POPULATION AND EMPLOYMENT FORECAST FOR 2030 BY QUARTER SECTION FOR THE CITY OF CHICAGO

Marie V. Bousfield
City of Chicago, Department of Planning, City Hall, Room 1003, Chicago, IL 60602
mbousfield@cityofchicago.org

Large metropolitan areas exceeding one million people are required by the federal government to submit a 30-year transportation plan. The plan requires population, household, and employment forecasts by quarter section. These forecasts are required for federal funding of highways and public transportation. Most of the municipalities and cities in the Chicago region prepare these forecasts. The Northeastern Illinois Planning Commission (NIPC) provides technical support, evaluates, and combines these forecasts. As outlined below, for the City of Chicago, a quarter section population and employment forecast was prepared.

The City's forecast includes a regional and citywide analysis covering the 1970-2000 period, describing the components of population change and housing change, and illustrating the link between inner city neighborhood decline and urban sprawl. The citywide forecast uses the cohort component method by race and Hispanic origin and Chicago specific vital rates and life tables for the year 2000 and domestic and international migration rates for 1990-2000. Future rates are derived using assumptions similar to those used for the national forecast. The citywide forecast leads to the age, race, and gender structure of the future population of Chicago.

The quarter section population forecast uses a modified housing unit method with expected changes to the housing stock linked to land use, vacant land, zoning districts, and property values. Likely changes in household size, vacancy rates, and group quarter populations are derived from demographic trends. The quarter section employment forecast is based partly on vacant land and buildings available for non-residential development. Employment counts for the year 2000 are derived from unemployment insurance records from the State of Illinois complemented with administrative data covering public employment and self-employment and from the 2000 Census Transportation Planning Package. The employment forecast assumes partial development of the vacant land and reuse of the vacant buildings and assumes standard employment densities.

To prepare the forecast, the central business district and the neighborhoods were considered separately. For the central business district, the City maintains a list of developments covering nearly all vacant and underused parcels. This list led to a good preliminary forecast because these developments tend to be large and have a long lead time. In the neighborhoods, the zoning districts were used to identify three types of areas: residential areas, major commercial and business streets, and industrial corridors. Large and small developments were treated separately: large developments were listed individually and small developments were forecasted in the aggregate at the community area level. For the large developments in the residential areas, a

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spreadsheet was built with all known developments: those finished after the year 2000 and those under construction or in the planning stage. This information was obtained from NIPC's development database and from numerous interviews with city planners. It includes the redevelopment plans by the Chicago Housing Authority and announcements made in construction and real estate journals. In the industrial corridors, available parcels tend to be large and each one is assigned a city planner who described its likely future use. In general, a shift from manufacturing to services, high-tech industries, and research and development is expected. A list of large developments along our major commercial and business streets was created. It includes among others shopping centers, big box stores, entertainment complexes, medical clinics, institutions, etc.

Small developments are too numerous to be listed individually. Instead, they were estimated in the aggregate at the community area level. In the residential areas, small developments consist of fill-in construction on scattered vacant lots. The combined land area of these lots was determined at the community area level. Recent construction and home and land value appreciation were used as indicators for future development and were used to predict which fraction of the vacant parcels would be filled in. Along commercial and business streets, many small developments involve rehabbing or rebuilding vacant stores with abandoned upper floor apartments while others involve filling in vacant lots. These small developments tend to cluster in street segments that were identified by city planners and were treated as a unit in the forecast. Along these streets, the forecast takes into account upcoming zoning changes allowing increased residential densities especially for transit oriented developments.

The data necessary for the forecast come from different sources and use different spatial units. For instance, the 2000 base data and the 2030 forecast use quarter sections, the land use data use arbitrary polygons with uniform land use, the zoning data use zoning districts. In addition, several layers of spatial context are used. These include transit lines, railroads, the existing regional transportation plan, the street grid, enterprise zones, tax increment financing districts, etc. To combine these data, we used GIS techniques and software called *Paint the Town* (PTT) developed by ESRI Business Partner Criterion Planners/Engineers of Portland, Oregon.

The developments were all unique and their number was large (more than 500 in the central business district alone). To simplify the task we selected a limited number of commonly built standard developments and these were entered into a palette built into the software. For instance, the palette includes single family homes, walkup apartment buildings, high rises, large stand alone stores, storefronts with walkup apartments, nursing homes, medical clinics, and many more. For each residential development in the palette, the number of units per acre, the household size, and the vacancy rate had to be specified. For each non-residential development in the palette, the number of square feet per employee and the floor-to-area ratio or the number of jobs per acre and the vacancy rate had to be specified. To record a proposed development on the map, the area has to be delineated using GIS editing tools and the standard development closest to the proposed development is selected from the palette. The population, households,

and employment lost because of the development are recorded. The software then calculates the acreage and the net change in the number of persons, households, and employment. This describes the changes caused by the proposed developments. However, other important changes may be expected, those affecting the base data in terms of household size, vacancy rate, and group-quarter occupancy. Likely changes to these parameters were recorded at the community area level. In fact, partly to reduce processing time, each of the 77 community areas in Chicago was treated as a town. As a result, PTT produced summaries at the quarter section and the community area level.

The forecast together with the regional transportation plan will be presented to the public in neighborhood meetings where officials, community leaders, developers, and residents will be invited to make comments and suggestions. For each neighborhood, a report describing the demographic, socio-economic, and housing characteristics, as well as maps showing current and future population density and land use, will provide a basis for discussion.

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