

Adaptive Reuse of Mega-Stores: Transforming an Icon of
Suburban Inefficiency into a Model of Sustainability

An Honors Thesis for the Department of Art History

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I. Introduction

The fundamental goal of this thesis is to understand the wide-ranging effects of big-box vacancies on their surrounding environments, and how building and site redesign can combat this increasingly prominent phenomenon. To begin, I explore how the big-box store has evolved to its present state and attempt to define its current characteristics and identify its subsequent problems. These problems are considered from an aesthetic view with regard to the previously existing vernacular architecture, as well as from an environmental perspective. Since one of the major detrimental aspects of mega-stores is the enormous parking lots that surround them, I examine their entire site within the larger context of the suburb as opposed to simply the building itself.

As the main focus of this thesis, I analyze the practice of converting these mega-stores from big abandoned boxes to workable sites, and compare this technique to other alternatives, such as destruction of the building and its surrounding parking lot. Through examining five case studies, I explore how the re-adaptation and the reuse of big box stores address the problems that they inherently pose. Through this analysis, I assess the environmental benefits and potential harms of the re-adaptation of mega-stores.

The issue of big-box vacancy will be a key component of the effort to make suburbs more appealing and sustainable places over the coming decades. These stores' tendency towards vacancy presents the opportunity for designers to reverse the problems that are intrinsic to big-box stores, and to create new models for suburban development. Most of the United States' population lives in the suburbs, where mega-stores have a major impact on lifestyle and development patterns. In order to make this country a more sustainable place, the suburban model, which is not nearly as efficient as the current

urban model, must be changed. These examples of reuse demonstrate how towns can attempt to decrease the rate of expansion of mega-stores and change the model for new big-box stores themselves.

While the meaning of the term sustainability is a subject of some debate, it is often defined as the capacity to endure over time. A common corollary to this definition is the concept that something that is sustainable will persist without being diminished or harmed. In terms of the environment, sustainability means preserving the earth such that the important resources will be available to future generations. Big-box stores are not sustainable in a number of different ways, given the array of environmental issues on which they have detrimental effects. The substantial carbon emissions of big-box buildings are a substantial factor in global carbon emissions, heavily contributing to the issue of climate change. Their parking lots are an inefficient use of land, contributing to habitat destruction and increased runoff. They are major contributors to water as well as air pollution. After Wal-Mart had announced its new sustainability measures, the corporation was charged with violating the U.S. Clean Water Act in nine different states due to irresponsible construction practices leading to pollution of waterways near their sites. Furthermore, these stores impact the development of their communities, affecting the layout of the towns and encouraging car use. In order to make the buildings, their sites, and their communities more sustainable, a vast number of changes must be made to the current model.

An important facet of this thesis is exploring how to reverse the trend towards big-box vacancy. While the brunt of the fault is placed on the corporations themselves, this point of view is neither entirely fair nor productive. In pursuing this type of

development, these corporations are maximizing profit, making it almost unreasonable to expect them to reform to a more sustainable pattern on their own that might be less successful for them financially. While Wal-Mart in particular claims to have adopted environmental goals in the last couple of years, none of these goals bear any changes to their growth patterns. The desire and responsibility to change these development patterns actually falls to the communities and municipalities in which these stores exist.

When I first embarked on my thesis, I intended to focus primarily on the reuse of the buildings themselves, and study the techniques for converting the structures to different uses. However, as my research progressed, and I became more invested in understanding the environmental impacts of this issue, I realized that I needed to explore adaptive reuse at the scale of the entire site. Comparing these different techniques helped me gain a more comprehensive understanding of not only the initial problems that are created by mega-stores but of the breadth of potential solutions as well.

This topic has become a subject of research within the last decade. The vast majority of the literature on it is less than five years old. Most of my sources that deal directly with big-box reuse focus on specific case studies rather than examining the issue holistically. The most important source for this thesis is Julia Christensen's book, Big-Box Reuse. The book is one of the few existing and extensive sources that frames the issue of mega-store vacancy as a nationwide phenomenon and examine different strategies for coping with it. This book was enormously influential for me, not only in terms of the information that it provided, but also because it brings to light the latent promise of these sites to serve the needs of their communities in a wide variety of ways. I draw three of my case studies from this reading, as well as much of my understanding

of the problem of vacancy. One of my frustrations with the text was that the author did not analyze the studies nor conclude with any assessment of reuse strategies, and that in turn became one of the major goals of my own research. Furthermore, the case studies within this book are focused on the buildings. This thesis combines the technique of building adaptation with site adaptation in order to delve deeper into the issues relating to the problems of big-box stores.

The other lengthy sources available on the topic of big-box reuse were mostly Masters' Theses that were written within the last several years. For the most part, these theses were most helpful in exploring the problems associated with vacant big-box stores (also known as ghostboxes), whereas Christensen's book focused more on potential solutions. In any case, I did not feel that any of the available literature attempted to compare and assess different techniques of solving the problem. That concept consequently became the main focus of my own research. I begin by relating the history of big-box stores in order to understand exactly what they are today and how they evolved into their present form. I then proceed to defining the problems associated with these chains, and the buildings themselves in particular. Through my research it became clear that the buildings themselves epitomize many of the notorious characteristics of big-box corporations. It is important to note that one must distinguish the buildings themselves from the corporations, as my research focuses on the physical buildings and their surrounding sites. After laying out the problems of vacancy, I attempt to define and categorize different approaches to their solutions. This section sets up the framework to understand the case studies, and how the different techniques employed in each case compare to one another. The first case study is that of a town that has dealt with multiple

vacancies in less than a decade. This study highlights the major impact that these buildings can have on a small town. The following two case studies, drawn from Christensen's book, focus on the adaptation of the building. The last two case studies focus more on the redesign of the entire site, thereby exploring more complex issues of sustainability. In the final sections, I relate the case studies back to the original problems and solutions that I defined in the earlier sections in order to understand how effectively the designs responded to the problems.

II. Background

Current Significance of Big-Box Stores

Big-box stores epitomize many of the environmental problems associated with building construction, which is a key area for technological innovation in the reduction of raw material consumption and greenhouse gas emissions. Globally, buildings account for 40% of energy consumption and 50% of greenhouse gas emissions.¹ A large portion of the energy and material consumption takes place in the construction of buildings. In fact, some estimates project that construction accounts for 80% of a building's emissions during its life cycle.² Therefore, it is not only environmentally prudent to extend the life cycle of buildings as much as possible, but an essential component of improving sustainability. Big-box retailers seem to have taken the opposite approach, by constructing incredibly large buildings that require massive amounts of raw building materials, and which are in use for very short periods of time (often less than a decade). Over the last thirty years, this store typology has become an increasingly prominent sector of commercial building, and is notoriously susceptible to vacancy.

The issue of big-box vacancy is a growing problem around the country. In order to address the matter of vacancy, one must first explore the history of the big-box stores. The problem dates back to the 1950s when large discount stores first came into existence. Big-box stores, which are generally defined as large, freestanding, one-story warehouse buildings with one main room, have continued to expand widely both in number of stores and square footage of each store. Some researchers have added other common attributes to their definition, including their acreage of parking and standardized facades.

¹ Fettig, Tad, Elizabeth Westrate, Mark Decena, John Kenney, and Brad Pitt. Design e2Ep2s The Economies of Being Environmentally Conscious. [Alexandria, Va.]

² (Christensen, Julia. *Big box reuse*. Cambridge, MA: MIT, 2008) 8

According to Margaret Cambell, big-box stores by definition also have “reliance on auto-borne shoppers, no-frills site development that eschews any community or pedestrian amenities, seem to be everywhere and unique to no place, and have profound planning impacts on the character of the community.”³ This definition captures the wide-ranging effects that these stores have. Historically, the original stores were much smaller in scale and thus, while they carried some of the same problems, their impacts on the community were much smaller. They were categorized as discount stores, and were usually about 20,000 square feet.⁴

While this research focuses primarily on big-box vacancy as a generalized phenomenon across many different companies, Wal-Mart, as the most prominent and powerful all these chains, is often cited as a lens through which to view the problem and explore its scope. In 1975, Wal-Mart had 104 discount stores nationwide. Due to the success of the chain, they had 1565 stores nationwide only fifteen years later. By 2006, Wal-Mart had 50,289 stores globally, including 1,980 super centers.⁵ These super centers can be as large as 280,000 square feet.⁶ Thus, over a three decade period, Wal-Mart experienced a 480-fold increase in its number of stores, as well as a significantly larger increase in occupied square footage. While these stores have been despised for many decades and are infamous for running out small businesses and for destroying the character of small towns, they are undeniably successful throughout the suburban United

³ Campbell, Margaret R. Social Sustainability of Rural Community Well-Being and Designing a Planning Process That Will Minimize the Negative Impacts of "Big Box" Retailers. Thesis (M.A.)--Humboldt State University, 2006,

⁴ Grogan, Steven Roberts. Extending the Life Cycle of a Typology: Reuse of the Vacant Big Box. Thesis (M.Arch.)--Clemson University, 2005, 3

⁵ Christensen 8

⁶Ibid. 8

States. Over time, they have become almost indispensable to the communities they occupy.

Mega-Stores' Ascent to Prominence

The big-box store is almost exclusively a suburban phenomenon. The United States population became predominately suburban following WWII, during the 1950s. Over the next several decades, the suburban model continued to become more and more popular. By 1980 sixty-five percent of all Americans lived in the suburbs.⁷ Since then, suburbs have continued to expand as more and more Americans not only live in the suburbs, but work in them as well.⁸

Probably the most important concept associated with suburban development since its genesis is sprawl. According to architect Seth Harry, suburbia's "diffuse and fragmented development patterns and low densities made it almost impossible for retailers to achieve its more traditional proximities to a customer base of sufficient scale."⁹ This meant that in order to draw a large enough clientele to function successfully, retail businesses need to create a new store model for suburbia. Harry goes on to discuss the concept of Reilly's Law of Retail Gravitation, which was first introduced in the late 1930s by William J. Reilly of the University of Texas, Austin. The law states that: "When two cities compete for retail trade area from the immediate rural (suburban) areas, the breaking point for the attraction of such trade will be more or less in direct proportion to the population of the two cities and in inverse proportion to the

⁷ Rowe 4

⁸ Wilder, Matthew Albert. Packing Boxes: Suburban Infill of Recent Sprawl. Thesis (M.L.A.)--University of Georgia, 2001.

⁹ Harry, Seth. A Short History of Suburban Retail. <http://www.walkablestreets.com/box.htm>.(Feb. 8, 2004)

square of the distance from the immediate area of each city.”¹⁰ This concept has become a major element of the big-box ideology over the last fifty years. This law shows remarkable insight into the sprawling retail development of modern-day suburbia, where the model for expansion is almost entirely dependent on the use of cars, despite the fact that during the 1930s, suburbia was still mostly street car and railroad-based. However, even during this time, it was gradually becoming more car-dependent. In any case, this concept is particularly important to the idea of big-box expansion, as well as the consequent abandonment of existing stores. This is because, as the law states, “people will travel to the largest place most easily reached.”¹¹ Thus, big box chains gravitate towards building the largest store, accessible by car, which can be supported by the surrounding areas in order to dominate the competition. This is “driving force behind the seemingly never-ending escalation in retail format sizes of the last 30 years, which has been directly aided and abetted by our regional road systems, and our increasing reliance upon a fixed network of widely spaced arterials of ever increasing individual road capacity.”¹²

This law is also the central concept in understanding why sprawl can lead to vacancy. The problem is that as suburban populations continue to grow and stores have the potential to attract a much larger number of people, the stores themselves must continue to grow in order to accommodate them. That is to say, the stores will never be built to be large enough to avoid expansion in the future. Thus, this law predicts a never-ending cycle of expansion and abandonment. This problem has already manifested itself in many towns across the country, which have seen the same chain build and

¹⁰ Ibid

¹¹ Ibid.

¹² Ibid.

subsequently shut down several enormous stores over a period of a few decades as the population and therefore demand increase in that particular community and its surrounding region as well. As stated in the Urban Land Institute's Shopping Center Handbook: "A shopping center cannot generate new business or create new buying power... rather, [it] attracts customers from existing (shopping) districts or capture a portion of new purchasing power from a growing area...it can cause a redistribution of business outlets and consumer patronage, but it cannot create new consumers." Thus, it is an important aspect of big-box expansion that these chains, in spite of their enormous appeal and sheer size, are not capable of creating "spending potential," rather they can influence and redistribute the spending patterns that already exist within the community. This is part of the reason that they pose such a danger to the fabric of the existing communities; they do not actually generate spending potential for themselves, but they dominate the market such that it is very difficult for smaller stores to compete with them. In markets where there is similar density and household income, the size of the box can directly dictate the size of the trade area.¹³ "As box sizes and their corresponding trade areas become ever larger, the consumer markets that they draw from now routinely transcends municipal and county boundaries," making the companies that own them more and more powerful in a particular region.¹⁴ In other words, the larger the store is itself, the larger the area that it impacts.

As these businesses acquire more power, they have continued to encounter increasing opposition.

WAL-MART

¹³ Ibid.

¹⁴ Ibid.

*“Sometimes we’ll put a Wal-Mart store in and then we’ll expand it to a Supercenter. But if we put just a Wal-Mart store in because we can’t find a site that will accommodate a Supercenter, then we have locked ourselves into at least 10 years of being in that Wal-Mart store – because of the financial investment we’ve made – before we could relocate into a Supercenter, assuming there’s not enough room for expansion. **And then, we may end up with the issue of the empty box, which as you know is not only a drain on the company, but also is a sensitive issue in the communities we’re in and is an issue we work very hard to resolve.**”*

– H. Lee Scott, President and CEO of Wal-Mart, November 2004¹⁵

Wal-Mart was founded over 40 years ago in Rogers, Arkansas by owner Sam Walton.¹⁶ As shown in this image, the stores originally had an entirely different typology. This picture shows the very first Wal-Mart (originally known as



Figure 1: Original Walton’s Store in Rogers, Arkansas

Walton’s) as a single store in the middle of a main street. Despite the fact that it started as a small-scale chain, it has morphed to become a multi-national corporation. Fifteen years later, the company had 1565 stores nationwide. During the 1980s, Wal-Mart had major appeal because it brought discount goods to smaller communities that had not previously had them. In fact, these stores were built with the intention of decreasing driving time for people in rural communities who would have been driving a long distance to the nearest

¹⁵ Rutledge 9

¹⁶ Ibid 10

discount store.¹⁷ Ironically, this could be construed as an environmental awareness to lower vehicle miles traveled for simple, daily tasks. In contrast, today the big-box store is notorious for its dependence on automobile use. Wal-Mart generates over \$285 billion in annual revenue. In addition to these achievements, the company has established an entirely different approach to the placement and design of its stores, becoming the quintessential chain of big-box supercenters. This is primarily due to the fact that growth is the primary goal of the company. As shown in Scott's quote, Wal-Mart finds that it is necessary to occupy a building for only ten years based on the financial investment of constructing it. It goes without saying that that is an incredibly short lifespan for a building. Nonetheless, the company's primary method for increasing profit is fast growth. According to the current CEO, growth serves the following three purposes:

First, it keeps shareholders happy by increasing stock value. Second, it allows more Wal-Mart employees the opportunity to better their quality of life by offering more chances for promotion. Third, growth allows the company to be more competitive by lowering their prices on goods, precipitating a lowering of the cost of living for everyone within range of a Wal-Mart, whether or not they shop there.¹⁸

Originally, growth was slow and deliberate, which was consistent with the vision of the founder Sam Walton's desires. He wanted to create discount retail stores in small towns in Arkansas that would be allowed to flourish without competing with the major corporate retailers that were concentrated in urban areas. By lowering overhead costs with cheaply built stores and bulk purchase discounts from suppliers, and an innovative distribution system, Walton's low-price stores gradually spread throughout the region

¹⁷ Grogan 1

¹⁸ Rutledge 10

during the late 1960's and early 1970's. When the market was fully "saturated," markets in neighboring regions were opened up through the construction of new distribution centers, around which new stores were built in concentric rings.¹⁹ This gradual spread from the Bentonville origin continued to be the company's growth strategy throughout the 1970's and 1980's, until the company had expanded throughout most of the Midwest. By this point, the small town growth had shifted to rapid growth that included developing suburban areas. By building new stores on the very fringes of established urban centers, Wal-Mart opened up the urban market without needing to address the hassles of locating in an urban core.



Figure 2: Wal-Mart Supercenter at Fountain Square, Waukegan, Illinois

By the late 1990's, the chain had become prominent throughout the entire country.²⁰ Community resistance was starting to pose an obstacle to further expansion. In order to cope with the new problems, a new growth model of the supercenter was adopted to create even greater profits. Unfortunately, the supercenter model only intensified the problems associated with their big-box predecessors. The supercenter was

¹⁹ Ibid 10

²⁰ Ibid 11

intended as both a model for new construction and a strategy for updating existing stores. This model has had both positive and negative effects on the industry, many of which will be addressed in further chapters. However, for the time being, this model has proven immensely successful for Wal-Mart, as well as other chains, and the company continues to embrace it as its primary source of growth and profits, and therefore this type of development is likely to continue over the coming decades.

Key Problems Associated with Big-Boxes

There are many problems that communities face when bringing a big box store into their area, including increases in criminal activity associated with superstores, rising rents, higher costs for police and fire departments, loss of jobs, increase in low wage jobs, increases in traffic, loss of small business, and of course, the problem of vacancy. Peter Rowe argues that, "the most disconcerting physical characteristic of the middle landscape is the desolate and inhospitable space left between many buildings and building complexes."²¹ This issue becomes a major problem as soon as a company develops the land, typically into enormous parking lots surrounding the stores, and the problem will often become increasingly pronounced over the lifetime of the building. If the business goes into decline or the store becomes vacant, blight naturally intensifies. The chance of vacancy becomes more likely the further away the building is from the center of the city. This leads to the formation of what Jane Jacobs described as "the gray belt" which appears gradually as "larger as more and more derelict sites appear in the landscape in closer proximity to one another."²²

Vacant Big Box Stores

²¹ Wilder 17

²² Wilder 19

Big-box chains, like other corporations, are economically driven. Their buildings are designed to maximize profits. The buildings have open floor plans to simplify the layout and minimize the use of excessive interior materials. The interior space is regulated with a grid of basic steel columns. The space is defined by single concrete masonry unit (CMU) exterior walls and minimal roof protection. The architectural features of these buildings are nondescript. Their blank facades display logos and they are punctured only by a few monotonous openings. Their architectural character is not only economical but easily constructed as well.

A problem of these economically driven buildings is that they are often upgraded to larger models or are driven out of business by more economically efficient competitors. The buildings are destined to be short-lived in the sense that businesses do not intend to occupy them for a long period of time. They are not designed for durability because their owners are unlikely to occupy them for a long period. Nonetheless, when these mega-stores go vacant, the buildings do remain standing, and their cheap construction is one of the major factors that deter other businesses from moving in. When the store moves out, the building stays vacant until taken over by another box store, or a group of smaller stores, or in the worse case scenario, remains vacated.

III. Problems of Vacancy

Introduction

The issue of big-box vacancy is a rapidly growing problem around the country. Vacancy generally occurs for one of two reasons: the chain owning the store goes out of business or closes the store intentionally when they open another store nearby. As retailers continue to build new stores, they also close approximately 50-100 stores per year in order to consolidate those stores into larger supercenters. It is estimated that there are over 500 million sq. ft of excess retail space around the country, and that big-boxes account for 56.8% of total commercial vacancy.²³ As of 2005, Wal-Mart alone had 400 vacant properties nationwide.²⁴ Studies also indicate that within the United States, there was an estimated 26,699,678 sq. ft. of vacant Wal-Mart space by 2006.²⁵ As these chains start to build larger and larger stores, they begin to vacate larger ones as well. Over time, some corporations run their competitors out of business, which contributes to both further expansion and increased vacancies.

The idea of creating a solution to vacancy can be seen as a two-pronged issue. Firstly, this store typology is particularly vulnerable to remaining empty because there are many characteristics inherent to big-box stores that make them either unavailable or undesirable for reuse. Secondly, as explored in the previous chapter, these stores, simply by virtue of their physical size and economic capacity, have a major impact on the communities surrounding them. In effect, the original designs of the buildings themselves make them almost impossible to reuse, while the void that their vacancy

²³ Christensen. 8

²⁴ Ibid. 8

²⁵ Dysart 28

creates in the community is so detrimental that it is imperative to reuse them in order to revitalize the space around them.

Issues of Vacancy

The problems of vacancy are inextricably linked to the problems that accompany the arrival of big-box stores to a community. First of all, big-box stores are an eyesore. The aesthetic nature of the building is generally nondescript and not adhering to the vernacular style.²⁶ While this may be unpleasant enough even while the store is in business, the problem intensifies when it is no longer in use, and over time will go into a state of disrepair. While the same corporation often maintains ownership of the land, or at least of the building itself, it does not take care to keep up the property. The sea of pavement that surrounds the stores continues to waste space and increase storm water runoff, becoming a desolate landscape, and in some scenarios, creating a setting for loitering and criminal activity.

Though these stores are notorious for driving out local small business upon their arrival, the effects of their departure can be even worse. Often an entire commercial area will be dependent on the presence of these anchor stores, and when they go out of business or choose to move to another area, the surrounding businesses cannot survive. In some cases, they are able to relocate along with the big-box stores, but even then the original commercial area is deserted. These areas are defined by Leadership Energy and Environmental Design (LEED) as grayfields, which are a form of suburban property that

²⁶ Dysart 30

can be defined a blighted or obsolete buildings sitting on land that is not necessarily contaminated.²⁷

In addition to the major effects that these abandoned buildings have on local economies and commercial diversity, the existence, and subsequent vacancy of these stores have serious environmental impacts. These impacts are quite diverse, ranging from large parking lots that lead to increasing runoff to increasing automobile use to consuming huge amounts of raw materials.²⁸ The parking lot is a major environmental liability associated with these stores in part because they disrupt the ecosystem by destroying habitat. Furthermore, the sites are so large that they are not only an eyesore but appalling examples of wasting expanses of land. Since the buildings are often abandoned not long after they are constructed, they effectively have a very short productive lifecycle, unless they are converted for reuse. As one store goes vacant, another will often open in the immediate vicinity, claiming another large plot of land and construction materials.

Hindrances to Reuse

Big-box stores are not only physically unappealing from the exterior, but their basic design makes extremely difficult to reuse. While many other types of buildings are conducive to reuse, such as offices, apartment buildings, and other, smaller retail spaces, big-boxes have certain characteristics that make them hard to adapt. The huge, windowless structure creates a dark interior that cannot easily be divided into smaller stores. There are limited entries to the building, normally a single main entrance, or one on each façade. The structures themselves are not designed for durability. The stores are

²⁷ (Kibert, Charles J. *Sustainable Construction Green Building Design and Delivery*. New York: Wiley, 2007)137-138

²⁸ Crocker, Rhett. "Big-Box Camouflage." *Urban Land*. 66.9 (2007): 36-38.

so large that they seem to be only conducive to a very limited number of programs. However, it is important to recognize that there is actually a lot of diversity within this typology. In size alone, they range between 20,000 to 280,000 square feet.²⁹ It is not nearly as difficult to reuse the older, smaller models as it is to readapt a space that is fourteen times the size.

In addition to the fact that the buildings themselves seem difficult to work with, the corporations often maintain control of the building, and possibly the property, long after they have closed the store. Part of the reason for this is that it allows them to increase their land use control in an area. The vacant building acts as a placeholder for real estate. Furthermore, it prevents competition from moving into the area. Another factor that complicates the issue is that the ownership of the property is not always the same. In some cases, the corporations own both the land and the store. In other cases, a local property owner might hold the deed to the land, while the corporation has ownership of the building. These issues have led to court battles in a number of cases so that the land can be redeveloped. In other cases, the party that wishes to develop the land is able to produce a compelling offer to the corporation so that they may purchase the property. The problem of ownership comes up in the Head Start case study. There are also cases in which the chain goes out of business and is forced to close the store.

The reason that these chains continue to generate so many vacancies is, of course, economic. It is actually cheaper for them to completely abandon the smaller stores and build a larger one from scratch.³⁰ As noted early in the explanation of Reily's Law, the larger stores are proven to have a competitive advantage over smaller discount stores

²⁹ Christensen

³⁰ Ibid. 8

because customers find them to be more convenient. Furthermore, when the stores become vacant, the companies will pay the mortgage to ensure that the building will remain empty. In this way, as they continue to acquire more land and build more stores, they continue to increase their land use control in one area, giving them a competitive advantage over competing chains.³¹ Not only do they maintain the property, but they sometimes place rules in the deeds of buildings that limit the future use of the space by other corporations.

IV. Solutions to Vacancy

It is unlikely that Wal-Mart will stop abandoning stores for larger ones in the foreseeable future. Thus, in order to deal with this problem, the communities that suffer from the presence of grayfields must take measures to ensure that they can find another use for the land after the store has moved on.³² The whole issue of big-box stores and their subsequent vacancy is a notorious example of how influential buildings can be to their environment. Initially, the presence itself of the big-box stores could be seen as an architectural liability to the community. When the stores go vacant and become environmental and economic burdens, the solution to problem is architectural. Thus, when planning solutions to vacancy, the designers must attempt to solve the environmental problems, as well as the economic and aesthetic problems that have been created by the site. The economic aspects of the issue are mostly addressed through the programmatic changes that are created through the reuse. The architectural and landscape designs primarily address the environmental and aesthetic issues created through the presence of the building on the site.

³¹ Ibid. 8

³² Price, Justin John. Abandoned Big Box Retail Sites: Public and Private Sector Perspectives. Thesis (M.C.R.P.)Clemson University, 2005) 57

In terms of the environmental aspects of the problem, the issue of empty buildings is analogous to waste management. To improve the ecological footprint of a building, one can apply cradle-to-grave analysis. In many ways, the disposed or vacant buildings are not unlike other disposed products. In order to explore the different options for dealing with empty buildings, one can employ the solid waste management hierarchy. This system ranks six alternatives for waste disposal as follows: reduce, reuse, recycle, resource recovery, incineration, landfill.³³ Based on my research, it seems that the six main alternatives for dealing with big-box stores are as follows: reduce the number of stores that are built, extend the occupancy time of the original business, adaptive reuse by another business, de-malling the property, demolition and reuse, or leaving the building on the site while vacant. These methods are not mutually exclusive, and several of the case studies employ several techniques. In order to compare the benefits of these different methods, it is important to consider the range of environmental liabilities associated with big-box sites. The environmental costs can be divided into two different categories: upfront, onetime costs associated with construction, and residual effects that arise from energy consumption, habitat disruption, land waste, and automobile use.

The first two options are probably the most sustainable methods of dealing with big-box stores because they are the most effective in reducing the upfront costs of construction, which compromise the majority of energy that the building will use during its lifespan. These options, reducing the number of stores and extending the occupancy time of the original business, are both policy issues, just as they are in waste management. Currently, it is economically beneficial for the companies to continue building however many stores they want and vacating them as soon as the opportunity for

³³ Lecture, by Prof A.M. Desmarais, 11/30/09

a larger store appears. However, regulations could be imposed that make it more difficult for them to abandon buildings and leave them standing, as they have begun to do in some of the following case studies. One way that municipalities could decrease the incentive for these chains to abandon their stores is to impose higher property taxes on abandoned buildings so that it is in the economic interest of corporations to maintain their current stores. Municipal governments could also come up with stricter regulations that limit how many stores these corporations can build in the area, and how much land they can control. It is also important to note that in most cases it would be better for the environment in the long term to do at least a partial redesign of the abandoned site, rather than leave it untouched. That technique would have a more dramatic effect on the residual environmental impact by returning a large portion of the land on the site to its natural state, allowing for vegetation and decreased runoff as well as a reorganization of the buildings in relationship to the neighborhood to reduce automotive transport. At the same time, if the adaptation of the building itself requires extensive construction; this method contributes to the upfront environmental costs of energy and material consumption.

Adaptive reuse can also be facilitated by stricter regulations, such as insisting that a company break the façade up into a series of sections to make it conducive to partitioning for reuse. This is a preemptive step that is especially helpful because it makes the space more appealing to potential occupants, increasing the likelihood that the space will be filled and lowering the cost of architectural adaptations. Visually it helps disrupt the monotony of the “big-box” exterior. De-malling the property is similar approach that is technically a subcategory of adaptive reuse which consists of

reorganizing the site, often resulting in a more pedestrian-friendly commercial center.³⁴ There are some tradeoffs between this approach and adaptive reuse that make it difficult to determine which is preferable. Since de-malling the property tends to involve a more extensive redesign of the entire site, it can reverse some of the negative environmental effects of the original site design of the big-box store, particularly the multi-acre parking lots. De-malling also changes how the site relates to the rest of the community. By rotating the facades so that they are facing the street, this technique emulates the traditional main street type of commercial strip, improving the aesthetics and encouraging non-automotive access to the stores. However, it might also result in demolition of the original building in the process of reorganizing the site, causing excess energy and material consumption.

The final two options for dealing with big-box vacancy are the least sustainable methods. However, demolition and reuse is still vastly superior to allowing the store to remain unchanged on the lot. Demolition requires a lot of energy and results in large quantities of waste, and it also leads to additional upfront environmental costs of constructing another building. It is clearly preferable to long-term vacancy because it allows for use of the land instead of leaving a multi-acre space, often near a town center, completely desolate. In some cases, this type of renovation is not only beneficial to the environment for making more efficient use of land, but improves the vitality of the city and coherence of the urban layout. Conversely, in the case of vacancy, the land not only has no functional purpose but still has a negative effect on its setting. It is not only unfortunate to look at, but affects the businesses around it, and perpetuates the residual environmental costs associated with the big-box typology.

³⁴ Grogan 8

One troubling aspect of the vacancy trend is that there does not seem to be any end in sight of Wal-Mart's expansion. On the other hand, the positive side is that with each new store that Wal-Mart constructs, communities become more prepared to deal with the eventual abandonment of the stores. While it is beneficial for Wal-Mart's business to leave abandoned stores behind, it is certainly not economically beneficial for the community as a whole. Since this issue poses clear economic concerns, the local authorities are more likely to enact restrictions on big-box chains, which will result in practices that are better for the environment.

The best approaches for communities to take in the future to lessen the presence of ghostboxes will probably involve several of the methods that have been discussed. Initially, it is best to limit the number of such structures that are constructed, and if they are built, to extend their life cycle as long as possible. If the original business does abandon them, the ideal method for retrofitting would probably be a combination of reusing the original building but adapting the site around it. This is because the upfront costs are strongly tied to construction costs of the building itself, and the residual costs are in major part due to the surrounding parking lots. Therefore, it is best to avoid the environmental costs of rebuilding the main structure, but it is also important to avoid the residual costs of increased runoff and habitat disruption.

As with many environmental issues, this problem of vacancy is driven by corporations that are trying to make cost effective decisions. Since it is often beneficial for discount chains to have larger stores, they will continue to increase the size of their stores, despite the fact that vacant stores have negative affects on their surrounding communities. Thus, reuse of the stores can be an effective way to lengthen the life cycle

of the buildings and make them more suitable to their environment, but it does not solve the initial problem of big-box sprawl. In order to address that problem, it is necessary to force the corporations to have more accountability in dealing with their vacant stores and ideally, to slow the rate of their expansion.

V. Case Studies

The following five case studies are drawn from different areas throughout the United States, including California, Minnesota, Nebraska, Kentucky, and Massachusetts. Each of the communities has been forced to deal with the adverse affects of ghostboxes, although the manifestation of these problems has been completely different in each of the towns. Accordingly, each of these projects has had diverse responses and methods in their adaptation and redevelopment of the sites. Collectively, the study of these cases gives a sense of how to redesign a building or site to respond to different problems. While none of these towns attempt to tackle all the problems discussed thus far, most of them attempt to present a solution to a number of different issues that have arisen in the town as a result of the vacancy. All of them demonstrate the enormous potential of these sites as places where infrastructure exists to be converted for new and important uses that really address the needs of each community, in contrast to the lack of distinctiveness associated with mega-stores.

Case Study I: Bardstown, Kentucky

History

Bardstown, Kentucky is one of many towns dealing with the issue of vacant big-box stores. Wal-Mart first came to the town in the 1980s, and built a 40,000 sq ft store in the center of the town. This store was constructed with a 3-acre parking lot surrounding it.³⁵ Nine years later they expanded to a larger store that was twice the size of the first one, and closed the original store. The second store was in close proximity to the first one, and was flanked by two strip malls on either side of it. In 2005, Wal-Mart opened a third store, which was a 200,000 sq ft supercenter, and once again, vacated the previous

³⁵ Christensen 23

site. All three sites are within a two-mile radius, and each of these three stores represents an alternate approach to the problem of big-box expansion. Fortunately for the town, all three of the buildings are currently in use. Each of the methods has its own benefits and drawbacks, but they are all preferable to the practice of idly allowing stores to stay vacant.

Site I: Adaptive Reuse

The original site shows the method of completely retrofitting the site via demolition and reuse to accommodate a completely different purpose. The site was converted to construct the new Nelson County Courthouse.³⁶



Figure 3: Original County Courthouse

Instead of trying to convert the building itself into a courthouse, the building was razed. This lessened the benefits of reuse because the materials from the first building were not used to construct the second. Nonetheless, choosing to reuse the site of the store had environmental benefits because a significant proportion of the necessary infrastructure, both



Figure 4: Nelson County Justice Center

³⁶ Ibid. 25

for the building itself and automobile use, was already present. Furthermore, the Wal-Mart site, which had been a center of the town during its existence, lent itself to being “enlivened as a vital part of the town that had been dormant for years.³⁷” The parking lot remains very large, but in order to improve the groundwater infiltration, as well as the aesthetic, they planted fast-maturing trees in the lot. There are also several patches of grass, as shown in Figure 2.³⁸ There are also curving sidewalks that link the building to the surrounding area in a conscious attempt to emulate the traditional small-town feel of the original courthouse in the community from the 1700s. This is a very important adaptation technique because the lots are particularly large but rarely include any sort of vegetation because that increases maintenance costs. These site adaptations function primarily to make the site more visually appealing to visitors, particularly pedestrians.

Site II: Reuse

The second site demonstrates a completely different method for the management of vacated property. The building was reused by other discount stores so that it continues to function as a commercial retail store. This was possible partially because



Figure 5: Abandoned Wal-Mart

³⁷ Ibid. 23

³⁸ Ibid. 27

other commercial businesses remained in the surrounding lot. While this is perhaps the most logical approach to solving the problem of vacancy, it is not as common as one might think. Figure 3 shows this site during the period after Wal-Mart vacated it, and before it was put to reuse.³⁹ However, big box stores are so large that they often cannot be easily adapted by other stores.⁴⁰ Additionally, the corporations themselves that own the stores usually do not want their competitors moving into town and settling in their old stores, as in another case where Wal-Mart stipulated that Kmart could not occupy the building for at least one hundred years. Despite these challenges, the town was able to fill the Wal-Mart building with several businesses, a clothing store, and a sporting goods store.⁴¹

Site III

The third site still functions as a Wal-Mart supercenter. It is unclear whether or not Wal-Mart will choose to retain this store for many years to come, or whether they will once again choose to upgrade to a larger size. In the meantime, the people of Bardstown have begun taking preemptive precautions in order to ensure that there will be several viable options for the site in the event that it is abandoned. Both public and private entities have taken their own measures to deal with the potential vacancy. From the public sector, the town stipulated that Wal-Mart's supercenter must have certain characteristics that make it conducive to reuse so that it is less problematic in the future.⁴² Accordingly, Wal-Mart built a berm in front of the parking lot so that it was concealed

³⁹ Ibid. 31

⁴⁰ Grogan 5

⁴¹ Christensen 30

⁴² Ibid. 29

from the road, making the lot much more visually appealing to attract potential tenants.⁴³

The town also insisted that the building itself be modified so that it could easily be converted in the event of abandonment. They requested that the building include a façade with several different entrances so that it could easily be reused by multiple businesses. In the meantime, on the part of the private sector, the family that owns that the land leased to Wal-Mart included a teardown stipulation in the deed. This means that “Wal-Mart is responsible for dismantling the structure, lot and all, if the building is not reused within a determined time frame.⁴⁴” Thus, the public sector has begun planning for the building to be converted for reuse, and the private sector is ensuring that the building can be demolished if necessary.

⁴³ Ibid. 29

⁴⁴ Ibid. 29

Case Study II: Head Start Facility in Hastings, Nebraska

History of Site

The project is an example of a building renovation of a relatively small big-box store into a non-commercial use. The 40,000 sq ft Kmart building in Hastings went vacant in 1992.⁴⁵ This site exemplifies the complications of non-local building ownership.

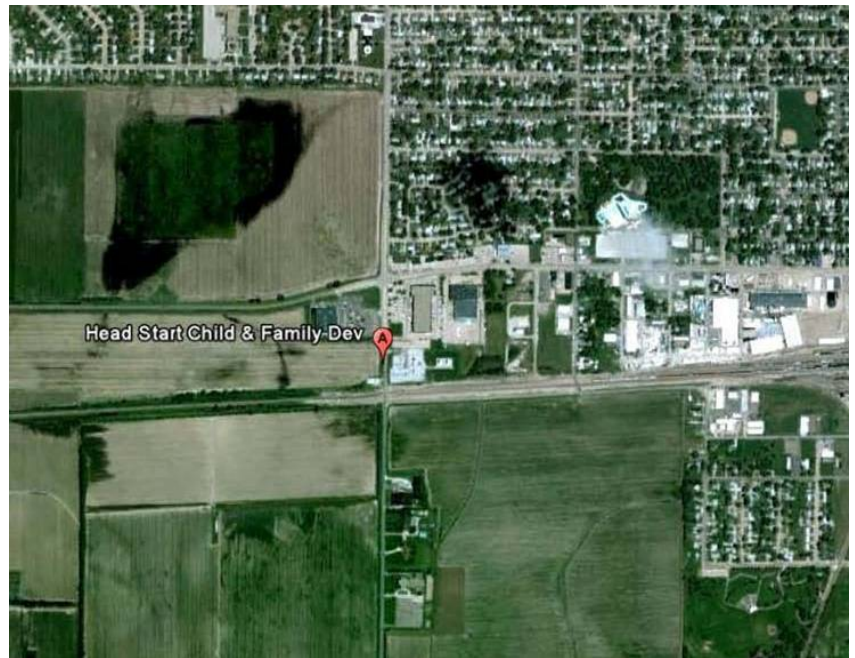


Figure 6: Location of Kmart Building

While the land itself was owned by a local man in Hastings, a commercial real estate company in California owned the building and Kmart owned the lease on the building. Thus, Hastings, like many other towns across the United States, was “faced with an abandoned building that the owner has never seen.” Fortunately a local real-estate company Johnson Imperial Homes that owned a strip mall across the street decided that it would be profitable for them, as well as the city of Hastings, to acquire the property.⁴⁶ They purchased the land from the local owner, had the lease transferred from Kmart, and purchased the building from the real

⁴⁵ Christensen 109

⁴⁶ Ibid. 105

estate company in California with the intention of selling it to a new user. Head Start offered 1.4 million, and the deal was completed in March 2001.⁴⁷

Advantages of the Site

The reason that the Office of Head Start was looking for a new location in Hastings was that their old building was lost as a result of high winds and rains in Nebraska.⁴⁸

Although they were originally considering starting a new building from scratch, when the office explored the option of adapting the old Kmart



Figure 7: View of Hallway inside Renovated Interior

building, there were clearly many

advantages to renovating an existing structure. As explained in Big-Box reuse, the typical advantages of using an existing big box store include cost efficiency, the pre-built parking lot, as well as proximity and existing roads to surrounding communities. The big box chains choose locations of stores based on convenience for the greatest number of people, which is ideal for an organization such as Head Start. This Kmart was no different, and several major roads lead there easily. After the deal was completed, the

⁴⁷ Ibid. 106

⁴⁸ Ibid. 106

renovation itself took only six to nine months, and the school was able to open in September of 2001 for the new school year.⁴⁹

Building Renovation

The most significant changes to the building itself were made to the inside. The renovation to the exterior shell of the building was held to a minimum. Instead of making any alterations to the structure itself, the exterior was painted, the sign changed, and a new roof was added on top of the building. In the interior, almost everything, including the HVAC system, electricity, plumbing, lighting, walls, and ceilings, was rebuilt. Incidentally, only engineers, not architects, were employed for the renovations. The single room of the big-box was converted into over ninety rooms, including twenty bathrooms.⁵⁰ Other rooms include 13 classrooms, 4 larger rooms for infants and toddlers, a parent room, a resource center for people who have recently immigrated to the US, computer labs, cafeterias, conference rooms and offices. The building is lit through windows punched into the exterior walls, as well as overhead lights. While the occupants of the building claim that the lighting is sufficient, some photographs of the interior office spaces appear quite dark.⁵¹ The building is intended to function partially as a community/resource center for people in the area in addition to meeting the early childhood education needs of lower income and immigrant families. In order to maximize the amount of space available for classrooms, the hallspace in the school was minimized. The three major corridors of the building create three strong axes, allowing for convenient circulation that does not significantly subtract from usable space.

Site Renovation

⁴⁹ Ibid. 106

⁵⁰ Ibid. 113

⁵¹ Ibid. 114

The site of the Kmart building was in fact quite advantageous for a school, beyond being accessible to several communities in the area. The open area surrounding the land permitted the construction of large playground and areas for the children to spend time outdoors. It also allows for sweeping views of the surrounding cornfields. The school has taken full advantage of these surroundings by educating the students about the land in the Midwest, and the seeding, growing, and harvesting of a cornfield, and allowing them to observe the entire process first-hand.

Effects for the Community

The Head Start Child & Family Development Program has had a major impact on the neighboring towns.

The many services that the facility provides, including an immunization clinic, summer programs, after school programs, early childhood education, and other programs for



Figure 8: View of Head Start Center from Surrounding Cornfields

migrant families make it an important resource to the local community. As of 2004, the school itself had around 120 Head Start students, who are ages 3-5, 200 Title I Migrant students, who are aged 3-21, and 64 Early Socialization students, aged 0-3. The center employs more than a hundred people. The response to the building has been very positive. According to an employee from the facility, “the building has worked out

perfectly. The space has been adequate, and the Head Start is currently using every square foot.”⁵² Apparently, the adaptation has been so successful that the Head Start is already looking at an empty Wal-Mart in a town up the road in the case of future expansion.

⁵² Ibid. 114

Case Study III: Spam Museum in Austin, Minnesota

History of Site

The Spam Museum in Austin, Minnesota is an example of an actual building adaptation. Kmart came to Austin in the early 1970s, and built a 32,000 sq ft structure in the heart of the commercial downtown. It relocated to the outskirts of the town in the 1990 in order to draw more customers from the surrounding areas. This did not cause the remaining stores to suffer losses and go out of business as in other towns; instead, many of them simply relocated to the same area as the Kmart. This created a vacuum in place of the original commercial center of the town. Not only did these changes destroy the fabric of the downtown, but according to the curator and archivist at the museum, Shawn Radford, “the area became crime-ridden due to the blight.”⁵³

Building Renovation

The Hormel Food Corporation purchased the downtown site in late 1990s with the intention of using it as their corporate headquarters. They held a design competition to adapt the building into a multipurpose building for



Figure 9: Exterior View of Entrance to Spam Museum

corporate offices and a new Spam Museum. The winner of the competition was the

⁵³ Ibid. 133

LEED accredited design firm, Paulsen Architects. The design of the building incorporates many “green” ideas to improve the quality of the space, as well as the experience of the user.

The transformation of the interior of the building is probably the most notable aspect of the adaptation. In order to deal with the lack of light, the architects added skylights to office space. The

office space is then partitioned by a series of small movable walls, which are situated at angles in order to funnel light through the space⁵⁴. In the museum portion of the building, the limited natural light is actually beneficial to the exhibition designers who can have



Figure 10: Exhibition Hallway of Museum

complete control over their

lighting. The walls and furniture can easily be moved so that the occupants will not be constrained by limited space in the future.

Site Adaptation

One of the best elements of the new design is its effective use of the site. First, the site is located off of a major highway, Interstate 90, which helps attract drivers, who may have entirely bypassed the town, into the center of it. The museum advertises extensively along the roadway with humorous road signs in order to draw visitors. Furthermore, the site is also accessible to pedestrians. The designers made the idea of

⁵⁴ Ibid. 138

pedestrian circulation a major component of their plan. The adaptation also reallocated a considerable portion of area in the surrounding parking lot to vegetated space.

Conclusions

This adaptation could certainly be considered a major success, with over 10,000 visitors a year.⁵⁵ The architects were clearly inspired by the space and recognized the immense possibilities. Bryan Paulsen, principal architect of the firm, stressed that “from a design standpoint, and from a sustainability standpoint, these sites have great latent potential.⁵⁶” Furthermore, the museum has made had a significant impact on the central business district, which had been suffering since the 1990s when Kmart moved out of the area.

⁵⁵ Ibid. 133

⁵⁶ Ibid. 131

Case Study V: Home Depot Center in Lake Forest, CA

History of the Site

This redevelopment project is an example of how an abandoned Kmart was dealt with as a single component of a renovation of an entire commercial district, currently known as the Arbor in Lake Forest. The Kmart was located in one of several shopping centers along El Toro Road, which forms a major axis of Orange County. This particular

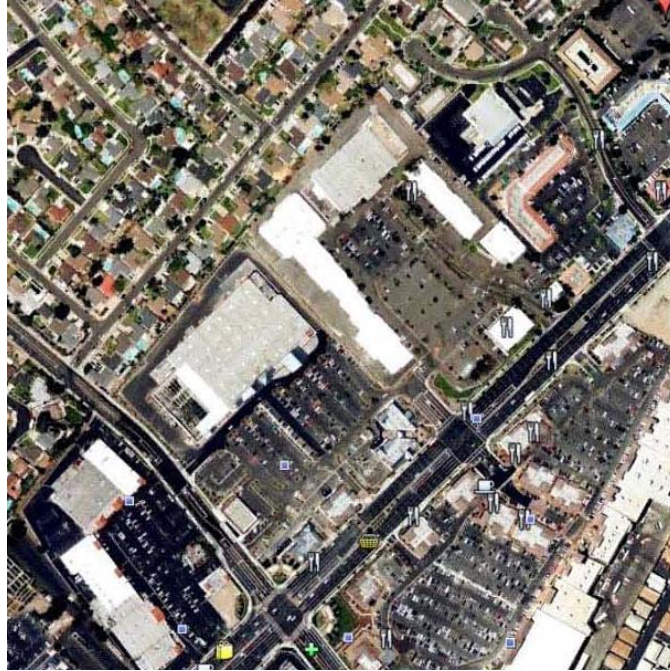


Figure 11: Aerial View of The Arbor Prior to Renovations

shopping center was a 12-acre lot that had previously been a pig farm.⁵⁷ The Kmart went vacant during the 1990s when the retailer went bankrupt, and the building remained vacant for seven years.⁵⁸ City officials spent years drafting a formal redevelopment plan. They secured \$9.1 million to widen the street, synchronize signals, and add walkways and landscaping. In addition, they created design guidelines for the commercial buildings in the shopping centers along the road.⁵⁹

⁵⁷ Radcliffe, Jim. "El Toro Road Rebuild Takes Another Step." *Saddleback Valley News* 29 Apr. 2005.

⁵⁸ Ibid.

⁵⁹ Tina Borgatta, "A Right Turn for El Toro Road," *Los Angeles Times*, November 05, 2001

As with many vacant big-box stores, Kmart, which had become part of the Sears Holding Corporation, still owned the property long after the store closed. The land itself was owned by the Buccheim family. Their development partner, Greg McClelland of GDM was forced to go to bankruptcy court all the way in Chicago in order to fight for the property. In the end, GDM bought the property from Kmart. The landowners then bulldozed the building in 2005 to make way for the new Home Depot planned to replace it.

Revitalizing the Community

The city of Lake Forest, founded in 1991, became interested in redeveloping the commercial sector of the city in the late 1990s. In addition to the empty Kmart building, many other stores were vacant. One major factor was a horrible traffic problem in the area. The city improved the situation by making El Toro wider, adding turn lanes, crosswalks and sidewalks and landscaping the medians. Before September 2003, the redevelopment agency had secured \$17.1 million for the project from the state and county.⁶⁰ The rest of the funding was provided by the city of Lake Forest, as well as some private companies, for a total of \$33 million. GDM spent \$2 million to redevelop Twin Peaks Plaza, the 13-acre shopping center with approximately 140,000 sq. ft. of retail space, adjacent to the Home Depot Center.⁶¹

Building Renovation

After the Kmart and its adjacent stores were demolished in 2005, the site was re-graded in order to create a new aesthetic for the shopping center. The shopping center,

⁶⁰ Radcliffe, Jim. "Plan Picked for El Toro Road." *Orange County Register* 3 Sept. 2003.

⁶¹ Newsletter from Lake Forest Development Agency, July 2007

which is the second largest in The Arbor, has a total of 165,000 sq. ft.⁶² The entire area was raised on a berm so the parking lot was considerably higher than the surrounding streets. The final grading was finished in the spring of 2006. The developers chose to put in a Home Depot because they felt that it would “create the sales that would attract co-tenants,” an important consideration for a shopping center that had previously been plagued by vacancy. The Home Depot was completed in late 2006, and opened that November. The store itself contains 150,000 sq. ft. of retail space.⁶³ The building was designed with Craftsman-style elements that were intended to evoke a sense of the area’s agricultural and farming heritage. McClelland stated that they spent an enormous amount of money building



Figure 12: View of Home Depot Center from El Toro Road

expensive buildings for the long haul,” contrasting the Home Depot with its cheap, big-box predecessor. They also made an effort to add other appealing features to the shopping center, such as the windmill which has become the center’s landmark.⁶⁴ It also was intended to reflect the agricultural roots of the area. Thus far, the store has been

⁶² Newsletter from Lake Forest Development Agency, July 2007

⁶³ Newsletter from Lake Forest Redevelopment Agency, July 2007

⁶⁴ Radcliffe, Jim, and Rita Freeman. "Widening for El Toro Road Is Kicked Off." *Saddleback Valley News* 17 Sept. 2004.

successful commercially, providing the local residents with a convenient shopping location for all their home improvement needs.

Site Renovations

The Redevelopment Agency of Lake Forest made significant changes to The Arbor on El Toro through expanding the roads, and adding new landscaping and other

aesthetic improvements. In order to generate the extra space to implement these improvements, the city acquired the land from three gas stations at the intersection of Rockfield

and El Toro through

eminent domain.⁶⁵ The property owners of the three gas stations, Shell, Mobil, and Arco, began demolishing the stations in September 2004.

Three restaurants were also closed in favor of using their space for road expansion and landscaping. As stated in an article of a local paper, “the road-widening project is part of a multifaceted vision to redevelop the deteriorating shopping district.”⁶⁶



Figure 13: Renovated Home Depot Center

⁶⁵ Ibid.

Some of the most visible changes were the landscaped median islands and the planted parkways that were introduced in order to create a barrier between the sidewalk and the road, making it safer for pedestrians and encouraging alternate forms of traveling to the shopping center besides the automobile. Landscaped areas were also added to the shopping centers themselves, which had the essential benefit of splitting up the enormous parking lots. 60,000 sq ft of new landscaping, containing 261 trees, and over 3,000 shrubs, were installed along the parkways and in the median of El Toro Road.⁶⁷ Additional sidewalks were also added among the landscaping. These changes were implemented during 2005. As demonstrated by the picture above, the berm surrounding the parking lot shields the asphalt and parked cars from the view of cars in the passing streets. However, the berm is not tall enough to block the view of the lot from the pedestrians on the sidewalk. This design choice clearly caters to the automobile-centric environment of south Orange County.

The shopping center on the other side of El Toro Rd, known as The Orchard, is the largest shopping center in The Arbor, and also underwent many dramatic changes, which have undoubtedly contributed to the success of the Home Depot Center.

This redevelopment project has been hailed as a success in the last several years. The city of Lake Forest won a series of awards for El Toro Road Project, including CELSOC 2007 Award of Excellence presented by Consulting Engineers and Land Surveyors of California Orange County Chapter, the APWA 2006 Project of the Year from the American Public Works Association Southern California Chapter, the ASCE Project Achievement Award from the American Society of Civil Engineers Orange

⁶⁶ Radcliffe, Jim. "Paving the Road to Relief." *Orange County Register* 15 Sept. 2004.

⁶⁷ Ibid.

County Branch, and the TRANNY Award from the California Transportation Foundation for the category Highway/Community/ Enhancement, among others.⁶⁸ The design of the Arbor on El Toro provides pedestrian access, in addition to significantly improving the traffic situation. As a result, the shopping centers can attract drivers who aren't dreading the horrible traffic, and pedestrians who can walk to the shops and therefore spend more time walking through the shopping areas and browsing through the stores. Now that the El Toro Road Traffic and Landscape Improvement project is complete, the community is reaping the benefits. As indicated by the many awards that this project has received, the city of Lake Forest has successfully created an environment that encourages private investment by easing the traffic problem and beautifying the roadways and shopping centers.

⁶⁸ Newsletter from Lake Forest Redevelopment Agency

Case Study IV: Assembly Square Mall, Somerville, Massachusetts

Assembly Square Mall in Somerville is an example of a large-scale renovation to convert a commercial shopping center to a multi-use site. The current lot appears quite desolate, surrounded by the characteristically enormous parking lot. The site has had a lot of economic trouble over last couple of decades. Originally, the mall building was a Ford Motors Factory. After the factory left, the site was used as a supermarket distribution center. In 1980, it opened as the Assembly Square Mall.⁶⁹ The interior of the mall still showed signs of its history as a factory. The building was anchored by a large box store on both ends, originally a Kmart on one side and a Macy's on the other. The total area of the building was



Figure 14: Aerial View of Current Assembly Square Mall



Figure 15: Map of Redevelopment Plans

⁶⁹ Assembly Square Preliminary Master Plan (Vanasse Hangen Brustlin, Inc.), Watertown, MA. 36

322,000 square feet, with the Kmart alone approaching 100,000 square feet.⁷⁰ The mall failed in the late 1990s, and only the anchor stores remained open. In 2005, the entire mall, except for the Kmart store, was gutted and reconfigured. The mall reopened the following year as a series of large discount stores, including AC Moore, TJ Maxx & More, HomeGoods, Home Depot and Christmas Tree Shops. These stores have remained open, and thus the mall functions much like a typical superstore commercial center. It still maintains a rather destitute appearance and, like most strip malls, is accessible only to cars.

Over the last several years, the community has been developing plans for a complete redevelopment of the site. The project demonstrates a much more comprehensive approach to bringing vitality to a site and reconnecting it to a community. As shown in this rendering above, the redevelopment is intended to include residential, entertainment, retail, and

office components. It will also include a new subway stop, and will incorporate the renewed esplanade into the center. In order to attract more commercial activity to



Figure 16: Rendering of Subway Station

the site, a free-standing Ikea will also be added.

⁷⁰ Ibid. 36

Subway Stop

A major component of the redevelopment project is the new subway stop on the Orange Line that will be incorporated into the site. The project is being funded with \$25 million from the MBTA and \$15 million from Federal Realty and Ikea.⁷¹ An additional \$10 million from the state High Flex Funding will be used in part for a second entrance, also known as a headhouse. The local citizens were very active in lobbying for the additional entrance. The primary headhouse will lead to the center of the square, while the additional one will be closer to Ikea.⁷² Since the additional headhouse was added to the plan in order to improve accessibility to Ikea, and will most likely benefit the store, it is somewhat surprising that the extra funding came from a completely different source.

Even though the design of the building will not be finalized until summer 2010, some aspects of the building have already been planned. There will be a glass curtain wall around the exterior, with a glass bridge and green glass elevator shafts. There will also be a white roof on the building.⁷³ The train platforms will be constructed from a durable concrete in order to minimize renovations in the coming decades.

There are many green elements that will be incorporated into the final design of the site. First of all, the location of the station itself supports “Smart Growth Objectives.” The station building itself will include passive solar heating as a major component of its HVAC system. It will also use sustainable materials, and minimize the use of toxic materials such as VOC paints.⁷⁴ The white roof of the building will minimize

⁷¹ Assembly Square Redevelopment Summary

⁷² Final Environmental Impact Report

⁷³ Ackerman, Meghann. "Somerville's Newest T Stop Gets a Second Entrance." *Wicked Local* [Somerville] 12 Jan. 2010.

⁷⁴ Ibid.

undesirable heat absorption and minimize the heat island effect. More green design elements will be added in the final design of the project.

The building is also designed to maximize accessibility for all different modes of transportation, namely train, bus, car, bike, and walking. There will be shared-use path leading to the station. The station will also have two headhouses on the site.

Most big box stores are located in suburbs such that they can not be easily connected to an existing subway system. Nonetheless, this plan serves as an excellent model of how an automobile-centric site can be redesigned to accommodate other modes of transportation. Since many towns do have some form of public transportation, most often bus lines, it is important to integrate commercial planning with public transit. It is also important to provide paths for bicyclists and pedestrians.

There is also a residential component to the site. However, since the design is still in planning stages, there is little conclusive information on what the residential plans will look like. Approximately 1,332 residential units will be put into the site. The project is valued at \$920 million, and is expected to generate a net tax revenue of \$9.4 million.⁷⁵ The same summary estimates that the site will generate over 7,000 permanent jobs. \$500,000 in private funds will go towards renovation and maintenance of the DCR Parkland along the Mystic River. Private funding will also support the new Mystic Center for the Arts and private funds for public art installations.

⁷⁵ Assembly Square Development Summary,

VI. Assessment of Case Studies

Bardstown, Kentucky

Bardstown was fortunate in its ability to make use of all three Wal-Mart stores in the community, but the corporation's practice of constructing new stores once a decade has posed major environmental and economic concerns for the town over the last thirty years. One troubling aspect of this story is that there does not seem to be any end in sight of Wal-Mart's expansion in Bardstown. On the other hand, a positive aspect is that with each new store that Wal-Mart constructs, the community has become more prepared to deal with its eventual abandonment. The oldest site was readapted through demolition and reuse, the second site was acquired by another chain so its life cycle is lengthened, and the latest site was planned in such a way that the energy/materials for retrofitting it will be minimized. Clearly, the municipal authorities understood the problems that the ghost-boxes were creating for the city. If the company continues to expand, the town might respond by limiting the size of the new site or eventually even limiting construction of new stores. While it is beneficial for Wal-Mart's business to leave abandoned stores behind, it is certainly not economically beneficial for the community as a whole. Since this issue poses clear economic concerns, the local authorities are more likely to enact restrictions on big-box chains, which will result in practices that are better for the environment. The town most likely insisted on the alterations on the façade in order to reduce costs, and not in order to reduce energy and raw material use, in the event of adaptive reuse. Nonetheless, those regulations will certainly have environmental benefits in the future.

The best approaches for communities to take in the future to lessen the presence of ghost-boxes will probably involve several of the methods that I have discussed in this thesis. Initially, it is best to limit the number of such structures that are constructed, and if they are built, to extend their life cycle as long as possible. If the original business does abandon them, the ideal method for retrofitting would probably be a combination of reusing the original building but adapting the site around it. This is because the upfront costs are strongly tied to construction costs of the building itself, and the residual costs are in major part do to the surrounding parking lots. Therefore, it is best to avoid the environmental costs of rebuilding the main structure, but it is important to void the residual costs of increased runoff and habitat disruption.

Head Start: Specific Problems of Site

The Head Start facility in Hastings, Nebraska is an example of adaptive reuse of a building with minimal adjustments to the surrounding site. This store is perhaps an unusual example because it is located at the edge of a town and adjacent to agricultural fields, as opposed to at the commercial center of a community. Given these circumstances, the vacant site was not responsible for damaging surrounding businesses or creating blight in the heart of a town. This case was mainly problematic in the sense that at as vacant site, it was a waste of space, as well as an eyesore in the sweeping Nebraska landscape.

Accomplishments of Adaptation

The adaptation of this former Wal-Mart into a Head Start facility was most effective in addressing the problem of vacancy through programmatic changes. The adaptation of the building was certainly an improvement by bringing life back into a ghost-box. The

act of bringing in a school brought energy and activity onto the site. In terms of the adjustments to the building itself, they were intended to strictly make the building functional as a school, not to improve its appearance. This approach becomes very apparent when examining which parts of the building were adapted. The renovations to the exterior of the building were very minimal. In many ways, it retains the aesthetic of a big-box. Though this was dictated by economic constraints, it is environmentally beneficial because it reduces energy costs and raw material consumption. The interior, however, was completely redone in order to make the building functional as a schooling facility. The redesign creatively makes use of the vast space by creating small classrooms along the perimeter, leaving room for further expansion as the school itself develops.

The new programs of this facility are tailored to the needs of the local immigrant community, unlike big-box stores that ignore local issues as much as their buildings ignore vernacular architecture. The playgrounds on the site look out onto the surrounding cornfields. The school incorporates the learning about the agricultural practices into its curriculum, helping to tie the site into its surroundings in a way that was impossible for its commercial predecessor.

Problematic Aspects of Adaptation

One way in which this site perpetuates the problems of big-boxes is that it remains accessible only by automobile. Given its location, it is not possible for many of the students to walk or bike. One good thing is that the use of school buses to transport children to and from the site reduces the use of single occupancy vehicles. While none of the literature mentioned it, a potential environmental health hazard may exist with

children spending hours upon hours every day in close proximity to the cornfields where pesticides are used. Finally, the building itself still appears mundane on the exterior; the renovation did not improve its aesthetic qualities. The surrounding parking still remains as well.

Overall Assessment

The adaptation of this site completely altered the way in which people use the site, and the way in which the site functions with the community. First of all, the programs in the building attempt to address the community's educational, and to some extent, healthcare need. As an early childhood education center, offering after-school care, an immunization clinic, and an immigrant center, the building has become an important resource for migrant families in the local community. In fact, the center draws people from many of the surrounding towns as well, serving an extensive geographic region. Secondly, the renovations have altered the apparent scale of the interior spaces so they are functional as classrooms for small children, while still minimizing the cost of renovations.

The best thing about this building is how it has grown out of its own history, surroundings, and the needs of the community. It does not attempt to veil its past as a Kmart, nor does it attempt to isolate the students from the agricultural surroundings. The programs themselves that have been included in the building exist because they are needed by lower income inhabitants in the area. Through maintaining this historical and social integrity, the center becomes a much richer and integral part of the community. At the same time, the surrounding parking lot and nondescript building are scarcely less appalling than they were before. The key issue that this site raises is the question of

whether it is better to recognize and embrace the characteristics of the big-box, or whether it is better to disguise the original structure to create a more appealing and durable building.

Spam Museum

Specific Problems of the Site

This is a complete reuse of a site, demonstrating an attempt to de-mall the property, although not in such a drastic way as with some of the other case studies. The site, located in what had once been the commercial center of the town, was originally occupied by a Kmart. When the Kmart relocated to the edge of town, taking many of the other businesses with it, the deserted commercial center started facing crime problems. The primary goal of this site's renovation was to bring activity back to the center of the town.

Accomplishments of the Adaptation

The adaptation of the Kmart into the Spam Museum was the most innovative architectural design among these case studies. The re-cladding of the building in brick and tile brings a much more stately appearance to a previously drab building. In the interior, the architects dealt with the lack of lighting by devising a complex, low-tech system to channel light throughout the building. The new program has been effective in attracting visitors to the buildings, rejuvenating the entire area. The most impressive aspect of the design is how creative use of materials and form on the interior to make a compelling and intimate gallery space inside the enormous building.

Problematic Aspects of Adaptation

The adaptation of this building focuses almost exclusively on revitalizing the town. While this issue is certainly very important to address, the design overlooks many

of the other problems associated with big-box stores. The museum advertises along a major highway nearby in order to attract visitors, perpetuating the auto-centricity of the site.

General Assessment

This case study is very effective in improving the issue which it addresses, that of existing blight, but the scope of issues that it attempts to deal with is much narrower than some of the other case studies. That being said, the architectural renovations were extremely well-tailored to the museum's program, and the LEED trained designers made efforts to limit the energy usage in the building. The act of preserving the building itself is one of the best options for dealing with ghostboxes. The exterior changes that were made to the building are particularly important in this case because they change the way the building appears to the community. Because the goal of the adaptation was to draw people to the building, a compelling façade and entrance were absolutely vital.

Home Depot Center

Specific Problems of the Site

The Home Depot Center is an example of a community-wide redevelopment plan to improve the vitality of the commercial center. The blight caused by vacancy at this site was particularly detrimental to the community because it is located in the middle of a town. In addition to vacancies, the area was plagued by traffic congestion. Since the shopping center is located on a major street, in a fairly wealthy area, the ugliness of the site could not be ignored, as is often the case when mega-stores are tucked away at the edges of towns. The vast parking lot, not punctuated by vegetation, had become a horrible eyesore for the community. The site is also adjacent to housing developments,

and so it was a particularly important issue for local residents that the center would not become a site of both blight and criminal activity.

Accomplishments of Adaptation

The adaptation of this site was successful in creating an entirely different aesthetic for the shopping center. Like the Head Start center in Hastings, the design of the site attempted to address the history of the site. In this case, the design motif alluded to the agricultural history of the area, which is quite unusual for shopping centers in Orange County, California. The planters and trees that were added to the Home Depot Center completely change the appearance. The vegetation that was added throughout the parking lot and along the sidewalks not only improves the site visually, but adds a buffer between automobiles and pedestrians. The berm surrounding the lot itself shields the view of the parking lot from the cars on the road. The inclusion of the windmill further enforces the agricultural theme. The center as a whole vastly improved pedestrian access, probably because the shops are located reasonably close to housing developments. As cited in the overview of this project, this community-wide redevelopment project was highly regarded and has received a number of planning awards.

Problematic Aspects of Adaptation

This project does not constitute adaptive reuse of a building because the original store was razed. This bulldozing was perhaps necessary because the entire site was raised above street level to create a more interesting aesthetic. Unfortunately, the destruction of such a large building constitutes an enormous waste of energy and material. Furthermore, the newly constructed stores are still fairly nondescript. While

Home Depot does carry different merchandise from Kmart and must therefore require different facilities, it does seem that one big-box store ought to be adaptable for another big-box store. While the redesign does make important strides in improving pedestrianization and disguising the parking area, the enormous parking lot does remain. Even the design of the berm in front of the lot is automobile-centric because its height adequately blocks the lot from the position of the cars driving by, not the pedestrians standing on the sidewalk.

Overall Assessment

The main accomplishments of the redevelopment project at the Home Depot Center were the economic and visual improvements. The additional plants and re-leveling of the parking area have had a profound effect on the appearance of the shopping center, making it a much more appealing place to shop. In some ways, these adaptations fail to address the issue of sprawling expansion and vast parking areas; instead, they attempt to mask their size for the benefit of the customers and passersby. At the same time, the barrenness of the big-box landscape is certainly a problem in and of itself. Furthermore, the adaptations do reduce automobile use by improving pedestrian and bicyclist accessibility. This is an important example because it provides the community, as well as surrounding cities, with an appealing model for suburban development. This type of adaptation is probably only an option for affluent communities because re-grading of a large area of a shopping center is a very expensive endeavor, especially if it is mainly for visual improvements.

Assembly Square Mall

Specific Problems of the Site

Assembly Square Mall in Somerville, MA is an example of a large-scale renovation to convert a commercial shopping center to a multi-use site. The mall has suffered economically since it failed in the late 1990s. Even though the mall functions today as a typical superstore commercial center, it still retains its blighted appearance. This is an interesting case study because it has undergone several stages of redevelopment already that have proven unsuccessful despite the fact that the site seems to have a lot of potential, located on the waterfront and just off a major highway.

Accomplishments of Adaptation

It is impossible to say how successful the changes at Assembly Square Mall will be, as it is still in the planning stages. Nonetheless, the redevelopment plans are quite compelling and are by far the most comprehensive site redesign of all the case studies. This is the only case study in which the redevelopment plans include drastically improving access to public transportation. These efforts, along with plans to improve pedestrian/bicycle access make it the only case study that has the potential to shift away from a dependency on automobiles. This plan is also unique among the case studies because it includes the creation of an urban village, as well as the construction of a big-box store where there is not a pre-existing one. This type of reuse can be categorized as a complete de-malling of the property. Another important component of the redesign is the renovation of the waterfront. This is important because it attempts to link the other programs of the site to the natural setting beyond the parking lot, not entirely unlike the relationship between the cornfields and the Head Start center in Hastings.

Overall Assessment

As expressed in the previous section, it is difficult to anticipate what exactly will happen with the Assembly Square Mall. There have certainly been a fair number of problems hindering the progress of the project, and even now it is unclear when it will be finished. If the plans for an urban village do come to fruition, it will be an interesting experiment for suburban Somerville. It remains unclear whether or not the subway stop leading to the Ikea will be successful in decreasing the use of automobiles at the site. It is possible that most customers attending Ikea will prefer to use their own cars to transport their purchased goods. All in all, this plan should be considered a very forward thinking design. Effectively, the planners are using a site of a big-box store, accompanied by a strip mall, in an experiment to reverse suburban habits of living and explore the more sustainable urban model.

VII. Conclusion

All of these studies demonstrate the enormous potential of these sites to be converted for uses that really address the needs of each community. They illustrate that adaptive reuse of these sites presents a wonderful opportunity to take some of the worst elements of suburbia and completely transform them. The courthouse in Bardstown, the school in Hastings, and the museum in Austin are all fascinating examples of creating new programs for the sites. The adaptations in Hastings and Bardstown are particularly interesting because they deal with adaptive reuse of the building itself. The adaptation of the shopping centers in Lake Forest, CA and the third site in Bardstown are trying to alter the suburban model for big-box developments. Assembly Square Mall in Somerville takes it even further by attempting to create an urban development model within a suburban setting.

At the outset of my research, I expected that most of the communities would be dealing with similar issues relating to vacancy. While the presence of blight is a common theme, its expression within each of the communities was entirely different. I fell into the pattern of thinking that big-box stores are so homogeneous that their solution could be equally standardized. However, as demonstrated through the case studies, each community requires a nuanced approach to adaptation in order to maximize the benefits that the site can have in its local setting.

In looking back at these studies, my research impressed upon me the limitations of big-box structures as they are originally design. They are really just shells and are not really physically interactive. They are designed to do very little to enhance the program of the building, that of a discount store. This is partially a function of the needs of the

program, and partially a function of Wal-Mart's bare bones approach that minimizes their overhead costs. This starkness parallels the mega-store's lack of contribution to its surrounding town or city. The case studies demonstrate that ghostboxes can be transformed into interactive sites whose effects extend into the communities.

While these case studies all highlight different techniques, there are some common trends. These adaptations seem most to be most successful in reversing blight by implementing programs important to the community, as well as improving some visual aspects of the site. Most of them also attempt to improve pedestrian and bicycle access. Nonetheless, more experimentation is needed to maximize the potential of these sites. More experimentation along the lines of the Assembly Square Mall is important for developing a more sustainable model. Decreasing automobile dependence and improving the connection between the sites and their surrounding, both in terms of the natural environment and the community should be further explored. The Assembly Square Mall redevelopment plans address the widest range of issues brought on by the mega-stores. This is probably because the site has been reworked several times to little avail, and so the community is ready for a bolder approach.

Even within these case studies, the building owners are inclined to demolish and reconstruct them slightly differently instead of making the necessary adaptations. As noted throughout this thesis, if the adaptation of the building itself requires extensive construction, it creates large upfront environmental costs of energy and material consumption. In contrast, redesigning the site itself is beneficial in reducing the residual environmental impact by allowing for more vegetation and decreased runoff, as well as a reorganization of the buildings in relation to the neighborhood to encourage alternate

forms of transportation. Thus, the ideal form of adaptive reuse minimizes construction costs on the buildings themselves and transforms the site around the buildings.

As discussed throughout this paper, the problem of vacancy, as well as the problems that accompany the construction of mega-store themselves, will continue if the corporations are allowed to pursue the same development patterns. In fact, the issue of vacancy is likely to become increasingly ubiquitous. Since the supercenter is a relatively new model, not many of them have gone vacant yet. Based on current trends, it is likely that these corporations will continue to increase the size of their stores, causing the corresponding increase in the size of vacant stores. The type of intervention demonstrated at the supercenter in Bardstown will be necessary to make these sites viable for reuse at affordable costs.

In essence, suburban development led to the creation of big-box stores, which in turn perpetuated the suburban lifestyle. Many of the problems associated with big-boxes are really problems associated with suburbia. Now the stores are so huge that they actually impact the planning of the community, and so towns are looking to adaptations of the mega-store that can reverse some of these problems. As sustainability becomes an increasingly central issue, the redesign of these sites could play an important role in affecting change in the American lifestyle.

As adaptations continue to evolve over the following decades, it will be interesting to see which problems the adaptations address. In this thesis, I focus on the issues of sustainability, but it is possible that the designs will focus more on economic or cultural issues. I think that in order to make the best use of these sites, it is important to integrate all of those aspects. These buildings are ubiquitous throughout this country, and

increasingly so around the world. Although the supercenter model has existed for less than a couple decades, it has already had a major impact on communities across the United States. They already claim an important place in suburban development and therefore, architectural history. Is there an aspect of this character that should be preserved through their adaptations? It seems that if these adaptations are truly to be sustainable, in some sense they must reflect the origin of the buildings, if not only for historical integrity. Perhaps at the very essence of these buildings, despite all their problems, is their potential for reuse and adaptability, which must play a crucial role in becoming more sustainable. These bare-bones exteriors, even with their lack of natural light and cheap building materials, are incredible resources. I think that there can be no argument for preserving the image of sea of pavement that surrounds them, but the icon of the big-box store will not, and perhaps should not, be obliterated.

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