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**SITE FEASIBILITY STUDY
COTTAGE STREET INDUSTRIAL SITE
SPRINGFIELD, MASSACHUSETTS**

SPRING, 1991

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The Center for Economic Development would like to thank
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COTTAGE STREET INDUSTRIAL SITE
REUSE AND FEASIBILITY STUDY
SPRINGFIELD, MASSACHUSETTS

Introduction

The purpose of this project is to determine the feasibility of developing an industrial park on an 53 acre parcel located along Memorial Drive and Cottage Street in Springfield, Massachusetts. This examination was undertaken at the request of the City of Springfield Office of Community Development. The City, due to a shortage of industrial land, is extremely interested in identifying parcels of land upon which industry can be sited.

Site Specific Information

1. **Location:** The site is located in the north-central part of the City of Springfield, at the end of Memorial Drive. It is in close proximity to an active railroad, 20 minutes to Westover Airport, 25 minutes to Bradley Airport, and 10 minutes to Interstate 290.
2. **Surroundings:** The area is located in the Memorial Industrial Park, in proximity to the Roosevelt Avenue and Cottage Street industrial areas. There are no seriously disharmonious land uses nearby that would preclude industry.
3. **Access:** The site could be easily entered/exited via Memorial Drive to Roosevelt Avenue. The site could also be accessed through frontage that is available on Cottage Street. There is a relatively easy connection from the site to Interstate Routes 290, 90 and 91.
4. **Site Character:** The site was previously used as a municipal dump. However, the dump was compacted, capped and reseeded. It is now open land and therefore relatively easy to develop. There is no requirement for demolition.
5. **Zoning:** The land is zoned I-1 A. This is an industrial zone that allows a large selection of commercial and industrial uses. Residential uses are expressly prohibited. A comprehensive list of all uses allowed by right, under special permit and disallowed may be found in the appendix.

6. **Environmental Clean-up:** The site was recently certified as being environmentally clean by the engineering firm of Tighe and Bond. According to the sources, the analytical data gathered from the site did not reveal any extensive hazardous waste disposal at the site. Tighe and Bond, in their Phase I analysis dated October 23, 1987, recommend that no remedial action be taken other than monitoring the site. There are, however, certain contaminant levels that exceed current drinking water standards and should be reported to DEQE. It was suggested that additional field investigations and/or remedial actions should be taken before developing the site.

On the need for compaction, the data reviewed shows that refuse thickness and extent gathered during the time of the report indicates significant volumes (up to 40+ feet deep) of actively decomposing refuse throughout much of the site. Only the southeast corner of the site did not reveal these results.

Final recommendations indicate that "sensitive receptor" types of development should be discouraged. They include, among others, hospitals, schools, residential areas, etc. The types of development recommended would be types that involved the least amount of human activity and occupancy.

The Tighe and Bond Phase I report recommends a Phase II analysis be undertaken to determine the extent to which remedial and further action should be taken in order to "clean" the site for the prescribed uses. According to the Phase I analysis report this action would be taken especially to deal with the drinking water problem. A phase II analysis report was proposed but there is no evidence that it was carried through.

7. **Density:** Based upon Springfield's zoning, any development would have to meet the following standards:

a) Maximum lot coverage:	70%
b) Minimum front setbacks:	10 feet.
c) Minimum side yard setbacks:	none or 10 ft. if abuts a Residential A. area
d) Minimum rear yard setbacks:	15 feet
e) Height:	100 feet.
f) Parking:	2 spaces per 100 feet.
g) Lighting:	All lighting, including sign lighting, along streets shall be directed in such a way so as not to create a nuisance in a residential district, and in every district all such lighting shall be arranged so as not create direct glare or hazardous interference with vehicular traffic.
h) Minimum curb cuts per lot:	No area shall have more than two accessways to any one public street for each five hundred feet of frontage. No such accessway shall be more than thirty-five feet in width.
i) Sign control:	
<u>Accessory:</u>	Conforms to same sign control regulations as Business A districts
<u>Non-Accessory:</u>	Allowed in accordance with Section 1801-5, with a maximum size not to exceed 700 square feet.
j) Architectural standards:	No

Analysis of the Greater Springfield Region

Industrial Parks in Greater Springfield Area

The following table is an inventory of industrial parks in the Greater Springfield Region. The table shows rail access and price information if available.

Location / Name	Ttl Acres	Acres Available	Rail	Price per Acre
Amherst:				
Amherst Fields	50	36	No	\$100K
Agawam:				
Agawam Regional Industrial Park	326	110	No	\$50-\$59K
Mass. Conn. Business Park	10	10	No	***
Russo Ind. Park	8	0	No	***
Suffield St. Partnership	717	***	No	***
Chicopee:				
Cabotville Ind. Park	14	4	Some	***
Chicopee Ind. Park	22	1	No	Negotiable
HWP Land:				
New Ludlow Road	90	34	No	***
Westover Airpark West	265	40	Yes	\$55-\$75K
Westover Airpark North	101	65	Yes	\$60K
East Longmeadow:				
E. Longmeadow Ind. Park	120	0	Some	***
Easthampton:				
Easthampton Ind. Park	40	32	No	***
Greenfield:				
Interstate 91 Ind. Park	300	100	No	\$15-25K
Holyoke:				
Springdale Ind. Park	35	6.4	Yes	\$80K
Whitings Farm Road Industrial Area	29	29	No	\$120-125K

Location/ Name	Ttl Acres	Acres Available	Rail	Price per Acre
Ludlow:				
Ludlow Ind. Center	117	85	Yes	***
Stony Brook Ind. Area	30	0	Some	***
Westover Airpark East	300	120	Some	\$50-\$55K
Northampton:				
Northampton Ind. Park	88	0	No	***
Palmer:				
Maple Tree Ind. Park	45	0	No	***
Palmer Ind. Park	120	0	Yes	***
South Hadley:				
Old Lyman Road	26	***	No	***
Springfield:				
Cadwell Drive	30	14	No	\$100K
Carando Ind. Park	55	0	Some	***
Memorial Ind. Park	150	0	Yes	***
North Ctr Ind. Park	23	7.5	Yes	\$60-\$70K
Wason-North Ind. Park	25	0	Yes	***
West Springfield:				
W. Springfield Ind. Park	150	0	No	***
Westfield:				
Summitt Locke	268	268	Yes	\$50K
Wilbraham:				
Wilbraham Ind. Park	30	6	No	***
Enfield, Connecticut:				
Enfield Mem. Ind. Park	300	18.67	No	\$53K
Heritage Ind. Park	107	107	No	\$35-\$100K

* note these figures do not include the proposed Chicopee River Technology Park

*** information not available

Highlights on Available Land and Market Prices in the Region:

1. Nearly 66% of the area's Industrial park land has been sold.
2. There are 1093.57 acres of land available in these industrial parks.
3. The average price per acre is \$68,076, with the low end being \$15,000 an acre and the high end being \$125,000 an acre.
4. There are 471.9 acres available that could be fully served by rail.
5. The average percent of building coverage allowed is 54.5%.
6. The average price-rent for industrial buildings per square foot is \$5.80.
7. The following communities have Industrial Parks that have 25 acres or more available for development: Amherst, Agawam, Chicopee, Easthampton, Greenfield, Holyoke, Ludlow, Westfield, and Enfield, Connecticut.
8. The Communities of Agawam, Chicopee, Greenfield, Ludlow, Westfield, and Enfield, Conn. have Industrial Parks that have 100 acres or more available.
9. Apart from the Industrial Parks, the following areas of 25 or more acres are zoned for industrial use in the City of Springfield: the Smith and Wesson property with frontage on Roosevelt Ave. and Rt.291 to the north and Bay St. to the south; the Rifle Range which is part of the Chicopee River Technology Park, a joint development project between the City of Springfield, the City of Chicopee, and Westmass Development Corporation; Liberty Plaza; and 1065 - 1101 Boston Road.

Highlights on the Labor Force

Area	Labor Force		Employed		Unemployed		Unemp. Rate	
	Jan 90	Jan 91	Jan 90	Jan 91	Jan 90	Jan 91	Jan 90	Jan 91
Springfield City	68,115	68,526	64,096	61,095	4,019	7,431	5.9	10.8
Springfield MSA	253,798	255,442	241,826	232,677	11,970	22,765	4.7	8.9
Massachusetts	3,121,900	3,076,100	2,967,200	2,798,300	154,700	277,800	5.0	9.0
United States	123,293K	123,585K	116,037K	114,990K	7,256K	8,595K	5.9	7.0

Unemployment rate in the City is steadily rising. As can be noted from the Table above, the City of Springfield has an unemployment rate greater than that of the Springfield MSA as a whole. Furthermore, the rate has almost doubled in the past one year. This is not surprising as the the economy in Massachusetts has deteriorated. From having an unemployment rate lower than the national average, the state is now 2 percentage points higher than the national rate. The rise in the unemployment rate is a reflection of layoffs and cutbacks that are continuing, especially in the trade and manufacturing industries.

Total nonagricultural wage and salary employment in the Springfield MSA lost 6,600 jobs over the year, bringing the total level of employment to 228,400 for January 1991.

Trade played a major role in this job loss as it lost 3,300 jobs since January 1990. Retail trade, which accounts for the bulk of employment in the trade sector lost the majority of the jobs, 2,600. Manufacturing continues to lose employment, with 2,100 fewer jobs than last January. The service sector, however, has shown a slight increase of 1,500 jobs since January 1990.

Highlights of the 1991 U.S. Industrial Outlook, U.S. Department of Commerce.

The U.S. industrial outlook for 1991, however, is optimistic. Despite some weakness in the economy, there are signs of continued but slow growth. Manufacturing industries experience sharper declines than service industries.

For manufacturing, the downturn between 1990 and 1991 is much more moderate than it was between 1989 and 1990. The computer and electronic components industries, in

addition to being among the fastest growing, are also forecast to grow more quickly in 1991 than in 1990. There is also a 5 percent growth forecast for the machine tools industry. One reason for this is the continued investment in machine tools and other capital equipment, by businesses, to increase productivity and efficiency to stay competitive.

Except for machine tools, the more traditional sectors of the economy reflect the overall slowdown much more than the high technology industries. Among these are motor vehicles and related industries, including steel and glass; construction materials; household durables; and wood products.

In the service sector, the most noteworthy is continued strong growth forecasts for health services and information services. The upward trend in health services appears to be continuing despite government and private sector efforts to contain health care costs. The demand for information services continues to expand, creating demand for both hardware and software.

Professional services, such as accounting and management consulting, should continue to expand at a good pace. This trend reflects in part the continued contracting out for specialized services.

Findings and Recommendations

1. There is only marginal potential in selling this parcel as one package.

Our analysis shows that there is little likelihood in the immediate future for one firm or company moving into the area and occupying the entire site. The possibility of another Digital Plant (or something similar) coming to Springfield appears to be highly doubtful. Therefore, it will make for greater economic sense to subdivide the parcel for smaller companies presently located in the region that are in need of expansion space.

2. The site should be subdivided into 2-4 acre parcels. This represents the greatest area of demand, according to local industry Realtors.

According to local Realtors this is where the greatest demand is at present. It is also reflective of the needs of the new type of heavy industry that is emerging in the region. It is part of the phenomena that industrialists call "de-verticalization".

3. Further field investigations and necessary remedial action needs to be undertaken to clear all environmental liabilities.

As recommended in the Tighe and Bond report, the Phase II analysis should be undertaken and DEQE must sign off on the site before any development can take place. Being an old dump site, it has a stigma upon it. We know from previous experience that developers will look with great care on the environmental cleanliness of the property before building. Further, the incidences of the Love Canal and Foster Grant are still with us. It is essential that this site be "guaranteed" by the city before it is offered for sale.

4. This site can not be expected to sell until all permits and certifications are in place.

This project represents a classic case in which environmental concerns must be satisfied well before anything else happens. We recommend that the city start the Massachusetts Environmental Protection Act, (MEPA), process as a first step. It should apply to MEPA using the maximum build out as the basis. It then will be

able to set the standards for any firm interested in locating on the site. As well, it must be able to certify that the site is environmentally clean under 21-E and offer the companies a free monitoring service.

5. The City should prepare the site.

The city should consider sub-division layout and invest in appropriate road sewer and water systems before the site is advertised.

6. The site has great value for heavy industry. Such parcels are extremely rare in Western Massachusetts.

This site is particularly attractive for heavy industries that traditionally made up Greater Springfield's industrial base. It could serve as a place for tool and die making, job shops and paper manufacturing. Such parcels are extremely rare in Massachusetts. Indeed, the fact that heavy industry can be sited on this parcel makes it particularly valuable. We recommend that it be built simply with utility (rather than amenities) in mind. It will be in the city's long term best interest to try to protect the parcel for such uses.

7. The site, given its location, lends itself to a number of other industrial uses.

Given its advantageous location, the site could provide good warehouse facilities. It would also be attractive to spin off industries or growth industries, already in the area, and looking to expand. These could range from small machine shops to plastics and polymers.

8. The City may have to expand Cottage Street in order to appropriately service this site.

While a build out analysis can tell you how much space can fit on the parcel, it cannot tell you how many trucks/cars will enter or leave the site. A careful traffic study will be needed before the site can be developed.

9. That the City be patient and take the long view: This parcel will not be sold overnight.

It is in the city's best interest to take a long view on this parcel. it can be a valuable addition to the industrial base. However, careful studies and holding out for the appropriate uses is in order.

Buildout Analysis

BUILD OUT SCENERIO FOR THE PROPERTY			
			in Acres
1	Gross Acreage		53.00
	Subtract		
	New Roads and Infrastructure	7%	3.71
3	Net Developable Acres		49.29
	Subtract		
	Building Footprint @ 0.7 FAR and an average of 2 stories.		18.55
4	Net Developable Acres after Buildings		30.74
	Subtract		
	Parking Area:		25.08
	2 cars per 1000 sft of building	3,232	
	multiply by		
	area in sft. at 100% at-grade and incl.	338	
	internal access roads		
	NET DISTRIBUTION OF LAND	as a %age	in Acres
1	Open Space	10.68%	5.66
2	New Roads and Infratructure	7.00%	3.71
3	Building Footprint	35.00%	18.55
4	Parking and Internal Access Roads	47.32%	25.08
	TOTAL	100.00%	53.00

Financial Feasibility

Financial Feasibility

When analyzing the feasibility of development options, the investor is primarily concerned with two issues:

- * Will the projected revenues offset the anticipated fixed and operating expenses?
- * How much, if any, public assistance is likely to be required to make the project an attractive investment?

The "pro forma" is an orderly arrangement of the expenditures and revenues anticipated for the project. It shows income, operating expenses, financial terms and before-tax cash flows. Use of the typical pro forma as an analytical tool provides a quick first indicator of potential project viability. While cash flow before taxes and return on investment are significant factors governing project attractiveness, a typical year pro forma leaves out one extremely important element in determining project feasibility - the element of time. A project such as this may be staged over several years. Changing interest rates, rising construction costs and potential market shifts will all impact the project and force periodic reassessments of its scope and character.

The Financial *Pro Forma*

Revenues and Expenditures The "typical year pro forma assumes that there is no unusual expenditures beyond the normal expense of management and maintenance. This static cash flow analysis of a project is commonly used to determine project financing. Investors and developers, however, analyze project viability using a variable cash flow approach. Variable cash flow analysis is discussed in the following section on After-Tax Cash Flow.

Revenue is the most significant variable in the pro forma. Estimates of obtainable rent, must therefore be realistic in relation to the prevailing market. For most normal risk projects, vacancies and rent loss will probably be less than 5% of potential income, but this figure is commonly used as a conservative estimate.

PROFORMA ANALYSIS FOR SPRINGFIELD		
Total Expenses		
Total Acres		53.00
multiply by		
Cost per Acre		\$29,000
Cost of Land		\$1,537,000
Expenses: These include site costs,	17%	\$261,290
architectural costs, general maintenance		
legal fees etc.		
TOTAL COSTS		\$1,798,290
TYPICAL YEAR PROFORMA		
Revenue		
Selling of land @ \$70,000/acre		\$3,710,000
Total Gross Revenue		3,710,000
Buildout over 10 years		
Revenue per year		371,000
subtract		
5% contingencies		352,450
Net Operating Income (NOI) before Debt Service		352,450
Maximum Debt Service (NOI/1.3)		271,115
Cash Flow before taxes		81,335
Max. Mortgage 30yrs @ 10% interest		
(Debt service/mortgage const. 0.1031)		2,629,635
Maximum mortgage needed		1,798,290
Maximum Debt Service		179,885

Most lenders use the net operating income (NOI) figure as an underwriting tool to determine the maximum amount of debt service, and thus the maximum mortgage, a project can support. Acknowledging the potential for income to fall below projections, lenders obtain an added safety margin by requiring that the NOI be at least 1.2 to 1.4 times the debt service (repayment of principal plus interest). This provides additional assurance that income will be sufficient to cover both operating expenses and debt service. We have used the average figure of 1.3 times debt service in our calculations.

The maximum annual debt service is then used to determine the maximum allowable mortgage for the project. The amount of the mortgage will be influenced by both its length and interest rate. The mortgage terms represent another significant variable in the pro forma. The difference between the total development costs and the obtainable mortgage is the amount of equity capital or gap financing required.

After-Tax Cash Flows Real estate investments offer special tax advantages. Real property improvements theoretically decline in value over time. This decline in value, depreciation, can be claimed as an expense and deducted from the cash flow of property when computing taxable income.

After-Tax Cash Flow Calculation

Net Operating Income: This is derived from the financial pro forma (adjusted revenues minus expenses).

Less Debt Service: Taken from the pro forma. Debt service remains constant throughout the mortgage term. It is a fixed expense and is thus subtracted from the cash flow.

Pre-Tax Cash Flow: The difference between NOI and debt service. Projects frequently have a negative cash flow in early years when start-up expenses are heavy and occupancy is low.

Tax Consequence: The amount of taxes to be paid on project income taken from the last line of taxable income calculations.

AFTER TAX CASH FLOW: A TEN YEAR ANALYSIS										
	1	2	3	4	5	6	7	8	9	10
1 Net Operating Income (NOI)	352,450	377,122	403,520	431,766	461,990	494,329	528,932	565,958	605,575	647,965
2 Less Debt Service	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884
3 Pre Tax Cash Flow	172,566	197,238	223,636	251,882	282,106	314,445	349,048	386,074	425,691	468,081
4 Tax Consequence	-86,311	-98,649	-111,851	-125,978	-141,093	-157,267	-174,573	-193,090	-212,904	-234,105
5 After Tax Cash Flow	86,256	98,589	111,785	125,905	141,013	157,178	174,475	192,983	212,786	233,976
6 Discount Factor (12%)	0.89	0.80	0.71	0.64	0.57	0.51	0.45	0.40	0.36	0.32
7 Present Value	78,767	78,871	79,367	80,579	80,377	80,161	78,514	77,193	76,603	74,872
NET PROFIT AFTER TEN YEARS										
1 Discounted (PV)	783,305									
2 Not Discounted	1,534,945									
TAXABLE INCOME CALCULATIONS: TEN YEAR ANALYSIS										
1 Pre Tax Cash Flow	172,566	197,238	223,636	251,882	282,106	314,445	349,048	386,074	425,691	468,081
plus										
2 Debt Service	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884
less										
3 Interest	179,829	179,824	179,817	179,811	179,803	179,795	179,787	179,777	179,766	179,754
5 Taxable Income (Fed. & St.)	172,621	197,298	223,703	251,956	282,187	314,534	349,146	386,181	425,809	468,211
Marginal Tax Rate	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
6 Inv. of Tax Consequence	86,311	98,649	111,851	125,978	141,093	157,267	174,573	193,090	212,904	234,105
PRINCIPAL AND INTEREST CALCULATIONS										
1 Balance Principal	1,798,290	1,798,235	1,798,175	1,798,108	1,798,035	1,797,954	1,797,866	1,797,768	1,797,661	1,797,543
Debt Service	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884	179,884
Interest Payment	179,829	179,824	179,817	179,811	179,803	179,795	179,787	179,777	179,766	179,754
Principal Payment	55	61	67	73	81	89	97	107	118	130