Smart Digital Planning tools

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**City Analytics**

- Digital Planning
- Decision Support
- Scenario planning
- Geodesign
- Big Data
- Data analytics
- Modelling
- Simulation
- Visualisation
- Virtual Reality

[CityFutures Research Centre](https://cityfutures.be.unsw.edu.au/)
CityData
Store, discover and share - data for city analytics and decision-making

44 Layers
Click to search for geospatial data published by other users, organizations and public sources. Download data in standard formats.

Add layers »

15 Maps
Data is available for browsing, aggregating and styling to generate maps which can be shared publicly or restricted to specific users only.

Create maps »

34 Users
CityData allows registered users to easily upload geospatial data in several formats including shapefile and GeoTiff.

See users »

https://citydata.be.unsw.edu.au/
<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airbnb</strong></td>
<td>CityFutures researchers working on Airbnb. Restricted Airbnb data from AirDNA or other sources are a...</td>
</tr>
<tr>
<td><strong>Cycling</strong></td>
<td>City Futures research on active transportation with focus on bicycling. Analysis of bicycling patter...</td>
</tr>
<tr>
<td><strong>UADI</strong></td>
<td>Urban Analytics Data Infrastructure (UADI) project team</td>
</tr>
<tr>
<td><strong>CF</strong></td>
<td>City Futures Research Centre</td>
</tr>
<tr>
<td><strong>BE</strong></td>
<td>UNSW Built Environment</td>
</tr>
<tr>
<td><strong>CityData Librarians</strong></td>
<td>Group responsible for curation of CityData content and level 1 user support.</td>
</tr>
<tr>
<td><strong>Blacktown</strong></td>
<td>This is the GIS group of the project titled: Community Co-design of Low Carbon Precincts for Urban R...</td>
</tr>
<tr>
<td><strong>Digital Cities</strong></td>
<td>MUPS0006 (Digital Cities) Students can add themselves to this group.</td>
</tr>
<tr>
<td><strong>Geodesign 2017 Files</strong></td>
<td>Users invited to this group can upload non-confidential data related to the Geodesign 2017 project w...</td>
</tr>
</tbody>
</table>
Bicycle Air Quality Monitoring: VOCs (0-25pm sensor), Sir Joseph Banks Park, 26 August 2017

https://citydata.be.unsw.edu.au/
CityViz – Making urban big data visible

CityViz is a new data visualisation and analytics initiative by City Futures capitalising on our unique access to urban big data for Sydney. Over the next few months a range of data will be presented on this site that will start to build a comprehensive and integrated visual depiction of our changing city.

To start, we have assembled new data on Sydney’s emerging housing market – affordability, strata development and our ‘million dollar property’ map.

In coming months we will be adding to and updating these data with new data on, for example, urban wellbeing, transport and bike use, health services and other newly available datasets. Watch this space!

City Housing Indicators

City Movement Indicators

https://cityfutures.be.unsw.edu.au/cityviz/
Trip Activity by Time
City Dashboard

Sydney

33.8675° S, 151.2070° E

CityDashboard Version 0.9.0

http://citydashboard.be.unsw.edu.au/
30 minute city / Sydney Employment Clusters

https://cityfutures.be.unsw.edu.au/cityviz/30-min-city/
Geodesigning future cities
Living, Breathing Plan
Rapid Analytics Interactive Scenario Explorer

RAISE Toolkit

A tool for analysing and visualising land valuation in different development scenarios
RAISE Objectives:

- Develop open, cloud-based **architecture** to combine data, models, and visualisation
- Develop an interactive scenario explorer ‘**toolkit**’
- Explore **collaborative visualisation** methods
- Apply toolkit to **automated valuation** modelling
- Apply toolkit to **land value uplift** modelling
Value uplift from transportation infrastructure
RAISE data driven Approach

Rapid Analytics Interactive Scenario Explorer

Analysis

Collaboration

Location Intelligence
open source interoperability framework
RAISE functionality

Land Value Price History
RAISE functionality

Breakdown of automated land value with certain variables

Distance to selected point of interest
## Hedonic - Linear Least Squares Model

- **HEDONIC Value**: $1,001,649
- **HEDONIC Value / m2**: $1,592

### Linear Least Squares Model

<table>
<thead>
<tr>
<th>Distance to</th>
<th>100m closer</th>
<th>100m further</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission Line</td>
<td>82m</td>
<td>$-5076</td>
</tr>
<tr>
<td>High School</td>
<td>990m</td>
<td>$-2048</td>
</tr>
<tr>
<td>Library</td>
<td>2528m</td>
<td>$-1368</td>
</tr>
<tr>
<td>Off Ramp</td>
<td>858m</td>
<td>$3643</td>
</tr>
<tr>
<td>Primary School</td>
<td>862m</td>
<td>$-8592</td>
</tr>
<tr>
<td>Swimming Pool</td>
<td>2516m</td>
<td>$-4985</td>
</tr>
<tr>
<td>Train Station</td>
<td>2884m</td>
<td>$4076</td>
</tr>
<tr>
<td>Industrial Zone</td>
<td>855m</td>
<td>$-2781</td>
</tr>
</tbody>
</table>

### Property Features:

- **Balcony**: No / If Yes $-55105
- **Fireplace**: No / If Yes $143813
- **Rumpus Room**: No / If Yes $43360
- **Walkin Wardrobe**: No / If Yes $64714
- **Detached**: Yes / If No $-369862
- **# of Bathrooms**: 2 / 1 more $83982 / 1 less $-83982
- **m2 of Land**: 629 / 100 more $159 / 100 less $-159

*denotes an estimated value*
Value uplift Functionality
Value uplift Functionality
Value uplift Functionality
Parramatta Light Rail options
Sydney Metro North West
Concluding thoughts

- Digital planning tools need to be part of the smart city agenda.
- Big data can be used to plan for the accessible city.
- Rapid Analytics for near real-time decision support.
- RAISE – data driven tool to support sustainable future city planning

Training and Education – there is a need train the next generation of city planners with skills to harness the power of location intelligence, big data, rapid analytics, digital planning tools. ....
Masters of City Analytics

City Analytics

“This course will play an integral role in growing the skill set and culture of data driven evidence based policy and decision making across our cities, both in Australia and Internationally.”

Professor Chris Pettit, Director of Discipline

https://www.be.unsw.edu.au/postgraduate-degrees/city-analytics/about
Questions?

Email: c.pettit@unsw.edu.au