

## Manufactural Geography of Hammond, Indiana (A Study in Geographic Anomaly)

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This seminar study in "Geographic Problems," together with those already published in the *Proceedings* on northwest Indiana-northeast Illinois communities (LaPorte, Michigan City, Gary, East Chicago-Whiting, and Chicago Heights), is designed to portray comparatively the geographic processes operative in the establishment of industrial patterns of a region—the Calumet. The ultimate objective, upon completion of such studies, is to view all these communities in a unified regional perspective, since for the most part they together focus on Chicago metropolitanism. Meanwhile, Calumet corporate entities invite separate preliminary geographic treatments, if for no other reason than to determine how the several political structures function in relation to the local and regional natural and human resources, and to one another.

Questionnaire, interview, and field inventory of Hammond (Pop. 111,698) gives impression of a strong industrial community (over 100 establishments), with dedicated civic leadership, and a citizenry alert to the needs of maintaining and upgrading residential standards in a region with marked tendencies towards residential blight. A geographic appraisal of Hammond reveals that it shares the problems of communities which have come only belatedly under the influence of systematic and co-ordinated geographic planning. As a result, certain geographic "anomalies" (variances from general geographic principles) are identified with the area:

1. Prorupted "L" figure disunifies urban and regional functions. Moreover, the northerly extended arm of the "L" with its own added stricture provides a scant 2 miles of Lake Michigan frontage out of a total city periphery of 25 miles. Even this negligible shoreline, as historical check reveals, was begrudgingly bestowed as a result of corporate fragmentation of neighborhood community organization.

2. Physical geography "decreed" a long time ago the establishment of a harbor and port for this community, the largest industrial Indiana city on Lake Michigan, next to Gary. By contrast, with no industry at all, when first proposed, a public deep-water harbor-port was projected at the Indiana Dunes Burns Ditch site about twenty-two miles to the east.

3. Next, a geography crystal gazer in the latter part of the nineteenth century, looking at the riverine pattern of the Grand Calumet and the Little Calumet, and its juncture with Lake Michigan to the north, and with the Illinois River to the west via the Cal-Sag, would have prognosticated some navigable waterway for Hammond on one or both of the Calumet rivers. Notwithstanding farsighted and energetic efforts at such development, a navigable waterway still remains an unrealized geographic vision.

4. The greatest convergence of rails in Indiana is to be found in Hammond. Normally such betokens a superior geographic pattern of

rail transportation, providing effective circulation into and out of metropolitan Chicago as well as facile regional connections with markets far afield. But such a tightly woven rail net can and does in the Hammond situation create one of the worst grade-crossing traffic tie-ups in the country. This reportedly constitutes a major obstacle to attracting new industries, as more and more industries switch to motor transport.

5. Comparing the combined strategic values of geographic site on the head of Lake Michigan with the regional position as respects northwest Indiana as part of metropolitan Chicago, and sharing with its prominent industrial Indiana neighbors leadership in the production of primary world products, we would have expected an early development of sound geographic perspective and its embodiment in a unified plan capable of realizing Hammond's full geographic potential. But despite numerous aggressive organizational attacks through the years to promote the industrial-residential climate of the community, it was not until 1951 that a master plan was perfected. Even now there is evidence of the need for a more unified attack on the city's industrial problems by Hammond's own multiple civic and political organizations as well as a concerted effort by it and the other Indiana-Illinois Lake Michigan communities for inter-city, inter-county, and inter-state planning, if harmonious Nature-Man goals are to be attained.

It is the purpose of this paper to examine and evaluate the industrial complex of Hammond, an "artificial" political area with a functionless Great Lakes frontage on the north, a restrictive state-line boundary on the west, boundary-pressing heavily-industrialized corporate entities on the west (Chicago, Calumet City), on the east (Whiting, East Chicago, Gary), and suburban Munster and Highland on the south.

#### **Early Environs and Occupance of Hammond**

The growth and development of important industrial cities can often be traced to their favorable physical environment. However, the original physiography of Hammond cannot be described as particularly favorable (Fig. 1).

Hammond developed industrially only after Chicago had already become populated and land prices in this less attractive Calumet Region to the east were cheap enough to counteract the inconveniences of living in such a place. The reason for this cheaper land-availability, which was reported as a decisive locative factor by 25 percent of the present-day industrial concerns, is related in great measure to its glaciated structure. The retreat of the ice sheet from the Calumet area (the old Lake Chicago basin) left a series of badly drained interdunal marshes in its wake. As late as 1870, when there had been an industrial settlement for twenty years at Hammond, it was still not possible to walk through the marshy underbrush from the settlement to the Michigan Railroad station at Whiting, five miles away.

Though inhospitable, the marsh and woodlands of the Calumet Region had some settlements and formed important crossroads in



North America since people inhabited the continent. The most popular Indian route was the Lake Shore Trail, which passed through the northern part of present-day Hammond (Fig. 1). Several other Indian trails also passed directly through what is now central Hammond. The Grand Calumet River was an important Indian thoroughfare. Fur-bearing animals were native to this region, and, together with fish, supplied an important part of the diet of both settlers and hunters. The animals were also the attraction for French trappers when this area became a French colony. Fur-trading posts were erected and the old routes became increasingly important and well established. The routes took on new significance during the battles and maneuvers in the uneasy times when the Calumet was part of the British Empire.

The first American settler in Hammond took advantage of the strategic position of road and river confluence. In 1875 the town of Hammond was platted and eight years later it became an incorporated community. By 1865 four railroads had crossed the Calumet Region to line up eastern and southern states via Chicago. By 1890 the population had grown to almost 5,500 inhabitants.

With the railroads came a distinct improvement in standards of living. In the large eastern communities people were able to purchase meat from the midwestern cornbelt when local supplies became insufficient. Cattle were shipped hundreds of miles on the railways. However, shipping live cattle was an uneconomical business. Packers began to slaughter and pack the carcasses in ice, but carelessness in renewing ice blocks caused serious problems in this direction.

How combined circumstances of inventive ingenuity and intuitive environmental discretion can lead to fortuitous regional enterprise with an immediate national impact is epically illustrated in the discovery of transportation refrigeration, the answer to the problem of meat spoilage in transit. Our file notes on Ball, Howat, Goodspeed, Demmon, Eenigberg, and other local historians indicate this event-environment association as the leading phenomenon of industrial pioneering in the Hammond region. As the story goes, Davis Brothers fish dealers in Detroit (1868) had perfected an ice box capable of fresh fish shipment from Lake Huron and Lake Superior to Detroit. George H. Hammond, operating a meat establishment close to the Davis market, got the idea that the same principle of refrigerated fish transportation might be applied to fresh meat transportation. Davis Brothers designed a car for this purpose built by the Michigan Car Company. With the aid of several associates, the first meat shipment was successfully dispatched during warm weather to Boston under railroad supervision.

The story now shifts to an environmental application of the idea. Where in the populous and stock-raising Midwest could a large slaughtering establishment be located which combined desirable site qualities with adequacy of natural ice supply and transportation facilities? Ready access to livestock market suggested Chicago, but Chicago residents objected to this "nuisance" industry. It was then decided to explore further east in the marshes and waste lands of the Calumet. A site was finally agreed upon, known as State Line, just west of what is now

Hohman Avenue in Hammond, serviced by the Michigan Central railroad. Here the river and neighboring slough provided an abundance of ice, harvested during the winter for all cooler and car use during the spring, summer, and fall seasons. Moreover, the Calumet River provided means of sewage disposal. Beginning in 1869, upon the moderate basis of processing 300 cattle per week, the establishment once was the largest beef-packing house in the United States, and perhaps in the world, with shipments as far east as New England and even to the markets of Europe. "Operating facilities included 200 box cars, 200 stock cars, 300 refrigerator cars and 24 ships with patented refrigerating apparatus" (Goodspeed).

Modern technology, perhaps more than anything else, effects changes in the assessment of industrial qualities of topographic site and regional situation. With the innovation of modern refrigeration systems, the geographic advantages of proximate natural-ice resources in an area of "waste" lands ceased to be operative. Moreover, as in the case earlier of Michigan City, industrial-commercial values of Lake Michigan sites, including Hammond, gravitated increasingly to the metropolitan rail and market center of the Midwest—Chicago. And so, the English syndicate that had purchased the firm following the death of George Hammond in 1886, after a disastrous fire in 1901, decided to relocate in Chicago, the city which had originally rejected the industry.

#### Early Development of Industry

Although Hammond is the oldest of the Calumet industrial cities, it is not the largest, nor has its growth been as spectacular as that of either the steel city, Gary, or the oil center, Whiting. Reasons for this in part may be attributed to several geographical maladjustments. The shape of the city and its constricted shoreline are handicaps. Neither the Little Calumet nor the Grand Calumet river is navigable for large lake-bound ships. Having no harbor on Lake Michigan, Hammond must use the Calumet Harbor in South Chicago, or the Indiana Harbor to the east.

In 1896, a Hammond mayor made plans to dredge a channel along the Wolf River to Wolf Lake (Figure 3). He claimed that Wolf Lake would make a safe harbor for ships even in stormy weather, and be large enough to accommodate all the shipping on the Great Lakes at that time, at a cost no greater than the upkeep of the existing harbors. Had he been able to receive the federal aid for which he applied in Washington, Hammond might well have become the steel town Gary now is.

The Calumet Harbor was developed by the federal government in 1870, and an appeal was then made that the Grand Calumet should be dredged as far as Hammond. A channel was dredged in 1888, but because of sluggish currents and the refuse and sewage dumped into the river, it soon filled up again, and dredging was shortly discontinued. When the Indiana Harbor Ship Canal was constructed early in the present century (Figure 2), it was recommended that a short ship canal should also be built to link the Grand Calumet, and thus Hammond, with it. However, as no land was forthcoming, the project was not carried out.

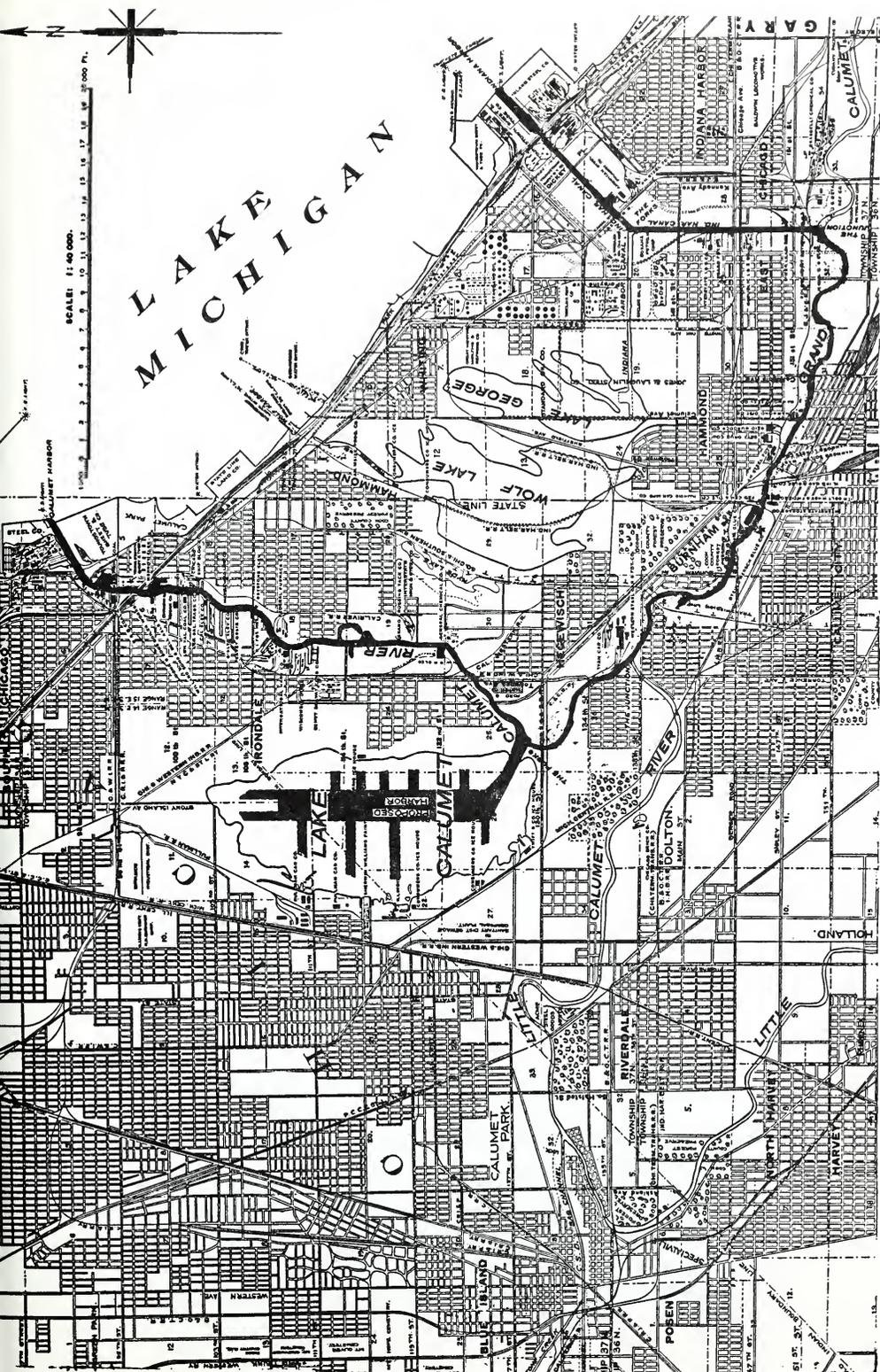


Figure 3

Hammond took on the peculiar elbow shape in 1897. For some time the artesian water supply had been inadequate, and a waterfront on Lake Michigan was necessary. It would simplify city planning today if the shape of the city were more nearly rectangular, with a larger waterfront, but it took the civic leaders of Hammond four years of struggle with land owners to procure the less than 2-mile front along the Illinois/Indiana boundary which it has today.

Hammond and Towle, the early founders of the city of Hammond, developed the city and laid its industrial foundations. As cheap water transportation was not available, they made use of the railroads. Through their ventures, not only the meat-packing station, but also a saw mill, carpentry factory, frozen duck packing station, printers, glue and fertilizer company, wagon, carriage and spring works, corn syrup factory, nail company, a foundry, two distilleries, flour mills, and a bank were established between 1868 and 1898. Dressed meat and other exports were also sent to the eastern cities.

Two of these industries, the meat-packing company and Conkey's printing works, were really large establishments. By 1901, these two concerns between them employed nearly 3,000 workers. In October 1901, a great fire broke out and destroyed the packing plant to such an extent that work there was never resumed. In the same year there was a prolonged strike at the printing company. In the resulting depression many families moved away from Hammond. In 1902, a Hammond Industrial Committee was organized which was responsible for much of the city's industrial development for the next twenty-five years. During this time the new manufacturing establishments included a distilling company, potato-machine plant, piano factory, surgical instruments makers, railroad freight car manufacturing, two petroleum refineries, and a large soap factory (1).

### Industrial Structure

Since the 1901 depression the industries of Hammond have remained diversified. There has been both an increase in the types of industries and also of growth within most of the industrial concerns. The number of employees, which in 1900 was approximately 3,000, has almost quadrupled to the present 11,500 employed workers in manufacturing establishments (2). They work in some 100 establishments. Four of these employ over 1,000 employees. The remaining companies are smaller units.

Unlike "Big Steel" Gary and "Oil Refining" Whiting, Hammond is not a one-industry dominated community, and so is not affected by wholesale "industrial shutdown" layoffs of labor as a result of a one-industry dominated strike. Diversification is reflected in the following directory categories, with the number of firms indicated parenthetically: metal products (17), chemical products (14), printing (13), steel products (12), machinists (9), food products (9), electrical equipment (6), petroleum (5), cement products (4), metal refiners (3), lumber products (3), electric power (2), paper products (2), fertilizer (2).

In terms of total classified employment in the leading industries of over the 100 employment scale, the number ranges approximately from

of cartographic representation, however, with its rigorous demands on simplicity and minimum legend categories of meaningful associations, the one here exhibited in Figure 2 seems as useful as any. The "key" is an adaptation of the government's "Standard Industrial Classification Manual" (3). Its consistent use, with minor modifications to fit local geographic conditions, serves the purpose of a co-ordinate evaluation of industrial communities, as in this case of the several studies already completed in the Calumet region. Thus, comparing the industrial 8000 in petroleum down to 100 in cement products: petroleum (8038), electric power (4181), steel products (2953), chemical products (2172), metal products (1768), food products (1716), printers (1116), machinists (547), mattresses (Simmons) (500), metal refiners (436), paper products (332), electrical equipment (205), fertilizers (186), cement products (140), lumber products (118).

No one industrial classification key seems to be an all-purpose guide to industrial inventory and geographic analysis. For purpose pattern of Hammond with that of its east neighbor, East Chicago (4, Figure 4, p. 173), we observe a strong similarity in geographic composition. Fabricated metals constitute the dominant enterprise in both—34 percent in the case of Hammond; 31 percent for East Chicago. Combined chemical and petroleum products feature a second place of priority—20 and 23 percent, respectively. On the other hand, Hammond's printing and paper establishments are distinctive—18 of them; while East Chicago's "primary metals" are similarly distinctive for that community.

As then noted in Figure 2, the industrial concerns are classified and enumerated according to nine different types of manufactured products: 1) Food and Kindred Products (5); 2) Apparel and other Textile Products (2); 3) Lumber, Wood and Furniture (4); 4) Paper Products and Printing (18); 5) Petroleum and Chemicals (19); 6) Stone, Clay and Glass Products (6); 7) Fabricated Metal Products (33); 8) Electrical Machinery and Supplies (6); 9) Transportation Equipment (4). This reveals that over one-third of Hammond's total industries and almost a third of Hammond's total workers are connected with steel symbiosis, or related metal works in the Calumet Region. The statistics given by these firms in connection with the materials they use bear out the inter-relationship of these firms, especially with Gary's steel mills. No primary metals are manufactured in Hammond itself.

As noted above, the Petroleum and Chemical group is the next largest group, accounting for another 19 firms. It is noteworthy on the map that all the sites of the petroleum companies lie within the inner Hammond "elbow"; i.e., bordering on the petroleum cities of Whiting and East Chicago, and obviously connected with them. Although no petroleum is refined in Hammond itself, much space in Hammond is devoted to the storage of petroleum. All but three of the chemical works are located in the areas owned by the petroleum companies.

There are 18 printing firms or associated paper producers in Group 4. All of these are small establishments with the exception of Rand McNally, which is the original Conkey's Printing Works. Though its

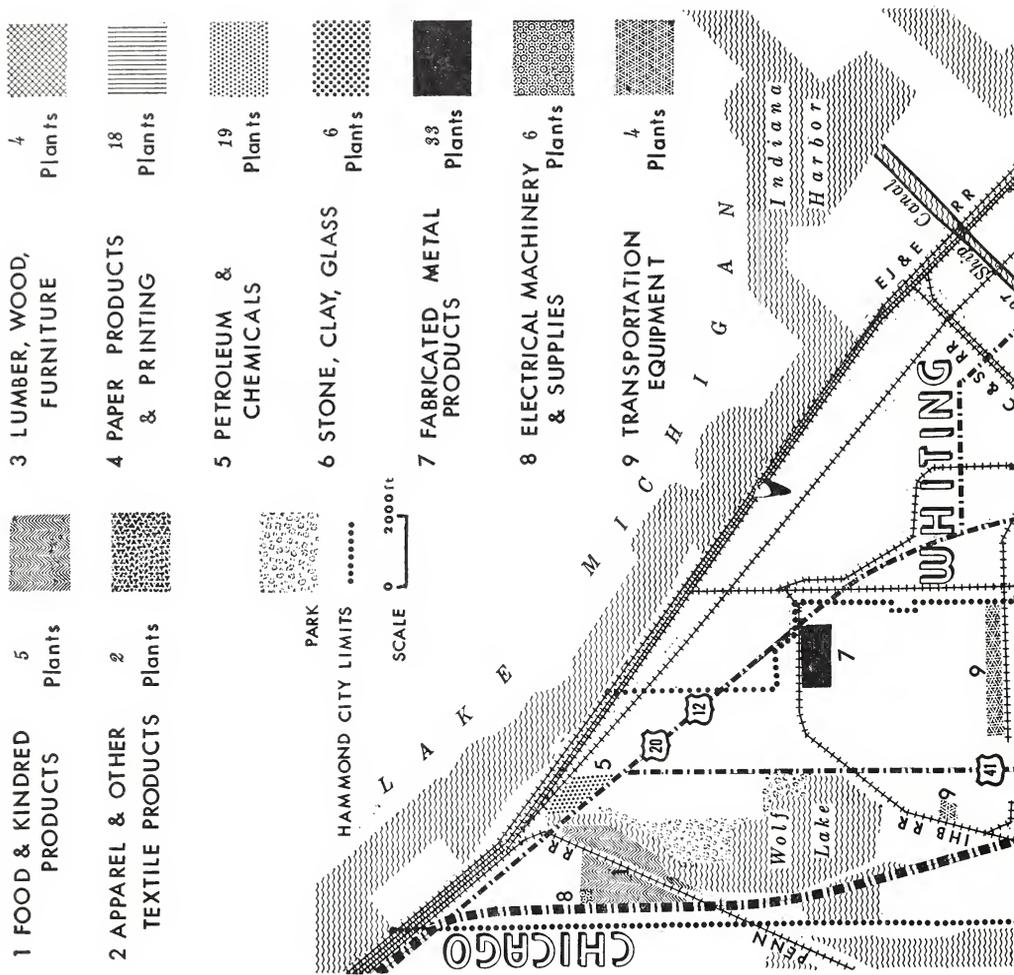


Figure 2

employee figure is comparatively high, it has remained almost static since 1900. All these firms are located in the busy central region of Hammond.

The three types—metal products, chemicals, and printing works—comprise 70 percent of Hammond's industries. The manufacturers of other types of goods have only between two and six plants each. The map shows the locations and size of these 97 firms according to their grouping in the nine types of manufactures.

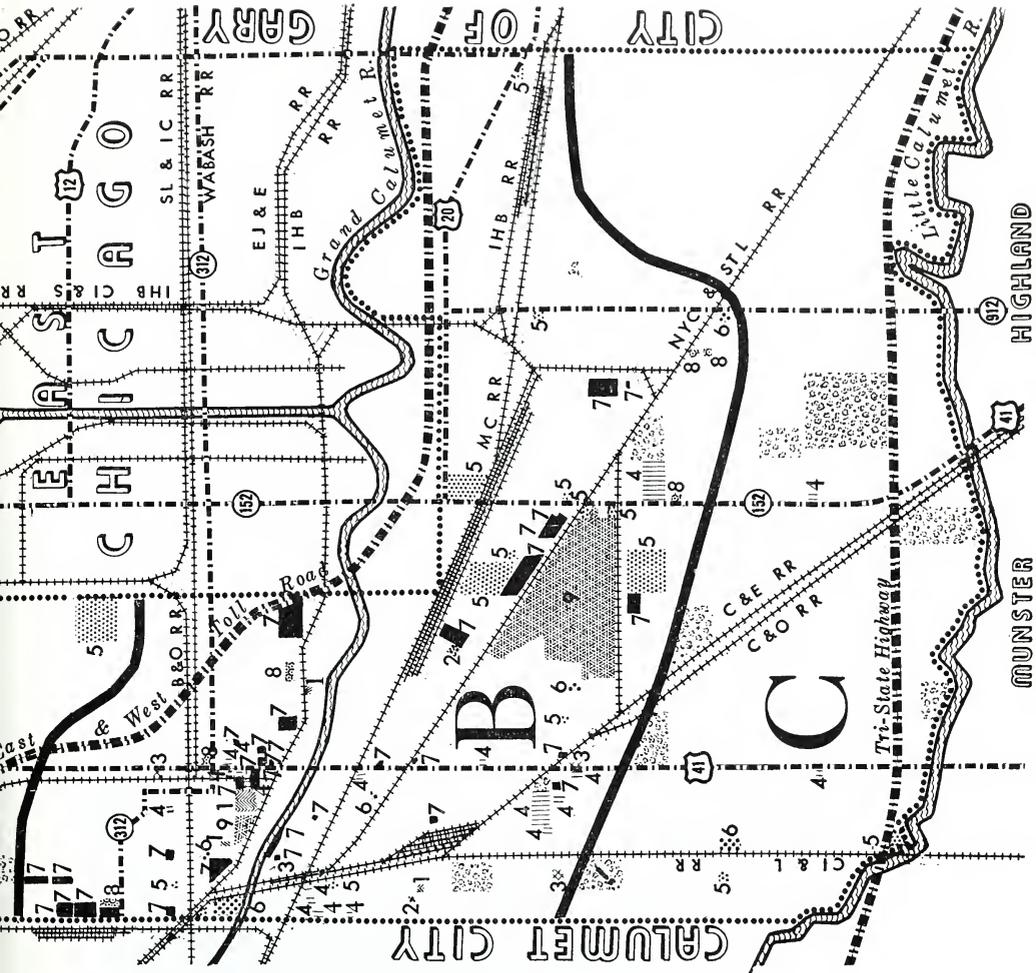


Figure 2

**Manufactural Pattern**

As the structure of industry can be traced to Hammond's past history, so also the present pattern of industry has its origin in the past. The Calumet area was used as a routeway before it became a settled area, and both the earliest Indian and American settlements were in advantageous positions along road and river confluence. Today also, Hammond's industrial pattern is related to transport facilities.

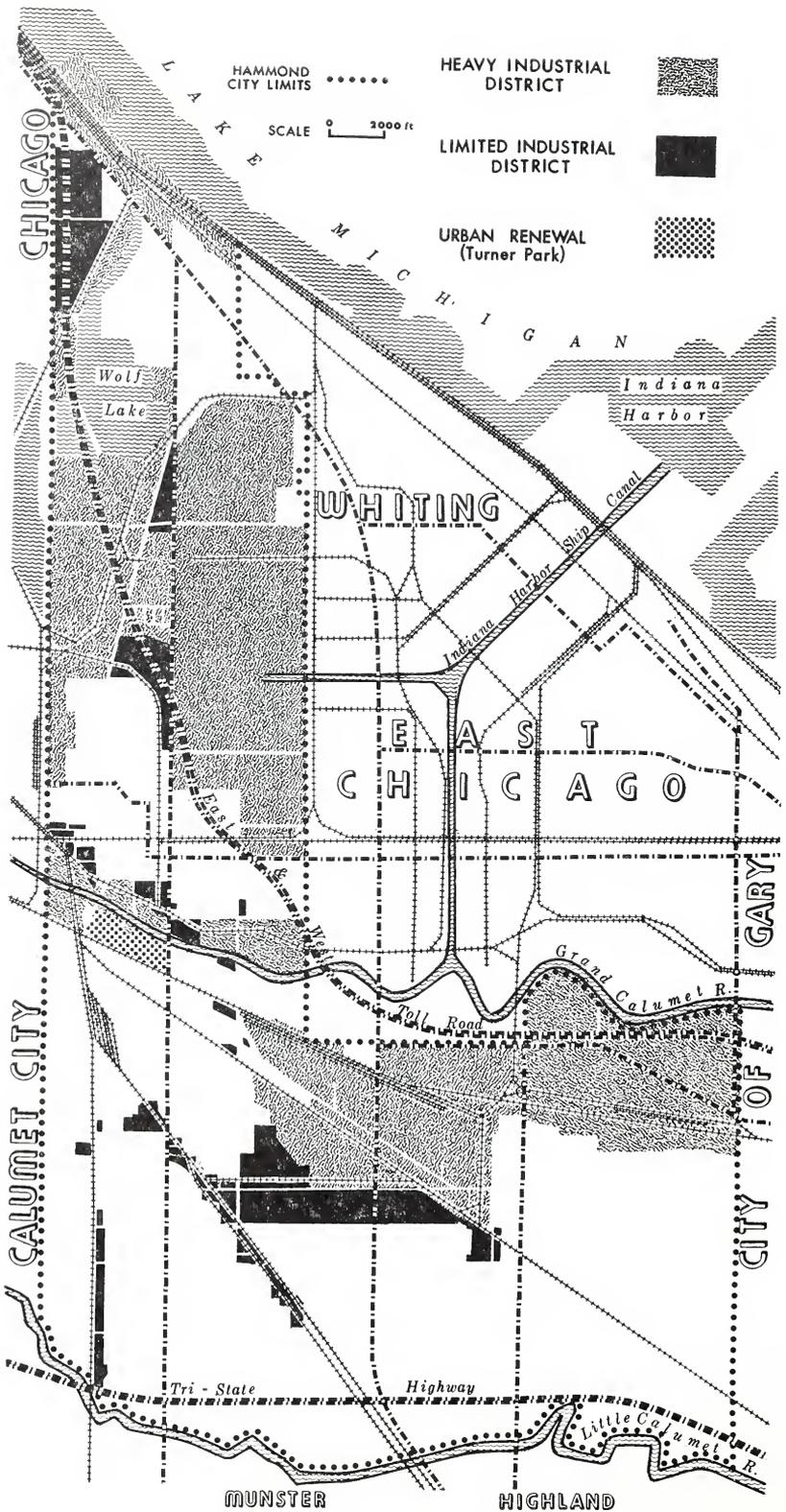


Figure 4

Some sixteen main trunk and branch line railroads from Chicago to the east and south pass through Hammond (Figure 2).

The industrial pattern map shows that Hammond can be divided into three manufacturing regions. The central section "B," is the most densely industrialized, with industry patterned in proximity to the railroad lines. Fourteen railroads, as well as the Grand Calumet River, run through this central section of Hammond. All but 13 of the 97 industrial concerns, including all the Fabricated Metal Producers but one, lie within this area. "Good Transport" was one of the chief locative factors mentioned in the questionnaire by many of these firms. The firms are on the whole small in size. Two of the questionees from this area mention that it will be necessary to buy property elsewhere to deal with any future expansion of their works. Although the position of the railroads was a primary consideration in the location of these firms originally, many of them state that they are changing the emphasis of transportation from rail to truck. The Indiana East and West Toll Road, which runs through region "B," has been beneficial in speeding such deliveries, according to several correspondents. Three state highways, and U. S. 12, 20, and 41 traverse the region in N-S and E-W directions. As 32 of the fabricated metals producers are located in region "B," one can see the importance of rail and road connections from Central Hammond to other industrial areas of the Calumet.

In the northern part of Hammond, region "A," there are four railroad lines as well as lake and road transport. Here U. S. Highways 12, 20, and 41 now occupy a section of what used to be the old Indian Lake Shore Trail. There are fewer firms in this area, only eight altogether, but they include two of the largest ones. All of these firms except one occupy a larger amount of space than do the majority of industries in the more crowded central region. There still is much unoccupied land around Wolf Lake, some of which is being drained and filled and made usable. This land has become park territory and will not be used for industry. Several oil companies, though they do not refine petroleum, own a vast stretch of land in this region, and much petroleum is stored here. Some of the unused land has been sold by the larger companies to chemical concerns which use by-products from the petroleum refiners in Whiting as their raw materials for the production of chemical products.

Region "C," the southern section of Hammond, is served by four railroads, crossing through diagonally. The Tri-State Highway passes right through this section, and, according to the questionnaire respondents, trucking and parcel post are the more popular forms of transport for the fewer firms in this area. The five firms here manufacture drugs, cement blocks, and paper products, which do not necessarily require rail transport. The Little Calumet River, forming the southern boundary of Hammond, like the Grand Calumet, is not navigable. Along its banks are parks and a golf course. Thus, it has its importance in providing recreation for the industrial workers. It is also the main residential area of Hammond. It is interesting to note that the chief locative factor for one of the manufacturing concerns in region "C" was stated as: "pleasant country-like atmosphere."

### Locative Factors

It has often been reported that business firms have little use for geography. This report, however, points to the conclusion that manufacturers are definitely conscious of the significance of the locative factor in the selection of industrial sites. Only five of the 58 firms which completed the questionnaire were unable to give any locational factor in the selection of their site. One of these mentioned that the original locative factors were not known at the present time owing to incomplete records. Many of the firms indicated two or three factors, and some as many as five or six. The following are the main locational factors reported in order of their frequency of mention:

1. **Markets:** Thirty-seven firms that is, 66 percent, stated that proximity to good markets was a major reason for the location of their plants. The markets were stated as being mainly in the densely populated Calumet area, Chicago, and the Midwest, and a few in Detroit and eastern cities.

2. **Transport:** As routes have always played an important part in the history of the Calumet, it is understandable that the second most important locative factor to be recognized by Hammond's manufactural establishments is good transport facilities. Eighteen firms (30 percent) evaluated this factor as a leading locative criterion, over half of them making specific mention of the railroads or highways. A few of the specific replies read: "regions where railroads concentrate"; "we had to be in the Chicago switching area"; "railroad gateway to west"; "railroad siding location"; "good road connection in every direction."

3. **Land-Building Availability:** Industry was started in Hammond by Hohman, Towle, Hammond and other real estate agents who were able to buy land at cheap prices. Fifteen questionnaire reports (25 percent) mentioned that cheap land and adequate building space were basic considerations in plant location today. Hammond borders greater Chicago and comes within the Chicago switching area, but land prices are cheaper than in Chicago. Several respondents mentioned these facts. One firm stated specifically that its move eastward from Chicago to Hammond where land was more easily available was part of the firm's expansion and decentralization program.

4. **Steel Symbiosis:** As previously mentioned, the largest group of industries in Hammond is connected with steel and metal products. The nearness to the Gary steel companies has been an important locational factor specifically mentioned by 11 firms. One branch firm moved to Hammond from San Francisco because it is a "steel pipe producing center."

5. **Labor Availability:** Eleven of the firms (18 percent) reported, "access to labor," "availability of skilled labor," "labor supply adequate," as being one of the important locational factors. Labor is predominantly male, especially in the heavy industries, where female labor is often restricted to office work. In a very few lighter industries, such as paint, drug, wall-paper, fiber, chemical, and

catering establishments, more women than men are employed. The greater number of employees are Hammond people who get to work by bus, car, or on foot. However, only 13 firms (21 percent) employ solely local labor. Some employees commute daily from Chicago and nearby sections of Illinois, and from places throughout the Calumet area. Trains and busses bring a few to work, but most employees drive in private cars.

6. Other Miscellaneous Factors: The above-mentioned factors were easily the most important. A few isolated factors were also mentioned by one individual firm or a small group of firms. Several gave an historical reason for the founding of the firm in Hammond, such as "The owner was born here," showing local initiative to make use of local industrial opportunities. A few mentioned proximity to raw materials as a chief locative factor. Two firms were food producers whose chief locative factor was proximity to raw materials, corn, and milk. Four firms state adequate water supply as a major factor. Waste disposal facilities, adequate power supplies, and favorable zoning laws were other individual responses.

#### Raw Materials

Of the firms responding to our questionnaire, 40 percent use raw materials originating within the Chicago-Calumet-Detroit region; 10 percent depend upon nation-wide or foreign sources, and 24 percent use both local and imported materials.

The importance of the first group shows the inter-relationships of industry within the Chicago-Calumet-Detroit areas. Twenty percent of the firms dependent on local materials alone use steel produced in the Calumet, pointing again to the importance of steel symbiosis. Nine firms use scrap metals obtained locally, and three use brass, aluminum, and other non-ferrous metals, or castings, obtained within the area. Some of the chemical industries use local materials entirely, and are dependent upon by-products from the refineries (e.g., hydrogen and solvents). Some of the smaller printers and wall-paper manufactures procure their paper and pulp from local wholesale dealers, and food companies use local or Midwest farm products.

Materials which are imported are again primarily related to the three major groups of industries: metals, petroleum, and printing. All the steel product companies are fabricative industries using semi-finished steel from local primary producers, especially those of Gary. None of the firms mentioned receives iron ore, either from other states or foreign sources. Copper, however, was reported by two firms as an import—from the Kenosha, Wisconsin and Great Lakes areas, and also some from Chile. Lead is imported from Mexico. Dolomite is imported from northwest Ohio and west central Nevada. Crushed limestone, sand, and slag are obtained from Thornton, Illinois. Various chemicals come from all parts of the United States: sulphur, chiefly from Texas; petroleum is pumped mainly from Kansas, Oklahoma, and Texas. A fertilizer company obtains some of its fish for fertilizer from the Great Lakes, but others from both east and west coasts, and the Gulf of

Mexico. The larger printing works own forest lands and lumber mills in northern Minnesota and Canada.

Not only has industry in Hammond remained diversified, but many firms also use both local and imported raw materials. Approximately half of the firms indicate alertness to alternative sources for their raw materials as safeguards for future security.

### **Increasing Dependence on Motor Transport**

Questionnaire respondents show that the two predominant methods of transportation used by Hammond firms are trucking by road and freighting by rail, with increasing emphasis on the former. This applies not only to the import of raw materials, but equally to the export of finished products. Of the 58 firms which completed the questionnaire, 37 (62 percent) make use of both roads and railroads. Altogether, 48 firms employ trucking. Tri-State Highway passes through South Hammond, and the Indiana East and West Toll Road transects the city from the east to the northwest. U.S. 41 ties into Tri-State on the south, and U.S. 12, 20, and 41 are linked with the Toll Road on the north. Indiana 152 and 912 augment U.S. 41 for north-south transport, whereas Indiana 312 transects Hammond midway from east to west. Despite this seemingly adequate net of arterial highway service, serious traffic congestions occur, particularly those identified with the numerous rail crossings.

A student at Valparaiso University reports, for example, that his week-end trip to his home in southeast Hammond involves less auto travel time than that normally required in city driving from the railroad station in middle Hammond to his home. The long and frequent stops at railroad crossings, moreover, create a serious problem for the fire department. Because of this, extra stations have had to be established to provide proper fire protection in the segmented sections of the community. On the other hand, the multiple rail stops, in many instances guarded by gates, have their own way of arresting escaping burglars and other criminals intent on making a rapid get-away. This known fact is said to have actually operated as a significant deterrent to crime.

Forty-one firms reported use of railroads, five exclusively so, for transporting raw materials and manufactured products. As many as sixteen main trunk and branch lines serve the area. An outstanding rail facility, it is this very rail web reticulated with the city street and highway transportation pattern which creates the rail-road crossing problem mentioned above. Servicing the area are the Baltimore and Ohio; New York Central; Nickel Plate; South Burlington; Illinois Central; Soo Line; Chicago, South Shore and South Bend; Chicago and East Illinois; Pittsburgh, Fort Wayne and Chicago; Indiana Harbor Belt; Elgin, Joliet and Eastern; Chesapeake and Ohio; Michigan Central; Pennsylvania; Monon; and St. Louis, Wabash.

Six reporting firms use special tank cars on both road and rail systems. Four chemical and petroleum establishment have pipelines, and one firm receives raw materials by barge transport, though finished products are exported by tank cars.

### Lack of Water Transport an Environmental Enigma

As is the case with its "inner elbow" neighbor to the east (East Chicago), Hammond has no navigable outlet on the Calumet, and, unlike East Chicago, does not have a lake harbor (4, p. 173). This fate for such a prominent industrial community, otherwise so strategically situated to navigation potentialities of the Great Lakes-St. Lawrence and Illinois River systems, is as much of a geographic anomaly as is the Calumet river system itself with its parallel east-west courses of both the "Grand" and the "Little." These streams, tortuously feeling their way—the "Grand" between the original sand ridges deposited at the Tolleston stage of extinct glacial Lake Chicago, and the "Little" partly losing its identity in the Cady Marsh (Figure 1)—remind one of the "meandering" frustrations of the Hammond citizenry in their numerous attempts to get a navigable waterway outlet.

As early as the beginning of the twentieth century, the Hammond Chamber of Commerce "considered the straightening and dredging of the Grand Calumet River to be the most urgent community need." Congress looked with favor on such a project, and appropriated money for dredging, but U.S. district engineers refused to authorize an expenditure of money so long as the river through Hammond "remained winding and tortuous." In the early twenties, the Hammond Real Estate Board, recognizing that industrial competition was developing along the Drainage Canal to the west, initiated a movement for the establishment of a Joint River and Harbor Committee comprised of representatives of the Chamber of Commerce of Hammond, together with representatives from the Chambers of Commerce of Calumet City and of East Chicago, adjacent communities on the west and east, respectively. This combined chamber group felt that with the procurement of deeds of dedication for the straightening and widening of the river through the three contiguous cities, the U.S. government would not only make the river navigable but also improve the Indiana Harbor Canal, thus opening up a commercial outlet to the Illinois River via the Cal-Sag while at the same time providing an internal route from the Indiana Harbor to the Calumet Harbor on Lake Michigan (Figure 3). The Real Estate Board felt convinced that the project properly completed "would do more to stimulate the industrial development of the region than anything else that could be undertaken." A brochure was issued (5) with engineer maps illustrating section by section relevant data for the development of the Calumet River project. Reportedly in 1930, a special trainload of people from the districts concerned, a total of 67 people including several mayors, went to interview President Hoover in Washington, but were told that the money was not forthcoming. Later, in the Roosevelt era, permission was granted, but then the war interrupted the project (6).

Sound geographic goals such as this cannot forever lie dormant. In fact, the development of a navigable Grand Calumet is now on the drawing board, not only to serve Hammond but also the East Chicago community. As was earlier reported in our East Chicago-Whiting study (4), the Calumet-Sag Navigation Project, authorized by Congress with the approval of the Rivers and Harbors Act of 1946, provides, among

other things, for the deepening of the Grand Calumet from its present four feet to nine feet, and from its present width of approximately 100 feet to 225 feet from the junction of the Grand Calumet with the Little Calumet. But such construction does involve extensive relocation or reconstruction of numerous bridges—both highway and railway—now without adequate vertical clearances. While the federal government is prepared to move ahead on the project, local interests must also provide the necessary rights of way, areas for soil disposal, and relocation or alteration of utilities affected by the channel improvement project. Reference to the engineers' map (4, p. 173), reveals the numerous rail and road bridges which are involved in the project.

### Tri-City Harbor and Port Proposal

Just as the navigation potentials of the Indiana section of the Grand Calumet are linked Illinoisward to the Calumet Harbor on Lake Michigan and the Cal-Sag outlet to the Illinois-Mississippi rivers to the west, so the commercial potentials are politically centered on the trities of Hammond, Whiting, and East Chicago of Lake County, Indiana. Indiana, like all other states on the Great Lakes, has, ever since it was founded, agitated for lake harbor-port developments. It is understandable that the most intensely industrially developed area in Indiana, with the greatest concentration of rail and highway traffic, and occupying the most strategic geographic position in its metropolitan relationships to Chicago and the head of Lake Michigan navigation, should have manifested long-time interests in securing a public deep-water harbor on its shores. Accordingly, the Chambers of Commerce of the three communities have acted in concert to petition the federal government for the development of such a harbor. Several proposals have been suggested and reported upon by engineers. One of the projects envisions "connecting the existing South Chicago Harbor and Indiana Harbor with a breakwater," and creating new land for port and industries. Another purposes the establishment of a Tri-City Port by connecting the present breakwater of the State Line Generating Company on the west with those of the Inland Steel Company on the east. Another geographic version proposes to connect 2½ miles of existing breakwaters at Indiana Harbor and at the state line with four miles of newly constructed breakwater. The opinion has been expressed that the Tri-City harbor would provide a deep-water port with sufficient dock facilities from made land, which results from port construction. This port would be available for barge traffic from the Calumet Sag Canal and Illinois River, without requiring barge traffic to go "outside" into "open water" (7). Properly integrated geographic planning establishing adequate channels from the proposed harbor site along the Indiana Harbor Ship Canal and the Grand Calumet River is a major objective, then, in which the three communities share joint responsibilities. Properly developed navigation waterways might well help to bolster the area's declining manufactural employment, said to have been reduced by 20 percent within the last five years in Hammond alone. The significance of the port itself to the entire Midwest lies in its unique terminal facility for both the St. Lawrence Seaway and Mississippi-Gulf traffic systems.

Why has not the Tri-City harbor-port materialized to date, technically supported as it has been by engineer and geographer alike. The answer seems as complex as is the geographic matrix of the Calumet region itself. Geographic change has a way of focusing today on one site, tomorrow on another—not always the result of expert evaluations of comparative sites alone but at times resulting from a combination of technical surveys and political factors which of themselves are not readily resolvable. In any event, the opinion has been expressed that proposal of the Tri-City project has been “sidetracked because of the efforts being made on behalf of the Burns Ditch area.” In contrast with the Tri-City industrial-commercial complex, the Burns Ditch area in Porter County, some 18 miles to the east, is a “pristine” dunal lake land.

### Industrial Zoning

Figure 4 was composed from 10 sheets of the Hammond Master Plan brochure (8) to present a unified view of the city areas zoned for limited industries (including light industries) and heavy industries.

As defined by the brochure: A Light Industrial Use is one which ordinarily uses only light machinery; is conducted entirely within closed, substantially constructed buildings; does not use the open area around such buildings for storage of raw materials or manufactured goods, or for any industrial purpose, other than loading and unloading operations in the rear; and which is not noxious or offensive, by reason of emission of smoke, dust, gas, fumes, odors, noise, or vibrations, beyond the confines of such buildings.

A Limited Industrial Use is one which requires both buildings and open areas for manufacturing, fabricating processes, heavy repairing, dismantling, storage or disposal of raw materials, manufactured products, or wastes; which is not injurious to vegetation; and which is not noxious or offensive, by reason of the emission of smoke, dust, gas, fumes, odors, or vibrations beyond the limits of the premises upon which such industry is conducted.

A Heavy Industrial Use is one which requires buildings and open areas for manufacturing, fabricating, processing, heavy repair, dismantling, storage, or disposal of raw materials, manufactured products or wastes; which is not injurious to health or safety of humans or animals, or injurious to vegetation; and which has not been declared a nuisance in any court of record.

These classifications are further differentiated by such criteria as pertain to dimensions of buildings, parking, loading, and yard space.

A number of changes in industrial rezoning have been made since 1951, the date of the planning brochure. One areal change occurs in each of the following types: “General Commercial” to “Limited Industrial”; “Heavy Industrial” to “Class C Residential”; “Limited Industrial” to “Class C Residential”; “Limited Industrial” to “Local Business”; “Heavy Industrial” to “Class D Residential”; and “Class A Residential” to “Limited Industrial.” Considering the heavily industrialized character of the community, the areal tracts affected are relatively limited, and indicate a comparative industrial zoning stability. Our investigation was

partly concerned with the climate of local appraisal as to the adequacy of industrially zoned land for the present and foreseeable future. Industries generally were found to be quite satisfied with the industrial zoning pattern. At least one heavy industry specifically cited good zoning laws as the areal factor for locating in Hammond. The Chairman of the Chamber of Commerce Industrial Committee feels "There is presently adequate land available for industrial use, and in addition, there are lands and plants which have been abandoned by former industries which could readily be converted. The near lands available are located generally in the area between Columbia Avenue and Indianapolis Boulevard north of 167 Street [center of "B" section, Figure 2] and south of Michigan Avenue on the southeast side of the city [northeast part of "C" section], and the lands bordering on Sheffield and Calumet Avenues in the northwest portion of the city [south-central "A" section]" (7).

On the other hand, it has also been pointed out by the President of the City Plan Commission (6) that certain limitations for industrial expansion do exist for particular site quality. For example, the eastern part of section "C" was originally bought by the Nickel Plate railroad for transport. But this area (some 150 acres), considered good for industry, has been classified as residential, and 40 acres of it purchased by the School System. In the northwest, reclaimable land around Wolf Lake is allocated to park use, and thus not available to industry. By resale, some industrially zoned land, sited in "B," is restricted to research laboratory rather than manufacturing.

### Urban Renewal

Urban renewal is significantly related to the zoning and planning programs of complex urban communities, especially those heavily industrialized as are Hammond, Gary, and East Chicago, each of which has a government subsidized urban renewal program.

Urban renewal may be instituted with or without the aid of federal and state funds. Federal subsidization is provided for in Section 2 of Public Law 171, known as the "Housing Act of 1949." It is designed to assist in the "elimination of substandard and other inadequate housing through clearance of slums and blighted areas, and the realization as soon as feasible of the goal of a decent home and a suitable living environment for every American Family." Recognizing that all community interests—residential, commercial, and industrial—have a vital stake in rehabilitation of "blighted" areas and in safeguarding other areas against community decay, a Redevelopment Commission was formed in Hammond. This Commission came to the conclusion that there was a need for community improvement: better city codes and planning to promote present and future welfare, increased opportunities for private enterprise, and rebuilding older sections of the city to provide better homes and neighborhoods. The Commission pointed out that although Indiana legislature had adopted the "Redevelopment of Cities and Towns Act" in 1953, and were thus eligible for a grant of two-thirds the total cost for slum redevelopment from the federal government, Hammond had not yet taken any action by 1960. The Commission had

an Urban Renewal Survey taken and reported that more than 1,800 residences are dilapidated, another 700 require major repairs, four schools need replacement, some 5,000 downtown parking spaces, 25 acres for parks and playground, and 400,000 square feet of office space are immediately required, and the railroad barriers now dividing the downtown business section should be eliminated (9). These recommendations pertain to Hammond's industry in an indirect, but vital, way. Here, as elsewhere, worker contentment promotes labor competence.

Since 1960, the Urban Renewal Commission has established a program which will redevelop a large area of downtown Hammond between Hohman and Calumet Avenues, east to west, and between the Grand Calumet River and the Michigan Central Railroad, north to south. The projected site is known as the Turner Park Area (see Figure 4). By 1963, plans for its redevelopment should be completed and the committee is confident that permission will be granted for the plans to be executed. Though urban renewal projects may provide sites for industrial use (e.g., in Gary, Evansville, and South Bend, Indiana), the Turner Park Area is restricted solely to residential development. As noted in Figure 2, only four small industries are involved here.

#### Hammond's Future Industrial Potential

Summary analysis of Hammond's geo-historical profile reflects a disparate emphasis on the engineering and political aspects of industrial development as compared with scientific environmental appraisal by the professional geographer. The political geography of this northwest corner of the state of Indiana—the highly artificial division into three corporate communities—bears little concordant relationship to the physical, economic, and commercial geography inherent in the region. Had more attention, for example, been given in the past to the total environmental pattern, a unified geographic entity might well have led to a deep-water harbor on Lake Michigan a long time ago. And if the geography of the yesterdays called for a harbor-port at the Hammond-Whiting-East Chicago-Gary site, then the geography of today does even more demand such consideration. It is, therefore, not surprising that as of the time of this writing an appropriation by Congress of \$50,000 is being used to re-examine the port-expansion feasibility at Indiana Harbor.

A second summary observation points to the need of well-integrated efforts on the part of Hammond's civic and political agencies, especially the Chamber of Commerce, the City Plan Commission, and the City Council. It is the expressed opinion by the Chairman of the Industrial Committee, M. Elliot Belshaw, that "There is less than a maximum effort being made to attract new industry or convert present industrial facilities to a more timely use," and "That Hammond is badly in need of small industry which can be located in areas sometimes described as Industrial Parks. Heavy industry is becoming far too cyclical and employment opportunities within the city are declining at a rather serious rate."

Thirdly, aside from sound internal planning of the city itself for optimal geographic space relationships of its several urban functions,

more and more recognition must be given by Hammond planners to the planning programs of its neighbors—both on the Indiana and Illinois sides. This is an added problem that inheres in a “wedged in” community like Hammond. Not only that, increasing economic interdependence and intercommunication among communities on an ever-expanding regional scale call for active participation in any newly proposed planning legislation such as is now contemplated for the five counties of northwest Indiana—Lake and Porter (within the “Metropolitan Complex of Greater Chicago”), and LaPorte, St. Joseph, and Elkhart. Indiana Community Resources Association has formed a legislative committee to study the problems of regional planning for this area—“problems involving transportation, recreation, water, land use, drainage, utilities, and schools.” As reported by Arthur Tuesburg, Executive Director of the Porter County Plan Commission, “This legislation will be introduced in the 1963 General Assembly and represents a significant step in an effort to provide a Regional Plan Commission for Northwestern Indiana.”

Finally, still another planning problem presents itself for Hammond. Politically separate, but geographically contiguous with the industrial communities on the Illinois side, Hammond will have to co-ordinate its own planning with that of northeast Illinois as well. Truly interstate geographic planning here is needed to avoid provincial thinking on geographic resources along purely political lines.

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