NEW YORK CITY
GLOBAL
PARTNERS

Best Practice: Floor Space and Employment Census for Policymaking

REPORT UPDATED: JULY 21, 2010

CITY: SYDNEY　　　　　　　　**POLICY AREAS: CITY PLANNING; ECONOMIC DEVELOPMENT**

BEST PRACTICE

The City of Sydney **Floor Space and Employment Census** (FES or 'the Survey') is a five-year project undertaken by the City's Strategy & Economic Development Unit. The project is a complete census of all land uses, floor space uses (within all buildings), employment numbers, the types and variety of existing businesses and capacity measures for the City of Sydney local government area. The information gathered provides data essential for the effective formulation of policy at a local level as well as strategic planning and economic development activities.

ISSUE

When undertaking strategic planning, economic development or policy formulation at a local level, one of the most important requirements is adequate and accurate information on the current state of land use, the types of businesses within an area that currently exist, employment levels, floor space use and capacity measures. Inadequate or insufficient data can lead to erroneous assumptions and targets being set that are unrealistic.

The City, as well as other levels of government, educational institutions and public enterprises, and the private sector can use this information to make informed and considered policy and strategic planning decisions.

GOALS AND OBJECTIVES

The aim of the FES is to provide a complete, spatially enabled dataset of the mix, magnitude and extent of employment, land use, floor space use and businesses within the city of Sydney.

IMPLEMENTATION

The latest FES, undertaken between December 2006 and June 2007 collected data on 27,000 buildings, 20,000 businesses, 630,000 individual space uses and counted over 385,000 workers in Melbourne's 26km². The data is held in a Geographic Information System (GIS) database that can spatially represent the data in both 2- and 3-dimensions. This is the first time a census of this type and size has been spatially enabled. Previous Surveys had been undertaken in 1976, 1986, 1991, 1996 and 2001, although these have been collected and held in simple relational databases.

The use of GIS for the latest FES has enabled the City to take a quantum leap in its ability to analyze, report and display the spatial context of the employment characteristics of the City of Sydney.

The data provides baseline information, analysis and reports for the following:

- Sustainable Sydney 2030 – the City's strategic plan
- Economic Development Strategy
- Environment Strategy
- Business Precinct Studies
- Transport Strategy
- New South Wales Metro Strategy
- Emergency Information Coordination Unit
- City Plan (planning policies)
- Residential and Workforce Projections
- Development Capacity Studies
- New South Wales Atlas
- Tourism Strategy

Data Set
The Survey provides a consistent data set that can be used for a wide variety of purposes. The methodology allows for easier updating of the data every five years. This enables the City to track changes in the workforce composition, the variety of

Best Practice: Floor Space and Employment Census for Policymaking

businesses and all buildings and transport infrastructure (except roads) over time, and to benchmark the success of the City's policy initiatives.

The following table indicates the scale and selection of data collected in the Survey:

Data Scale	Collected Data	Description
Building	Major Use	The predominant use of the building, such as commercial, residential, retail etc, as well as the predominant use of the ground floor level.
	Levels	Number of floor levels below and above ground.
	Dwelling Units	Number of dwelling units located within the building.
	Hotel Rooms	Number of hotel rooms located within the building, including hotel rooms, motel rooms, private hotel rooms and pub accommodation.
	Serviced Apartments	Number of serviced apartments in the building.
	Building Name	Name of the building.
	Parking	Number of parking spaces, split by public spaces, tenant spaces and loading spaces, and by internal or external spaces.
	Year Built	The year of completion of the building.
Establishment	Business Name	The name of the business establishment. Non-business establishments include Residential, Common Area, Property Itself, Public Open Space and Vacant.
	Industry	Industry of occupation under expanded (City of Sydney) Australian and New Zealand Standard Industrial Classification (ANZSIC) descriptions (1993).
	Web Address	Website address if applicable.
	Tenure	Length of operation of business in current location.
Space Use	Use	Specific use of non-contiguous space.
	Employment	Count of employees (both full-time and part-time in each space).
	Capacity	Count of dwellings, rooms, beds, seats, or spaces where appropriate – includes car parks, restaurant seating, classrooms.
	Vacancy	Whether a space is vacant or not.
	Externality	Whether a space is external (balconies, parks and open spaces).

Project Development
The FES project was undertaken in four stages - preparation and database design; fieldwork and coding; data entry; and validation and reporting.

The first stage involved identifying every property within the City of Sydney area, and creating a property base from which to build the electronic "City." The database design required a logical data entry interface to allow each unique space within the

Best Practice: Floor Space and Employment Census for Policymaking

City to be linked to its establishment (business), which was linked to the building it resided in, and linked further to the property base. Further preparation required the collection of floor plans for many of the buildings in the City.

During the fieldwork stage, a team of 26 surveyors were employed to visit every non-residential building to survey each business establishment and collect data on space uses (annotated on floor plans), employment, industry use and capacity measures. The data was coded according to use of building, industry of establishment, and type of space use. Residential buildings were surveyed from existing floor plans (not internally) to avoid personal intrusion. All parks and open spaces, vacant land and buildings, and common areas were also surveyed, as were all underground spaces.

The third (data entry) stage required digitizing the annotated floor plans for each building, and entering the data for each building, establishment and space use. Floor and roof levels were added (from plans) to enable 3-dimensional modeling of the data.

The final stage was validation of the data, analysis, reporting and data dissemination. The data has a wide range of applications and has been used by the majority of Council business units, various State Government departments, and public and private businesses and institutions.

The workforce and business data gathered also complements the residential information collected in the national Australian Bureau of Statistics Census of Population and Housing.

COST

The cost of the project was approximately 1.6 million AUD ($1.39 million USD). This included an outlay of 950,000 AUD ($828,400 USD) for fieldwork (data collection and coding), and a further 650,000 UAD ($568,295 USD) for data entry into the GIS. It should be noted that as this was the first of our FES projects to be spatially enabled, a significant one-off cost was incurred in electronically building the city floor by floor and space by space. The cost equates to 1.50 AUD ($1.30 USD) per record for fieldwork, and a further 1.00 AUD ($.87 USD) per record for data entry.

As future projects will amend the existing database, the data entry cost will be significantly reduced. The use of technology to survey, code and enter data in the field will further reduce the fieldwork costs in subsequent projects.

RESULTS AND EVALUATION

The outcome of the current FES was a complete snapshot of the workforce, variety of businesses, land use and space uses of the City of Sydney. The move to a spatially enabled database created an information system that could be applied more readily to a wider range of projects initiated by the Council and other partners.

The key success of the Survey lies in its consistent data set, which allows the goals of different strategies and policies to be compared, and provides a benchmark for their success or otherwise.

Best Practice: Floor Space and Employment Census for Policymaking

The figure above shows the spread of various Finance and Business Service Sector firms in the Central Sydney area, 2007. (Note Red = Legal Firms, Orange = Accounting Firms, Blue = Financial Services, Purple = Insurance Firms, Green = Marketing Firms).

TIMELINE

June 2006 - December 2006	Preparation of Survey
December 2006 - June 2007	Fieldwork
February 2007 - June 2008	Data Entry
July - August 2008	Validation
September 2008-ongoing	Analysis and Reporting

The next Survey commences April 2011.

LEGISLATION

Not applicable.

LESSONS LEARNED

The City of Sydney reports several difficulties faced with this project, most of which surrounded the fieldwork component of the Survey. Gaining access to buildings was the primary obstacle in data collection. This was due to reluctance on the part of some businesses to provide access as they were uncertain about how the information would be used. The City reassured all businesses that data remains confidential, and that data was aggregated to protect privacy before release. Large institutions also provided certain challenges. Certain areas of the naval base were off-limits to surveyors, for example. These restrictions were overcome by generalizing the uses of these buildings in communication with the relevant authorities.

Another obstacle to gaining access was the inability to find the appropriate person or authority within the building that would permit access. Often this involved leaving letters or collecting phone numbers to make a call back from the office. The final difficulty occurred where sites were not staffed (vacant sites), or were closed during collection hours (late night premises). In these cases surveyors were encouraged to again collect phone numbers where possible so that contact could be made via the

NEW YORK CITY
GLOBAL
PARTNERS

Best Practice: Floor Space and Employment Census for Policymaking

office. Visiting buildings several times was time and resource consuming, but was generally alleviated by gaining approval of access beforehand.

Other difficulties included finding the appropriate documentation (i.e. floor plans) for the surveyors, which was also a time consuming process. Often the existing floor plans were outdated or non-existent. This was overcome by requesting the most recent floor or fit-out plans from the businesses themselves, and where possible asking surveyors to draw freehand the space uses as accurately as possible based on a site plan. These drawings were then referenced to the building via an accurate aerial survey.

A significant difficulty which became apparent during the Survey was the initial underestimation of the scope of the City. Between 2001 and 2006, the area of the City of Sydney quadrupled, with an eight-fold increase in the number of buildings due to expansion of the City's boundaries. As a result, no prior data existed for 75% of the City, and it was discovered that the spatial composition was far more complex than originally estimated. At the completion of the Survey, there were 50% more spatial records than first thought. The additional 200,000 records collected added 160 working weeks to fieldwork and data entry components of the Survey. As the next Survey will amend the current one, this issue will not be repeated.

TRANSFERABILITY

This project is best attempted at the level of government responsible for city planning. The methodology of the FES can be easily transferred to other city governments which are willing and able to put forth a significant initial investment in creating the spatial database and in the preparation of the initial survey.

CONTACTS

Steven Hillier, Senior Research Analyst
Strategy & Economic Development
shillier@cityofsydney.nsw.gov.au

City of Sydney
456 Kent Street, Sydney
NSW 2000 Australia
www.cityofsydney.nsw.gov.au

Facts and figures in this report were provided by the highlighted city agency to New York City Global Partners.