JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS
IX. MISCELLANEOUS PROJECTS AND CORRESPONDENCE WITH INDUSTRY
  B. Appraisal Research and Reform
    1. Correspondence and Articles Re: National Council of
      Real Estate Investment Fiduciaries (NCREIF) Research
      Committee
      c. "Location and Property Type Classifiers -
        Proposed Investment Property Data Base", as
        described in a memorandum from James A. Graaskamp
        and Michael L. Robbins to Research Committee,
        NCREIF, November 28, 1983

November 28, 1983

MEMORANDUM

TO: Research Committee, National Council of Real Estate
        Investment Fiduciaries

        Research Committee, Homer Hoyt Institute

FROM: Profs. James A. Graaskamp and Michael L. Robbins

RE: Location and Property Type Classifiers
        Proposed Investment Property Data Base

CONCLUSIONS - Property Locators

Previous collections of investment property income and
expense data have maintained anonymity by means of omitting
locational specifications other than region or state.
Nevertheless, investment performance is presumed to be highly
correlated to specific locational linkages and economic
conditions. Therefore, we would recommend that all properties
in the data base be initially identified and geo-coded with the
following factors:

1. State
2. County (to be supplied by investor)
3. Zip code (to be supplied by investor)
4. Longitude and latitude of property node (to be
   determined by University of Wisconsin staff from
   property address supplied by investor)
5. Type of urban sector

Each of these five identifiers will permit flexible and
imaginative aggregations of property into locational subsets

which relate to other socio-economic and geographic data already available in digitized form.

Before selecting these five locational identifiers, extensive review of economic, real estate, and demographic data was conducted to identify digitized sources, preferrably time series data, which might correlate with investment performance on a lead/lag basis.

1. State Locator

The state is a locator which is a basic building block for key regions defined arbitrarily for various economic time series from reporting agencies. The state identifier is a common denominator when constructing reporting zones for the following:

a. HUD regions
b. IREM regions for apartments
c. BOMA office buildings
d. Laventhol & Horwath lodging reports for internal use only and Pannell Kerr Forster motel reports
e. U.S. Bureau of Economic Analysis
f. Dept. of Commerce - economic area projections 1950 to 2020
g. Dept. of Labor, Bureau of Labor Statistics (monthly data)

State boundaries can conflict with certain metropolitan or economic regions so that it is not the optimal unit for either compatibility among different data base sources nor for focus of economic variables on investment property performance.

2. The County Locator

The County is the subregional component that will aggregate to all economic regions without compromise of state or regional boundaries. Moreover, the county can be disaggregated into sub-area data blocks for both metropolitan and nonmetropolitan counties as displayed in Exhibit 1.

The important data time series sources organized by county are:

a. Federal Reserve District
b. Dollars_&_Cents_of_Shopping_Centers organized by Federal Reserve Districts
c. Federal Home Loan Bank Districts
d. Federal Census Regions; Laventhol & Horwath and Pannell Kerr Forster combine eight census regions into five hotel regions
e. U.S. Bureau of Economic Analysis
f. Dept. of Agriculture Crop & Farm Data
g. See Appendices 11, 12, and 13 in Preliminary Report for extensive University of Wisconsin economic and demographic data, geographically organized for 1970 and 1980 on existing computer tapes.

With the exception of two small internal experiments at Shopping Center World and Pannell Kerr Forster to cross tabulate socio-economic data with investment property data, nothing in this type of research has been done.

The county level is the place to begin socio-economic analysis for several reasons:

1. The "county" is also the suggested building block for inter-data base geographic compatibility.

2. The county is the only uniform geographic component that will allow aggregation within both the government area and the statistical area hierarchy (see Exhibit 1).

3. The county is also the building block component for the Bureau of Economic Analysis. Therefore, the scope of socio-economic analysis will be enhanced by being able to use both census data and BEA data, the two major sources of computer tape data.

4. Aggregation from levels lower than the county level is not uniform. Therefore, complexity and expense will be incurred due to lack of uniformity of information and handling greater numbers of geographic units.

5. Block level or census tract level information may be too geographically specific to be a meaningful analysis unit for investment properties such as shopping centers, office buildings, industrial buildings, and hotels/motels which rely on larger geographic areas to derive value.

6. If the information is to be published or shared between association members, block level or census tract level information may be so geographically specific that it breaches the confidentiality issue as it relates to the property owners in the relevant geographic area.
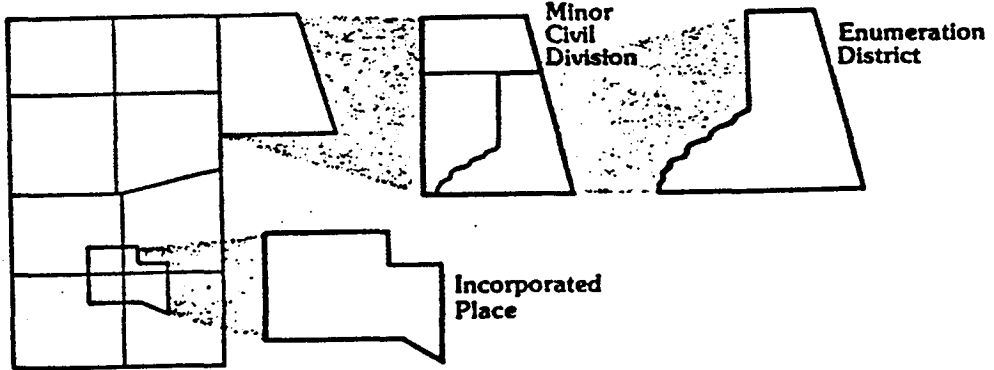
EXHIBIT 1

SUB-COUNTY BUILDING BLOCKS FOR
METROPOLITAN AND NON-METROPOLITAN COUNTIES

SMSA/Metropolitan Counties
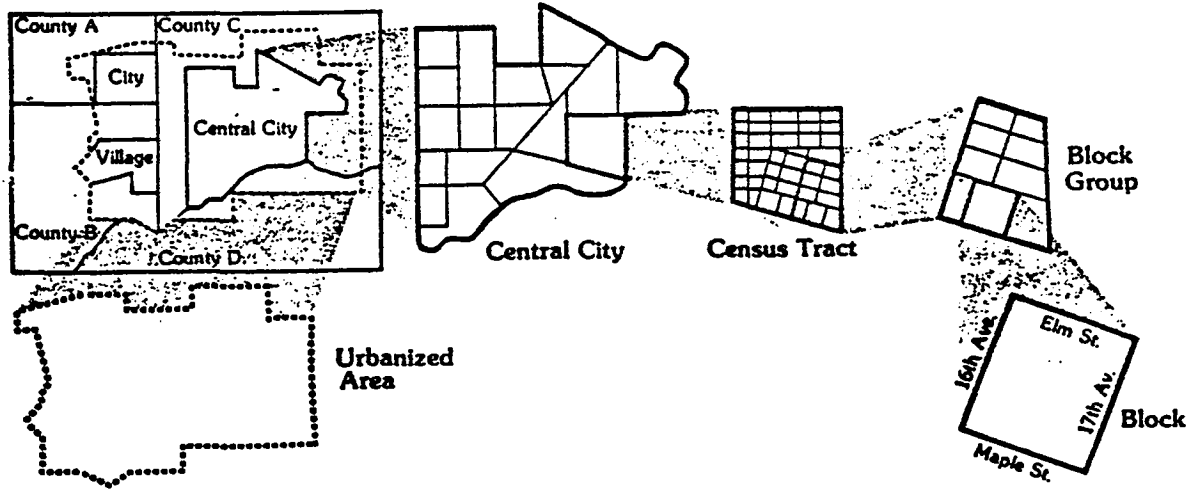
Nonmetropolitan County

7. As smaller geographic units are incorporated into the
   analysis, the nature of the information has a tendency
   to become more general to preserve the confidentiality
   of respondents, or sometimes the information is
   unavailable altogether if insufficient population is
   involved. This phenomenon can decrease or eliminate
   the relevance of the information sought at more
   geographically specific levels.

There are five sub-county components or building blocks
with which sub-county geographic areas can be aggregated to the
county level. The important point to be made is that sub-county
data can be maintained and aggregated to county level (and
ultimately regional level), but it may be difficult due to lack
of uniformity. The key point is that there is no uniform
sub-county building block that aggregates to the county level.
Combinations of sub-county building blocks must be used to
reach a county level aggregation (see Exhibit 1 for a pictorial
illustration of county level aggregation).

An excellent illustration of the lack of uniformity at the
sub-county level is accomplished with the following example.
Census tracts exist only in SMSA (metropolitan) counties,
however, not all areas of the SMSA county are "tracted".
Therefore, in those areas without census tracts, enumeration
districts, MCDs and incorporated places would be used to
aggregate to the county level.

EXHIBIT 2

COMPATIBLE INTER-DATA BASE GEOGRAPHIC COMPONENT

Organizational Data Base	Regional Aggregation Unit	Building Block Component
A. Primary		
IREM	HUD Regions	County
BOMA	Arbitrary Aggregation of States	County
ULI	Federal Reserve Districts	County
Shopping Center World	Arbitrary Aggregation of States	County
Laventhol & Horwath	Census Region	County
Pannell Kerr Forster	Census Region	County
B. Secondary		
NAR	Census Region	County
SIR	Census Region	County

Although it is possible to disaggregate below the county level, the lack of uniformity of methods available for sub-county disaggregation makes it prohibitive to do so in terms of time and expense involved. Alternatives available are:

1. Maintain exclusively county level data which aggregates to SMSA level

2. Maintain county level data plus independent city or sub-city level data for selected sectors which characterize nuclei within metropolitan areas and are suggested in Section 5.

3. Zip_Code_Locator

The zip code identifier permits a sector breakdown which preserves anonymity for specific investment properties at the cost of an inexact representation of economic city structure. The zip code identifier would permit conversion of data from two key sources if their cooperation could be obtained. HUD property management data, for its apartment inventory, reporting subsidized projects, and other inventories of properties are aggregated by zip code for internal use only. Similarly most BOMA data is available by zip code for internal use by BOMA building experience data managers. The research objectives of both NCREIF and the HUD/BOMA sources could be well served by a trade of information if NCREIF used the zip code to anticipate the need for compatibility.

4. Longitude/Latitude Locator

Longitude and latitude of the node or approximate center of the property represents a powerful intergation of real estate data and the explosive technology coming from digitized geography and satellite photography. The ultimate time series data are the series of 18 day overflights of the entire United States which represent every urban area with wave lengths within and beyond the visual spectrum including thermal and infrared. The esoteric opportunities are unlimited since techniques have already been developed to measure traffic flow from ribbons of thermal output and rates of urbanization from changes in wave length patterns (just as they do timber cruises by coding the computer to recognize combinations of wave length frequencies as representative of specific species and sizes).

Using the high resolution photos that are produced cheaply from digitized wave lengths, the researcher can define polygons with corner points set in longitude and latitude, and then create subsets of data base properties falling within these polygons in terms of urban pattern. Certain commercial data services have already reorganized census data and other planning information to be accessible by reference to a longitude and latitude centroid plus a radius, so that this geocode becomes a second method for interfacing with census data.

Atlanta is currently the prototype city for development of an inventory of both property and socio-economic data organized around an x, y coordinate system compatible with longitude and latitude coordinates. The prototype system will be running in January 1984, sponsored by Commercial Realty Information System, Inc. Our conversations with them indicate there would be opportunity for cooperation if NCREIF were to choose Atlanta as one of the prototype investment property data index cities.

The University of Wisconsin School of Civil and Environmental Engineering is one of the leading research agencies for development of satellite photo applications and the U.W. Real Estate Department has already been working with all of their faculty for the past five years in developing real estate and land economic applications. Indeed, Prof. Michael L. Robbins in our Real Estate Department has his Ph.D. in civil engineering environmental monitoring from the U.W. so that the above applications of longitude and latitude are not speculative nor esoteric. That type of mapping capability found digitized in air photos is state of the art.

5. Urban_Sector_Type

One classifier needing careful definition, by the NCREIF Committee, of relatively common concepts or images of real estate investment opportunity areas are the following

districts, nuclei, or sectors within which major investment properties tend to cluster:

a. Central Business District

b. Regional shopping center nucleus

c. Regional or commercial airport zone

d. Satellite city nucleus

e. Major university nucleus

f. Public sponsored urban renewal mixed use core

g. Privately sponsored unified land development or mixed use core

h. Free standing within non-similar urban district

i. Free standing on suburban/rural campus

CONCLUSIONS - Property Identifier

In addition to property location, investment properties would be classified by four property classifiers affecting comparative investment performance:

1. Property type

2. Physical improvement attributes

3. Lease role attributes

Relative to establishing a comparative investment data base, a general comment from review of various professional efforts to date is in order. It is our opinion that Laventhol and Horwath, Pannell Kerr Forster, and the ULI _Dollars_and Cents__of__Shopping__Centers_ are the most accurate and

professionally respected. The reason seems to be that these services have established and adhere to the most precise definitions. Information is then reported with greater control, uniformity, and integrity by professional CPAs in the field. Other organizations rely on a variety of correspondents and reporting forms which permit self-definition and self-serving editing. NCREIF should therefore establish, adhere to, and occasionally audit accurate classification by definition and selection of professional reporting personnel. These controls are necessary to quickly achieve academic and professional recognition of the research validity of the data base.

1. Property_Type

Property classifiers would have a first digit which determined the major category and a second digit which refined that classification to a generally recognized specialty within the broad type. In some cases that general recognition has been assumed to be the same as types provided in existing services while in other categories the NCREIF research and apprasial committees will be needed to set rigorous definitions and distinctions. The broad basic property types are:

     a. Residential/Rental
        1. Same type as IREM

     b. Office/Rental
        1. Same types as BOMA

     c. Retail/Rental
        1. Same types as ULI/ICSC

     d. Industrial/Rental
        1. See III

     e. Hotel
        1. Same types as Laventhol and Horwath

     f. Motel
        1. Same types as Pannell Kerr Forster

     g. Mixed Use
        1. See IV

     h. Farm/Agribusiness
        1. See V

2. Lease Roll Classifiers

Ultimately, investment performance is a function of the lease characteristics of a project in terms of average term, percentage of triple net, percentage with passthroughs, and indexes to reflect inflation, retail sales, or property value. This initial study was not intended to define the lease model data requirements. However, a simple data base for any one project would include information on total leaseable area, total number of leases, number of leases terminating within three years and ten years, percentage of leases with full and with partial passthroughs. The total dollars received as reimbursable expenses, as overage rent, and as indexed

adjustments would be segregated on quarterly statements by project rather than by lease. These exact classifiers need to be defined in a working session with the NCREIF Committee.

EXHIBIT III - Industrial

    A. Warehouse
    B. Office/Distribution
    C. Office/Research and Development
    D. Production Facility
    E. Distribution Factility
    F. Transportation Facility
    G. Bulk Storage/Handling

EXHIBIT IV - Mixed Use (Three or more property class types
                           within single management control)

    A. Hotel-Office-Retail
    B. Office-Retail-Public Facility
    C. Residential-Retail-Public Facility

EXHIBIT V - Farm/Agribusiness

    A. Ranch/Cattle
    B. Grain Farm
    C. Vineyards, Orchards, and Specialties
    D. Irrigated Farms
    E. Cotton/Tobacco/Sugar Cane
    F. Livestock, Feed Lots, and Dairy
    G. Agricultural Processing
    H. Agricultural Supplies and Equipment
    I. Dry and Frozen Storage