark and Kuyper-Linde, 1994; Dieleman and Musterd, 1992; Faludi, 1994; Faludi and van der Valk, 1994; Priemus, 1994; Meijer, 1992).

Metropolis and Rurban Periphery in Israel

For Israel, the proposed National Highway, as well as the existing highway network, can pull the rural periphery and metropolitan outer fringes toward the country’s metropolitan cores from distances of up to 100 km, making for a functional merger of rurban and metropolitan urban space. Residents can opt for ex-urban life while commuting to work, shopping and educational/cultural activities in the big cities and their near suburbs.

There is also an opportunity to consider speeding up the development of a light rail system for which planned space is allocated, either down the median strip or alongside the Highway. A light rail public transport system from ex-urbia to the metropolitan centres is a necessary complementary alternative to total automobile dependence.

It should be possible at the first stage of development to accommodate, in the north and in the northern parts of the south, 1 000 000 people on 250 000 dunams (255 sq km or 98 sq m), This represents 3.4 per cent of total available land in the two regions, exclusive of public spaces and roads. This estimate is based on one housing unit of four persons per dunam (one-quarter acre) in contrast to eight per dunam projected by planners for new cities. Adding 1 million people to the existing population of 1.6 million of the north and south would increase overall densities in the targeted parts of these regions from 210 persons per sq km to 350 (Central Bureau of Statistics, 1995).

High-rise proponents will ask where Israel’s increasing population will be housed
in the long run if their model is not followed. There are three responses. First, the waves of potential immigrants from abroad will probably have been exhausted. Secondly, the trend towards slower population growth is likely in a highly advanced state like Israel. Thirdly, many of today’s buildings will need replacement within the next 25–50 years. If there will be need in the distant future for more high-rise buildings because of lack of land, technology may offer environmentally sound directions that we currently cannot foresee.

**National Highway 6**

Highway planning is intimately connected with housing and economic development policy. The nation’s leadership views National Highway 6 (see Figure 3) as the catalyst for metropolitan population expansion into today’s periphery and as the eastern-
by-pass route to reduce traffic congestion in Israel’s centre. Such a by-pass might have the unexpected consequence of attracting more people to the centre. This 230-km expressway from HaNegev intersection in the south to its two branches—Rosh Hanikra in the north and Amiad interchange—Rosh Pina/Hatzor in the northeast—is a bold undertaking. It has the capacity to change Israel’s landscape and to affect its population distribution patterns in basic ways. The question is whether it becomes a planning mechanism for distributing the population through a mix of suburbs, ex-urbs and medium-rise urban centres, or whether it becomes a vehicle for clustering the population in dense high-rise complexes near its intersections and close to current major cities. We believe that the former path is the more environmentally and socially sound.

The northern area of population expansion, when brought within 30–40 minutes’ driving time of Haifa, can extend Israel’s urban core to the Lebanon border at Rosh Hanikra, and to Rosh Pina/Hatzer near the Sea of Galilee, as well as to the western and central Emeq Jezreel. Tel Aviv and the Central District, and the current built-up areas around Rehovot, Ashkelon and Gedera will be expanded south-eastward to embrace Kiryat Gat, there meeting metropolitan Beer-Sheba and areas to its south. Eastward growth to Beth Shemesh will lead to a convergence with the western borders of metropolitan Jerusalem.

Within an enlarged, spatially integrated national urban core that embraces Israel’s expanded four metropolitan areas, a well-planned suburbia and ex-urbia could contribute to a 21st-century landscape that responds to human and environmental needs. It is a viable alternative for relieving the current building pressure within the centre. However, if the first stage of the National Highway is built to cut through the eastern outskirts of metropolitan Tel Aviv, as currently planned, building pressure there is likely to be intensified.

**Shortcomings of the Plans for the National Highway**

Current plans for the Highway do not provide for improved access to Haifa itself in order to extend its metropolis into the northern periphery. There are no proposals for expressway connections from the two northern National Highway branches to the eastern entrance to the city, and to the proposed Mount Carmel Tunnel that leads to the southern entrance of the city and the coastal highway.

The plans for the Tel Aviv and Central region presently call for 9 interchanges along the 90-km stretch east of the present urban agglomeration (with between 5 and 23 km spacings). While this is already a high number for an expressway, once highway construction is imminent, real estate and municipal development pressures for more interchanges are likely to mount and may be difficult to resist politically. This reflects the ambiguity of visions for Highway 6 as a population expansion tool versus a by-pass route. Additional interchanges might spread rather than substantially reduce compound traffic entry congestion problems, and dissipate the advantages that more widely spaced interchanges offer for clustering industrial, commercial and residential activities around them.

Instead of interchange proliferation we propose the establishment of Corridor Development Zones at the proposed junctions, with each of the more than 20 abutting municipalities sharing in development rights and tax revenues of the zones. With such concentration, most of the Corridor’s abutting land could remain greenbelt. Private owners of lands adjoining the Highway, who are either denied potential gains or are negatively affected, could also be compensated through sharing in development rights in these designated areas.

A further deficiency of the present Highway plan is that it terminates at Amiad Junction and Rosh Pina/Hazor, rather than extending through the Upper Galilee to Kiryat Shmona, an area much of whose populace has complained of being cut off from development attention. From a political/psychological, security and economic perspective, the National Highway should serve the Hula valley to the Lebanon border. While the Upper Galilee’s focus on light
Figure 3. Israel: the proposed National Highway.
manufacturing and high-technology does not now generate a great deal of inter-regional traffic, it can be drawn into the 1-hour commuter belt of metropolitan Haifa. In addition, its importance for recreation, tourism and military defence is of the highest national value.

The rural landscape that can be created by Highway 6 takes into account the reality that the agricultural basis of rural Israel has served its historically important ideological, economic and strategic purposes, and yet merits being partly protected for economic and environmental purposes. The future of much of the Zionist settlement sector lies in high-tech industry, tourism and other services, and residences for commuters. In such a future, much of the periphery can be merged into metropolitan reaches and become part of Israel’s 21st-century national core area, with most of the populace within 30–45 minutes of one of the four metropolitan centres, and within an hour and a half of the Tel Aviv core.

Broadening the Environmental Assessment Process

The opportunity now exists, not to scrap the plan for the National Highway, but to ameliorate some of its potential negative impacts. For some of the sections, an environmental assessment is in order. Moreover, the criteria to be applied in the evaluation should reflect geographical differences. For example, the impact of the Highway in the centre of the country on land values (Downs, 1982; Guiliano, 1986; Vickerman, 1991) or regional employment patterns (Evers et al., 1987) will differ from its impact in the periphery.

Defining the areas of spatial impact is a critical component of such an assessment, and four competing categories could be considered—project space, those areas which will be benefited, those which will be negatively affected, and the administrative jurisdictions through which the road passes. Boundaries of impact areas are usually defined very narrowly, addressing only the immediate road corridor or a few metres from each intersection. In this case, however, it is proposed that they be drawn as broadly as possible to reflect potential as well as present ‘winners’ and ‘losers’. An effective assessment of the sections of the road which call for environmental analysis can be approached through clear definitions of these spatial categories and the use of a set of combined methodologies, both qualitative and quantitative (Feitelson, 1994; Nijkamp and Blaas, 1994).

In addition to the ‘classic’ factors generally considered in highway environmental assessment, the following should also be considered:

1. Replacement costs of land taking—at highest potential use, for current usage may not reflect development potential (e.g. farm to residential land).
2. Existing capacities of affected communities, either to exploit the Highway’s economic potential, or to mitigate its negative effects.
3. Formulae for sharing the costs and benefits among both adjoining communities with direct access, and those lacking in access.
4. Identification of strategic urban growth points—larger cities and towns for which tax exemptions and infrastructure support will be needed to stimulate industrial growth.

In applying the spatial impact area categories (above), the areas under consideration should vary in distance from the Highway to include average driving times, terrain and spacing of interchanges, forming what we might term a Near Access Zone (NAZ). For the centre we propose a zone 6 km wide, 10 km for the hilly North, and 20 km for the relatively empty, flat to rolling terrain of the south.

When looking at the above points, compensation factors would include not only the value of land taken, but also long-term deprivation of income and impact upon overall quality of life for communities that adjoin the highway strip. The system of in-kind compensation that has been practised in the US
since the 1970s (Bacow and Wheeler, 1984; Gorczynski, 1991; Susskind and Cruikshank, 1987) can be fruitfully applied to highway abutters. Israel has an opportunity to develop mitigation and compensation techniques creatively on a national scale, rather than on a case-by-case basis. For example, where the Highway parallels the ‘Green Line’ in the centre of the country, it is likely to block off many of the Arab parts of the West Bank from Israel, and reinforce the gap between the two entities. Moreover, the Highway will require expropriation of lands from Israeli Arab villages and towns, possibly undermining their economies and traditional cultures as well as blocking them from contact with the coast (Efrat, 1994).

The strategy of selecting intersections, while tied to location of important feeder roads and available land, should also be sensitive to the economic opportunities that intersection locations can present to lower-income, especially impacted, Arab areas. Some intersection Corridor Development Zones can benefit both Israeli Arab communities and nearby Palestinian Arab West Bank ones, possibly as joint investments with Israeli entrepreneurs.

A Strategy for Sequencing the Highway’s Stretches

Highway 6 has been presented both as a way of alleviating traffic congestion in the centre, and as an instrument for expanding the core by extending metropolitan reaches into the periphery. These may be contradictory goals, depending on the construction timing for the various highway stretches. Currently, the strategy that building should start in the centre—where there is such a strong need to alleviate traffic congestion, by bypassing the Tel Aviv agglomeration—is so strong. The first stage that is planned is the 63 km stretch from the Ben Shemen interchange north, to east of Netanya.

Building now from the Ben Shemen interchange northward would stimulate explosive growth in the outer suburbs to the east of Metropolitan Tel Aviv—from Modiin to Rosh HaAyin to north of Kfar Saba, and eastward to the ‘Green Line’. Combined with the development that is already taking place, such additional impetus for growth in these outer suburbs would put inordinate demands on local roads and other infrastructural facilities. A result could be an explosion of current overall densities from 600 persons per sq km to 3000 to 5000 per sq km, as has already happened in the urbanising sector east of the Geha Road (see Figure 4).

Building south from Ben Shemen to Kiryat Gat and Beersheba, rather than north into the centre, could provide a dramatic thrust to the development of the south. Similarly, starting the northern stretch as the second stage, rather than last, as now contemplated, has the potential to give impetus to the opening of the northern metropolitan periphery. Building outward from the planned city of Iron to Yokneam where the northern highway is to bifurcate, and then constructing the two extensions, would also have the short-term advantage of serving the development needs of the substantial Arab population of Wadi Ara, and then of large Arab populations in the Galilee.

It is true that building the road in the north and south and then inward towards the metropolitan centre does not meet short-term cost–benefit criteria. However, major investment infrastructure is warranted if it can be demonstrated that this will lead to substantial population and economic growth in the periphery and reduce population pressures in the centre.

The Near Access Zone (NAZ) of the two northern branches would total 100 km in length, with a width of 5 km on either side of the road. Their total area of 1000 sq km represents 30 per cent of the entire Galilee. Altogether, a dozen medium-sized cities and large towns might absorb up to 200 000 new residents in the NAZ and areas that adjoin these corridors (see Figure 3). These could include Ramat Yishai, Migdal HaEmeq, Rosh Pina/Hazor and Kiryat Shmona in the north-east, and, in the north, Nahariya, Carmiel, Shlomi and the mixed Jewish-Arab municipality of Maalot-Tarshisha, as well as...
the Arab towns of Shefar'am, Tamra and Judeida-Makr. Another 200,000 might be absorbed in 75–100 smaller urban centres, either within the zones or 20–25 minutes’ driving distance from them.

A similar strategy of stages should be pursued in building the Highway in the southern periphery. Stage 1 in the south would be from the Ben Shemen interchange south to beyond Beer Sheva. With a total highway length of 115 km and no terrain barriers to limit the width of the NAZ, a strip as wide as 20 km is feasible. Within this corridor of over 2000 sq km, the absorption of a population of 600,000 is possible through expanding medium-sized cities and towns north of Beer Sheba such as Kiryat Gat, Gedera and the Lakish region; Arad and the Bedouin town of Tel Sheva to its east; and Yeruham and Dimona to its south. Satellite towns, suburbs and ex-urbs could also be established or enlarged without threatening the fragile steppe and semi-desert environment. In addition to negative impacts on the centre that have been discussed, the fear has been expressed by many analysts that the northern and southern ends of the Highway might not be built because of the enormous expense and immense effort required for building at the centre.

The experience of the Ayalon Expressway and its connecting Expressway 1 (Ayalon South), and the Geha Road is a portent of what could happen to Highway 6. Completed in the early 1990s, the Ayalon cuts through the heart of Tel Aviv’s metropolitan area. Even though its 12-km route dissects what was already Israel’s most built-up area, land-
use intensification in the form of high-rise office and residential buildings and industrial plants and shopping malls has occurred at several of its eight interchanges, which have an average spacing of 1.5 km.

The Ayalon South, leading to Ben Gurion Airport, bisects a belt of small, urbanising agricultural villages (moshavim), as well as the cities of Or Yehuda (which grew from 21,900 to 24,100 between 1990 and 1995), and Lod (whose increase was from 43,300 to 52,600). One of Ayalon South’s interchanges has already attracted a large shopping mall, offices and residential buildings, and large-scale residential development has taken place along another.

This growth is similar to that of an earlier ring road, the Geha Road, which serves the Tel Aviv conurbation’s eastern and northern edges. Completed in the mid 1970s, the highway’s impact on areas to its east and along its northern connector (the areas west of the road were already heavily built up) has been profound. Population densities there have spurted to about 5000 per sq km as population has grown by 5 per cent per annum for the past 13 years.¹

Geha is now being converted from a direct to a limited access expressway, with the last of the eight interchanges along its 15 km route scheduled for 1997 completion. High-rise residential, commercial and corporate buildings have already been built along several of the completed interchanges, and even more accelerated growth of population and economic activity can be anticipated all along the highway’s eastern and northern stretch. It would be preferable if such development were directed to areas that would permit planned diffusion.

Conclusions

The environmental impact of turning Israel into a series of high-rise cities and towns has many negative consequences in contrast to short-term cost benefits. The physical, social and aesthetic disadvantages of such building, especially in lower income areas, are many. In the US planners are rethinking their strategies for residential housing, as cities have torn down high-rise, public housing complexes in Chicago, St Louis, Boston and Newark and sought lower-rise options.

The alternative—suburbia and ex-urbia—can blend into, rather than deface, the landscape. The desirability of low- to middle-density housing has shaped zoning policies and private development in the Netherlands, the UK and the suburban US. In Israel, this preference is made manifest by the low-rise housing boom in the outer metropolitan areas. Systematic planning to implement such a policy would enable the periphery to meet this demand and to develop rationally. Such planning would have to deal directly with the politically sensitive problem of reducing lands currently in agricultural use. This is a process that has already begun as a result of market forces which have resulted in the shift of field crops to more intensive, specialised fruits and vegetables, and to more effective use of irrigation, and to industry and services. However, the transfer of farmland to urban purposes is not occurring in the context of a national strategic plan.

The National Highway can be the spine of such a plan. Careful planning of the abutting land uses in Near Access Zones, can balance national and regional needs with local demands. It can respond to population growth pressures by judicious distribution strategies rather than overcrowding the centre, and in ways that can mitigate negative environmental impacts.

The parallel strategies of expanding the national core area from the periphery to the centre, and of avoiding more high-rise worlds in today’s centre as well as in tomorrow’s growth areas warrant further study and public discussion before final planning decisions are made. What is at stake is the Israeli landscape and ways of life in the next century.

Note

1. Population data are taken from the Statistical Abstract of Israel 1996 (representing figures
of end 1995). Area data from which densities are derived are taken from *Local Authorities in Israel: 1992 Physical Data*.

**References**


