Central Victorian Greenhouse Alliance

Cool It Project

Mapping Methodology 2018

Objective: Pinpoint the intersection of Social Vulnerability, Pedestrian Intensity and Heat (which for the purpose of this project and availability of data has been identified as areas of higher imperviousness). (Coseo and Larsen, 2013)

Social Vulnerability Data

Derived from 2016 Census. Bendigo, Ballarat and Whittlesea data were accessed from Social Atlas id, the other 6 Council's data was accessed using ABS tablebuilder. The below indicators are informed from Loughnan, 2013.

Social Vulnerability to Heat Indicators:

SEIFA Disadvantage (IRSD):
Anything below a score of 1000 is considered disadvantaged. Though this encompasses a large portion of many communities.
Cut off is therefore 900 and below.

Children Aged 0-4:
High concentrations considered to be those in the top 20th percentile

Older Lone Persons (Available of those Council's on Social Atlas id only)
High concentrations considered to be the top 20th percentile

Older Persons (For those Council's not members of .id)
Those over 65 years of age in the top 20th percentile

Those not fluent in English
High concentrations considered to be in the top 20th percentile

Rent Social Housing (SH)
High concentrations considered to be in the top 20th percentile

Pedestrian Intensity

Indicators of pedestrian intensity range considerably depending on availability of Council held data.
All have:
Schools (Data.vic) saved as a csv.
Commercial zone 1 (others depending on planning scheme (includes all neighbourhood shops and CBD)
Parks – usually PPZ in planning overlay.
Others:
Childcare centres, Maternal Child Health, Community centres, Neighbourhood centres, Preschools, Education facilities, Libraries, playgrounds, public transport stops, hospitals, shared paths, senior citizens centres, corner shops, council open air carparks

Other

Industrial Zones (interested not so much in the zone but surrounding socially vulnerable residential areas)

Selection of Priority SA1's

Priority SA1's must have:

- at least 2 of the above criteria of social vulnerability and
- at least 2 counts of pedestrian intensity either shops, playground, childcare centre, schools
- Proximity to industrial areas and concentration of commercial areas should also be taken into account.

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Measuring imperviousness

Next step was to measure imperviousness of these priority areas using point sampling methodology in QGIS. Then each SA1 could be prioritised based on % imperviousness.

Each of the 9 Councils have an allocation of 8 parcels to be point sampled for % imperviousness, tree cover and other.
These can be measured at SA1 parcel size for larger towns and block or multi block level for smaller towns (where SA1 parcels equal 3 or less).

Max 1000 points per Municipality
1 = impervious
2= tree
3 = Gravel or bare dirt
4 = other

Further prioritisation:

Other data such as walkways and cycleways, unirrigated poorer quality open space parcels, existing street trees could then be used to define which streets, paths or parcels of open space would benefit the most from tree shade and open space irrigation with these priority areas measuring higher imperviousness.

Outputs:
Prioritised parcels x 8
Impervious % measured for each 8 parcel
Within priority parcel (highest imperviousness) – pinpoint streets and parks that should be targeted for shade and irrigation.

Priority streets and parks as a shapefile.