

Manufactural Geography of Greater Blue Island, Illinois¹

(A Study in Industrially Saturated Space)

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"Of Chicago but not in Chicago" might well characterize the Blue Island manufacturers' geographic site and situation. As part of metropolitan Chicago, the manufacturing establishments share the benefits of its converging rail and road transportation patterns, its concentrated labor pool, its expanding market for particularly the fabricated metal products specialized in by the Blue Island area manufacturers. But as apart from neighboring Chicago, here was a site of lower taxes, lower costs of land, and especially more room for the initial factory space or future expansion facility. Nearly 100 per cent of respondents to our questionnaire declare the growth potential of the area as a prime reason for locating here.

Now, ironically in the geographic process of environmental change, many industrial plants in Blue Island itself find themselves unable to extend their premises, and new sites are practically unavailable for relocation. And since the city, unlike the other industrial Calumet communities studied (e.g., Chicago Heights, to the south), has not incorporated community planning in its otherwise outstanding historic development, it now has become industrially "saturated" and can offer only a very few zonally restricted sites to industry almost confined to the "limited" classification.

Areal Antecedent Attractions

In 1834, the first-known white settler in the area built a crude log hut on the edge of a prominent "hill" near the banks of Stony Creek. This hill, some twelve miles south of the youthful town of Chicago, is oval-shaped and measures about six miles long by two miles wide originally covered with a thick growth of trees. During glacial times, this till ridge was a true island in the ancient Lake Chicago which covered the area (1). In 1835, the historic Rexford Tavern was built on the south end of the "Island" on the Vincennes Trace at or near the junction of seven prominent Indian trails. The Vincennes Road, a relict section of which appears on the city map, was the leading travel route in pioneer days connecting Vincennes with Chicago, and may be regarded as the precursor of Illinois 1 highway (2). "The Blue Island House," as it was called, became an immediate success and many travelers enjoyed the panoramic view of the surrounding plain from its front porch.

¹Greater Blue Island, as here comprehended, includes the area identified on the accompanying map—the contiguous section of Blue Island, neighboring Posen and Dixmoor on the south, and the Alsip area to the west. The survey represents the seventh of the series of Calumet industrial geography studies, the other six (those of Michigan City, LaPorte, Gary, East Chicago-Whiting, Hammond, Chicago Heights) having been previously published in the Proceedings. Grateful recognition is due all the industrialists who have so generously co-operated in supplying questionnaire-interview data which have made possible an approximate 50 per cent categorical inventory of the 61 mapped plants of the area; also thankfully acknowledged are the sources cited.

Slowly, but in steadily growing numbers, pioneer farmers began taking advantage of the rich black soil on the flanks of the ridge and the low-lying prairie surrounding the ridge. With the farmers came their supporting craftsmen, a blacksmith shop being the first industry to be established (1837). Hardware, drug, and clothing stores rapidly grew to fulfill the needs of the farmers and herders who passed through on their way to and from the great markets and stockyards which were already operating in Chicago.

The till ridge on which the settlement was growing, influenced the development of the small town's first major industry, the breweries. By 1860 there were four breweries which had dug tunnels into the sides of the hill for cooling their brew (3). Among other industries which prospered for a time was a grist mill on the Little Calumet River which operated until 1875 when farmers blew up the dam because of flooded fields. Small stone quarries supplied local needs as did artisans who made bricks by hand from local clay until machinery put them out of business. Today, clay pits and brick plants are dominant landmarks in the area (see map).

The low fertile lands surrounding Blue Island were a curse as well as a blessing. The black soil attracted many farmers, particularly those of German descent, who soon outnumbered the pioneer American settlers. Much of Blue Island's success has been attributed to the honesty and hard work which these Germans brought to the area (4). There were also many swamps, remnants of the incomplete drainage that followed the recession of glacial Lake Chicago, creating stagnation, and probably causing the great plagues of ague and cholera which swept the area in the 1840's and 1850's. Some of these marshes still remain as an obstacle to the expansion of modern industry.

The industrial development of Blue Island, one could say, rolled into the 20th Century on the steel wheels of the railroad. Mayor John M. Hart reportedly estimates that today railroaders occupy at least 40 per cent of the city's 5000 homes. The Rock Island Line first opened a passenger station in 1852, and four other railroads now offer their services to the city. This large number of railways serving a community of about 20,000 can be explained by its proximity to the city of Chicago and the convergence of many railroads on this midwest metropolis. This has allowed the birth of heavy industries in the area which have to depend in whole or in part on railway service for delivery of both raw materials and bulky finished products. Ample industrial sidings have been constructed, especially by the Indiana Harbor Belt Railroad, which links with every railroad in the Calumet Industrial District. In addition to the two railroads already mentioned, the Chicago & Grand Trunk Western, the Baltimore & Ohio Calumet Terminal Railroad, and the Illinois Central Railroad all offer their services to the city. How the industries are space-related to the rail net is figured in the accompanying map.

In 1920, a drainage and shipping canal was completed from the Little Calumet River at Blue Island to Lockport, Illinois, on the Des Plaines River about thirty miles to the southwest. The Army Engineers are now widening this canal from the original 60 feet to 225 feet

and building new bridges with more clearance (5). When this waterway was built, its primary purpose was to prevent the pollution of Lake Michigan with sewage, and only secondary was the idea of navigation. However, this widening presages the increasing importance this link serves in the "Lakes to Gulf Waterway" project (6).

Classified Manufacturing and Its Spatial Relationships

Sixty-one manufacturing industries have been mapped in the area, five of which have been placed in the miscellaneous category. The other fifty-six are classified in twelve categories, as indicated on the map, following the general type of pattern classification as used by the Federal government (7).

The dominant type of manufacturing by far is fabricated metal products—some twenty-one plants, constituting about one-third of the classified industries. Others, in general descending order of importance, are: primary metal industries (7); stone, clay, and glass products, (6); machinery (except electrical), electrical machinery and equipment, and chemicals and allied products, (4 each). Among the smaller numerical categories are food products (3), paper and allied products (2), and dental and surgical supplies (2). Petroleum refining, plastic products, and lumber and wood products number one each.

The geographic pattern as a whole is obviously related to the earlier established railway net referred to above. In a later topic the pattern will be analyzed in terms of the modified transport services of trucking. Topographically, the heavier industries and those which are expanding lie around and beyond the edge of the ridge that forms the backbone of Blue Island. The elevation proper features small, mostly consumer-manufacturing firms, which depend on truck transportation.

The mapped distribution pattern suggests a threefold areal differentiation, identified on the map by A, B, and C. The A section, bounded on the north by Broadway and west by the city limits, extends southward beyond the city limits into adjacent Posen and Dixmoor. It is distinguished by its industrial compactness and diversity, embracing almost half of the total plants of the region, and representing 10 of the 13 classifications. It might be thought of as the industrial core, the founding of the establishments dating primarily from 1900 to 1960. Contrastedly, the B section, northern Blue Island, has about half the number of plants found in A, dispersed, and occupying generally much smaller sites. Section C, northwest area, is dominated by large space-demanding industries (e.g., brick manufacturing; petroleum refining; metal fabrication), with wide open spaces still available for occupancy.

Space and Other Primary Locative Factors

The locative factors, reported in the order of frequency of responding single or multiple entries, are as follows: space (60 per cent), market and home site (each 22 per cent), proximity of labor and availability of buildings (each 16 per cent), transportation (12 per cent), raw materials (9 per cent), and taxes (6 per cent). It will be recognized that a number of these involve "regional" considerations, as well as site, which the manufacturer does not always measure in distinctive

areal terms; for example, the "symbiotic" relation of the metal-machine fabricators to the Midwest's mammoth steel producers (see insert map).

The famous Libby, McNeill and Libby Corporation establishment exemplifies the combined geographic influence of site and situation. Coming to Blue Island in 1918, it overshadows all other food-processing plants in the area with its employment of almost 800 workers and an annual income of some \$10,000,000 from its canned and bottled food products sold in a nation-wide market. The primary reason for locating here is reportedly "to be close to the truck farms which supply the garden products in good quantity."

Related even more closely to a local natural resource is brick manufacturing. Established in the area (1900) to take advantage of the high quality red clay underlying the "island's" glacial till and the close-in market, the Illinois Brick Company has progressively expanded, now employing over 300 workers and marketing some 50,000,000 bricks annually, primarily in Illinois. Clay quality is here evaluated in terms of chemical content, ease of machining, drying, and burning.

Adequacy of Space and Building Availability

Again and again, "space" is a primary factor emphasized. With vacant land, suitable for expansion, becoming increasingly scarce and expensive in Chicago, well over half of the industrialists emphasized the factor of "room" at reasonable purchase price as a prior consideration for establishing at Blue Island. Thus, the following expressions: "area undeveloped," "appeared to have potential for the future," "and least expensive," "a chance to get away from congested area," "enough space to dispose of acid fumes without bothering home owners." Often building adaptability combined with site availability: "purchase of an earlier plant," "rental of building available," "plant adequately suited to needs when purchased." Local residents would be among the first to recognize this space opportunity.

But industrialists recognize that, however necessary adequate ground and floor space may be, access to market, labor, raw materials and so forth call for efficient transportation facilities. Accordingly, the relative listing of transportation above is obviously misleading, its pre-eminence being no doubt assumed by the respondents as a prerequisite to functioning of the other factors that its specific notation in the questionnaire was simply considered by many as superfluous. And when the transportation factor was actually noted, its efficacy usually was commented upon in the strongest of terms.

Blue Island occupies a unique transportation position. With approximately only 20,000 population, it is served by five major railway lines: The Rock Island; Chicago & Grand Trunk Western; Baltimore & Ohio Calumet Terminal; Illinois Central; and the Indiana Harbor Belt, which links the railroads in the Calumet Industrial District. This unique railway net and its proximity to Chicago is a key factor in Blue Island's historic manufacturing development, but as indicated in the next section, the truck is progressively supplanting the train in an increasing number of instances, even in transporting the heavier commodities.

Transition of Train to Truck Transportation

Despite the fact that the manufactural pattern of the area predominantly calls for transport of heavy raw materials as well as heavy processed materials, many industries in both categories today transport more and more by truck, a trend particularly noticeable within the last ten years,—“up 25 per cent in recent years,” as one respondent put it. No wonder, then, that there is increasing traffic concern on the part of city officials of many of the urban and suburban communities through which the large trucks must pass with their heavy loads, especially where there are no satisfactory bypasses of such communities. Naturally also, this increasing heavy truck traffic creates a growing problem of providing enough major highways to accommodate such traffic. Statistical compilation on the category of “transportation of raw material received” shows that not a single firm reported exclusive rail transportation, and only fourteen indicated only partial use of railroads. In the category of “transportation of products shipped out,” we note the following: eight establishments employ truck service practically exclusively, and another ten, partially. None report using railroads exclusively, and nine indicate partial shipment by rail. In petroleum refining, all raw materials are now virtually imported by pipe lines, and refined products are distributed largely by truck and boat. Railway express, parcel post, and plane transport are employed for specific but rather limited consignments.

Considerations for determining the type of transport used are: costs, speed, convenience of connections between shipper and consumer, specifications for certain types of shipment by customers and the like. “Price,” “speed,” “service” appear again and again in the tabulated entries. Several report that trucks are definitely the most “convenient” (contact) form of transportation; a few indicate that lack of rail siding calls for truck shipment. Recalling, then, that the originally established railroad net of Blue Island was by far the primary factor, along with available factory sites, in the establishment of this most important manufacturing center, one cannot help but wonder what the destiny of railroads generally will be with increasing loss of freight to truckage.

The comparatively recent construction of the Tri-State highway, skirting, as the maps show, the southwestern part of the area, and other nearby expressways has revolutionized shipments of goods and raw materials. Many industries have shifted to complete dependence on trucking, while some of the heavier industries continue to rely on the railroads. The main reason for the increase of truck transport has been the speed and convenience of the modern expressway, along with the increased care in handling which has significantly reduced breakage in shipment. As one described it: “To ship by rail, we would need a warehouse at the customer’s end of the line to separate the different orders for final shipment by truck to the various customers.” Thus, it is apparent that trucks are much more in demand than railroads as a means of convenient and economical, direct shipment. Modern highways have also increased the range of travel of the company salesmen and the radius of the market.

A look at the map may also well raise the question, "What about the Calumet-Sag Canal for cheap transportation, especially for the bulkier and heavier commodities?" As of the moment, manufacturers in Blue Island proper generally do not envision much use of the canal in the near future. Even Clark Oil and Refining Corporation, employing about 300 men and doubling its capacity within the last three years to 35,000 barrels of crude oil a day, is abandoning an increasing amount of its barge and rail traffic in crude oil for the more economical pipelines delivery directly from the oil fields of Texas and Oklahoma. A more diagnostic-prognostic appraisal of the canal traffic situation will be given under the concluding topic of this paper.

Sources of Raw Materials Primarily Regional

Of all the factors of the manufactural pattern in the area, the site of manufactured steel products in relation to that of raw steel is a primary one. Keeping in mind that the Lake Michigan area leads the United States in raw steel production, with mills at South Chicago, Indiana Harbor, Gary, and most recently, at Burns Ditch (sites 1-2, 3, 4, 5, respectively, on insert map), it is readily understandable that the Calumet-Chicago area dominates in source of supply of raw materials for the Blue Island area.

The expression commonly used by the respondent to the questionnaire is, therefore, either "Chicago" (meaning the wider, larger Lake Michigan Area) or the "Middle West," or sometimes the word "local" is used, when, as one reports, 90 per cent of raw materials is derived from local regions. Of the various sources of steel, Gary is mentioned most commonly, although South Chicago and Indiana Harbor are also specified. Several plants reach out for raw steel all the way to Pittsburgh, while others even go so far afield as Western Europe for particular types of structural steel.

Manufactured products other than steel involve both local and distant geographic sources. Thus, in the manufacture of metal castings, sand is shipped in from Ottawa, Illinois, and Beloit, Wisconsin; cement from Buffington, Dixon, LaSalle; and stone from Thornton, Illinois—all local-regional sources; fiber glass from Newark, Ohio; paper from Wisconsin and from southern paper mills; crude oil from Texas and Oklahoma; and zinc from Joplin, Missouri. Food processing, featuring the canning of tomatoes and pickles, is centered upon products from the immediate area as well as from Wisconsin, Michigan, and Colorado.

Value Added by Manufacturing and Geographic Distribution of Markets

It is recognized by geographers that value added by manufacturing is a criterion of increasing importance in appraising the significance of manufacturing in any area. But it is also one of the more difficult set of data to secure from plant to plant. Though a number reported specifically dollar value added, which ranged from \$75,000 a year to as high as \$20,000,000, the more significant entries seemed to have been based on percentage of one type or another, depending in large measure upon the type of product manufactured. Such percentages range from as low as 50 to over 200. Examples: electrical and mechanical

components, 50 per cent; likewise railroad refrigerator car parts, street lights, and so forth where the conversion cost adds 50 per cent; fiber drum barrels, 60 per cent of sale price; structural steel fabricators, 75-100 per cent; high carbon steel wire, 200 per cent; rods, 229 per cent.

The greatest diversity of products manufactured in the Blue Island area, conjoined with all the more or less optimal conditions of manufacturing, insures a great diversity of markets as well as an expansive geographic distribution of manufactured products. Over one-fifth of the interviewees expressed the importance of markets—both near and far. Thus the recognition of the areal proximity to metropolitan Chicago; "good retail outlet area," "economical marketing." The economy and adequacy of transportation are, however, reflected in other ways than proximate facilities. So efficient is the production of certain commodities in the Blue Island area that manufacturers have been able to utilize the excellent transportation system in capturing markets in the backyards of competitors as much as a thousand miles away, as, for instance, on the Eastern Atlantic Seaboard. In such cases, all, or part of the freight rates, is assumed by the manufacturer. In some cases negotiation for special freight rates may also play a role in capturing the more distant markets.

Depending partly on the type of manufactured goods, the markets areally classify as local, single or multiple states, nationwide, and exports abroad. Thus, concrete pipes and conduits, and brick are representative of primarily local-regional market distribution. As reported by one of the establishments of the former type of industry, sales are primarily in Cook County (\$600,000,000), Lake County, Illinois (\$100,000), and Lake County, Indiana (\$100,000).

Single and multiple state markets: Report on such distribution of products range areally all the way from one to ten states. Such are primarily concerned with the marketing of various types of steel products (e. g., steel drop forgings are shipped to Illinois, Indiana, Michigan, Wisconsin; cut steel and sheet metal to California; and steel kitchen cabinets to Texas).

Regional: wire products to the Midwest; electric transformers to the East Coast (25 per cent), West Coast (10 per cent), Mid-America (60 per cent).

Nationwide: industrial soaps, railroad refrigerator car parts, street lights, identification poles, trucked refrigerator units, steel doors, signs and signal warning devices "to all 50 states."

Exports: the sign and signal products just mentioned, to Canada; cut steel and sheet metal to Australia, Greece, India; terminal points, and switches for underground electric cables, world-wide, including Thailand, South America, and Africa; dental and surgical instruments to Sweden, Denmark, Australia, South Africa, and Latin American countries.

Labor Accessibility

Adequacy of labor supply and its residential proximity are primary factors in the efficiency and economy of plant operation in the Blue Island area. The number employed roughly fall into three categories:

1) approximately five plants each employing 1-10, 11-20, 21-30; 2) approximately two plants each employing 81-90; 101-125; 126-150; 151-200; 201-250; 251-300; 301-400; 3) one plant, 775 (375 men, 400 women). In every case, the automobile is predominantly the mode of transportation of the employees; supplemental busses (South Suburban Safety Lines) are mentioned only sixteen times, and the train only twice. This vehicular transportation pattern suggests the geographic proximity of labor residences, locationally identified by such designations as: Blue Island; Harvey; South Chicago; Chicago Heights, north to 115th Street; southern suburbs; Cook County, Illinois; Lake County, Indiana; 10-15 miles radius; Metropolitan Chicago. But the extraordinary predominance of auto transportation also suggests a parking problem, particularly for the plants located within the city proper, another reason for the shift of industry to the periphery of the corporate limits and beyond. So far, housing developments in the labor source areas seem to have kept pace pretty well with the increasing industrialization of the region, and no industrial housing projects as such were noted.

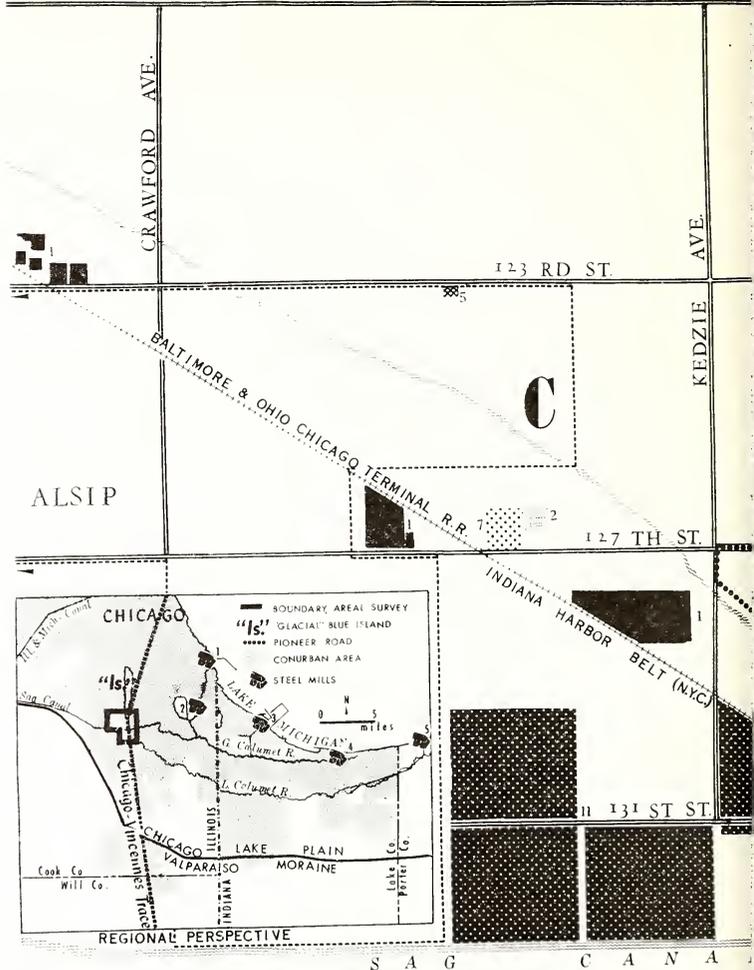
Industrial Utilities

Since a 1915 agreement with the city of Chicago, Blue Island has used Lake Michigan water piped through Chicago lines to the city limits. About 80 per cent of the replying industries have stated that both quantity and quality are from good to excellent, although at times during summer droughts, the quantity does get rather low. The Clark Oil and Refining Company uses the water of the Calumet-Sag Channel for cooling purposes. Electricity is supplied by the Public Service Company of Northern Illinois and gas by the Northern Illinois Gas Company. Both power supplies have been given an excellent rating in reliability and quality of their service. Coal, oil, and propane tank gas were listed as possible substitutes, but the industries seem rather reluctant to have to depend on these sources, probably because of the increased cost and inconvenience that a switch would incur. Sewage is adequately handled by the Chicago Sanitary District, with the exception of a few smaller plants, which use a septic tank system, and one reporting the use of the Little Calumet River.

Future Perspective

Field reconnaissance of the Blue Island incorporated area gives one the impression that sizeable sites for new industries, especially "heavy industries," or for the expansion of already established industries, are rare. This situation is likewise confirmed by the questionnaire and interview respondents, as well as by information from the office of the Chamber of Commerce. As pointed out by its president: Blue Island is 95 per cent built up, and is hemmed in on all sides, except in the Clark Oil area. Remaining sites as are available within the incorporate limits are small tracts generally unsuited for large industrial development, or are zoned in areas restricted to "light industries," which zoning permits in the business district, with a set back of 125 feet from the street, or as second or third floor occupants (8).

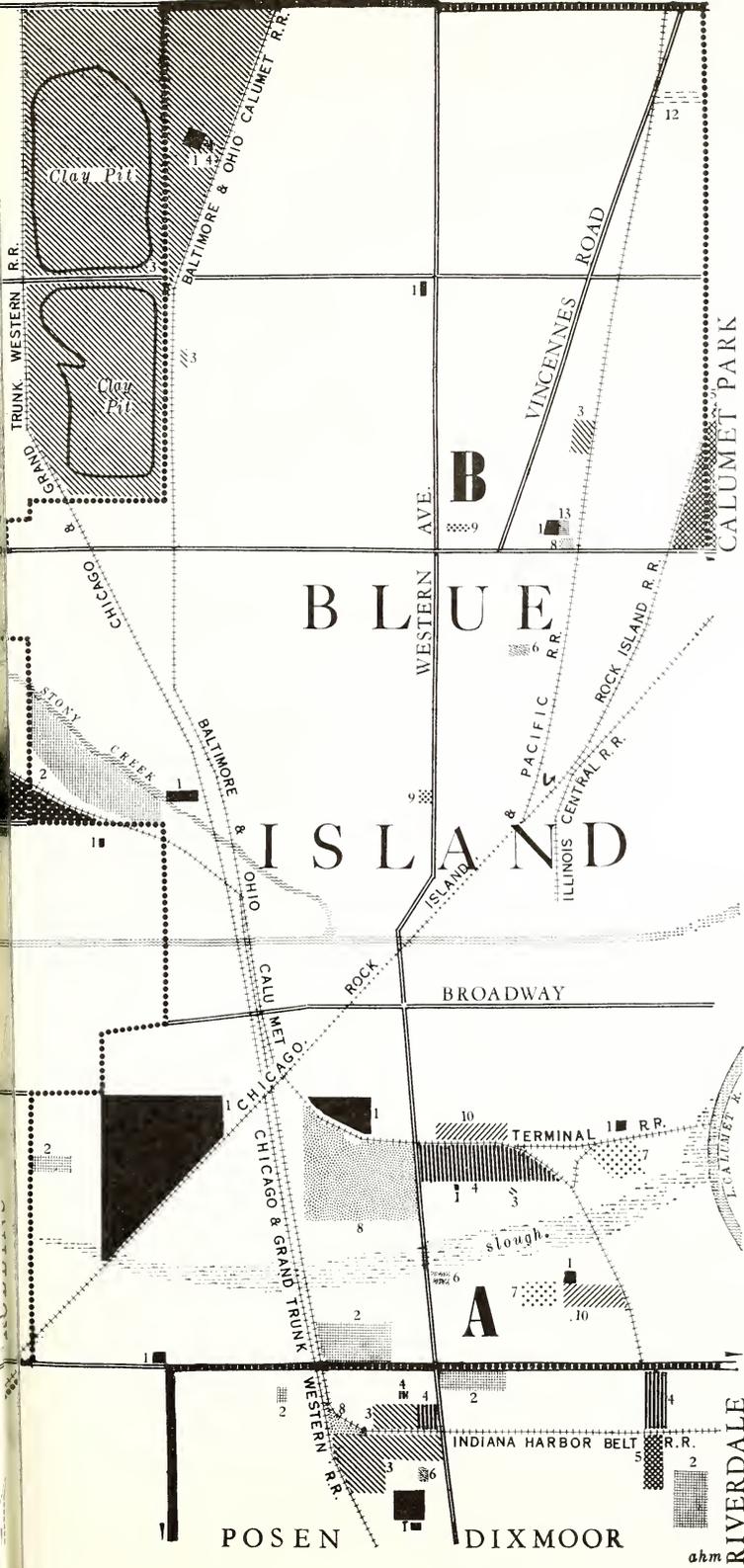
As has been indicated earlier in this report, inadequacy of single space sites, or of large integrated units of space, were two of the



TRI-STATE TOLLWAY - 29A

- 1 **Fabricated Metal Products**
21 plants
- 2 **Primary Metal Industries**
7 plants
- 3 **Stone, Clay & Glass Products**
6 plants
- 4 **Miscellaneous Manufacturing**
5 plants
- 5 **Chemicals & Allied Products**
4 plants
- 6 **Machinery (Except Electrical)**
4 plants
- 7 **Electrical Machinery & Equipment**
4 plants
- 8 **Food Products**
3 plants
- 9 **Dental & Surgical Supplies**
2 plants
- 10 **Paper & Allied Products**
2 plants
- 11 **Petroleum Refining**
1 plant
- 12 **Plastic Products**
1 plant
- 13 **Lumber & Wood Products**
1 plant





major reasons why many of the industries once located in Chicago moved out into Blue Island. But now the city itself, like Chicago, has become industrially saturated, and so industries entering the Greater Blue Island region are being established in the neighboring areas to the west, and to the south.

While interviewees reported for the most part no particular problems of their own as to adequacy of space, several did make qualifying comments regarding the matter on a community basis: "Ineffective promotion of available industrial sites," "good suitable ground is being utilized in other ways"; "plant investment requires large land sites for long-term operations"; "much of the land has to be reclaimed from swamp or lowlands." One observer emphasized, "need planning commission badly."

It is not clear how effective planning can be in a community "already built up" and when the industrialists were confronted with the question on the future adequacy of zoning and geographic planning, there was general indication of satisfaction with the zoning as it now exists, limited interest was expressed in the need of future planning. Several did indicate the need of "new zoning requirements." It would appear, then, that systematic geographic planning would be primarily restricted to commercial and residential functions. As to any consideration of "urban renewal," it appears that sentiment is in favor of private enterprise as compared with governmentally controlled developments.

Whether a Blue Island planning commission eventually develops or not—there is presently some belated civic agitation for it—major industrial enterprises seeking location in the West Calumet will look elsewhere for "industrial park" sites (beyond the corporate limits of Blue Island). One such development is promoted by the New York Central System—two sites south of Lake Calumet; one to the northwest, near Bedford Park (vicinity, Illinois and Michigan Canal); and two in the Alsip area, one of which, so called Alsip Industrial Site "C" is projected for the most part on the map. The total site approximates 660 acres. A brochure geographically identifies the topographic and transportation features thus: Situated 15 miles south of the Chicago's Loop . . . the site is 7 miles west of the Lake Calumet Harbor and immediately north of the Calumet-Sag Channel . . . is level and at grade with the Indiana Harbor Belt Railroad and surrounding streets. . . . Test borings taken in the general area have been favorable for foundations. The site is served by the Indiana Harbor Belt Railroad, a part of the New York Central System. . . . It provides fast and frequent service to and from all trunk line railroads operating in the Chicago area and over 500 industries in the Chicago Switching District. The new Tri-State Tollway (passes) through the site with an interchange located at its intersection with U. S. Route No. 50 (Cicero Avenue) . . . , a major north-south four-lane highway connecting with all east-west roads in the vicinity. Chicago's Midway Airport is conveniently located 8 miles north of the site at 63rd Street and Cicero Avenue. The Cal-Sag Channel borders the site on the south and is a vital link in the National Inland Waterway System. Dock facilities may

be constructed on the north bank of the channel, thereby allowing water transportation to this area" (9).

What local industrial effects are anticipated as a consequence of expanding port developments on Lake Calumet and along Lake Michigan, including the newly proposed site of Burns Ditch; the deepening and widening of the Sag Channel to the West; and the waterway extension facility to the East by way of the St. Lawrence Seaway?

A surprisingly large number of respondents to questions such as these (some 16 of them) indicated they did not see any effect of new port developments, except possibly in connection with Lake Calumet (e. g., "foreign steel now received through Lake Calumet"; "Calumet Harbor is used"). The presumption here is that this harbor will play a continuing role in such traffic. But harbors with wider berths and deeper draught facilities are associated also with increasing competitive imports of foreign steel products. One observation, for example: "All (improvements) would make available less costly commodities from Europe, adding to unemployment problems."

It is postulated that the deepening and widening of the Sag Channel would also not be of added appreciable service to the industries in Blue Island proper, with their already established truck-train-warehouse patterns. Moreover, as pointed out by a local engineer, dockage space in Blue Island itself is practically non-existent, and private industries have virtually bought all the land along the canal to the west. This latter observation presages an expected boost to the general economy of the West Calumet as new incoming industrialists envisage reduction of transportation costs by water.

Since the completion of the St. Lawrence Seaway, there have been some new imports of European steel, with prospects of further increase of such. Apprehensive of this, a manufacturer seeks restrictive controls on imported fabricated steel to save his market. Trade, being what it is, geographically operative on a "two-way thoroughfare," the effect of a deep waterway all the way from the Gulf of St. Lawrence to the Gulf of Mexico upon each of the area through which it passes, including the Blue Island area, will no doubt be as varied as the different types of classifications of industries here presented on the map, a detailed manufactural-market complex too involved to engage us here.

Whatever resolutions of the potential future markets may be for the Blue Island area manufacturer, the general concensus of the industrialists contacted expresses confidence in the continuing geographic advantages: in the words of one of them, "central location, good roads, ample water and power supplies, and ample labor force."

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