Zenia Kotval, Ph.D., is Assistant Professor of Urban Planning in the Department of Geography at Michigan State University. Dr. Kotval has conducted research projects in over fifteen communities and has been responsible for data interpretation and economic base analysis on a number of projects in New England, New York, and Pennsylvania. She has taught courses in quantitative methods, operations research, city planning, urban issues, and fiscal and economic development.

John R. Mullin, Ph.D., AICP, is Professor of Urban Planning and the Head of the Landscape Architecture and Regional Planning Department at the University of Massachusetts. He has an active and extensive research and planning consultation practice which has included studies throughout New England on industrial development, economic impact assessment, historic preservation, urban revitalization, and waterfront redevelopment. He is the recipient of a Senior Fulbright Award and is a grantee of the National Endowment for the Arts. Most recently he has been working on reindustrialization problems in Derry, Northern Ireland, and Porto, Portugal.

The Coming Crisis in Industrial Land: A Planning Perspective

Zenia Kotval
Michigan State University
John R. Mullin
University of Massachusetts

This article is an overview of the current state of planning for industrial development. Local planners too frequently have neglected their industrial resources and are therefore endangering their economic base. Indeed, conditions have reached the point that rarely can one find in the Northeast a 100-acre contiguous industrial parcel of land, with water and sewer services, that is environmentally clean and has direct access to major highways without passing through a residential neighborhood. Furthermore, there is clearly a mismatch between land zoned for industry and that which is suitable for development. This article analyzes the key factors that are influencing industrial land use decisions and provides recommendations that may be of assistance to local officials throughout the country.

Throughout the United States increasing pressure is being placed on local planners to find suitable land for industrial development. This is primarily due to (1) the fact that manufacturing needs space to house expansive linear production systems, (2) the desire of industrialists to be close to interstate or major state highways and airports on the fringes of built-up areas, and (3) the expectation that the newer sites are free of environmental problems and conflicting neighborhood land uses. While planners are seeking to find appropriate sites, there is a countermovement in many suburban and exurban communities to stop or severely restrict industrial uses. For example, in the heavily industrialized area of western Massachusetts, a region the size of Rhode Island, there are no suburban or exurban industrial parks that have more than 100 acres available “by right” at this time. In research and consulting work throughout the country the authors have observed that the conflict is becoming steadily intensified.

This article analyzes the origin of this problem and the steps required to correct it. It is divided into two parts. The first is a summary of the key factors influencing local industrial development. These observations are based on funded research work and professional practice in several states. The second is a set of recommendations that should help planners to resolve the conflict.

KEY FACTORS INFLUENCING LOCAL INDUSTRIAL DEVELOPMENT

Research by the authors has identified 10 common factors that are influencing the reluctance of local communities to invest in industrial development. These are explained below.

ECONOMIC DEVELOPMENT QUARTERLY, Vol. 8 No. 3, August 1994 302-308
Industry is increasingly perceived by the citizenry as a locally unwanted land use (LULU). The fears of contamination from industrial pollution are so strong that all industry is considered environmentally unsafe unless proven otherwise. Concerned citizens regularly cite national examples such as the Love Canal incident in upstate New York as the basis of their concern. Citizens have been so effective in raising alarm that even the slightest possibility of pollution is enough to cause the rezoning of land to nonindustrial uses. It is in this area that planners need the support of environmental groups such as the Audubon Society, Conservation Law Foundation, Nature Conservancy, and the Sierra Club. These groups consistently and effectively take stands against industrial expansion. No one can argue with their overriding desire to protect the environment or their skill in stopping inappropriate growth. Yet in instances in which land is free of potential environmental hazards and in which industry could be well sited, they remain on the sidelines. If these groups became proponents of well-sited industrial uses, this problem would be substantially resolved.

The concept of local jobs for local people has lost its currency. Whereas all zoning is local, all industry is regional; we have become a nation of commuters and think little of traveling great distances for employment. Further, there is a recognition on the part of the citizenry that there is little connection between places of residence and work. Thus the argument that industrial expansion will result in an increase in local jobs is rarely supported. On the other hand, support for industrial expansion in the county or region outside of one’s community typically has extensive support. The authors’ findings suggest that the concept of well-planned, large-scale industrial clusters located outside established communities has far greater citizen support than local, small-scale industrial parks. In short, workers would rather drive to regional sites than have the industrial uses within their own communities.

Land zoned for industrial uses is not always suitable for industry. Traditionally, communities across the nation have adopted four basic zones: (1) open space/agricultural, (2) residential, (3) commercial, and (4) industrial. Zoning was, and often still is, pyramidal, with open space at the top and industrial at the base. Open space/agricultural use is thereby allowed in all districts. Residential, at the second level in the pyramid, is allowed in all districts except open space. Commercial uses are allowed in the commercial and industrial districts, while industrial uses are allowed only in the industrial districts. Thus industrial uses can be sited only in select areas. Pyramidal zoning also creates problems relating to the compatibility of uses. By allowing residential uses in an industrial district, communities create inevitable problems of conflicting land uses: Once housing is constructed, the potential for attracting further industrial growth declines dramatically.

Historically, the industrial districts in the Northeast region were along rivers and streams, as manufacturing was dependent on water power. Unfortunately, today much of that land lies within a defined flood plain and is unusable. Further, increased environmental regulations coupled with strict laws for wetland protection, buffer zones, and protection of aquifer recharge areas have removed the potential of much of this land from future industrial growth.

Furthermore, the absorption rate and the build-out rate for industrial land is slower than that for commercial or residential property. Thus landowners often pressure a community to change the zoning so they can get a quicker return on investment. Indeed, conditions have reached the point that rarely can we find a 100-acre parcel of land, with water and sewer services, that is environmentally clean and has direct access to major highways without passing through a residential neighborhood. The mismatch between land zoned for industry and that usable for industry can be seen clearly in the findings of our recent study analyzing land zoned for industry in the Connecticut River Valley of Massachusetts. The study concluded that 15% of all industrially zoned land was appropriately developed for industrial use, 28% was in conflicting uses (i.e., water bodies, residential, or commercial uses), and 57% was available for future industrial growth. A further examination of the available land caused another 41% of the parcels to be deemed undevelopable for industry. Thus only 17% of all land zoned for industry in the valley is actually available and usable for industrial development. This pattern can be found in other regions and states as well.

...the concept of well-planned, large-scale industrial clusters located outside established communities has far greater citizen support than local, small-scale industrial parks... Workers would rather drive to regional sites than have the industrial uses within their own communities.

By allowing residential uses in an industrial district, communities create inevitable problems of conflicting land uses: Once housing is constructed, the potential for attracting further industrial growth declines dramatically.
Ownership characteristics and site constraints are critical to the development potential. If land zoned for industrial use is in the ownership of one or two persons or corporations, the potential for well-planned industrial parks or complexes increases significantly. If, on the other hand, the parcels are balkanized, the chances of successful development decline appreciably. It is extremely difficult to bring private landowners of small parcels into common agreement on acceptable prices for their land at the precise time that a developer requires them. These owners are also reluctant to enter into common agreements on performance standards or deed restrictions in anticipation of growth. Last, the incremental sale of these lots means that it is virtually impossible to preplan infrastructure requirements. Land assembly is time-consuming, expensive, and rarely works without the help of the public sector. Yet the public sector, with declining economic assistance from the federal and state governments, is hard-pressed to find the expertise and financial resources required to put packages together. In short, our research to date validates the hypothesis that the greater the number of industrial parcels in a zoning district, the lower the quality of development.

Concerning site constraints, wetlands, soil characteristics, and slopes dictate the density, location, and pattern of development. In virtually every state in which we have worked, the desire to protect wetlands is only increasing. Indeed, we are now working in one state where there is a 400-foot setback required from wet areas for industry. In addition, there are restrictions in most communities on building on soils that are environmentally sensitive or that have poor drainage capabilities. Finally, most communities restrict development in areas where slopes are greater than 10%. This is due primarily to fear of erosion and the safety of vehicular movement. The net result is that the usable percentage of land in industrial areas is now declining and is typically between 25% and 30%.

There is great concern over allowing industry “by right.” Communities fear that they will lose control over which industries locate in the area if industry is allowed “by right.” When a Digital Equipment Corporation (DEC) comes to town to look at a site, it is typically welcomed with the proverbial brass band. On the other hand, if Joe’s Tire Recycling Plant were proposed for the same site, one could typically expect protests. Citizens increasingly want to have extensive control over the occupants of an industrial site. Thus special permits or exceptions are increasingly the rule. By applying these zoning controls, there is much stricter control of the type of industry that can locate in a community. Further, communities are more frequently requiring impact fees, off-site improvements, and/or funds to insure that regular inspections can occur.

Furthermore, when industry is an option, there is a tendency to minimize the floor-area ratio (FAR) or percentage of building coverage on industrial land. In an attempt to hide or blend industry into rural, campuslike settings, and with the knowledge that initial densities in industrial areas are rarely final densities, communities are increasingly stipulating high site-design standards. Strict standards for noise and visual buffers, landscaping, height, and mass of buildings reduce the allowable FAR on industrial property. The restrictions and standards, while creating aesthetically pleasing parks, add a cost dimension to industrial developments. Instead of a 50% lot coverage, for example, many communities are now insisting on a maximum of 20%. Thus more land is required. Similarly, design standards governing landscaping, signs, architectural features, underground utilities, and curb cuts add substantially to the cost of siting a structure. The net result is that higher-valued development occurs and local property tax revenues increase. At the same time, however, such controls, when too stringent or expensive, can force companies to look to less expensive sites.

Infrastructure is at maximum capacity. Given the current slow economy in most of the United States, the lack of federal support for infrastructure, and the mood of conservatism concerning tax expenditures, communities rarely look to infrastructural improvements or expansion on an ongoing basis. Indeed, it is rare today to find a fully operational capital improvements program. The idiom “if it ain’t broke, don’t fix it” holds true in most communities across the nation. In fact, sewer and water capacity is used as a growth control mechanism in many communities. A sewer avoidance policy means minimal growth. In short, if lands zoned for industry do not have water and sewer systems adjacent to them, or on site, the likelihood of development is increasingly minimal.
Why zone vacant land for industrial purposes with a surplus of vacant or underutilized mill/factory space? There is a common perception in most communities that more than enough building space is already available for industrial development. Communities typically have industrially zoned land. However, residents are often unaware that thousands of square feet of vacant, old mill or factory space are unsuitable for modern industrial use. While it is true that these facilities offer inexpensive space for starter industries and are sometimes easy to renovate, it is crucial that communities take a hard, realistic look at these buildings and come to terms with the fact that most of them will never be fully used again. For example, research in Rhode Island has shown that there are more than 10 million square feet of beautiful, red-brick mill space that is vacant or barely used. Because of the Americans with Disabilities Act, OSHA requirements, Corps of Engineers/Environmental Protection Act rulings, and local zoning, most of these structures are unlikely ever to be used for industrial purposes. A careful pruning is in order. Those that are not of cultural, historical, or architectural value and are too expensive to revitalize should be knocked down. In short, communities often do not have a realistic inventory of industrial land and mill space.

There are real problems with the reuse of old industrial buildings. Even strong proponents of revitalizing old factory buildings realize there are serious problems related to doing so. Recent industrial production trends have leaned toward a horizontal orientation in buildings. Multi-storied mill buildings are unsuitable for such processes. Furthermore, the bearing capacity of upper floors is frequently incompatible with the requirements of modern industry.

The modernization of older buildings is not inexpensive. Even when the building is structurally sound, common repairs such as repainting the brickwork or repairing the roof can be expensive. In most cases elevators need to be upgraded to meet new OSHA standards; the heating, electric, and sprinkler systems need to be replaced; and the floor space reconfigured to meet new demands. Furthermore, experience shows that if a mill building has not been used or maintained for two years, it is too expensive to renovate due, typically, to frost damage, burst pipes, and vandalism.

Few old mill buildings are environmentally clean. Concerns about asbestos and hazardous materials require these buildings, in most states, to be certified as environmentally clean before any sale or new financing can take place. Environmental cleanup, in most cases, is an expensive and lengthy process.

Old mill and factory buildings are often too large for the demand. Because a majority of the clientele for these mills are small starter firms, it is difficult to find one company to occupy the whole space. This problem creates the need to partition the space and reconfigure the central heating system. This situation further leads to the question of who will maintain and pay for the portion of the building being used.

Old sites are rarely well served by highway networks. Most of these buildings are located in the older, congested parts of town. Service by 18-wheelers can pose a problem not only to the internal roads but also to the neighborhoods surrounding the structure. There is generally little or no room to expand the loading/unloading facilities or parking lots to meet increased demand.

Finally, good buildings typically succumb to short-term speculation: Those structures that are suitable for rehabilitation are often converted to other uses such as condominiums, affordable housing, or retail uses. Because there is a faster rate of return on such development, speculators will opt for that route rather than wait to reuse the structure for industrial purposes.

The approval process is too long, too bureaucratic, and inconsistent. Regardless of the kind of permit process a state or local government requires, companies like it to be predictable. Industry wants to know what to expect and prefers clearly presented regulations to open-ended policy statements. Lengthy approval processes or uncoordinated permit procedures are detrimental. Local governments that provide "one-stop shopping" or offer precleared industrial lands are at a distinct advantage. Another key element is a pro-business climate. Not long ago the authors taught a midcareer industrial-planning course that attracted participants from 12 states including, among others, South Carolina, Texas, California, Pennsylvania, and Vermont. Each of the participants was given the assignment of siting a new manufacturing plant in his or her home state. The requirements for the factory were constant. The range of responses was quite dramatic, with South Carolina
requiring the least time (three months) and Vermont requiring the longest (eighteen months). Given South Carolina’s aggressive desire to expand its economic base, the results are not surprising. The expected time required for Vermont is equally unsurprising. Vermont has one of the most stringent sets of development requirements in the nation. Further, Vermont requires approvals at local, regional, and state levels before development can occur.

The expansion of a community’s industrial base is rarely adequately addressed in regional or local master plans. The authors have worked on industrial issues in more than 80 communities over the last five years. In not one of these communities has the issue of industrial development been adequately addressed. Yes, it is typically mentioned as part of a basic economic-development goal. Yes, it is covered in the inventory section. But it receives virtually no additional attention. One preliminary explanation is that planners feel very uncomfortable when dealing with industry. They would rather see industrial issues go away. Although there are no formal survey findings to support this position, the following three illustrations will lend credence to these thoughts. First, the word “industry” scarcely can be found in any American Planning Association annual conference brochure for the past four years. This suggests that industrial planning is an area not considered in the mainstream of planning thought. Second, the authors have been asked by 10 communities to write industrial-policy plans in the past two years, after the community’s own planning staff has written a master plan. This example reinforces the previous point. Third, industrial location is such a politically “hot” topic that is is best only to write glittering generalities: Why cause a master plan to be disapproved simply because of one typically sticky issue? Although there is no proof that this perspective is accurate, the authors do know that industrial planning is ignored in local master plans.

RECOMMENDATIONS

There is a need for change. Despite the national decline in industrial employment, manufacturing continues to play a healthy role in our gross national product. If this is to continue, our cities and towns, regions and states need to address the means and methods required to maintain and expand the availability of high-quality industrial land. The following represent a set of actions that could be helpful.

LOCAL ACTIONS

The authors have identified eight common actions that can substantially improve the development of suitable land for industry at the local level. None of these will be overwhelmingly effective by itself. However, as a collective, they can lead to dramatically improved conditions. These actions are explained below.

Reform the approval process. The rules and regulations governing the process must be clear, coherent, precise, and fairly applied. Further, in areas where “one-stop permitting” is allowed by law, the application of this technique is strongly urged. The regulations and procedures of all boards should be shared so that coordinated efforts can occur, repetition is eliminated, and the approval time is shortened.

Provide a range of land use options that includes “by right,” “by exemption,” and “site-plan approval required.” In cases in which industry can be sited without any negative impacts, there is no reason why it should not be allowed “by right.” In cases in which there are potentially negative impacts, it is better to place the land under special permit regulations. In other cases, when the setting is unique, site plan approval is in order. The key, above all, is to ensure that the options reflect the setting, the community's concerns, and the level of planning sophistication.

Establish strong performance standards. Communities have realized that simply determining land uses and densities are insufficient methods for protecting health and safety. For this reason they should add “performance standards” to their local regulations. Performance standards, at the most basic level, are designed to control the development of potential noise, air and water
pollution, vibration, smell, and waste. In addition, communities should develop performance standards concerning lot coverage, parking and roads, infrastructure, and design/community character. When performance standards are clearly set, they ensure good development in accordance with the community’s goals.

Reevaluate the land currently zoned for industry. It is important to know how much of the land zoned for industry is actually usable. Factors such as the extent of wetlands, degree of slopes, soil composition for drainage, and bearing capacity should be known prior to marketing efforts. Industrial lands, when precleared of environmental constraints and wetland-protection regulations, tend to be far more attractive and likely to be developed much faster than land that is not precleared.

Keep “healthy” industrial buildings in industrial use. The easiest means of providing industrial space is to maintain the present stock in the best shape possible. These buildings, when properly maintained and used, typically provide inexpensive space for small starter firms. Recent development trends indicate that growing firms can rarely afford high-cost, industrial-park rates. Furthermore, many of these growth industries are evolving from mature industries and can easily adapt to the space configurations found in older structures. To ensure that such space is available, it would be helpful to create protected industrial zones. In many cases, through basic structural, design, and landscaping improvements, these buildings and sites can be modernized at minimal cost and can blend into existing neighborhoods. The rush to convert buildings to commercial or residential use may be harmful over time.

Preclear sites. There is a need to state clearly the limitations and parameters of a site. Requirements and limitations such as the maximum site coverage, parking, water, and sewer availability, road capacity, and performance standards should be articulated well before specific projects are discussed. This practice will ensure that there are no surprises for either the developer or the neighborhood.

Evaluate the capacity of infrastructural systems. Communities need to keep pace with infrastructure and service demands. Industries, looking to locate within a region, pay attention to factors such as proximity to major highways and quick and easy access to raw materials and suppliers. Other considerations include highway frontage, accessibility, visibility, and drainage capacity, as well as power, sewer, and water availability at reasonable rates.

Revive the local industrial commissions. There has been a major decline in such commissions across the nation over the last five years. Unless they are provided funds, professional assistance, and power to influence local decisions, there will be no local spokesperson for industrial development. It is this group that can best resolve local issues before they become ideological problems.

REGIONAL ACTIONS

There are two important actions at the regional level that can dramatically help improve the quality of industrial land:

Empower the councils of government (COGs) or regional planning agencies (RPAs) to identify optimal sites in the region for industrial use. By so doing, community parochialism and self-interest can be diminished. In addition, such action will require the municipalities to take a careful look at their resources. The RPAs in Vermont, under that state’s Act 250, are presently performing this function. When differences between the RPAs and the local planning agencies occur, there is a procedure for ironing out the differences. The authors’ experience has shown that unless this “once-removed” agency is involved in industrial siting issues, chances that new lands will be found are slim.

Prepare a regionally based overall economic development program (OEDP). The guidelines of the U.S. Economic Development Administration (EDA) can serve as an excellent road map for such a plan. Typically directed by an RPA, COG, or community-development corporation, the OEDP process provides the opportunity for both the region and its communities to collect information ranging from employment trends to work-force characteristics to the condition of the local economic base. All of these data are quite valuable in determining industrial goals and
objectives and in establishing future land requirements. There are two secondary benefits as well: (1) the successful adoption of the OEDP sends a signal that the region welcomes industry, and (2) the OEDP is a prerequisite for certain EDA funds if the region is eligible.

STATE ACTIONS

From the previous discussion, it is clear that neither local communities nor regions have the powers or tools required to optimize the quality and quantity of industrial land. For this reason, there is need for state assistance and/or involvement in three areas. Following are recommendations for state involvement.

Empower states to selectively intervene in instances in which projects are of statewide significance. Too often, large-scale projects are rejected because of parochial concerns and/or self-interest. By determining, for example, state-designated “critical areas of industrial concern” and by enabling the state government to overturn local decisions that are deemed counter to the economic well-being of the state, a community makes a positive step.

Provide model industrial zoning bylaws to those communities that can both protect and stimulate industry. It is apparent that most communities have not kept current with the range of options available to control and protect industrial development. In many cases, particularly involving communities that do not have professional planners, industry is still perceived as a smoke-belching Mons Valley steel plant, a water-polluting Slater Textile Mill, or a noisy Elmira fire truck factory. New tools offer protection to communities so that these conditions could never happen.

Streamline the approval process. Various agencies, ranging from state departments of environmental protection and economic affairs to the Federal Army Corps of Engineers, as well as special interest groups (e.g., the National Association of Industrial Office parks, Audubon Society, and Nature Conservancy) should come together in an effort to streamline the approval process and to coordinate their functions. There should also be one office that has working knowledge of all the required agency processes and the “alphabet soup” of state programs that are currently available.

A FINAL NOTE

As one travels across the country and notes the plethora of real estate signs advertising “industrially zoned land for sale,” one might question the premise of this article. However, it is important to take a closer look and carefully evaluate the land in question. It is the authors’ experience that most lands zoned for industrial uses will never be suitable as such. It is also the authors’ experience that a single flaw (e.g., wetlands, surrounding residential uses, lack of water or sewer systems) can virtually eliminate a parcel from consideration for industrial development. It is clear that planners must reevaluate the lands designated for industrial use in their communities to ensure that there is high-quality space available for the long term.