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*January 2001
Project Working Paper*

THE LIMITS OF MIXED USE:

Can industry and housing be neighbors in the post-industrial city? ¹

Abstract: In recent decades, planners rallied strongly behind the cause of mixed use. In this paper we discuss some of the implications and limits of mixed use in contemporary planning. We consider the constraints and costs of mixing housing with industrial uses. We argue that the concept of “mixed use” is not open, but constrained by local concerns. Although strategies for mixing use have become the expert prescription for the ills of the contemporary de-industrializing city, its medicine proves bitter for suburban North American housing consumers and for industrial interests. Furthermore, we note that the costs and benefits associated with mixed use in the urban context are differentially distributed.

Modern town planning began with the mission of protecting residential environments from the adverse impacts of other urban land uses such as industry. In the last decades of the 20th century, however, the profession revised its key planning principles and began advocating mixed use. Contemporary planning rhetoric especially that associated with new urbanism suggests that mixed use generates urban vitality, supports energy efficiency, and builds on long-standing urban traditions of diverse cities (Berridge et al 1991; Calthorpe 1993; Duany and Plater-Zyberk 1994; Katz 1994; Krieger 1991). As we explore planning theory and practice, however, we find different meanings of the term “mixed use”, and little recognition of the limitations of mix in achieving the objectives it claims.

Although planners seldom define mixed use in precise terms (Molinaro 1993), most would likely agree with the Urban Land Institute’s (ULI 1987) definition that it includes three or more significant revenue-generating uses. The adjective “compatible” often appears along with “mixed use”, to specify the desirable social context. But what is compatible? Large scale downtown projects since the 1960s have typically included office, retail, hotel, entertainment,

¹ Three separate project grants supported components of this research. The author is immensely grateful to the funding agencies, colleagues and research assistants who facilitated the work reported herein.

Research for the industrial park case study was carried out with the assistance of a financial contribution from Canada Mortgage and Housing Corporation under the terms of the External Research Program (1993). The views expressed are those of the author and do not represent the official view of CMHC.

A Japan Foundation Research Fellowship (1998) funded the work in Japan. A Social Sciences and Humanities Research Council of Canada grant (1999-2001) supported research on the influence of new urbanism and sustainable development in Canadian planning practice.

and/or residential uses. Although many contemporary sources (eg, Berridge *et al* 1991) say that clean and quiet industry can be part of the urban fabric, we might question whether contemporary visions of mixed use see a place for industry. Planning codes today provide opportunities for mixing housing types and densities, and for integrating commercial, office, recreational, and residential uses, but seldom seriously seek to accommodate industrial uses. We find practical limits to mixed use despite an ideology that seems to promote it. In practice planners may have reservations about how far to push mixed use. Moreover, communities often resist mixing. Although the supporters of mixed use have articulated its potential benefits, they have not evaluated practice to consider some overlooked issues. This paper explores the limits of planning for mixed use: can residential and industrial uses be good neighbors? Are the effects of mixing only positive, or can mixing present social, economic, and environmental risks? We suggest that analysis of attempts to mix residential and industrial uses reveals costs and consequences that help establish the limits of mixed use.

We begin by briefly examining the idea of mixed use in order to understand its promises, premises, and prospects. Then we consider issues generated around mixed use in practice. By exploring examples of mixed use projects, we reveal factors affecting the success and viability of mixing. Downtown revitalization projects have had noteworthy benefits, but are not without costs, as examples will show. A brief discussion of urban Japan highlights impacts associated with urban mixed use. A case study evaluating the feasibility of retrofitting a clean industrial park for residential uses demonstrates limits to the potential for planning mix. Based on these examples, we argue that the concept of “mixed use” is not open. While the occupants of low density residential neighborhoods will not contemplate mixing any uses with residential, and planners are eager to mix residential with compatible commercial uses, few North American advocates of mixed use are ready to co-locate housing and industry anywhere in the city. We argue that planners need to evaluate our commitment to premises and strategies which, despite their allure, remain essentially unproven and perhaps impossible.

The promises and prospects of mixed use

New approaches appeared in the 1980s and 1990s as planning faced significant challenges. With globalization of the economy, fiscal restraint in western nations, and the fall of communism, the intellectual climate changed. Associated with modernist built form in the post-war period, and with command and control economics, planning stood accused of imposing rigid and inappropriate rules on landscapes, and thus robbing cities of vitality. The post-modernist approach called for flexibility, mixing, diversity, participation, and appreciation of heritage. The mass media helped to create a climate in which planning bore a fair portion of the blame for the problems of the city and suburbs (Anderson 1991; Bentley Mays 1991; Phillips 1990). Responding to these challenges, and to demographic change and environmental threats, planners began to seek new theories and approaches to revive failing cities and to support their practice. Two influential theories of the late 20th century, new urbanism and sustainable development, shared some central premises, including the importance of mixed use.

The movement promoting “sustainable development” (SD) gained adherents in planning in the late 1980s and early 1990s. Drawing insights from earlier ecological approaches to planning, SD provided a new professional philosophy integrating environmental, social, health, and economic concerns (Van der Ryn and Calthorpe 1986; WCED 1987). While some proponents saw the theory as a way of promoting economic development with reduced

environmental costs, others saw SD as a way of marketing a social agenda of equity and diversity, or an environmental agenda of reduced growth. SD offered something for everyone.

Sustainable development focused attention on the environmental impacts of urban development (Haughton and Hunter 1994; Jenks *et al* 1996). Critics noted that suburban development patterns absorbed vast amounts of land, consuming farmland and wildlife habitat, increasing the costs of infrastructure, segregating social groups, and forcing suburbanites to travel far to work or shop. Recognizing the automobile as a significant source of pollution and energy consumption, many SD proponents encouraged compact built form with strategies to reduce automobile traffic. This commitment to mixed use in compact cities brought many adherents of SD into alliance with new urbanism.

New urbanism grew in strength in the 1990s alongside post-modern critiques of western cities. The two variants of new urbanism, traditional neighborhood design (TND) and transit-oriented development (TOD), both advocate a mix of uses, but suggest a different structure to the urban environment. Andres Duany and Elizabeth Plater-Zyberk promote a vision of small town America, with mixed use town centers of stores, offices, civic services, and apartments, and residential neighborhoods that accommodate auxiliary units over garages or in back yards (Duany and Plater-Zyberk 1992, 1996; Krieger 1991). Model communities like Seaside FL provided picture-book illustrations of the new vision in practice. Duany and Plater-Zyberk (1994) do not mix all kinds of uses into their projects. They suggest districts for special uses, such as industry, that for various reasons congregate away from other uses. By the late 1990s, TND had become a popular suburban building form, especially in high growth markets.

Transit-oriented development presents a method for redeveloping urban areas or developing suburban areas along transit routes (Bernick and Cervero 1997; Berridge *et al* 1991; Calthorpe 1993, 1994; Delsohn 1994; Kelbaugh 1989). It advocates establishing dense nodes of mixed commercial, office, and high density residential uses around transit stations. Lower density residential development within a five minute walk of the station provides users for both the station and the businesses at the node. Residents would take transit to work locations in other parts of the city: the local mix does not include industrial or extensive office development. By seeking to reduce the need for personal automobiles through transit use, successful TOD could enhance urban sustainability.

New urbanism offered attractive and simple solutions to urban problems. Its promoters became well-known within planning circles, giving presentations, workshops, and design charettes. The popular media gave them considerable attention and coverage (eg, Adler 1994; Anderson 1991; Chidley 1997; Hume 1991; McInnes 1992; Newsweek 1995), and professional journals followed suit. For example, in Canada the professional organizations frequently featured new urbanism at conferences and in their publications.² By the late 1990s, new urbanism, infused with an overlay of sustainability and health, had come to dominate the discourse of urban planning in Canada. Planners accepted new urbanism's promise for reviving the city through an alternative model of growth.

With their new image of the city, planners increasingly advocated mixed use. As Berridge *et al* (1991: 22, 23) suggested in their draft plan for Toronto, "[m]ixing land uses is a

² A content analysis of the journal of Canadian planners, *Plan Canada*, showed that half the issues in 1992 and 1993 and every issue from 1994 through 1996 had an article or other item featuring new urbanism. The editors of the journal frequently took strong positions supporting new urbanism (eg, Wight 1995, 1996).

necessary but not sufficient condition for a better city and environment. ... Promoting mixed use development is the most fundamental land use principle.” As early as the 1980s, Canadian planners began modifying downtown zoning to permit a greater mix of uses in efforts to staunch the decline of inner city districts; in the 1990s, they began adding provisions for mixed use in suburban areas as well. New urbanism provided a new rationale for practice.

While the logic of mix seemed eminently rational to planners, community residents often took exception to the practice. As early as the 1980s, with efforts to generate social mix in redevelopment projects, evidence of resistance appeared. Residents indicated their objections to group homes, high density housing, and other unwanted land uses with protests, leading planners to coin the phrase “NIMBYism” (Dear 1992; Hornblower 1988; Rural and Small Town Research 1992). Despite the concerns, however, most planners continued to believe in mix.

Developers hesitated to apply some of the new planning principles to suburban projects. New urbanism satisfied a small and up-scale niche market, but did not significantly affect the marketing of middle-class suburban landscapes in the 1980s and early 1990s (Knox 1992, McCann 1995). Eager to maintain standards in areas of limited municipal regulation, developers sometimes imposed restrictive covenants and design codes; community control increasingly gave way to private regulation (Filion and Alexander 1995, McKenzie 1994). Even developers sometimes resist mixing uses, increasing urban densities, and mixing disparate activities and people; while some of the Victorian values that supported separation of uses waned in the post-war period, separate low-density residential precincts remain popular (Bookout 1992b; Clark-Madison 1999; Hall 1998; Hygeia and REIC 1997; Pendall 1999; Rowe 1991; Teitz 1998).

Criticisms of the NU model and its premises have appeared with growing frequency in both academic and popular media in recent years. NU projects cannot fulfil their social promises or claims of reduced automobile use (Audirac and Shermeyen 1994; Bookout 1992a; Crane 1998; Hall 1998; Hygeia and REIC 1995; Iovine 1996; Leung 1995; Patterson 1996; Ross 1999). New suburbs are “cuter” than postwar suburbs, but do not address equity or environmental issues (Chidley 1997; Leung 1995). They have not resolved safety issues (Kaplan 1990; McIlroy and Bryan 1996; Pogharian 1996). Mixed use and grid streets do not reduce crime (Goodchild 1994; Greenberg and Rohe 1984). Over 60% of the households of Kentlands (Duany and Plater-Zyberk) and Laguna West (Calthorpe) have no children (Southworth 1997): they have essentially adult households. Many projects have failed to attract commercial uses (Ehrenhalt 1998; Gordon and Richardson 1998). Few have the good transit access, attractive shopping, and other facilities necessary to reduce automobile use (Calavita 1994; Crane 1998, 1996; Gordon and Richardson 1998; Jenks *et al* 1996; Saunders 1996; Steiner 1998). With alley-ways, boulevards, town centers, and parklands, NU projects can cost 30-35% more to develop than traditional suburbs (Carma 1999; Childs 1996; Essiambre *et al* 1997; Hygeia and REIC 1997; Isin and Tomalty 1993; Southworth 1997). Although NU implies a rejuvenated urban environment, to date many of the projects built constitute suburban residential developments sprawling into the countryside. Several projects have faced financial problems, as the market responded unenthusiastically. While NU promises more attractive and urbane settlements, it has not proven that it can deliver on equity, social amenity, cost effectiveness, mixed use, or environmental protection.

Promise: mixed use revitalizes industrial districts

The better known mixed use projects of recent decades involve waterfront and warehouse districts of larger North American cities. By the 1970s, many cities faced the reality of declining inner city manufacturing and warehousing districts. Such businesses increasingly relocated to suburban areas where cheap land and easy access to highways facilitated their activities. Multi-storey industrial buildings with high ceilings, large windows, and attractive brick exteriors became available for alternative uses (Zukin 1988). Waterfront sites with great views and central locations provided opportunities for extensive redevelopment (Desfor *et al* 1988; Gordon 1997).

After the successful conversion of warehouses for commercial and retail space in Boston, similar projects took shape in many North American cities, usually involving extensive residential components. As a result, planners often cite warehouse projects as fine examples of the potential for mixed use to rejuvenate aging industrial districts. For instance, Kelbaugh (1997: 2) says, "Large, relatively abandoned industrial areas that show no promise of re-industrialization or new industry, can be developed as mixed-use, compact, walkable, transit-friendly and mixed income neighborhoods." Cities can thus save architectural treasures for re-use. Residents return to inner city districts long abandoned at night. Restaurants, bars, boutiques, and cafes aiming to meet the needs of the singles, childless couples, and professionals who enjoy living downtown create a lively atmosphere that also attracts tourists and visitors. Although warehouse and industrial conversions make a major contribution to improving the tax base of historic areas, and restore a sense of vitality and conviviality to the central city, experience has shown they carry both social and economic costs.

As residents and commercial uses begin to move into old warehouse and manufacturing districts, increasing rents or landlords who prefer to convert their property for higher value, force industry out (Wetzel 1999; Zukin 1988). Residential uses can destabilize districts for industry, affecting land values and policies, and contributing to the eventual loss of industry from the area (Gordon and Fong 1989; Porte 1998). Manufacturing jobs -- often in small businesses desperately trying to hold on in a globalizing economy -- disappear from the inner city area. Manual workers, and even many of the new warehouse district professionals, must then commute to the suburbs for work (Brookings Institution 1998). As the mix of uses in the central city increasingly includes residential (as governments promote downtown living as a revitalization strategy), industrial uses are driven from the core.

Zukin (1988) documents the process whereby the lofts in SoHo (New York) changed from a complex mix of artists' studios, small manufacturers, and inexpensive but spacious housing to a uniform blend of up-scale accommodations for urban professionals. The mix of use for which lofts became renowned could not survive in the face of inflation caused by their popularity as a lifestyle choice. The "character of the street ... irrevocably 'tipped' towards residential use" (Zukin 1988: xiii). Once residential uses move into a district previously dominated by industrial or commercial uses, wholesale conversion often follows. As both the Live/Work Institute (1998) and the Brookings Institute (1998) note, residential development has a tendency to replace industrial and office uses in most such districts³. Mixing is short-lived.

In SoHo, the middle classes appropriated urban space and displaced previous users (Zukin 1988). Condominiums in the warehouse and waterfront districts are expensive, often

³ In some strong financial centers (such as New York and Tokyo), office and commercial development has the same effect, driving other uses out (Hirohara *et al* 1988; Zukin 1988).

advertised for their elegance and luxurious appointments (Love 1998; RCB New Orleans 2000; Raffaele 1997). Conversion results in gentrification, the displacement of working and lower class residents by professionals. “The social differentiation that gentrification embodies in cities parallels the spatial redifferentiation of capital that takes place on a global scale” (Zukin 1988: 208). Just as structural economic change resulted in the creation of monolithic post-war suburbs, “what is happening along the urban waterfront is a reflection of changes in the city itself and, more importantly, of the changing political economy in which the city is located” (Desfor et al 1988: 110). The benefits of urban conversion go disproportionately to the “haves”.

The poor may be forced out of areas slated for redevelopment or conversion (Anderson 1999; Zukin 1988), or they may experience tensions with affluent new residents (Vancouver n.d.). Small, poor communities may have to accept rapid growth, considerable increases in urban densities, and changes in neighborhood character that suburbanites would never tolerate (Breheny 1996; Clark-Madison 1999; Portland 1997; Jenks et al 1996). Of course, development may also bring new amenities and services into older neighborhoods⁴.

In short, warehouse and waterfront revitalization projects have proven enormously popular with planners, civic leaders, and community residents in many North American cities. Mixing commercial, office, entertainment, and residential uses has restored a sense of urban vitality. At the same time, though, this kind of mixing of uses raises issues about de-industrialization and urban inequality that planners who may promote it must address.

Premise: industry and housing can be neighbors

The proponents of mixed use often cite Europe and Asia for excellent examples of vibrant cities with diverse uses in close proximity. In this section, we briefly consider the Japanese experience to understand some lessons it can offer⁵. Japan has a long tradition of mixed use and compact urban development. Older districts of Japanese cities reveal a fine-grained mix of uses, with commercial, manufacturing, service, and residential uses often side by side (Hebbert 1986; Karan and Stapleton 1997; Mather 1997; Shapira et al 1994).

Although Japan followed other nations in adopting zoning, most zones allow for a variety of uses. Furthermore, flexible administration of the rules provides many opportunities for mix. Some new suburban developments separate residential uses, and trips by private automobile are increasing, but in many ways Japanese cities offer a useful illustration of the viability of intense mixed use.

The Japanese experience, however, also illustrates some of the caveats of mixed use and high density development. Lots are small in Japan, leaving little if any space between neighboring buildings. Businesses can generate noise, traffic, odors, and environmental hazards for nearby residents⁶. Industrial activities increase the risk of pollution and of fire, a significant worry with wooden homes standing close together.

⁴ Because the new residents moving into the city are affluent singles or childless couples, they may not generate the market for social amenities like schools that concern poor families in the inner city.

⁵ A four month study employing visual analysis techniques and interviews in central Japan in 1999 provided most of the data for this section.

⁶ For instance, a nuclear accident at Tokai-mura, north of Tokyo, in 1999 exposed over 400 people to high doses of radiation. Even in a relatively small village, industrial uses operate beside residences and farms presenting risks to community members.

Dense development provides excellent opportunities for mass transit. Residential development follows transit lines out from the central city into relatively remote reaches of the hinterland. Long commutes are commonplace in cities like Tokyo. Mixed use does not reduce the need to commute to work because of the difficulty of finding housing in the great metropolis. People buy homes where they locate openings, most often in suburban areas far from the city center. While many Japanese would prefer to live downtown near work, cost and availability make that impossible. Concentrated employment in central Tokyo forces millions of trips in and out of the city daily. While small scale mixing occurs in many districts of the traditional Japanese city, contemporary trends centralize commercial uses in Tokyo while residential uses migrate to the peripheries along transit routes. (Hebbert 1986; Hirohara et al 1988)

The mix of uses is changing in the Japanese city as a result of structural economic transformation in the Japanese economy that contributes to the consolidation of large corporations and the failure of small businesses. Shopping arcades near transit stations in the larger Japanese cities remain successful, but traditional shopping areas in smaller cities and towns suffer as suburban malls appeal to the automobile-oriented consumer. Large national and international chains are displacing local shops, reducing the diversity of the urban environment. Land use regulations that encourage and facilitate mixing cannot fight pressures towards homogeneity. Even in Japanese society, with its long legacy of mixed use, the automobile and forces of the global market now facilitate spatial segregation, sprawl, and wasteful land use patterns. (Alden et al 1994; Shapira et al 1994)

Prospect: can we retrofit clean industrial parks for residential mix?

Efforts to create new districts and suburbs incorporating mixed use have met with limited success to date. Furthermore, such projects will not resolve the problems of extensive single-use districts. Studies show that residents and lenders resist proposals to transform residential areas through mixing in additional uses; suburbanites prefer predictability and homogeneity (Dowling 1998; Perin 1977). Are there other options?

Those who believe that intensification and mixing uses will enhance sustainability and livability argue that intensifying uses in the developed portions of cities makes sense. Many cities have experimented with policies to promote in-fill housing and to increase densities and mix uses in older districts. Some projects, like the St. Lawrence neighborhood in Toronto, have been quite successful (Gordon and Fong 1989; Sewell 1993). However, as Isin and Tomalty (1993) report, public response to intensification has not proven overwhelmingly positive. Neither is it easy to redress the flight of jobs from the core to the periphery, or to ensure affordable housing for the most disadvantaged groups.

Planners want to find ways to address the housing and transportation issues of those of modest means. The advocates of mixed use argue that integrating residential with other uses can decrease the costs of housing, reduce the need for private automobiles, and make mass transit viable. But if the market resists efforts to provide affordable housing in new communities and if business declines to locate in existing urban cores, what other alternatives could planners consider to promote compatible mixed use?

In the early 1990s, we conducted a study to consider the limits of mixed use in the contemporary city (Grant et al 1994). We hypothesized that if it is difficult to bring jobs to where people live, and if low and moderate income households are the most disadvantaged by living far from their work, then it may prove feasible to bring residents closer to the parts of the city where

jobs abound. This case thus explores how far planners can push the concept of mixed use. If we assume mixed use is desirable, then we may reasonably ask whether it is feasible or appropriate to retrofit clean industrial parks for residential use. This section describes the findings of a research project that considered retrofitting a clean industrial park for residential uses. We hoped to determine the opportunities and constraints of adding housing to the mix in an area of light industry, wholesale, and warehousing uses⁷. We thus may identify the issues in planning for mixing “extreme” types of urban land uses: residential and industrial.

Despite strong interest in intensification and mixed use, few planners have considered the potential of developing housing within suburban industrial parks. Given the clean and attractive nature of the contemporary industrial park, however, we can make a case for evaluating the potential for adding housing to the mix of uses. Instead of bringing work to people's homes or developing new areas of mixed use in the central city, we can consider retrofitting employment areas for housing.

The contemporary North American industrial district bears little resemblance to its 19th century counterpart. Industry is changing. Manufacturing jobs disappear while the service and knowledge sectors grow. Many industries are relatively clean, or working to become so. Office, wholesale, retail, and service industries have joined small-scale manufacturers in urban industrial parks. Amenity values and landscaping standards prove high. Yet after working hours, many industrial parks lie largely vacant and vulnerable to crime. Infrastructure designed for peak demand times sits idle as workers head home. In the late 20th century, municipalities find they cannot afford new infrastructure to accommodate growth; neither can they justify leaving infrastructure under-utilized. Modern industrial parks may offer an opportunity to accommodate additional housing in close proximity to employment centers without new infrastructure.

During the late 1960s to mid-1980s, financing by federal, provincial, and municipal governments supported development of industrial parks on the fringe of many Canadian cities. As part of a national economic strategy promoting industrial development in disadvantaged regions, land was purchased, zoned industrial, and infrastructure provided. The first major industrial park built in the province of Nova Scotia through this program was Burnside Industrial Park, designed to serve a regional function within the Halifax metropolitan area.

On approximately 3000 acres on the Dartmouth shore of Bedford Basin, Burnside has excellent rail and road connections. In the 1990s, the Park had approximately 12,000 jobs in 1200 businesses, most in light manufacturing, warehousing, wholesaling, and service industries. Aside from the regional power plant just outside the Park, no “smokestack” industries operate here. However, after more than 20 years of operation and tens of millions of dollars invested since the early 1970s, parts of the Park needed redevelopment: abandoned buildings, unsold land, large empty lawns, and huge parking lots revealed acres of under-utilized space⁸.

⁷ Burnside Park includes a wide range of businesses. Light industries include: furniture manufacturing, metal plating, brewery, metal fabrication, stationary making. Warehousing and distribution includes moving and storage, pharmaceutical distributing, and paint and chemical supply storage. Service industries include a transit garage, photo processing, printing, decorating, and engine repairs. The office park houses a variety of small and large employers. Retail uses in the park include used furniture, athletic gear, stationers, restaurants, bars and a fitness center. Day care centers, veterinarians, and medical offices are also operate in the park. (Cote *et al* 1994)

⁸ Environmental contamination has not been a significant issue on abandoned properties; rather a

We investigated the potential for retrofitting Burnside Industrial Park to accommodate residential uses. A sustainable community development strategy based around mixed use would suggest several benefits from congregating housing with industrial uses: optimum use of infrastructure, an after-hours resident population to use services and enhance security, more efficient use of land (by in-filling between buildings or on rooftops), affordable housing close to work to reduce commuting, and less opposition to multi-family housing than in residential areas.

Our exploratory study involved site analysis and inventory of Burnside and interviews with a sample of users and regulators of the Park.⁹ We analyzed the site for opportunities for residential in-fill or cluster development, and interviewed planners, developers, Park managers, business owners, workers, and council members for their views on the potential for altering the use mix. We found that while Burnside provided adequate spaces to accommodate housing, many constraints made such mixed use problematic.

To avoid social isolation for residents, we thought it appropriate to seek sites to accommodate clusters of housing. The most suitable locations would allow walking to schools and other community facilities. Site analysis showed several pockets of appropriate dimensions, qualities, and location to consider for housing. Designers could adapt several sites within the Park for residential use. However, to make housing viable, considerable investment in infrastructure (such as sidewalks and highway overpasses for pedestrians) and facilities (such as playgrounds) would be necessary¹⁰. Many services (such as grocery stores) remain at some distance and would likely demand access to an automobile. While planners could design a green-field industrial park to nestle housing clusters in appropriate locations, an older industrial site proves less amenable to modification without significant cost.

We found little support for the potential of residential in-fill among respondents. Company owners and Park managers feared that despite the clean nature of the businesses in the Park, residents would protest noise, odors, traffic, and business expansion. They explained that NIMBYism is already a problem within Burnside from business owners who do not want certain businesses (such as propane suppliers) to locate near them. Furthermore, they said, business owners need a stable and predictable environment for planning their future. Residents would create uncertainty. Respondents suggested that incompatible mixes could undermine business investments.¹¹

Planners, council members, and Park managers noted that public dollars built the Park as part of an economic development strategy. By releasing land for housing the city would compete with private land developers who may cry “foul” over subsidies. Substituting residential for industrial uses could reduce the municipal tax base which depends on revenues from Burnside. Moreover, they worried that mixing further uses in Burnside would exacerbate the trend to decentralization already undermining the old core of the city. Finally, they noted that government institutions cannot readily conceive of changing the mandate and processes used in

poor economy in the 1990s left many sites vacant. When an oil company decommissioned its oil storage yards it cleaned the site and has since redeveloped it for a micro-brewery and restaurant.

⁹ Details of the study (conducted in 1993) are provided in Grant et al 1994.

¹⁰ Most workers in Burnside arrive by car. Local bus routes traverse the Park, but there are no sidewalks: this engenders significant hazards in winter conditions. Shift workers find the bus schedule inconvenient for late hour commuting. The Park has no pedestrian or cycling access.

¹¹ Gsottschneider’s (1998) study of Concord NH suggests that mixing uses can adversely affect the tax base. He says that mixed use produces uncertainty which undermines investment.

dealing with industrial land.

Despite the success of the site analysis in identifying opportunities for housing in the Park, resistance to the concept was considerable. Park managers, planners, and workers in the Park worry about the risks of bringing people (especially children) into an environment with significant hazards. In any site with industrial or warehouse users, heavy traffic, noise, odors, and unsightly waste piles may present risks to potential residents. Introducing housing could increase demand for policing, fire, schools, and playgrounds at a time when the municipality cannot afford to extend services. Housing within the Park would likely only suit households of young working adults: for instance, fitness facilities and nightclubs could meet some leisure needs. However, households with young, elderly, or disabled members would find few amenities. Moreover, respondents argued, the Park would likely attract poorer households with little choice in housing; thus people may come to see the area as an industrial slum¹². Highfield Park, across the highway from Burnside, already serves the market for low-income adult households, they say. Its proximity may reduce the need for mix within the Park.

Perhaps the most significant factor limiting the viability of adding housing to the mix at Burnside is the nature of the regional housing market. Workers have a wide range of attractive housing choices within 15 minutes commute of the Park. While some may choose to live closer to work if given the choice, most see the short commute as inconsequential, and worthwhile to take advantage of housing opportunities in various Metro suburbs. “In crowded areas like ... New York people may make the trade-off to live in industrial areas because they have no choice; ...[here] people can afford to choose somewhere nicer than next door to a factory” (Grant et al 1994: 83).

Most of the planners, managers, and political leaders interviewed see the concept of mixed use as generally positive. They argue, however, that Burnside already has an adequate mix with industrial, commercial, and office. Most do not see benefits to adding housing; indeed, they fear that doing so would upset the successful balance of the Park. Thus they set clear conceptual bounds on the range of mix they will encourage. Industrial areas can accommodate commercial and office uses, although at some price to the central business district; however, few show interest in encompassing the whole gamut of potential uses in the industrial park. Just as the occupants of exclusive residential districts resist allowing other uses into their neighborhoods, the tenants and managers of industrial areas seem ready to resist adding housing to their mix (see Chart 1).

Promise: mixed use integrates communities

Our case study of an industrial park indicates that industry and commerce share NIMBY fears with suburban residents. While most people agree that some uses can mix safely and profitably, many express reluctance to welcome any but a limited range of uses in their immediate vicinity. Developers and lenders may decline to participate in mixed use developments, seeing them as presenting too great a risk (Gillespie 1995; Peirce 1996; Sprawl Busters 1999).

It seems that the finer the scale at which planners propose mixed use, the greater the potential for and likelihood of resistance. People accept the full range of urban uses within the

¹² One planner worried about the potential of creating new “company towns” with workers dependent on the “big boss”. Given the legacy of dependency (and betrayal) in the old mining company towns of Nova Scotia, the planner’s concern is understandable.

larger city, but when planners suggest new uses for neighborhoods, citizens may organize opposition. Based on their survey of residents, Perks and Clark (1996: xi) write, “A substantial proportion of residents favour introducing mixed uses and higher densities, but they prefer to live in an identifiable area (or cell) pretty much like the one they currently enjoy.” Many people like the idea of mixed use in the abstract: even the residents of suburbia understand the nostalgic appeal of small towns and urban villages idealized in NU literature. However, most continue to choose to live in the suburbs. They do not want to reside near stores that bring strangers and traffic into their midst. And while some may move to the suburbs because they know nothing else and see few housing options, many North Americans embrace suburbia as the embodiment of core values. In an attempt to protect their dreams, they resist the intrusion of undesired uses that they fear will not mix well with their own.

New urbanism promotes mixed use within a context where mixing is one element in an overall approach to urban and suburban development. The approach involves increasing density, promoting social and economic integration, and changing the urban aesthetic. As we examine mixed use in practice, we find people’s concerns reflect fears related to other issues: changing physical or social characteristics in the landscape, higher densities, social integration, scale of projects, and loss of open space or undeveloped lands. The literature on NIMBYism reveals public opposition to such changes, and increasingly cites resistance to mixed use as part of the equation (Bergdoll 1991; McMahon 1999; Pendall 1999).

Despite academic and professional support for the ideas of new urbanism and sustainable development, some planners remain cautious about how far to promote mixed use. They recognize that public resistance limits the extent of areas zoned for mixed use, the kinds of uses to mix, and the densities allowed¹³. As the case study demonstrates, business interests also hesitate to go beyond general support for the concept of mixed use. Planners seeking to implement mixed use strategies need to understand these realities.

Any neighborhood with a mix of uses creates the potential for incompatible expectations. People raise issues about the visibility of undesired uses, and the aesthetic and safety impacts on residential landscapes. Citizens fear that mixed use will affect the value of their property. For generations, people have treasured a protected residential environment, especially for child-rearing. Mix challenges these values. (Bookout 1992b; Dowling 1998; Isin and Tomalty 1993; Michelson 1973; Perks and Clark 1996)

Moreover, while few openly voice their concerns, fear of interacting with people who may be different clearly remains a key factor limiting public acceptance of mixed use. Residents may oppose particular uses because they wish to prevent strangers coming into their area (Baum et al 1978; Dowling 1998). Social barriers make people reluctant to accept diversity in their

¹³Perks and Clark’s (1996) survey of consumer receptivity to new urbanist and sustainability principles revealed public resistance to the premises that planners currently promote. Although their sample was small, their findings coincide with anecdotal evidence from across the continent: there is relatively little public support for mixing uses or increasing densities in respondents’ neighborhoods. (See, also, Bookout 1992b; Calgary 1998; Ellis 1998; Gordon and Richardson 1998; Isin and Tomalty 1993.) Similarly, Heath’s (1998) study of urban residents in Britain indicated that only a small proportion of the population is prepared to consider living in mixed use environments. He found that young adults were the primary target group for converting office buildings to residential units.

neighborhoods¹⁴. Neighborhoods show patterns of house design, vegetation, automobile choice, and lawn ornamentation that parallel patterns in class, occupation, and ethnicity; such patterns become closely linked with residents' sense of identity, and thus may be defended vigorously (Cohen 1987; Gurstein and Vanderburgh 1993; Hull 1992). Residents in some areas may accept mixed use as part of their cultural heritage and desired urban landscape, but others (especially in suburban environments) fiercely resist intrusions and attempt to control the character of their community through what some defend as democratic action, but others label NIMBYism.

Planners and designers understand these potential concerns and responses, and hence employ strategies for coping with difference in the built environment. Plans and policies often promote physical barriers as "buffers" to separate uses spatially. For example, minimum separations may distance uses seen as different or incompatible. Streets, railway tracks, or elevation may separate activities to minimize visibility, noise, traffic, or interaction. Vegetation, green space, fields, hills, or waterways may keep disparate uses apart. Some planners advocate design standards as a strategy for improving the urban aesthetic of mixed use projects (Gsottschneider 1998). Discussions about buffers indicate how difficult it may be to integrate some uses.

Sometimes, planners employ conceptual barriers to facilitate mix. Types of "mediating uses" may separate categories perceived not to mix readily. For example, medium density housing may separate low density housing and commercial uses. Conceptualizing medium and high density housing as "buffers" to protect low density residential from commerce or light industry reveals the lesser power of those who inhabit medium and higher density housing. Those in social groups of little power must tolerate mixing with other uses: they get the apartments over the store or in the apartments next to the mall or research park. They live with noise, odors, traffic, and lack of private open space, or find themselves driven out as their community gentrifies. In a culture where we praise diversity in theory but resist it in practice, the powerless may "pay the price" for implementing mixed use.¹⁵

Time to evaluate basic positions

In the 1960s planners, designers, and political leaders united in their faith in a strategy for saving the city: urban renewal. For the first decade of the attack on the slums, they believed they had popular support. In the end, they suffered a backlash that changed ways of thinking about the city and of practicing planning. As the third millennium begins, we see that the experts and decision makers share faith in mixed use while the masses have yet to give up the gospel of suburban retreat. For a profession committed to democratic participation, we remain willfully wedded to what some would criticize as elitist views.

Given current values and economic conditions, many suburbanites are unlikely to accept having a wide variety of uses integrated into residential areas. They do not want denser communities. They refuse to give up their cars. The proliferation of gated and private communities indicate the extent to which people are ready to insulate themselves and their

¹⁴ Communities differ in their willingness to accept some kinds of diversity. For example, American cities experience significant racial segregation; economic segregation is more prevalent in Canadian cities.

¹⁵ Surveys indicate that residential satisfaction is highly correlated with suburban living and single use areas, even among economically or socially disadvantaged families (Baum *et al* 1978; Cook 1988; Dahman 1985; Kasl and Harburg 1972).

families away from the things they fear, to establish a protective cocoon around their residential areas to exclude “undesirable” people and uses (Blakely and Snyder 1997; McKenzie 1994). It will take significant cultural change to effect the kinds of communities that mixed use promotes. We may need an economic or environmental crisis to create the opportunity for such transformation.

Constructing a community with a high level of mixed use may not prove cost-effective for the average developer or attractive to the financier (Gillespie 1995; Peirce 1996). While Disney corporation has the resources to provide the commercial and public facilities for an integrated mixed use community at Celebration FL (Knack 1996; Ross 1999), few developers have such deep pockets. To date, the real estate and financial industries have proven rather dismissive of the new approach (Fulton 1996; Isin and Tomalty 1993; MSM and RPA 1994). For developers as well as for residents, mixed use seems a risky proposition. Long-standing cultural and financial realities support land use segregation for residential and industrial environments.

It may prove possible to create new communities that achieve the ideals of mixed use, diversity, and equity. Maybe planners will convince suburbanites that we can rescue and rehabilitate the city. Unfortunately, we find few models in North America as evidence of the potential. The successful projects of NU fail the test: they provide accommodations and a limited range of services for the wealthy, mostly in suburban locations. They offer few examples of dynamic mix. New urbanism has not reduced the growth of suburbs, nor has it reversed the trends of decentralization, declining transit use, and rising home values in exclusive neighborhoods. Deindustrialization continues to undermine any role for industrial uses in the urban mix.

The conversion of industrial districts to incorporate mixed uses illustrates the potential for successfully re-using building stock and creating lively urban districts. However, evidence indicates that the costs and benefits of such projects are differentially distributed. Residential, commercial, or office uses move in to displace small manufacturers and poorer residents. Rather than a wide mix persisting in such areas, market pressures rapidly transform the districts into a limited selection of high end uses as the city is “yuppified”.

We know, though, that examples from other nations show that mixed use at high densities can create energetic and vital cities. European, Japanese, and developing country cities often reveal an intensive mix of uses built up over generations.¹⁶ In such circumstances, people have developed cultural strategies for generating and accommodating mix. This cultural legacy is significant, as are the mechanisms people have developed for coping with the challenges of mixed uses. As planners and designers look to cities in other nations as models of what we can achieve in our own communities, we sometimes forget these differences in culture and the difficulty of adapting alternative strategies. We need solutions that accommodate or account for our own cultural traditions.

North Americans have a legacy of mixed feelings about the city. Our cities grew rapidly in an era of segregated land uses, in a social context where separating uses met social, political, and economic agendas. Abundant, inexpensive land made suburban living possible for several

¹⁶ We should note, however, that the mix of uses is changing in cities in other nations as well. Industry is on the move world-wide, in search of greater returns. Thus industrial sites in inner cities may be abandoned as industry re-locates or consolidates away from the traditional core. In many nations, the central city has a lesser range of uses today than it would have had at the turn of the 20th century.

generations while a burgeoning mass media and consumer culture created new ways of encapsulating dominant values in a suburban landscape. Planning, like the cities it seeks to improve, is embedded within cultural processes that create conditions planners cannot easily change, despite our good intentions. Planners cannot expect to turn cultural realities around simply by assuring people that mixed use makes sense on economic, social, and environmental grounds. Furthermore, in the absence of empirical proof that our premises are valid, and our promises viable, we have little more than hope to offer.

Rapid acceptance of new urbanism by planners and designers, despite the lack of empirical evidence supporting its claims or warranting its substitution for prevailing practices, may reflect a disdain for suburbia among elites in contemporary society¹⁷. Architects, urban designers, geographers, planners, and landscape architects frequently condemn suburbia for its formlessness, exclusivity, waste, and lack of community. They may assume that their dislike of suburbia is (or should be) widely shared among the masses. They seek to convince decision makers that mixed use and greater densities are viable strategies for solving urban problems. Isin and Tomalty (1993) report that, although the literature contains equally compelling arguments for and against intensification, their survey found Canadian communities implementing intensification initiatives anyway. Without empirical testing or full evaluation of the impacts of potential choices, many communities are changing their regulations in an effort to “reurbanize” themselves (see, eg, Calgary 1998; Chidley 1997; Edmonton 1997; Energy Pathways 1996; Moyes 1997; Peck 1995; White 1996).

Certainly the suburbs warrant reevaluation. After all, we can readily link significant environmental and social externalities to contemporary urban form. Suburbia is costly to service, consumes large amounts of land, and employs repetitive standards and designs. Nevertheless, before the profession adopts a new philosophy that proposes radical revision to the principles that produced the suburbs (home to the majority of North Americans), one would expect careful analysis and assessment to ensure that the new solution proves viable. Yet planners provide little evidence that we can achieve the social, economic, and environmental objectives promised from a strategy of mixed use and compact form. Where is the proof that mixed use will improve housing affordability, reduce environmental costs, or increase people’s sense of community? Granted, trying to retrofit an industrial park to accommodate housing may be an extreme test of the viability of mixing land uses. However, along with evidence of other problems generated in trying to mix residential and industrial uses in the urban environment, we have established the need for planners to engage in further studies to consider the practical implications of and community responses to these new planning approaches.

Having already suffered the urban renewal debacle, planners might want to tread gently in pushing new approaches. Advocated as a solution to the problems of poverty and deterioration in the city, urban renewal generated unanticipated long-term problems; it disproportionately disadvantaged poor and powerless segments of the population. To date, mixed use projects have

¹⁷ The American Planning Association actively promotes “Smart Growth”, a set of concepts that includes advocacy of mixed use. Its critics see it as an attack on suburban values, and a potential threat to the poor (Byrne 2000). As Clark-Madison (1999:2) writes, “So Smart Growth can, to the untrained or jaded eye, look like a way to dump growth into established neighborhoods that don’t want it, or can’t handle it, or - especially to the east and south - are too disadvantaged or disempowered to do anything about it.”

benefitted the affluent while disadvantaging the poor and powerless. We note troubling parallels with the outcomes if not the philosophy of the paradigms. However, professional organizations (such as the Canadian Institute of Planners and the American Planning Association), promote new urbanism and sustainable development as models that can respond to critiques about bureaucratic inflexibility, suburban ugliness, and declining environmental quality, and thus give the profession added credibility and renewed sense of purpose. In this context, many planners have become eager adherents to the new approaches, and hence prophets of mixed use. Planners certainly must have vision to offer communities leadership in thinking about solutions to urban problems. At the same time, though, planners must use empirical methods and rational analysis in presenting alternatives for communities to consider. If planners do not respect community values, and assess the distributive effects of public policy, they merely generate new problems for the next generation to fix.

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Chart 1: A Conceptual Schema of Residents’ and Industry’s Views on the Suitability of Mixing Other Uses With Their Own Use

	Perspective of Residents of Single Detached Housing	Perspective of Owners and Managers of Businesses in Clean Industrial Park
Most desirable for mixing with primary use	single detached housing elementary school open space	warehouse services highway
	park playground home occupation neighborhood commercial semi-detached housing	office buildings open space light industry small retail or showroom
	day care center restaurant medium density housing hospital	park recreation center day care center heavy (clean) industry
	high density housing high school group home half way house bar large commercial light industrial agriculture highway	big-box commercial bar institutional agriculture refinery fuel depot
Least suited to mixing with primary use	waste treatment facility resource extraction heavy industry prison abattoir	residential waste treatment facility abattoir

Map 1: Location map of sites in Halifax area