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This paper shows the school principal how to map his school district or attendance area to systematically organize and relate physical and cultural data into a comprehensive spatial pattern. Use of such maps is shown to make interactions of cultural and physical elements within the spatial pattern more easily seen and understood. Major sources of generally available information and some of the principal methods of observation which may be employed in constructing such maps are provided. A map of the attendance area of a suburban elementary school is developed in detail to demonstrate the specific procedure, and the completed map is discussed in terms of a projected future for the area under study. Maps are shown to provide such information as locations of community support for schools, neighborhood representation in school activities, socioeconomic background of pupils, parental aspirations, parental attitudes toward school, tax bases, attitudes toward school bond elections, and transient areas with high student turnover. (TT)

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by
John A. Olson

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College of Education
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"The Decision to Plant a Tree," Oregon Geographer, II, No. I (November 1967), pp. 27-38.

The author wishes to acknowledge the support of CASEA during a portion of his time devoted to the preparation of this article, and express his appreciation to Dr. Harry F. Wolcott, a research associate at CASEA and the director of the research project, "The Ethnography of a Principalship," on which the data for this paper are based.

A school principal probably does not realize how much he knows about the attendance area of his school until he describes or shows it to a new teacher. Because of his association with the area over a period of time, the principal may take for granted the physical and cultural elements present, but he may see them merely as parts of a whole, having only a vague hint of their vital interactions.

Maps provide a graphic means for systematically organizing and relating physical and cultural data into a comprehensive spatial pattern. When such a spatial pattern has been established, interactions of cultural and physical elements can be more easily seen and understood. Through the means of a map, the school principal can more readily determine the relationships of neighborhoods, shopping centers, business districts, industrial areas, public facilities, agricultural areas, routeways, etc. Although each of these elements possesses its individual characteristics, each interacts with the other elements in the attendance area and also with elements in the larger community.

The purpose of this paper is to describe how a school principal can proceed to make and utilize a map of his attendance area or school district, whether in an urban, suburban, or rural environment. Major sources of information which are generally available and some of the principal methods of observations which may be employed in constructing such a map will be provided. Also, the specific procedure followed in developing a map of the attendance area of a suburban elementary school will be described and explained in some detail. The results of the field study and completed map will be discussed in terms of a projected future for the area.

Sources of Information

One of the primary sources of information which is readily available to the school principal is the student record card. Such record cards provide a substantial basis for any socio-cultural study with information concerning the student's name, age, birthplace, current residence, and last school attended; usually they provide some pertinent information as to parental occupation(s) and place of work as well. Both the superintendent's office and the state offices of public education may have prior statistical surveys of the school district and may be able to provide information such as assessed valuations or

population projections which could be graphically presented on a map or be used on a comparative basis.

Governmental agencies may supply invaluable information for a school map; the assessor's office, comparative values of individual properties. City and regional planning offices can project the future of public developments within an area, as well as outline zoning restrictions on private developments. Federal, state and local farm bureaus, within agricultural regions, can provide much detailed information regarding agricultural activities. The United States Census Bureau has available statistical information regarding economic and population data on a county level, such as percentages involved in specific occupations and percentages of population in age groups.

Non-public agencies that may prove valuable are the local Junior Chamber of Commerce, which has a wide variety of information regarding commercial development within the attendance area, and local real estate agencies, with information on current land values, patterns of residential development, patterns of occupancy, the nature of typical buyers and sellers in the neighborhood, and representative occupational and financial status within neighborhoods.

Methods of Observation

Although written sources of information are important for any study of this nature, they are secondary to direct field observation. One should become intimately acquainted with the attendance area through repeated visits both on foot and by automobile. Basic to this part of the study is having an outline map of the area available to work with while making field observations.

To begin charting the desired information, one must make a rough map of land usage. This entails dividing the map into areas with specific functions: residential, agricultural, industrial, and commercial. It is also important to note any major routeways that enter and leave the area and to define the boundaries of undeveloped areas.

Next, by combining the primary field observations which have been sketched on the map with available secondary source data (e.g., student record cards and information from public and private agencies), one begins to see what types of socio-economic information to incorporate in the final map. This depends largely upon the area under study, the specific goals in making the study, or the nature

of any problems unique to the specific school (e.g., ethnic enclaves, extreme differences in socio-economic sub-areas).

On subsequent visits to the attendance area, land-use boundaries must necessarily be further delimited and better defined. Differentations between residential neighborhoods need to be made, commercial areas need to be analyzed, industrial areas identified as to type of industry, agricultural areas analyzed, functions of private utilities and public lands determined, and routeways further defined.

In differentiating between residential neighborhoods, the size and age of the home should be considered, the general upkeep of the property should be noted, the size of the lots should be determined, and a differentiation made between tract and individually constructed homes as well as between single and multiple-family dwellings. Incorporating the information from student record cards and the material gathered from the assessor's office, one should try to relate the assessed values of homes with parental occupations. Although there are rarely any finite lines drawn between neighborhoods, differentiation among smaller, more homogeneous sub-neighborhoods does provide a useful and necessary means of identifying the extent of variation within the area the school serves.

When analyzing commercial areas, a differentiation between the types of businesses represented is useful. Are stores retail or wholesale? Are they chain stores or individually owned businesses? What kind of stores are represented--dry goods, hardware, grocery, drugs or specialty shops? How long have they been situated in the area and what has the ownership turnover been? Businesses should also be evaluated in terms of their clientele--do they cater to volume business or to a limited clientele? All these factors are important in determining the nature of the area and its growth potential.

In considering industrial areas, several questions should be asked which would prove pertinent to a study of this kind. Is the industry classified as heavy or light? How long has it been established in the area? Does it serve a national or local market? Is its primary labor force drawn from within the attendance area? If so, what specific effects, if any, do employment practices have on school attendance, and what percentage of the pupils are affected?

Many peripheral suburban attendance areas have agricultural properties within or adjoining them. Thus, the mapping of agricultural areas can be

important to the school principal, not only for its current land use value, but for its future development as potential commercial or residential property.

In mapping public lands and private utilities, one must first determine the functions of the land held. The location and size of public parks, reservoirs, power plants, airports, other schools, fire and police departments, federal, state, county and local agencies should be noted and recorded. All have potential value for this type of survey work.

Routeways can be of major importance for a study of this nature, particularly in a rapidly developing attendance area. Roads are of paramount importance, especially those arterial routes which, in a growing area, may very likely be widened to accommodate an increasing volume of traffic. Ultimately this can lead to an increased commercialization of the area with corresponding residential development directed toward multiple-family dwellings rather than individual private homes. Public transportation systems, their routes and designated stops within the attendance area, should also be noted--particularly in more metropolitan areas.

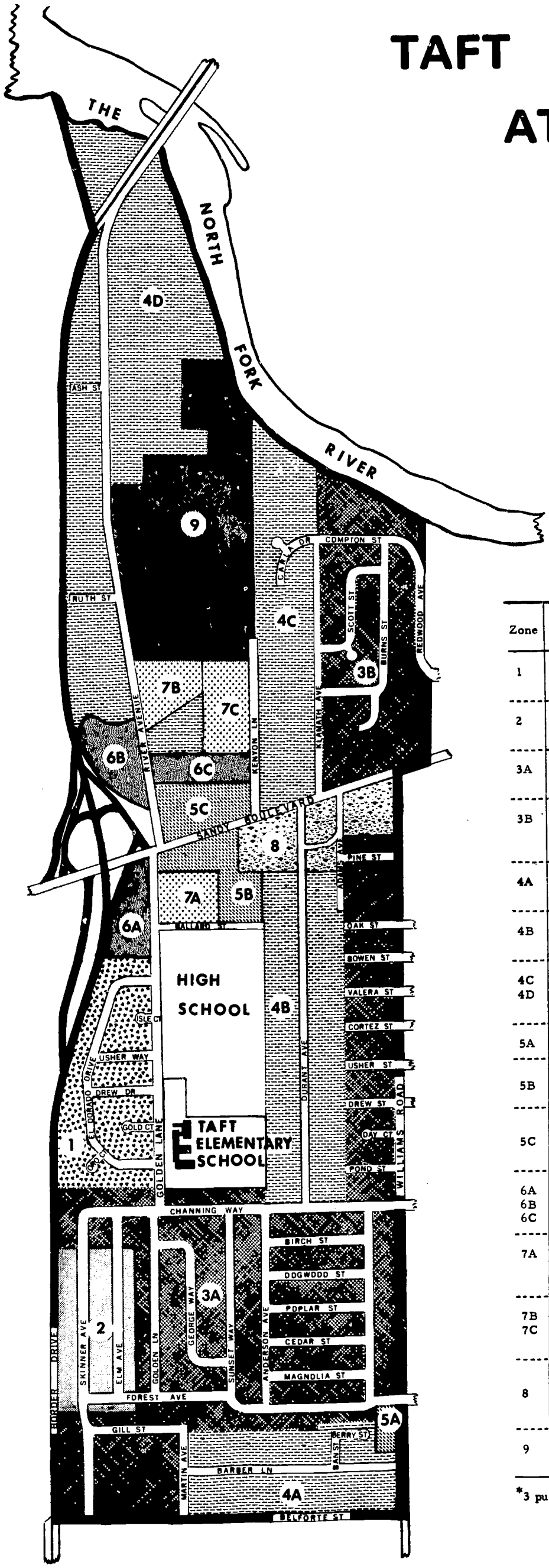
Depending upon the purpose(s) for which such a map may be used and upon the attendance area itself, the person making the study will have to decide which factors are relevant mapping criteria. The factors identified above have merely been suggestions of elements to look for within an area and for convenient categories of classification.

A Field Study (Taft Elementary School Attendance Area)

The objectives of the mapping study described here were: To define an attendance area in terms of its land use; to differentiate between residential neighborhoods within the area on the basis of house types and assessed cost of homes; to correlate, from student record cards, the neighborhoods with the occupation(s) of the parent(s); and, from the construction of a map, to anticipate the future of this area and the changes which may affect the operation of the elementary school.

The base map from which the final map was prepared was obtained from the county planning office. Several copies were made by a blue-printing process at the cost of less than one dollar each. Student record cards came from the elementary school whose attendance area was under study. Criteria for the boundaries and the development of the attendance area were acquired from the

TAFT ELEMENTARY SCHOOL ATTENDANCE AREA



scale

0 400' 800'

legend

Zone	Property Type	Dwelling Cost Median	Dwelling Cost Range	Occupation Median Low – High	Number & Percentage of Pupils*
1	Single family homes	$29,730	$21,240-$55,890	Civil Engr. Storeowner-Physician	42 9.23%
2	Single family homes	$11,990	None	Carpenter Laborer-School Principal	37 8.13%
3A	Single family homes	$15,580	$ 8,970-$25,650	Surveyor Maintenance-Attorney	250 54.94%
3B	Single family homes	$15,970	$13,840-$16,060	Salesman Lumber Worker-Junior College Instructor	30 6.59%
4A	Single family homes	$16,140	$11,410-$18,890	Clerk Laborer-Civil Engineer	30 6.59%
4B	Single family homes	$12,470	$ 9,790-$16,210	Carpenter Laborer-Tax Consultant	22 4.83%
4C 4D	Single family homes	$10,230	$ 9,550-$11,500	Die Cast Supervisor R. R. Conductor-Service Station owner/operator	22 4.83%
5A	Small shopping center				
5B	Large shopping center National chain stores				
5C	Large shopping center Small chain stores-mostly retail				
6A 6B 6C	Undeveloped commercial property				
7A	48 units/rental apts.		$130-$140 per month 1-2 bdrms.		
7B 7C	78 units/rental apts. 44 units/rental apts.		$110-$150 per month 1-2 bdrms.		5 1.09%
8	Single family rentals Potential commercial & apartments			Lathe Operator Millworker-Manager	14 3.07%
9	City sewage processing plant				

*3 pupils outside district -- .66%.

office of the district superintendent. Records of home values came from the county assessor's office. Supporting socio-economic information was derived from the United States Bureau of the Census statistics and from public officials familiar with the area (e.g., county planner and the elementary school principal of the attendance area).

Many of the materials used in the construction of the final map were obtained from an art supply store and included such items as self-adhesive lettering, special paper used for tracing and making maps, and a product called Zip-a-tone. The latter material comes in a variety of patterns which can be used to differentiate areas on a map. Since this particular map was made specifically for reproduction purposes, the materials were more costly and sophisticated than would ordinarily be necessary. The same mapping effects can be just as satisfactorily achieved by the use of colored pencil and hand lettering.

The methods used in this study began with a thorough survey of the area both by foot and automobile over a period of several weeks. This length of time would not be necessary for a school principal who is already familiar with his attendance area, but was of major importance to the writer, since he had not been previously acquainted with the attendance area under study. An initial land use map was constructed in the field using the base map obtained at the county planning office. While this field work was in progress, secondary information (student record cards, assessed home values, etc.) was being gathered that enabled the writer to re-evaluate and further delimit land uses within the attendance area. By analyzing the secondary source data, the map was subject to continual verification and alteration on subsequent visits.

The most important secondary source was the student record card. These cards, which composed the total enrollment of the school, were initially classified according to residential neighborhoods based on the first field observations. The criterion which was used in the initial determination of neighborhood areas was simply a visual classification of house types, e.g., apartments, duplexes, and single-family dwellings.

The next step was to identify the criteria for distinguishing between neighborhoods of single-family dwellings. Below Sandy Boulevard (see map), the private homes in Zone 1 were delimited from those in Zone 3A by the obvious differences in lot size, and the cost and size of the house. Homes in Zone 1

were built on larger lots; they had been contracted for individually at greater expense and were considerably larger than those in Zone 3A. In differentiating between Zones 2 and 3A, it was noted that those homes in Zone 2 had very little variation in construction, lot sizes were smaller, homes were limited to one-car garages, and the level of upkeep was generally poorer than in Zone 3A.

Zones 4A and 4B differed from Zone 3A in that there was less uniformity in house construction, the homes were generally older, lot sizes varied considerably, and the lack of zoning restrictions was apparent in both house styles and in the placement of houses on the lots.

Zones 5A and 5B, below Sandy Boulevard, and Zone 5C, above Sandy Boulevard, were easily categorized as commercial properties consisting of grocery, drug, hardware, variety stores, etc. Zone 7A below Sandy Boulevard and Zones 7B and 7C above Sandy Boulevard were composed of recently developed multiple-family dwellings. These were readily differentiated from the rental dwellings in Zone 8 (below Sandy Boulevard) by size, design, age and construction materials. The older units in Zone 8 were built of cheaper materials, and the properties and buildings have not been so well maintained. Zones 6B and 6C above Sandy Boulevard and Zone 6A below Sandy Boulevard are presently undeveloped properties which have apparently been cleared for commercial purposes. Zone 9 is property belonging to a city-owned sewage processing plant.

The construct of Zones 3B, 4C, and 4D, above Sandy Boulevard, is similar to that of the counterpart zones below Sandy Boulevard. Zone 3B has been developed as a unit of tract homes within the past three years and is, at present, still undergoing development. Zones 4C and 4D consist of a variety of older, scattered homes built prior to county zoning restrictions.

The next step was to select specific residences within these roughly determined zones for assessment purposes. This was done by means of a random sampling of student record cards. The listing was taken to the county assessor's office. Property values were determined from the tax records there and the information was then correlated with data from previous field observations. The writer was particularly interested in determining those areas where the majority of elementary school children resided. With the exception of duplexes, multiple-family dwellings were found to be relatively void of the elementary school population. Because this map was being developed for purposes of organizing school-relevant information, these units were classified according to

design function (e.g., as rental apartments) rather than according to assessed values and socio-cultural criteria.

A revised map of neighborhood areas was constructed after property values had been determined. The map was then correlated with the commercial, public, industrial and agricultural elements of the attendance area, boundaries which had previously been defined. Public transportation in this area proved to be of little or no importance; private family automobiles were the primary source of transportation and, therefore, the development of roads was of particular significance. While the survey was being conducted, Border Drive (see map) was widened from two lanes to four lanes and was rapidly developing as an axial route on the periphery of the attendance area. Sandy Boulevard, a second major axial route running through the attendance area into the city center, is heavily traveled and is an important commuter routeway. At the intersection of Sandy Boulevard and Border Drive, a cloverleaf is presently under construction which will facilitate the heavy movement of traffic during the daytime hours. In the past three years, according to the county planning office, there has been increased commercialization along Sandy Boulevard. There has been a rapid transition from an attendance area characterized by single-family dwellings to one of multiple-family rental dwellings. This has accompanied the development of chain stores and service establishments within shopping centers.

The results of the field study show that below Sandy Boulevard all the zones were built up within the past seven years with the exception of Zones 4A and 4B. The commercial properties in Zones 5A, 5B, and 5C are rapidly expanding. The multiple-family dwellings (7A, 7B, and 7C) that have been built within the past year appear to be a trend associated with the continued development of commercial property. Both the increase of multiple-family rental units and the increase of commercial development will have an effect upon the property values of those single-family dwellings in the area. The greater volume of automobile traffic on arterial routes and neighborhood streets, as well as the increase of a transient population associated with rental multiple-family dwellings, can be expected to have an effect on property values and land use.

In the area above Sandy Boulevard, most of the property is just beginning to be developed for residential and commercial purposes. Zones 3B, 7B, and 7C have all been developed within the last three years, and Zone 3B is similar in socio-economic construct to Zone 3A.

In projecting a future for this area, it should be noted that the attendance area was at one time on the peripheral margins of the central city's suburban development. Now, however, the peripheral margins of the suburbs have engulfed and moved beyond the attendance area. Coupled with the expanding suburban development has been the outward expansion of the city's commercial development, the increase of rental multiple-family dwellings, and the widening of roads to accommodate the increased flow of traffic.

The projected zoning for the area by the county planning office is to contain both commercial development and the rapid increase of multiple family rental units along Sandy Boulevard and along Border Drive above Sandy Boulevard. This will help to preserve integral neighborhoods of privately owned single-family dwellings. Cognizant of the increased volume of traffic, the county planning office has made provisions for the widening of Sandy Boulevard. Future projected developments include an increased density of population and an increase of transient groups along with a corresponding increase of commercial development. All of these factors may affect the role of the future operation of the local elementary school.

Summary of the Field Study

In what ways might the organizing of the data from a field study into a map be valuable for a school principal? Let us consider what was learned through the map developed in the field study. First, it has shown that the attendance area is undergoing a change of character and is becoming increasingly urbanized. With the proliferation of multiple rental units and commercial properties, there is a corresponding loss of suburban amenities which may well result in the disintegration of a stable population. Many of those who value a suburban existence and are presently living in the area may be expected to move on as the area becomes more urbanized. This movement of population could eventually result in a breakdown of neighborhood cohesiveness, and the rate of turnover in single-family homes is likely to increase. As the area becomes more transient and impersonal, the effects of this change will be reflected in the school.

The school principal may anticipate that, as the area becomes less stable in population, fewer and fewer pupils will spend their entire elementary school career within the attendance area. This can pose many added problems

for the principal and his staff. For example, testing of new pupils for placement within the school program may become more of a necessity. Coordinating programs for youngsters coming from many different schools and backgrounds may involve greater output of time and energy on the part of the school staff. As the accumulation of pupil records and administrative detail increases, the strain on school staff and administrative personnel may become more evident since more services are required for managerial purposes than for instructional ones. Through necessity, the character of the school may well become more impersonal in its functions because of the rate of pupil turnover. Also, parental contact with the schools will be more sporadic, with an increasing potential for conflict between school and parent(s). If this results in a decreased neighborhood interest in school activities, parents may become more concerned with the welfare of their own children rather than the welfare of the general school program.

There are too many variables, not only within but outside the community, to accurately predict which of these changes will occur or how rapidly they will proceed. A map, however, will provide a graphic means for observing the contemporary community and for predicting possible changes within the community which may reflect upon the operation of the elementary school both directly and indirectly.

Conclusion

A map is a tool, which is only as good as the information contained in it and the adequacy of its interpretation. A map can neither explain the present nor predict the future, but it can help the school principal to understand his present attendance area and can also enable him to prepare for the future of his school in light of anticipated changes.

The school principal can, by means of a map, graphically organize and relate sources of community data which reflect upon the operation of his school. A map can help him determine from what neighborhoods PTA support comes and whether some neighborhoods may be under-represented in school activities. It can be an aid to his teachers in helping them understand the socio-economic background of their pupils and, indirectly, may provide clues to parental aspirations and attitudes toward the school. A map is of economic interest to

the school principal in that is shows the extent of non-taxable public land and, through the classification of neighborhoods, may also indirectly reflect attitudes prevalent in the attendance area toward school bond elections. From a map, the school principal is able to determine the number and extent of transient neighborhoods where a high rate of student turnover is characteristic. These and other factors are important considerations in planning and administering a school program.