Chapter IV

MAJOR ELEMENTS OF A REGIONAL HOUSING STUDY

INTRODUCTION

The following outline sets forth the major work elements of a proposed regional housing study. The outline is intended to establish the general scope and content of the study with sufficient detail to permit the development of initial cost estimates for budgetary purposes; to establish a practical time sequence and schedule for the necessary work; and to develop an organizational structure for the proposed work, including a determination of staff requirements. The outline is not intended to be a detailed study design but has been deliberately kept general in order to permit considerable latitude in the selection of specific procedures and techniques as the actual housing study proceeds.

The outline is based upon the following assumptions:

1. That the study, because of the complex nature of housing, will focus on the primary areas of need for a regional housing study as these areas of need are set forth in the preceding chapter of this Prospectus by providing:
   
a. An inventory and analysis of basic housing and housing-related data which are not currently available on a uniform, areawide basis.
   
b. An inventory, analysis, and forecast of economic, demographic, and housing data which, while generally available on a uniform, areawide basis, are not timely.
   
c. An inventory and analysis of national, state, and local government housing programs for low- and moderate-income families; forecasts of future housing needs, with emphasis upon the housing needs of low- and moderate-income families; and the preparation of recommendations concerning the role of government and the private sector in meeting true housing needs by augmenting the workings of the housing market. The latter will require the formulation of regional housing objectives and standards.
   
d. An inventory, analysis, and forecast of relocation housing needs as precipitated by such major public works programs as highway construction, urban renewal, and park and open-space acquisition.

2. That a major effort will be undertaken, using this study as a base, to establish methods for obtaining on a continuing basis, timely, uniform, areawide housing data usable by both the public and private sectors of the housing market.

3. That the study will include an attempt to develop a regional housing market simulation model which can be used to forecast short- and long-term regional housing demands in terms of household type and housing type and density for each housing submarket identified and to provide a periodic analysis of the regional housing market in terms of supply and demand, thus indicating any deficiencies or surpluses which may exist. In addition, an attempt will be made to incorporate into the model a housing policy or strategy evaluation feature which could be used to test the impact on the supply and demand forecasts of alternative actions, such as an increase or decrease in the prime interest rates or the "relaxation" of down payment requirements.

4. That full use will be made of all existing and available surveys, studies, reports, and other data which may influence or affect the proposed work and that additional data collection activities will be considered only as necessary to develop or make current original data essential to the completion of the study.
It is intended, therefore, that the proposed regional housing study results in the preparation of recommendations concerning the role of government sponsored housing programs and private industry in meeting housing needs within the Region; the establishment of techniques to obtain housing and related data on a continuing, timely, uniform, area-wide basis; and the development of a regional housing market simulation model.

To accomplish these ends, it will be necessary that the study be comprised of the following five major elements:

1. Preparation of a detailed study design.
2. Development of objectives and standards.
3. Conduct of inventories.
4. Conduct of analyses and forecasts.
5. Preparation and evaluation of recommendations.

STUDY DESIGN

Before beginning actual work, the study must be designed in sufficient detail to assure maximum coordination between participants and the efficient use of funds and personnel. In order to accomplish this, it is necessary to begin the work with the preparation of a design which sets forth clearly the detailed work procedures, staff assignments and requirements, and time schedules. Initial effort expended in the study design will result in a greatly increased efficiency in the conduct of the study. The study design must: specify the content of each of the necessary fact-gathering operations; define the geographic area for which data will be gathered; outline the manner in which the data collected are to be processed and analyzed; specify requirements for forecasts; and define the nature of the recommendations to be prepared.

It is recommended that the study design take the form of detailed staff memoranda setting forth the exact methods and procedures proposed to be followed in accomplishing each work element. The staff memoranda to be prepared on a work-progress basis should specify the content of each fact-gathering operation; the manner in which the data are to be gathered, processed, and analyzed; and forecast requirements and techniques. The memoranda should also define the nature of recommendations to be prepared and the criteria to be used in their evaluation and review. In addition, each staff memorandum must specify the time and resources required to perform the particular work element under consideration. As each staff memorandum is completed and approved by the Technical Advisory Committee, it will become a working guide for program progress and review.

FORMULATION OF OBJECTIVES AND STANDARDS

The formulation of objectives and standards in terms of housing and the environment for housing is an essential task which must be accomplished before any recommendations can be prepared and evaluated concerning the role of government in meeting housing needs. Objectives are agreed-upon goals toward which the preparation of such recommendations are directed. Standards are established criteria which are used as a basis of comparison in determining the adequacy of specific recommendations to attain the objectives.

The housing objectives and standards may range from general objectives relating to the provision of adequate housing for various income groups to detailed standards relating to what might be considered decent, safe, and sanitary housing. Attention may be focused upon standards relating to condition of housing units, density of used interior living area, and locational requirements.
In some cases crowded and insufficient lot areas may be rendered unusable when cluttered with uncollected trash, garbage, and other debris. Such conditions lead quickly to a deteriorated environment in addition to causing or intensifying sanitation problems in the neighborhood.

The adoption of the objectives and standards by all parties concerned will be extremely important since these objectives and standards will be used as a basis for the determination of the adequacy of the existing housing facilities and as a basis for determining the relative urgency among various housing needs. The consideration and adoption of the objectives and standards will, therefore, have to be preceded by appropriate study, after which all levels, units, and agencies of government concerned will have to participate actively in the formulation of the objectives and standards.

INVENTORIES

Reliable basic planning and engineering data collected on a uniform, areawide basis is not only essential to the formulation of workable development plans but also for the preparation of intelligent recommendations for alleviating problems. Consequently, inventory becomes the first operational step in the planning process growing out of the study design. The data may either have to be collected, that is, obtained by direct measurement as part of the study; or may merely have to be acquired, that is, obtained from another agency which has originally collected the information. In addition to providing the information needed to understand the existing housing situation within the Region, the inventory phase of the proposed housing study will need to be comprehensive enough to permit pertinent analyses, forecasts, and factually-based recommendations to be made concerning both the existing and probable future supply of housing, the demand for housing, and the unmet need for housing. Consequently, a data base will have to be developed in the inventory phase that will serve these needs. The inventory phase of the housing study herein proposed would deal with the following specific areas.

A. Maps

Essential to the consideration of a regional housing study is a knowledge of the topographic and planimetric features of the Region. Such knowledge can be based adequately only upon maps of the required scale and accuracy.

1. General Base Maps

General base maps of the Region will be required to provide a medium for recording and presenting in graphic form the results of the planning studies, as well as the natural and man-made features of the Region. Regional base maps, which have been prepared by the Commission, are
available for the study. These maps portray each county in the Region at four scales: 1:24000, 1:48000, 1:62500, and 1:96000 and can be assembled by mosaic processes to cover various sub-areas of the Region and the Region as a whole. These base maps can be expanded or reduced in scale for use in various phases of the study and show, among other information, all major lakes, streams, and watercourse lines; all railroads, streets, and highways; all township range and section lines; all civil division lines; and relief by contours having a 10-foot vertical interval.

2. Aerial Photographs

Current aerial photography at appropriate scales will be required to provide detailed planimetric data. Aerial photography of the entire planning Region was obtained by the Commission in March 1963 and April 1967 and will again be obtained in April 1970. These aerial photographs are and will be available to the student at scales of 1:4800 and 1:24000. The new aerial photography, scheduled to be taken in April of 1970, will provide a particularly valuable resource since the April 1970 date of photography will coincide with the date of the decennial Census of Population and Housing and the anticipated inventory phase of the proposed housing study.

B. Soil Capabilities Inventory

A soil capabilities inventory, including depth to bedrock, depth to water table, slope, and suitability for residential construction of all kinds and with and without centralized sewerage and water supply facilities, will be required. A detailed operational soil survey of the entire Region, including planning and engineering interpretation for residential use, has been carried out by the Commission in cooperation with the U. S. Soil Conservation Service and will be available for application in the housing study.

C. Land Use Inventory

An inventory of existing land use will be required as a basis for determining the amount, type, intensity, and spatial distribution of land uses within the Region. This information on land use is to be related to the characteristics and distribution of housing, population, and employment within the Region. The Commission has conducted such a land use inventory in 1963 and 1967 and has scheduled another inventory for early 1970 to coincide with the data collection activities of the 1970 U. S. Census of Population and Housing. As such, these inventory data will be available on a timely basis to the regional housing study, requiring only a collation of the data in a manner suited to the study.

D. Land Availability Inventory

An inventory of available land will be required as a basis for the determination of potential housing areas. Such an inventory must not only consider the amount of available land but also its location and suitability for residential development. The latter will require consideration of its compatibility with surrounding land uses; its location with respect to major highway and transit facilities; the availability of utilities and municipal services; the proximity to schools, churches, and shopping areas; and existing land use controls. Most of the data required to complete this inventory item are available from other Commission work programs and from the local communities within the Region. It will, however, require considerable effort to collate such data to meet the specific needs of the housing study. Although the collation of existing public information should be adequate to determine land suitability, it may be necessary to augment this public data collation effort with a personal interview survey of selected local officials and private land developers to determine more adequately land availability.

E. Land Use Controls Inventory

Locally prepared comprehensive development plans or major components of such plans, such as land use plans and zoning ordinances, will have to be obtained and collated for use in the housing study. Particular attention should be given to the residential provisions of existing zoning ordinances.
Timely maintenance of such things as fences, lawns, steps, and sidewalks can be as important to the aesthetic quality of a neighborhood as is the maintenance of structures. Often the first noticeable stage in the decline of a neighborhood is a lack of care for such exterior appurtenances.

The Commission completed in 1967 an inventory of local development plans and zoning ordinances, and this inventory will need to be updated for the housing study. Also included in the land use controls inventory should be a detailed examination of subdivision regulations and a review of local building and housing codes which exist within the Region in order to permit determination of the effect that these land use controls will have upon future residential development within the Region. These data can be collated from the files of the local units and agencies of government.

F. Public Utilities Inventory

An inventory of the existing public utility facilities and their service areas will be an essential basis for the delineation of potential new residential expansion areas. Accordingly, it will be necessary to inventory and map all existing and proposed sanitary sewerage facilities and public water supply facilities and delineate existing and committed service areas. The inventory data should be sufficient to permit a sound engineering analysis of the availability of sanitary sewerage and public water supply facilities to existing and proposed residential developments. Power, gas, and communication facilities, although important to new housing, will not require a specific inventory because previous Commission studies have indicated that these utilities may be considered to be ubiquitous within the Region. The Commission has completed inventories of the existing and committed sanitary sewerage and water supply facilities and service areas within the Region, and this information will be made available to the study. In addition, the Commission is presently engaged in the preparation of a regional sanitary sewerage system plan.

G. Population and Economic Activity Inventory

It will be necessary to inventory the socio-economic factors which underlie the increasing urbanization and demand for housing facilities within the Region. Such an inventory must determine trends in population and economic activity levels and correlate these trends to the need, as well as to the effective demand, for housing. Detailed population and economic base studies of the Region have been completed by the Commission in 1963, including information by small geographic area on the size, characteristics, and distribution of the population and on the number of employment opportunities. These data will have to be updated for the study; and it is anticipated that an economic survey and analysis, along with the forthcoming 1970 Census of Population and Housing as presently (1969) contemplated, will serve this end. It should be emphasized, however, that a major increase in the time and cost of the housing study proposed herein will be necessary if the actual conduct of the 1970
census is varied from what is presently contemplated. Recent proposals by members of the Congress that the mandatory response provision be removed from or applied only to a few selected items on the census questionnaire would impair so seriously the usefulness of the resulting data for the proposed housing study that a separately mounted survey to collect the necessary data would be required.

H. Examination of Cost Trends in Housing

A detailed review of past and present costs of land, construction, and financing will be essential in determining the probable future costs of various types of housing units in different geographic locations within the Region. The cost figures will be examined closely to determine if, in fact, families with low and moderate incomes are effectively excluded from the present new housing market within the Region and, if so, how extensive such exclusion may be. These data will be obtained through a collation of existing and available information, supplemented, if necessary, by either a mail-out or personal interview survey.

I. Review of Technological Changes in the Housing Industry

An inventory of technological advances in the housing industry will be conducted and should include such items as innovations in materials, tools, materials handling equipment, and transportation methods and such management techniques as critical path scheduling and time and motion studies. These data will be collated from existing sources and supplemented, if necessary, by a mail-out or personal interview survey.

J. Tax Structure Inventory

An inventory by community of general property assessments and taxes will be necessary, including determination of assessed value; assessment ratio; general property tax rate; state, county, and local tax rates; school tax rate; and effective full value rate. A review of such factors should indicate whether or not a correlation exists between a community's tax policies and the supply of, or demand for, housing. So as not to distort the findings, the inventory would also have to include an examination of the kinds and levels of services provided in the community for the taxes levied, as well as a measurement of the quality of such services, where quality is readily measureable and relevant. These data will be collated from existing sources.

K. Housing Sales Transactions Inventory

An inventory of housing unit sale transactions will be necessary to determine if filtration of housing occurs. Such an inventory will require information about the location, price, age, condition, value, and type of structure sold. In addition, related characteristics concerning both the buyer and seller of the housing units would be required. Such characteristics would include: family size, occupation, income, location and structure type of buyer's previous residence, and location and structure type of seller's next residence. Careful evaluation of the interrelationships of these factors would be required. These data will be collated from existing sources and supplemented by either a mail-out or personal interview survey. In addition, a separately mounted personal interview survey is required to develop new information about buyer and seller characteristics.

L. Appraisal of Past Land Subdivision Characteristics

A review of past platting activity in the Region will be required in order to identify changing trends in subdivision size, development pattern, location, average lot sizes, and amounts of land devoted to lots, streets, or other dedicated areas. These changing land subdivision practices will affect the pace and character of new housing development. An inventory of such practices will assist in evaluating these changes. The Commission has completed such an inventory, and it will be available to the study.
This alley scene is one of many such scenes in some of the older neighborhoods in the metropolitan area. In the foreground is a pile of stone block from a crumbling retaining wall, along with one of many abandoned autos in the area. The dilapidated garage has been converted to a pigeon coop, and the area in general has accumulated a great deal of rubbish. In the background, the exterior of the house appears generally in good repair, but the structure is poorly situated on a small lot immediately adjacent to the alley right-of-way; and the surrounding environment is not only offensive to the eye but presents many potential hazards to children.

M. Government Sponsored Housing Programs Inventory

Housing programs sponsored partially or wholly by federal, state, or local governments have been and will continue to be an important influence on housing, especially for families of low- or moderate-income level. A necessary requisite for any recommendation concerning the role which the public sector should assume in the operation of the housing market or in meeting true housing needs requires an inventory of publicly sponsored programs, including those related to public housing, urban renewal, model cities, rent supplements, below market interest rates, rental housing, home ownership, relocation, and rehabilitation. These data will be collated from existing sources.

N. Existing Housing Stock Inventory

An inventory of existing housing facilities within the Region is essential to an understanding of the housing market and to the determination of true housing need. This inventory step will require the collation of data from existing sources; a mail-out survey; and the development of special data through field surveys. The inventory will provide data concerning the quantity and quality of the existing housing stock within the Region by the following categories of information:

1. Type of Structure

The inventory will classify the structure as being public or private, single-family, multi-family, mobile home, second, or vacation home. Also, the classification will indicate the style, the number of floors in the structure, and whether the structure contains a mixed use, such as residential/commercial or residential/industrial.

2. Location

Each unit will be identified by one or more of the following locational factors:

a. County.

b. Civil division.
Houses produced since 1946 generally followed the pattern of change shown in the sequence of these three photos.

Immediately following the second World War, housing demand and production reached record levels in order to satisfy the pent-up demand generated by the large number of returning servicemen and their families. The typical smaller housing units shown in the first photo were built to meet this intensive demand in a period also faced with scarcities of both materials and labor.

The second photo characterizes much of the middle-income housing built between 1955 and 1965 in almost every part of the Region. Ranch-style houses with attached garages and large one-third to one-half acre lots were most typical of the residential development of this period.

The larger, more expensive housing in the third photo is typical of much of the residential development of the past few years. Scarce and expensive mortgage money, high cost of land, labor, and materials, and rising property taxes have virtually excluded the moderate- and middle-income buyer from the new housing market and have caused builders to construct only higher priced houses.

c. U. S. Public Land Survey town, range, section, and quarter section.
d. Street address.
e. Postal zip code.
f. Census tract number.
g. Census block number.
h. Assessor's parcel key number.
i. X-Y grid coordinates.
3. Occupancy

A determination will be made as to the number of units owner-occupied, renter-occupied, or vacant and the tenure of each. An effort will also be made to determine the amount of "doubling" and "tripling" which occurs.

4. Condition

An exterior condition survey will rate the structures using some meaningful scale on the extent of deterioration present. Factors that will be considered in the survey are condition of foundation, exterior walls, roofs, porches, stairs, windows, doors, chimneys, walks, drives, and landscaping.

5. Value

Value will be determined on the basis of dollar market value for owner-occupied units and amount of rents for renter-occupied units.

6. Other Factors

Other factors which will be considered in the housing stock inventory are the size of structure, number of rooms, and age of structure and, where feasible, a selected sampling of interior conditions will be undertaken.

O. Attitudinal Survey

An attempt will be made to determine the opinions and values of low- and middle-income and minority groups within the Region on housing because these groups are believed to comprise the greatest portion of the unmet housing needs within the Region, needs to which public housing programs must be addressed. This will be done through a personal interview survey.

ANALYSES AND FORECASTS

In addition to providing the basic factual information about a given area, inventories in the planning process also provide the bases upon which analyses of existing situations and forecasts of future needs and demands are prepared.

In the case of the housing study proposed herein, the inventories previously described will provide the basic information required to understand the relationship between housing supply and demand factors within the Region; to identify the extent of existing government housing activities within the Region; and to indicate the magnitude of present housing needs within the Region. In addition, forecasts of certain factors are required in order to scale both future housing demand and future housing needs against the probable future supply of housing within the Region. Recommendations can then be made to overcome the deficiencies indicated through a comparative analysis of these forecasts. The analyses which must be undertaken and the forecasts which must be prepared are briefly summarized in the following paragraphs.

A. Analyses

1. Existing Supply

An analysis of the existing supply of housing within the Region will be conducted, with particular attention to be given to the relationship of the quantity and quality of the existing stock to the following: type, age, and style of structure; location of housing; owner-occupied housing and renter-occupied housing (public and private); and general price and rent levels. In addition, an analysis of available vacant units will also be conducted in terms of location, age, type, and size of unit and the price or rent levels being sought.
2. Effective Demand

An analysis of the population size, characteristics, and distribution within the Region will also be conducted as a basic indicator of effective housing demand. Under this analysis such factors as family formation rates, family size and income range, changing age distribution, changing educational attainment levels, and the increased mobility of people and jobs with a corresponding redistribution of people and work places will be considered. In addition, an analysis of effective housing demand must also take into account changing land, construction, and financing costs for residential development; the effect that changing tax rates have on encouraging or discouraging new development or on retarding or stimulating the upgrading of existing deficient housing; and the influence that expanding economic activity exerts on the demand for new or rehabilitated housing.

3. Market Identification

Analysis of the past and present trends in the aggregate regional housing market will be conducted in order to establish the basic housing demand and supply relationships within the Region against which all other pertinent information can be evaluated and within which housing submarkets can be identified and geographically delineated. Analyses will also be made of the past and present trends in selected submarkets. These may include such special market areas as housing for low-income, elderly, and nonwhite segments of the population. In addition to the general rental and sales markets, an analysis will be conducted to seek to identify any other submarkets which are based on such factors as location; commutershed; political subdivision; and housing size, type, price, age, and condition. In addition, an analysis will be conducted to determine the extent to which a second home market and a mobile home market exist within the Region.

4. Institutional Constraints

An analysis will be conducted to determine the extent to which institutional constraints, such as zoning ordinances, subdivision ordinances, and building and housing codes, encourage or impede the development of new housing or the rehabilitation of existing housing. In addition, an analysis will be made of the diversity of land use controls in order to identify the qualitative and quantitative effects such controls may have had on the housing environment within the Region.

5. Housing Unit Shortage

An analysis will be made of the full range of housing market data collected in order to determine the extent to which a housing unit shortage exists within the Region. Such an analysis will deal with housing needs in a full range of costs. It is expected, also, to focus particularly on the housing needs of low- and moderate-income families within the Region. This effort will require as a basic input a detailed set of agreed-upon regional housing objectives and standards and a set of agreed-upon definitions of such concepts as "decent, safe, and sanitary housing," a "suitable living environment," and "low- and moderate-income." In addition, the analysis and forecast of effective housing demand, as scaled against the forecast of housing supply, would be required before a specific analysis of a housing unit shortage can proceed.

6. Environmental Considerations

An analysis of residential land development practices which relate development location to the availability or ready provision of such public services as sanitary sewer and water supply will be made to identify the extent to which existing disparities can be corrected. In addition, the findings from other Commission work programs will be incorporated to provide insights into ways in which future or potential disparities between new development proposals and public service extensions can be avoided.
These three photos taken within a two-block area dramatically illustrate the housing and housing environment problems which permeate declining residential areas.

The top photo is an indication of the probable fate of most abandoned homes in these areas. After abandonment, acts of vandalism not only create a dangerous environment for curious children but serve to place the abandoned unit beyond feasible restoration. The declining condition of the abandoned unit may, in turn, affect maintenance decisions on adjacent units (notice falling rain gutter on adjacent home) and contribute to the general deterioration of a neighborhood.

The middle photo illustrates that deterioration does not necessarily have to begin with the housing unit itself. The housing structures on this photo appear to be basically sound, but the yard areas show indications of deterioration. The backyards are unkempt and have an accumulation of litter, including an abandoned auto; and the house is utilized as a billboard to post "NO PARKING" signs.

The home in the lower photo is well kept, structurally sound, and provides adequate living quarters for several families. Laxity in maintenance of such a structure and its associated yard areas could ultimately result in conditions similar to those illustrated in these photos.

This lot, which is a striking example of how the scarce supply of open space in a declining neighborhood can be misused, has been cluttered with junk and debris. Whether the presence of this litter is due to the intent of the owner to salvage parts or whether the cost of removing it is beyond his means, there exists a very real hazard to small children; and the sight is surely aesthetically offensive and not conducive to the maintenance of a stable residential area.
7. Discrimination and Choice of Housing

An analysis of the inventory data will be conducted to determine, to the extent feasible, the character and magnitude of discriminatory practices related to housing within the Region. As indicated earlier, there are few reliable data sources which can be utilized to provide insight into this factor. It is anticipated, however, that by relating the inventory findings concerning supply and demand factors to the various submarkets and to the socio-economic characteristics of the population groups comprising these submarkets, some relationships which would bear on the factor of discrimination may be uncovered.

8. Filtration

An analysis will be made of the inventory data to determine, to the extent feasible, whether the filtration\(^1\) of housing occurs within the Region or within or between submarkets within the Region. If filtration does occur, an evaluation will be made of the extent to which it occurs and to whom the benefits of the process accrue. In addition, an attempt will be made to evaluate the influence government activities in the housing field have had upon the encouragement, retardation, or prevention of the filtration of housing within the Region.

9. Technology in the Housing Industry

An analysis will be made of the inventory data to determine the extent to which technological innovations in the housing industry have been applied within the Region or if indeed new technological advances have been resisted by local public, as well as private, interest groups. An attempt also will be made to relate the overall requirements for the production of housing within the Region to the adaptability of the local building industry, labor, and the various local governments to new and changing technology.

\(^1\) See Chapter III, p. 24, for a definition of the term "filtration."

Technological changes are not new to the housing industry. The all-steel Lustron Home introduced in 1940 is still very much in evidence within the Region. These examples are two of the nearly 1,700 such homes, which sold for under $12,000, and were constructed throughout the nation in 1948 and 1950. It is hoped that experience gained in the Lustron Home experiment, as well as from other innovative housing attempts, can be drawn upon to identify problems which future innovative housing efforts can capitalize upon in trying to supply the volume of housing units in the future at prices most families can afford.
10. Government Activity in the Housing Field

An analysis will be made of the inventory data to evaluate the overall effectiveness within the Region of government-sponsored housing programs. Particular emphasis will be placed upon the housing loan, grant, and insurance programs as they have functioned since their inception; upon the public housing programs and the needs they have satisfied; and upon relocation programs and their growing importance. In addition, an analysis of the inventory data will be made in order to evaluate the overall community acceptance of government housing programs.

11. True Housing Need

An analysis of the inventory data will be made in an attempt to appraise adequately the true housing needs of the Region. An objective evaluation of the housing demand and supply relationship over time, scaled against an agreed-upon format of regional housing objectives and standards, will be attempted so that a more thorough identification of true housing need can be made.

B. Forecasts

As indicated earlier, the inventory phase of the planning process provides the basis upon which forecasts can be made of those factors of housing supply and demand which are the most important and lend themselves to rational forecasting.

1. Supply Forecasts

The factors associated primarily with the future or continued supply of the existing stock of housing that are to be forecast are demolitions, conversions, and rehabilitation. In addition, forecasts will be made of rent and value changes due to depreciation and obsolescence.

2. Demand Forecasts

The factors associated with effective demand that lend themselves to rational forecasts include the demographic factors of population size; population characteristics, such as age, the rates of family and household formation, income levels, and educational levels; and population distribution and mobility.

3. Regional Housing Market Simulation Model

As indicated earlier, it is also anticipated that the inventory phase will provide sufficient input information for the effective operation of a regional housing market simulation model. It is anticipated that the study proposed herein will provide for the development and operation of a mathematical model which will facilitate the preparation of short- and long-term demand forecasts in terms of household type, structure type, and residential density. It is also anticipated that the model to be developed could serve to provide periodic evaluations of the regional housing market in supply and demand terms and to simulate alternative residential growth patterns for purposes of evaluating development alternatives.

PREPARATION AND EVALUATION OF RECOMMENDATIONS

Based upon the most detailed inventories feasible; thorough analyses of the factual data available; a series of acceptable forecasts of housing demand and supply; and a careful appraisal of unmet housing needs within the Region, a series of recommendations will be prepared. These recommendations will be addressed specifically to at least two principle subject areas which together will provide the initial framework for the development of a regional housing strategy. Such a regional housing strategy would have as its principal goal the complete and expedient implementation of the recommendations growing out of the
housing study. The first subject area will concern the maintenance of a data file of relevant housing market information. It is anticipated that this recommendation will include the specific identification of the data considered most relevant and required to be maintained, the preferred source of the data, the frequency of collection, the geographic area of coverage, the uniformity of compilation, and the means of dissemination.

The second subject area will concern the role that all levels of government—federal, state, and local—acting together with the private sector, can best assume in the provision and maintenance of decent, safe, and sanitary housing in a suitable living environment for every resident of the Region. It is anticipated that this recommendation will include specific existing and possible future public program sponsorship proposals and specific areas of influence and activity that each level of government can best serve. It should be emphasized that any recommendations relating to the public sector will necessarily include recommendations concerning the manner and means through which the public sector might assist the private sector in performing those housing supply and demand activities which it is best qualified to perform. Private enterprise is now and may be expected to continue to be deeply involved in the provision of decent, safe, and sanitary housing necessary to meet the national goal; and recommendations growing out of the study finding will be directed at amplification of the interdependent and cooperative nature of public-private sector activities in the housing field.

Recommendations, like plan proposals, need objective, quantifiable evaluation tools in order to assess the extent to which they are being met or carried out. In addition to the recommendations, therefore, the proposed housing study will develop a means by which implementation of any recommendations made as a result of the study can be evaluated objectively.

TIME SCHEDULE

An estimated time schedule for the conduct of a regional housing study is shown in Figure 4. This schedule is subject to revision upon preparation of the detailed study design memoranda. It represents, however, the best time estimate possible in the absence of such study design memoranda. Study organization and study cost estimates are predicated upon this recommended time schedule, which identifies all of the major project work elements. As indicated, the project is recommended to commence in July 1970 with the preparation of the detailed study design memoranda and to terminate in June 1973 with the publication of a final report. It should be emphasized, however, that the study findings will be reported on a work-progress basis; and thus the need for relevant information concerning housing supply and demand will be available in the early phases of the study.
### Figure 4
TIMING OF MAJOR WORK ELEMENTS FOR THE REGIONAL HOUSING STUDY

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Source: SEWRPC