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The Greenfield versus Brownfield Debate

By Zenia Kotval, Maureen Moriarty and John Mullin

A Balanced Approach to Industrial Planning

Across the United States, mill towns and industrial communities, the “brownfields”, have been experiencing rapid disinvestment as manufacturing and service firms increasingly move to suburban industrial parks, the “greenfields”. This locational trend has been intensified over the years by our policies and regulations for industrial development. Is this shifting balance a desired result of our policies? The authors believe this trend has had negative effects on both the center cities left behind, as well as on the communities which are being developed. Analysis of the “Greenfield – Brownfield” debate can assist economic development planners in promoting balanced industrial growth. This article analyzes the present difficulties of inner city development, investigates the reasons for increasing greenfield locations of industrial and office parks and explores strategies to create a balanced approach to industrial planning.

Over the past ten years, the American industrial landscape has been changing as never before. It is estimated that over two-thirds of all American office facilities are located not in the inner cities, but in the suburbs. The symbol of industrial development has become, not the mill, but the “corporate campus” complete with jogging trails and wooded areas surrounding these new manufacturing sites. The mill town is in danger of becoming a mere chapter in the history of industrial civilization. Where once development occurred in the urban “brownfields” of the country, steady growth has been found in the suburban “greenfields” of planned, low density, finely manicured industrial parks.

This article explores the factors behind continued disinvestment within urban areas as well as the increased pressures on the suburban areas in which manufacturers are establishing themselves. The analysis draws on the experience of the authors, who have worked extensively throughout the mill towns of the Northeast, including Manchester, New Hampshire; Cumberland, Rhode Island; and the Massachusetts communities of Uxbridge, Holyoke, Chicopee and New Bedford, as well as suburban communities within Michigan, New York and Pennsylvania.

The article begins with an analysis of the present difficulties of inner city industrialization. It proceeds to investigate the reasons why the greenfields of suburbia have become the locations for new development. A third section depicts the negative effects of suburban industrialization. The article concludes with a commentary on the future locational trends of industrialization, as well as recommendations and strategies for achieving balanced growth in America’s suburbs and cities.

Meeting the Needs of Modern Industrial Production – The Limitations of the Inner City

The mill towns and urban areas of the Northeast, indeed in all of the United States, stand as a symbol of the early twentieth century American Dream. They were the places where people lived and realized the results of the Industrial Revolution. The city

stood as the heart of manufacturing activity; a place where multi-storied mills produced their goods. Here, the requirements for production were water, for both energy and transportation, railroad lines and a plentiful supply of mill housing for its workers.

Today, the needs for modern manufacturing are vastly different. Most manufacturers require single-story facilities with wide, easily accessible bays. They require state-of-the-art telecommunications and adequate infrastructure and roadways. Perhaps they require warehouse facilities nearby. This differs radically from mill sites, which are characterized by several floors, rather than one level. Perhaps lift capacity is limited by outdated freight elevators. Chances are that the narrow bays of the inner city mill are accessed by narrow roads, which in turn hinder transportation to and from the facility.

In addition to the limitations of the physical structure of the mill is a severe lack of available, developable industrial land for new or expanding industries within the city. Criteria which many developers and planners adhere to when selecting industrial land include:

- At minimum, a 100 acre site;
- Availability of water and sewer;
- 15-minute commute to the nearest major roadway; and
- Access to an airport within 30 minutes.

Keeping this criteria in mind, if one were to seek out potential industrial parcels in the four counties of Western Massachusetts, only one parcel greater than 100 acres would be located in the region. This lack of developable land is particularly acute in the Northeast, which is characterized by dense, built-out inner cities.

The third obstacle to inner city industrial development includes a myriad of governmental regulations and land use policies which, taken together, promote an anti-business climate which makes investment within traditional mill towns an unattractive alternative to suburbia. Some of these regulations and policies include:

- Occupational Safety and Health Administration (OSHA) Regulations

OSHA requirements mandate that mills be free of asbestos, which is more the exception than the rule in most buildings. In addition, the majority of freight elevators within inner city industrial facilities are outdated and cannot meet the needs of modern production or safety requirements.

- Environmental Protection Agency and 21E (Superfund) Sites

The vast majority of manufacturing facilities have hazardous wastes or chemicals which can be found in or around the structure. In most states, these sites are not eligible for loans on buildings for sale until they are "clean". However, the costs of environmental clean-up are so high that owners will often leave the site as is, leaving many mills abandoned for years.

- The Americans With Disabilities Act (ADA)

The ADA enforces accessibility requirements for persons with disabilities. For mill buildings, extensive ramping, as well as the installation of modern elevators are often too costly for manufacturers.

- Housing and Urban Development (HUD) Flood Plan Regulations

Many mills are located in areas which have been designated either 50-or 100-year flood plains by HUD. With such a designation, financial lenders are reluctant to provide funds for facilities which are for sale or seeking to expand.

- The National Register for Historic Places

The National Register was established to preserve the nation's industrial heritage through the protection of historic industrial structures. However, the Register can unwittingly contribute to the decay of these buildings. Efforts to modernize can be halted on the grounds that physical or structural changes might serve to denigrate these buildings' historic character. This conflict becomes particularly acute when federal dollars are requested for structural improvements and the mill is listed on the National Register. However, unless a mill is "moth-balled", a vacant structure will eventually decay, leaving it of little use for future generations to enjoy or utilize.

- Non-Conforming Uses in Local Zoning Regulations

Non-conforming uses are those uses which are inconsistent with the uses prescribed by zoning regulations. In recent times, planners have come to recognize that these non-conforming uses might remain indefinitely. In an effort to phase them out, administrative procedures prohibit changes in use or expansion efforts. In addition, even if a mill is not a non-conforming use, those sites which are surrounded by residential neighborhoods may result in "nuisance" cases brought by land owners to combat manufacturing activities which may endanger the health or safety of residents.

Though these regulations were designed to protect the structural integrity of the mills, as well as the safety of those living around them, the end result is that revitalization of these potentially useful facilities is being deterred.

These factors taken together – limitation of the mills for modern production practices, lack of availability of developable industrial land and stringent environmental regulations – contribute to an overall image problem for inner city industrial development. Yet there are several examples of old factories in mill communities which have proven to be not only attractive, but as functional as suburban manufacturing facilities. One need only look at the Massachusetts sites of Digital in Maynard and NyPro in Clinton to see successful adaptations of old structures for new industry. One, however, can dispute the fact that given the choice between old industrial sites and new suburban settings, for quality of life and cost savings, greenfield development is an attractive alternative.

Greener Pastures for Industry – An Exodus to the Suburbs

Where the inner city is constricted in terms of the limitations of structure, infrastructure, space and governmental support, suburbia offers tasteful single-story facilities, acreage and state-of-the-art infrastructure. Thus, the greenfield industrial park has become the place where Americans want to work. Indeed, new industrial centers are springing up across the United States, complete with their own regional shopping centers and recreational amenities. These low density, well planned, typically "clean" manufacturing facilities are welcome in many communities for their addition to the tax base and creation of new jobs. This trend has been stimulated, in part, by subsidies from state government.

A recent review of grants to Massachusetts cities and towns shows suburban communities receive a majority of state funds earmarked for industrial expansion. This favoritism can be found in the allocation of federal highway funds and environmental protection funds for upgraded sewage disposal, all of which often favor suburban areas.

Yet, the very factors which have drawn industry to the suburbs – quality of life, open space and affluent neighborhoods – have had negative effects both on the community itself and on the center cities which have been left behind.

Negative Impacts of Greenfield Development – Trouble in Paradise?

Anyone who has visited Boston's Route 128, North Carolina's Golden Triangle or the Silicon Valley in California will marvel at these symbols of modern industry. Rather than billowing smokestacks and images of pollution, the image of the machine in the garden is evoked. Yet, this draw to the suburbs has come with immense social and economic costs to both the old and new sites of industrial development.

Many suburban communities, prior to both residential and economic development, enjoyed a rich tradition of agricultural production. Despite the fact that many working farms have not been as profitable, as perhaps an industrial site might be, there are an abundance of viable working farms. These farms can serve to maintain this history of agriculture as well as to provide a regional source for agricultural products. In addition, this open land contributes to a sense of escape from the pressures of urban life. The recent trend toward decentralization of cities has resulted in a seemingly endless spread of development.

This spread of development, particularly business and industrial, has drawn a relatively affluent population, looking to purchase homes close to their new places of work. In effect, this parallel exodus of jobs and people from the city has left behind those who cannot afford the high-priced, single-family detached homes of the suburbs. This alternative for many poor, minority or single-parent households is to commute long distances for the jobs which have been displaced from the city. This is dramatically exemplified in the Silicon Valley as the lower paid production workers in the semiconductor industry have been pushed to the edges of the Valley and endured up to three hours of commuting per day.

A second negative aspect of the implementation of greenfield industrial development strategies is that subsidies to encourage this kind of development occur at the expense of older, industrial communities. In Massachusetts, this was dramatically illustrated in a battle for federal funds between the affluent, college town of Williamstown and the adjacent mill town of North Adams. North Adams, a city in severe economic decline for over two decades, requested funds for several economic development initiatives. Williamstown requested federal funds to develop an industrial park of superior design and characterized by low density development. All of North Adams' requests for funds were denied, while Williamstown proceeded with the industrial park.

A third negative consequence of greenfield development has been the proliferation of increased suburban sprawl in light of low density zoning restrictions. It is not uncommon to find lot coverage below 20 percent, meaning that 80 percent of a greenfield site is not developable for industrial space. Thus, there is the never-ending search for new land and new space. This sprawl has led to the creation of so-called "Edge Cities" which are characterized by suburban to suburban connections rather than suburban to center city connections.

A final drawback to suburban industrial development has been favoritism of "clean" industries over "heavy" industry such as steel, chemical or other manufacturers

which may be perceived as “dirty” by the host community. Clearly, the company which enjoys a strong reputation as a corporate leader and that employs well-educated white collar workers will be courted by developers of suburban industrial parks. The underlying concern within all of these consequences of greenfield development is the issue of equity – both for manufacturers and for the people who work there.

Moving Beyond the Greenfield-Brownfield Debate – Strategies toward Balanced Development

From the previous sections, it is clear that changes in our political, social and economic fabric are creating changes that few of us expected. No government at any level has espoused a policy of industrial decay in our urban centers. No community leader has advocated the destruction of active farm land for industrial or commercial uses. And similarly, few private industrialists have accurately predicted the influence of new production techniques, social legislative enactments or world wide competition on the location of the American manufacturing firm. Yet, we have a full scale exodus from urban areas. We have the continued loss of farm lands. And our manufacturers are constantly looking to locate in new areas where efficient production, low cost labor and inexpensive transportation opportunities exist.

Inevitably, the results of all this activity is the unintentional dispersion of manufacturing to both suburban and rural areas. Ultimately, this dispersion will have serious effects for both the greenfield communities and the industrial centers which have been left behind. The destruction of agricultural land, open space, recreational areas and residential communities will be paralleled by a decline in positive economic growth, full employment and quality of life for traditional manufacturing cities. The search for newer, greener sites will result in the deterioration of the center city – and eventually change the face of the American landscape.

Through the employment of regional strategies, balanced approaches to greenfield and brownfield development can reverse the trend toward suburban sprawl. Following are a list of some practical strategies which planners and community leaders may utilize to encourage sound industrial and economic growth.

Development of Regional Strategies. As industrial development is far from insular and is dependent on regional resources for labor, material and markets, regional strategies provide a mechanism to better plan for industry.

This absence of regionalism is of particular concern in New England states. The strong tradition of Home Rule and control over local development, through maintaining community autonomy, has contributed to scattered growth and serves to limit tax revenue.

A good illustrative example of this phenomenon is the planning process involved in preparing a regional or county-wide Overall Economic Development Program (OEDP), a requirement for certain federal Economic Development Administration (EDA) grant moneys. In New England, the process works fine until one gets to the prioritization of projects and the implementation plan. At that point, the regional coalition of towns and cities practically breaks down as communities (and their political leadership) would rather see to their own parochial interests than that of the entire region.

This idea of regionalism is less of a concern outside New England where county government is strong and regional planning agencies have greater powers and authority.

Regionalism needs to be re-examined throughout the country and there needs to be a concentrated effort to move away from the “beggar thy neighbor” attitude so prevalent in our communities.

Comprehensive Environmental Clean-up. One of the strongest deterrents to re-using older industrial buildings or sites in inner cities is the environmental clean-up procedure. This is not only an expensive task but is also very time consuming. Furthermore, the burden of the clean-up lies entirely with the current owner of the property.

Often times these owners do not have the money necessary for the clean-up and are unable to either refinance or sell their property. Their only option is to abandon it.

The reuse and clean-up of these sites are of importance to the community in which they are located. Reuse and clean-up are also important to the bank or financial institution that holds the paper as well as the owner who would like to sell or reinvest. Due to these factors, there is need for a joint effort on the part of the state, the community, the bank and the owner to see that the process is carried out in a timely and efficient manner.

Although Massachusetts has one of the most stringent hazardous waste clean-up laws (21-E) in the country, the state is currently looking at ways to cut the costs as well as authorize private environmental engineers to certify the extent of clean-up required. This will expedite the process.

It is crucial that policies and land use regulations be established to encourage companies to clean-up hazardous sites on the premises. As long as manufacturers know they can simply abandon a contaminated site, older manufacturing facilities will remain unavailable for potential new investment and modernization.

Reparcelizing of Urban Industrial Land. Most industrial parcels in either center cities or mill communities are too small to accommodate new manufacturing or expansion of existing manufacturing. Furthermore, the current allowable floor to area ratio is around 20-30 percent in most communities as compared to 80 percent when the original lots were divided or the mills built. Industrial buildings are now one or two stories high as compared to the four-story mill complexes. Therefore, industry today needs more land for the same size of building than it did in yester-years. This is practically impossible to get in inner cities.

Reparcelization powers enable the communities to consolidate small lots to form a bigger workable parcel. Reparcelsation also allows a community to acquire, by eminent domain, parcels of land that are crucial to the area’s revitalization plans. In Springfield, Massachusetts, for example, the city through a selective demolition program hopes to make older properties that are structurally and environmentally sound, but do not have room to expand or adequate parking, economically viable once again. Reparcelsation can thus serve to maximize allowable density on urban land.

Investment Credits for Inner Development. Industry should be provided with positive incentives to invest in urban areas rather than simply move to the suburbs to construct new facilities. Municipalities can offer a number of investment credits, including:

- a) Tax incentives to encourage environmental clean-up of “dirty sites”. As mentioned earlier in this article, environmental clean-up costs can be exceptionally high and incentives such as accelerated depreciation on the

improved property, a cap on new assessments, or tax abatements could provide the encouragement needed for a developer or owner to make the necessary financial commitment.

- b) Tax abatements for a period of years to encourage sustained investment. Revitalization tax credits or tax abatements could be used as incentives to urge developers to improve and take pride in their property and the surrounding area.
- c) Creation of “Betterment Districts” in targeted areas. This allows a portion of the property tax, paid by property owners in the district, to be reinvested within the district itself. Public improvements and need, for example a much needed parking garage, could be funded through this set aside money.
- d) Tax Increment Financing. This program works much like the “Betterment District” program in that the portion of increased tax revenue, collected due to improvements in property value, is redirected to the property owner. This may take the form of a tax abatement or be reinvested in the area such that it benefits the owner.
- e) Historic preservation and façade improvement. The availability of Community Development Block Grant (CDBG) funds for façade improvements or Historic Preservation funds for beautification purposes will contribute to the creation of a more pleasing environment in which development of all kinds might flourish.

Linkage Policy

Boston, Massachusetts, instituted its affordable housing linkage policy through an amendment to its zoning code in 1983. The city is still committed to ensuring that every neighborhood in the city benefits from economic growth. Boston’s linkage policies are based on the premise that there should not be a division between economic growth and economic justice.

During the 80s, linkage provided more than \$16 million toward the creation of more than 8,000 affordable housing units. As of last year, developers of 41 major commercial projects have committed to pay over \$76 million in linkage programs, in Boston, over the next decade. These programs are presently geared toward providing affordable housing and job training. Developers pay \$6 per square foot. Of this amount, \$5 per square foot is used for housing and \$1 for job training. The payment period for housing linkage is seven years, and job training linkage is due over a two-year period.

The Boston Redevelopment Authority is now recommending a change in the formula to provide \$3 for job training, \$2 for housing, and \$2 for neighborhood health centers as health care and job training may be more critical than Boston’s housing crisis.

Targeted Policies for Manufacturing Growth. Older industrial communities can select critical areas in decline and create investment packages from the variety of Community Development Block Grants, federal EDA grants and Environmental Protection Agency funds which may be available.

Urban enterprise zones have been used successfully in parts of Connecticut and in Philadelphia as vehicles to stimulate recovery in designated areas. Normally, an enterprise zone is a targeted economic opportunity area where a variety of inducements and financial incentives are in place. These could take the form of tax abatement for five

or ten years, accelerated depreciation, grants and programs for venture capital, gap financing or loans for equipment and other capital expenditures.

The Massachusetts Executive Office of Communities and Development (EOCD) has recently passed legislation on Enterprise Zones and Economic Opportunity Areas (MGI, Chapter 19). Initial approval for 20 zones across the state for the first year has been granted. These designated zones will be recipients of additional state grants and investment packages. These incentives are considered as positive steps toward the retention of city jobs as well as the promotion of job growth, particularly for minority business owners.

Linkage Programs. The implementation of linkage programs allows for Greenfield development to occur as well as retain inner city manufacturing and business. Linkage programs put a premium on greenfield development whereby developers put a certain increment of their investment back into the center city areas of decline.

How could this work? In a most basic sense, it would require cities and regions to first identify and protect brownfield areas that are of prime industrial significance. Most likely, these would be in built-up areas where infrastructure is already in existence, where labor is close by and which can be easily accessed by truck, rail and air services. These areas would provide a range of options for industrialists including older structures that simply offer inexpensive space, revitalized buildings that include flexible space arrangements, new speculative buildings and, among other choices, open land. In addition, all of the incentives mentioned previously would be applicable to firms wishing to locate in these areas.

In essence, the intent would be to provide “carrots” to new or expanding manufacturing firms so that they would tip the location decision away from the greenfield. To further reinforce this direction, “sticks” would also be applied: If an industrial developer still wishes to move into a greenfield, then he/she would have to make a contribution to brownfield revitalization. This developer, for example, would be expected to make a payment to a revitalization fund that is intended to modernize brownfield sites, to agree to place part of his/her manufacturing activity in the older areas or to agree to revitalize an older building such that it was ready to attract a future manufacturing activity.

All of these expectations are based on the premise that there are connections (linkages) between the old and the new. These linkages relate to culture, the work ethic, public investment, public institutions and services, the entrepreneurial climate and the commitment of a city and its region to meet the needs of the citizenry. Linkage was very successful in Boston and San Francisco during the 1980’s real estate boom, with funding going into distressed areas of the city in return for prime commercial property development.

Assistance and Knowledge Base to Overcome Technical and Physical Barriers to Manufacturing. The barriers and problems that face manufacturing are well known and documented. Industry, however, needs assistance in finding solutions for these barriers.

For example, the federal government can provide funding for the National Institute of Standards and Technology (NIST) to conduct studies and produce manuals to assist developers in meeting the requirements for structural improvements for older manufacturing facilities. Such publications can provide useful and timely information on

topics ranging from asbestos removal to guidelines on meeting freight elevator or ADA requirements.

Furthermore, research on efficient methods for vertical production processes would enable many older three- or four-story buildings to be of use once again. The Center for Manufacturing Productivity at the University of Massachusetts is one example of an organization that assists manufacturers with making the production process more efficient.

Streamlining the Permitting Process. Under current procedures, it is not uncommon for manufacturers or developers to wait up to two years for permits to either expand existing facilities or develop new ones. The quagmire of environmental and procedural requirements has only served to promote an anti-business climate within many urban areas across the country. In the time that it takes to simply wait for a permit, a new facility can be constructed in a greenfield site.

Streamlining the permitting process by creating one-stop shopping, where one person or agency acts as the key contact for an appropriate project, could save a developer time and money. Another method often used is the process of pre-clearance. This process works effectively when a community clearly states the thresholds of site development, traffic, infrastructure and use up-front. Thereby, a developer who meets these thresholds and use criteria is allowed to go ahead with the project without having to wait for lengthy approvals.

Creating Protected Industrial Zones. As absorption rates for industry are slower than those for commercial, retail or residential uses, developers and investors looking for a quick return on investment are more apt to convert industrial facilities into commercial or residential uses. This phenomenon tends to remove from the market inexpensive industrial space that could be used for starter industry and incubator firms.

Protected Industrial Zones (PIZ) could stipulate that a developer or an owner of an industrial facility cannot convert the facility into an alternative use for a period of say three years. This insures that the owner/developer will make a sincere effort to keep the facility in industrial use.

The establishment of PIZs will encourage the continuation of manufacturing activity in the center city. PIZs have been particularly successful in Chicago's inner city as literally thousands of jobs have been saved through the creation of Protected Industrial Zones.

Tax Base Sharing. The influence of "home rule" across the United States has had a dramatic impact on the location of industrial firms. Home rule powers allow communities, through the property tax, to gain revenues for all private properties within their jurisdictions. It doesn't matter how close the site is to the neighboring community, whether the adjacent community suffers from new traffic problems or performance related impacts (i.e. smell, noise, vibrations) resulting from neighboring development or whether a new plant has anything in common with its host community. The fact remains, under traditional home rule, it is a "winner take all" environment.

The influence of home rule can be noted best in our greenfields. As industries move to nearby suburban locations they leave behind decades of public investments that, too frequently, are unpaid. These industries, now paying taxes to the suburban locations, still typically rely on the center city for many of the factors that influence their growth.

Thus, the new community gains the benefit while the center city still must bear the costs of disinvestment.

One method that can help to mitigate this set of conditions is Tax Base Sharing (TBS). The TBS method calls for the new suburban location and the older center city to share the costs and revenues by a pre-arranged formula. The principle behind the approach is simply that the boundaries between center cities and suburban areas, in an economic sense, are meaningless. It also suggests that the city is just as important to the firm's location as the new suburban site. This concept has not been widely adapted to date. Anyone who lives in home rule communities knows the tenacity with which the tax base is guarded! However, we expect, over time, that this approach will become increasingly utilized as a means to protect, enhance and expand industries within a region. There is little choice!

Where Do We Go From Here? It is clear that the methods used to determine new industrial sites across the nation cannot continue as they are. The unintended consequences are leading to decay, neglect and lost opportunities. They are contributing to crime, an erosion of the work ethic and the creation of a permanent class of underemployed citizens. At the same time, our farmlands are threatened, our open spaces are carved up and our landscapes are becoming eroded.

It is recognized that efficient production, competitive pricing, high quality results and profitability are critical cornerstones to our economic base. Somehow we must maximize our existing resources in the center city.

If buildings are outmoded, they must be demolished such that the land can be used. If they can be revitalized, then public/private partnerships should be formed to take on the task. If the land is hazardous, it must be environmentally cleansed at the expense of the owners and the host community alike. If our infrastructures need to be upgraded then the community must live up to its responsibilities. In short, it is crucial that a proactive brownfield strategy be developed that involves the private sector, the banks, governments at all levels and our academic and research centers.

At the same time, the constant pressures to build in greenfields must stop. The motives to build in these areas are too often fueled by artificial boundaries and local interests. The results are the loss of agricultural production, open space and community character.

When all is said and done, the brownfield-greenfield problem is resolvable. With a strong political will, the creation of carrots and sticks, and careful planning, we can have efficient, profitable industry and productive agriculture and open spaces.