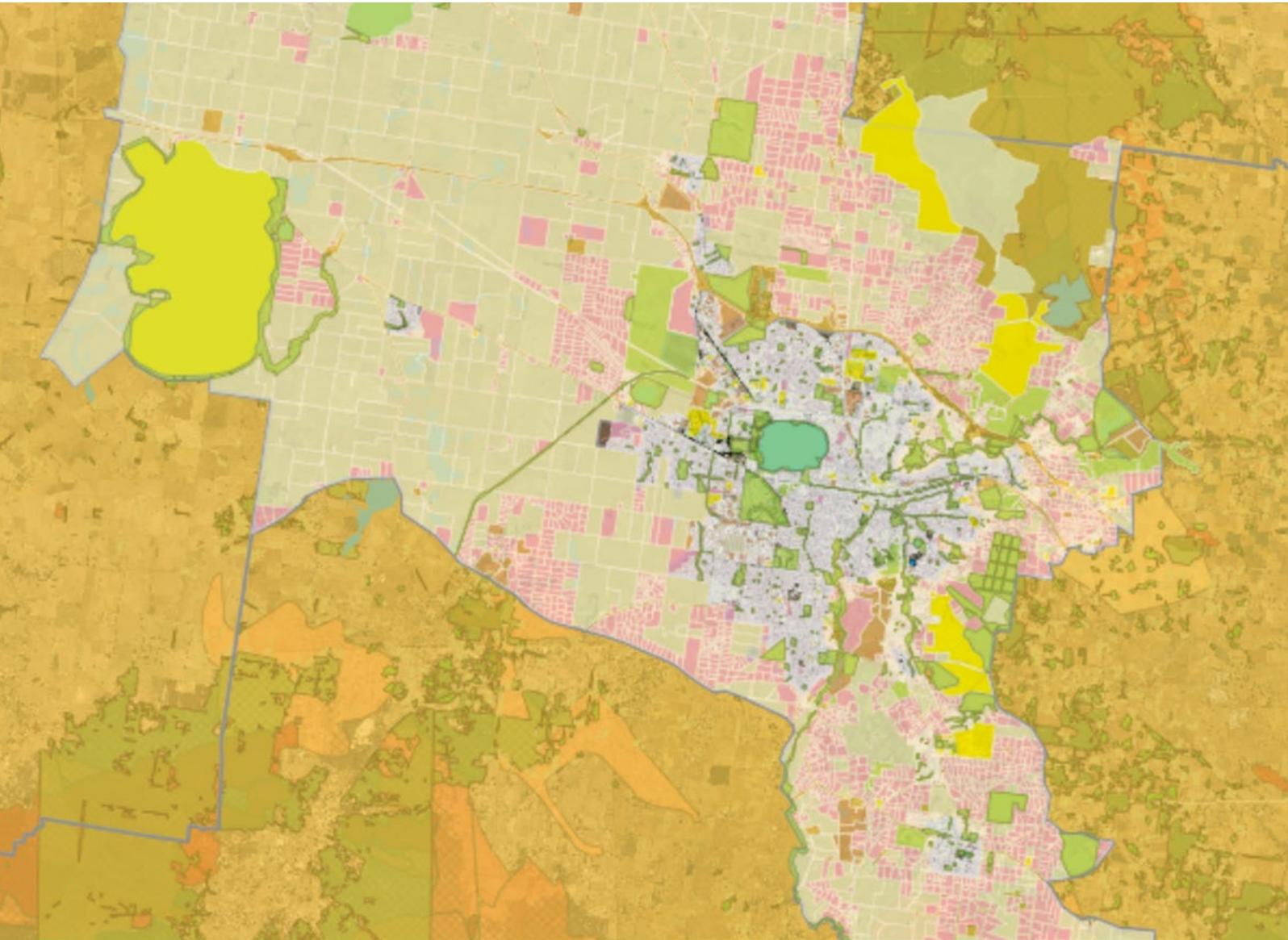


# SPATIAL CONNECT

An activity based project



## Place and liveability in Ballarat – Historic Urban Landscapes (HUL)

LEVEL 7

# SPATIAL CONNECT

## Place and liveability in Ballarat – Historic Urban Landscapes (HUL)

### Level

Victorian Curriculum: Level 7 Geography, Place and Liveability

Australian Curriculum: Level 7 Geography, Place and Liveability

### Aims

1. Interpret data in a visual form using a Geographic Information System (GIS) and develop appropriate conclusions.
2. Assess the liveability of Ballarat using a variety of appropriate criteria.

### Time

2–5 lessons

Teachers are encouraged to choose which activities to use with their classes.



[http://search.slv.vic.gov.au/primo\\_library/libweb/action/diDisplay.do?vid=MAIN&reset\\_config=true&docId=SLV\\_VOYAGER1669024](http://search.slv.vic.gov.au/primo_library/libweb/action/diDisplay.do?vid=MAIN&reset_config=true&docId=SLV_VOYAGER1669024)

## Curriculum Links

Victorian Curriculum Geography Content Description [Australian Curriculum equivalent]
<b>Geographical understanding</b>
Factors that influence the decisions people make about where to live and their perceptions of the liveability of places (VCGGK111) [ACHGK043]
Influence of accessibility to services and facilities; and environmental quality, on the liveability of places (VCGGK112) [ACHGK044]
Environmental, economic and social measures used to evaluate places for their liveability, comparing two different places (VCGGK113)
Influence of social connectedness and community identity on the liveability of places (VCGGK114) [ACHGK046]
Strategies used to enhance the liveability of places, especially for young people, including examples from Australia and Europe (VCGGK115) [ACHGK047]
<b>Geographical concepts and skills</b>
Identify, analyse and explain interconnections within places and between places and identify and explain changes resulting from these interconnections (VCGGC101)
Identify, analyse and explain spatial distributions and patterns and identify and explain their implications (VCGGC100) [ACHGS051]
Collect and record relevant geographical data and information from useful primary and secondary sources, using ethical protocols (VCGGC102) [ACHGS048]
Select and represent data and information in different forms, including by constructing appropriate maps at different scales that conform to cartographic conventions, using digital and spatial technologies as appropriate (VCGGC103) [ACHGS049 & ACHGS050]
Analyse maps and other geographical data and information using digital and spatial technologies as appropriate, to develop identifications, descriptions, explanations and conclusions that use geographical terminology (VCGGC104) [ACHGS051]

# How liveable is Ballarat?

## Introduction

In this investigation, data from Historic Urban Landscape (HUL) will be used to assess the liveability of Ballarat. HUL is a website dedicated to providing local and regional communities with information about Ballarat's distinctive history and culture. It contains a variety of tools used to help connect local residents, visitors, local government, organisations and academics. It is part of an international pilot looking at how historic cities can be managed to enable change and development while preserving aspects valuable to local communities. HUL contains interactive spatial data about Ballarat's environment including heritage architecture and natural features and Ballarat's social values including lifestyle and culture. These environmental and social factors are crucial features of places such as Ballarat and can be used as criteria to assess their liveability.

## Aims

Students will:

1. learn how to use a Geographic Information System (GIS) to gather, interpret and analyse spatial data
2. understand the factors that affect the liveability of a place
3. assess the liveability of Ballarat using a variety of factors and draw appropriate conclusions using evidence.

## Preparatory knowledge

This project focuses on liveability in Ballarat. Ballarat is a city located approximately 105 kilometres west-north-west of Melbourne in the Central Highlands region of Victoria. It has a population of over 106 000 which is expected to rise to over 145 000 by 2036 with the majority of the growth expected to occur in its southwestern suburbs. Ballarat grew rapidly during the Victorian gold rush in the 1850s and the wealth gained enabled it to become a large rural centre. Ballarat has a rich history, boasting some of Victoria's most significant heritage buildings and gardens and has subsequently become a popular tourist attraction.

Liveability is an assessment of what a place is like to live in using particular criteria. These criteria can be broadly divided into environmental, economic and social factors. Common liveability measures might include access to goods and services, recreational and sporting facilities, education and health provision and features of the environment such as pollution, water quality, tree cover and aesthetics. Social factors such as happiness, crime, culture and social connectedness are also considered. Many of these factors are interconnected. For example, increased tree cover might contribute positively to mental health whereas a high crime rate might lead to social isolation. These factors combine to determine whether or not people want to live in a place and their happiness and satisfaction with where they live.

## Resource links

- HUL Ballarat homepage: <http://www.hulballarat.org.au/>
- Visualising Ballarat map portal: <http://www.visualisingballarat.org.au/>

## Getting started

- Load the HUL mapping portal, [Visualising Ballarat](#)
- Practise turning layers on and off by ticking and unticking the check boxes (figure 1).
- Expand the various category folders by clicking the + icons and explore the layers within these folders.
- The active layer, listed at the bottom of the layers toolbar, is the last layer that you turned on. Practise changing the transparency of the layer by moving the slider. Clicking the  icon will provide information about each layer.
- Some layers have the option to turn on query mode. When query mode is turned on, clicking on the map will reveal information about that place from the data layer.



**Figure 1:** The Categories and layers toolbar on the right of the map portal enables you to select the layers you wish to display, find information about the data and change the transparency of the data

1. Which category folder contains the *Corner shops* layer?
2. Who is the owner of this data layer? Hint: Click on the  icon for information about the layer.
3. Turn on the *Corner shops* layer and turn on query mode if it isn't already on. Click on three corner shops and write down their addresses.

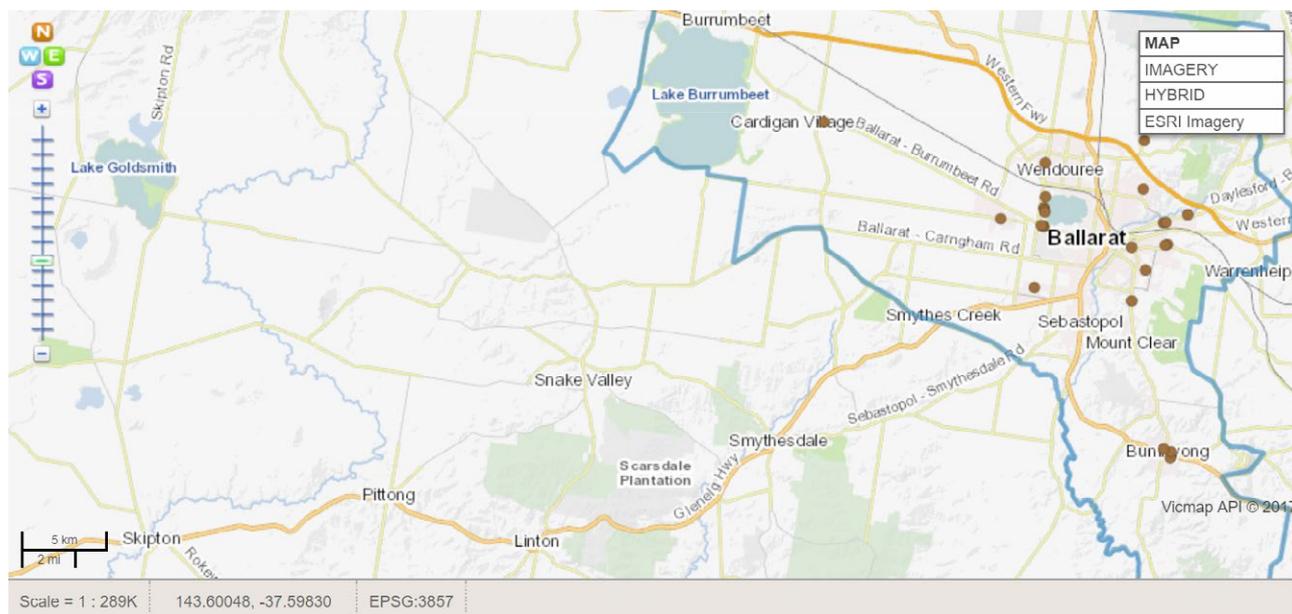
## Navigating the map

**Zooming:** The map can be zoomed using the plus and minus slider on the top left corner of the map, by doubling clicking on an area or by using the wheel on your mouse.

**Moving around:** To move around the map, click on it so that a four-way arrow appears and drag in any direction.

**Map views:** There are four different base maps available and these can be changed by selecting them from the box to the left of the layers toolbar. The default view is 'Map' containing roads, population centres, major physical features, and when zoomed in close enough, property boundaries. *Imagery* will provide satellite image data, *Hybrid* will combine map and satellite data and *ESRI Imagery* will provide an alternative satellite image.

**Scale and location:** Note that the scale as a ratio and a scale bar are provided at the bottom left of the map. The latitude and longitude of the cursor position is also provided.



**Figure 2:** The slider to the left of the map portal will enable you to zoom. Map view can be selected from the top right and scale and latitude and longitude coordinates are shown on the bottom left

4. Zoom into Lake Wendouree in the centre of Ballarat.
  - a) What are the latitude and longitude coordinates of the centre of the lake?
  - b) Using the linear scale, estimate the width of the lake from east to west.
  - c) Turn on the *Imagery* or *ESRI Imagery* map views. What landform does this view reveal in the middle of the lake?
  - d) Zoom into the banks of the lake. Move around the parkland surrounding the lake. In a table, record some of the features you can see and their locations. Examples of features might include boat ramps, barbeques and parkland.
  - e) Read more about Lake Wendouree:  
<http://www.ballarat.vic.gov.au/lae/lakes/lake-wendouree/history-of-lake-wendouree.aspx>
  - f) List three reasons why Lake Wendouree is an important attraction for local residents.

## Using the toolbar

**Save:** This function allows you to copy a URL link of the map at its current extent with the current layers turned on.

**Print:** This function will allow you to save a PDF map which can then be printed or emailed.

**Tools:** These tools allow you to reorganise the order of your layers, search for addresses within the study area, measure the distance between points and calculate the area of polygons.

**Legend:** If you have layers turned on, their colours and symbols will appear in the legend.

**Help:** This user guide has comprehensive instructions on how to use all aspects of the mapping portal.

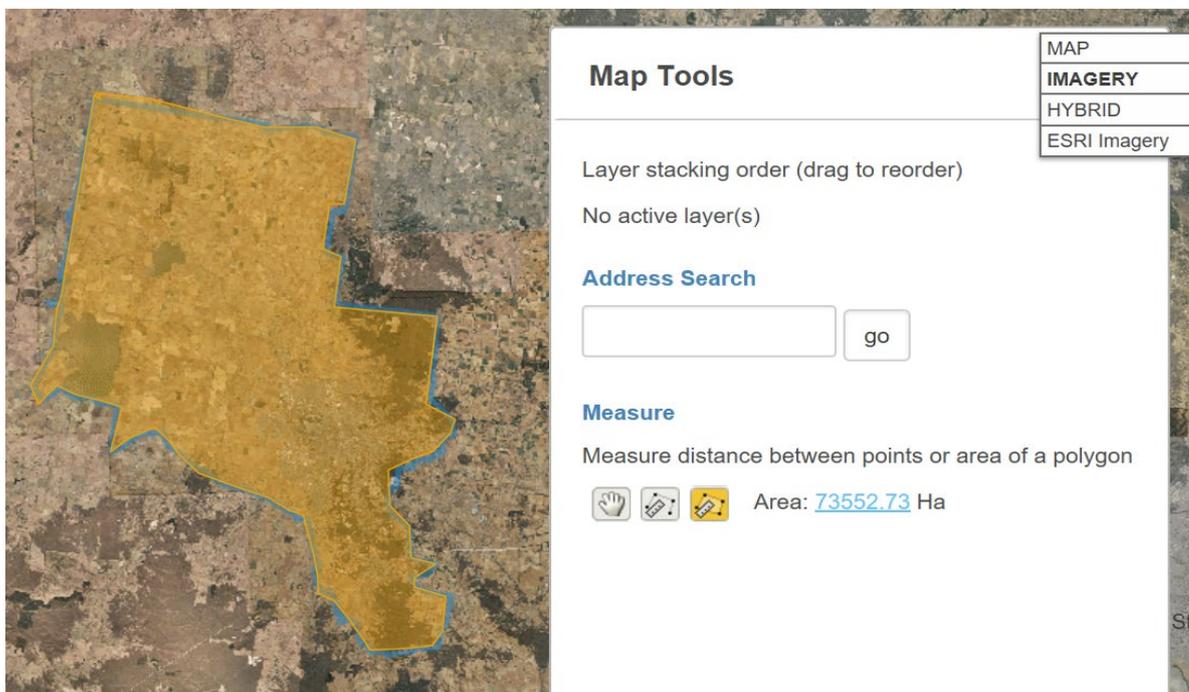


**Figure 3:** The toolbar at the top of the map portal

Turn on the *Land-use (rates)* layer from the *Regulatory tools* category (sub layer *Planning*). Open the legend and use it to identify different types of land uses in Ballarat

5. Rank the land uses from the one covering the largest area to the one covering the least based on your estimations.

- Turn on the *Waterbodies* layer from the *Hydrology* category. Locate Lake Burrumbeet in the western region of the study area. You might need to momentarily switch off the water bodies layer and switch to map view to find the name of the lake.



**Figure 4:** Polygons can be traced around parts of the map to calculate area

6. Measure and record the perimeter and area of Lake Burrumbeet using the distance and polygon tools. As shown in Figure 4, These can be found under 'Tools' within the 'Map Tools' pop-up

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## Characteristics of place

### What is Ballarat like? What are some features that make up Ballarat?

- Turn off all layers. In the *Boundaries* category, turn on *Local Government Areas*.

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7. List three Local Government Areas surrounding Ballarat.
  8. Estimate the length and width of Ballarat using the map scale in the bottom left corner.
  9. Use the distance tool to calculate the length and width of Ballarat LGA.

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10. Use the polygon tool to trace around Ballarat and calculate its area (Using the screen as shown in Figure 4).

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- Turn on the *Ballarat Land Use 1985\_1990* layer in the *Land use change over time* category.
  - Switch between *Ballarat Land Use 1985\_1990* and *Ballarat Land Use 2005\_2010*.

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11. Describe how land use change changed over time between 1985–1990 and 2005–2010. Consider which parts of the study area have changed and the types of changes that have occurred. This might include things like the expansion of the urban area or residential areas being built where there used to be farmland.

- 
- Change the map view to *Imagery* or *ESRI Imagery* and zoom in to various parts of the map.
  - Turn on the various *Imagery* layers within the *Spatial patterns and built landscape* category. Adjust the transparency slider for a better view.
  - Turn on some of the goldfield maps from the *Spatial patterns and built landscape* category.

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12. Using the *Imagery* layers within the *Spatial patterns and built landscape* category, try to find at least two places that have changed in and around Ballarat's city centre since the 1860s. Changes might include places where houses and other buildings have been built where there used to be farmland or places where new roads have been built. Record the location of these places that have changed using the latitude and longitude coordinates.

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- Turn on the *Countours\_10m* layer within the *Topography/terrain* category and zoom out to show Ballarat and the surrounding landscape.
- Contour lines are used to represent the shape of landscapes on maps. Each ten metre contour line represents a change in elevation of ten metres. Lots of contour lines that are close together represent a steep landscape whereas contour lines that are far apart represent a flat landscape.

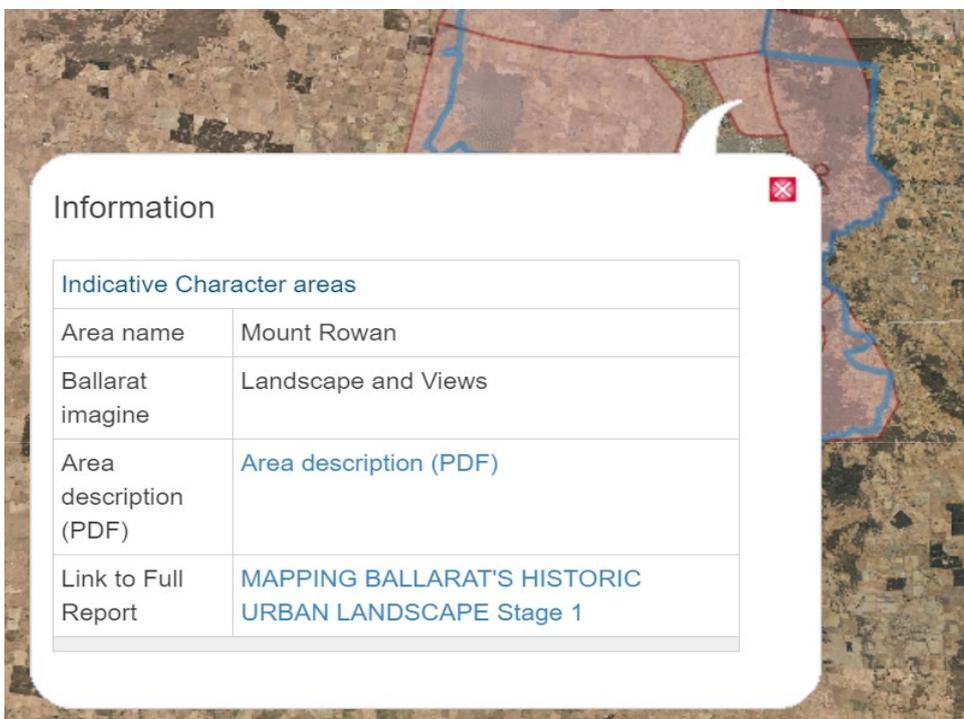
13. Using the *Countours\_10m* layer, state whether you think Ballarat's landscape is hilly or flat. In your answer, refer to specific regions that stand out as being particularly steep or flat.

## Assessing liveability: environmental factors

### What natural features about Ballarat help make up its liveability?

- Explore the *Tree Cover* and *Tree Density* layers within the *Ecology* category.

14. Which parts of Ballarat contain a large amount of tree cover? Using the legend, decide whether this tree density is mostly scattered, medium or dense.



**Figure 5:** When Query mode is turned on, clicking on various parts of the map will reveal additional information about the data layer

- Turn on the *Rural Character Areas* and *Urban Character Areas* layers in the *Community and Cultural landscape/character areas* category. Make sure you have Query mode turned on.
- Click on various shaded parts of the urban or rural environment and open the area description documents (figure 5).

15. Using a table, list the geographic characteristics of three rural and urban areas using the photos and information from the Area Description PDFs. Examples of characteristics include native trees, farmland, houses and fences.

- Open the panoramic photo of Ballarat's Mullawallah Wetlands: <http://gis2.cecc.com.au/winterswamp/demo/project.html>

16. Mullawallah Wetlands (formerly Winter Swamp)

- Locate Mullawallah Wetlands on your map, west-north-west of Lake Wendouree. Note: On your map it will be called Winter Swamp.
- Approximately how far is Mullawallah Wetlands from the centre of Ballarat?
- Using the panoramic photo, list some of the natural features of Mullawallah Wetlands.
- What are some of the benefits of having a place like this so close to the centre of Ballarat?

## Assessing liveability: social factors

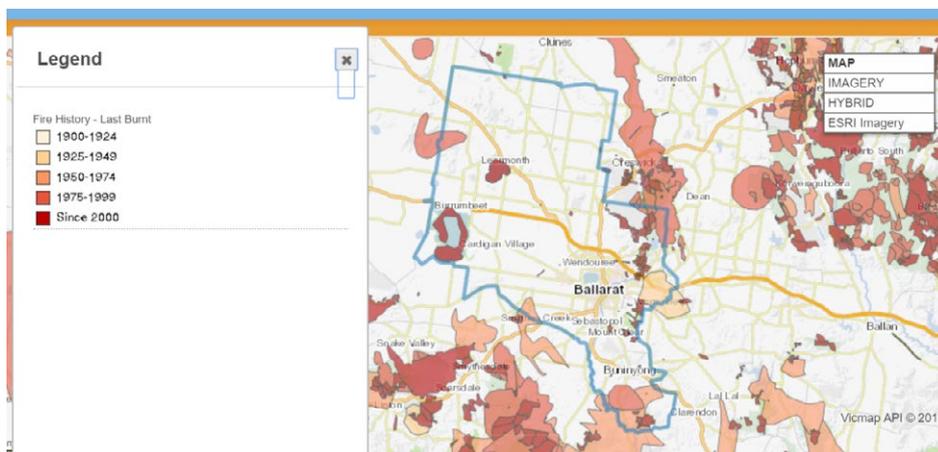
### Are there human features that contribute to Ballarat's liveability?

- Explore some of the layers in the *Community Services and Infrastructure* category such as *Recreation* and *Key services and facilities*.

17. The *Community Services and Infrastructure* category contains layers relating to the recreational features of Ballarat.

- Describe how one of the features of this category is arranged spatially on the map.
- Why do you think this feature is arranged in this way?
- The *Ecology* category, *Ballarat Trees* layer shows a dense coverage of trees in Ballarat's urban centre. List some of the benefits that tree coverage might have in a city environment.

- Turn on the *Fire History – 201712* layer in the *Ecology* category (figure 6).



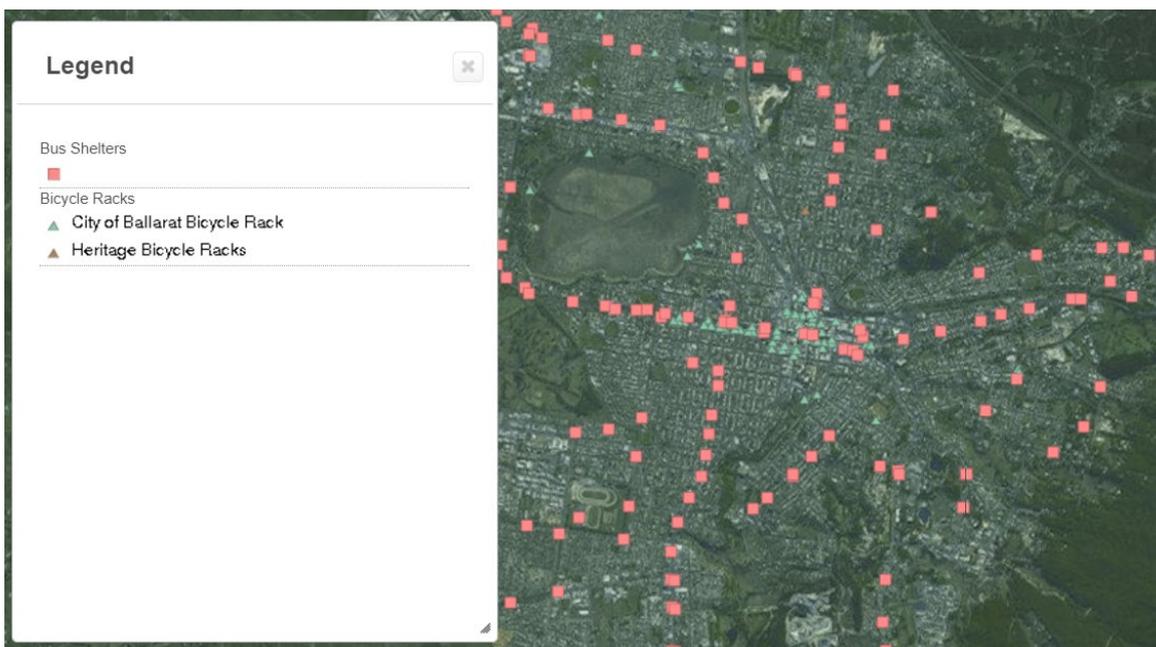
**Figure 6:** The *Fire History – 201712* layer shows where recent and historic fires have occurred in and around Ballarat

- Use the information icon to read what the layer contains.
- Open the Legend to see what the colours represent
- Ensure query mode is turned on and then click on various sections to see when the last fires were and the type of fires they were. *Burns* refer to planned fuel reduction burns carried out by the State Government whereas *Bushfire* are fires which were out of control and potentially very dangerous to nearby communities.

18. Hazards such as bushfires have a social impact on the liveability of places.

- What does the *Fire History – 201712* layer show?
- When were some of the most recent fires in and around Ballarat and what types of fire were they? In order to see this, click on a fire area which will bring up date and type details.
- Do you think Ballarat is vulnerable to bushfires? How is the risk similar or different to other places such as Daylesford? Hint: Zoom out and find Daylesford on the map and investigate when the most recent bushfires occurred.

- Turn on the *Getting Around* layer in the *Community services and infrastructure* category (figure 7).



**Figure 7:** The distribution of bus shelters and bicycle racks in Ballarat

19. Access to efficient public and personal transport is a common criteria when assessing liveability.

- Are bus shelters and bicycle racks located in similar parts of Ballarat?
- Are most residential areas near a bus route or bus shelter?
- Using the Hybrid map view, name a residential street which is not near a bus shelter or the bus route and measure how far away it is using the scale or measuring tool.

- Visit the [HUL Ballarat homepage](#) and explore some of Ballarat’s distinctive history including historic photos, art, maps and stories.



**Figure 8:** Historic photo sliders on the HUL Ballarat website enable you to see how places have changed over time

20. To what extent do you think Ballarat’s history impacts liveability for local residents? Provide reasons for your answer, referring to different aspects of Ballarat’s history shown on the HUL Ballarat website.

## Conclusion

21. Where in Ballarat would you prefer to live based on the environmental and social factors you have investigated?
22. Are there any parts of Ballarat in which you wouldn’t live? Why?
23. Using information gathered throughout this investigation, write a conclusion summarising the extent to which you think Ballarat is a liveable city. Include:
- a summary of Ballarat’s geographic characteristics and a discussion of how they affect liveability
  - a summary of the influence of environmental and social factors in assessing liveability including reference to specific data layers.
24. Are there any types of data that would affect liveability that haven’t been covered in this investigation? How might this data be collected?

## Extension tasks

1. Conduct fieldwork in your local area to assess its liveability. Base your fieldwork on a range of liveability criteria covering both environmental and social factors.
  2. Visit this [interactive map of Australia](#). Add data layers from the Victorian Government category to compare the liveability of two places in Victoria. Consider criteria such as access to public transport, natural environment features and access to facilities.
  3. Visit Ballarat and take photos of unique social or environmental features related to liveability. Upload your photos and comments to: <http://timecapsuleballarat.com/>
  4. Visit the Facebook group [Wouldn't Ballarat be a better place if . . .](#) and read some of the posts:
    - a) Which of the posts do you agree and disagree with and why?
    - b) Are there any posts you would write based on what you have learnt about liveability in Ballarat?
    - c) What impact do you think an active social media community has on liveability in Ballarat?
  5. One of the most iconic features of Ballarat is its historic cityscape.
    - a) Use the following [historic image sliders](#) to see changes that have occurred to Ballarat's cityscape over time.
    - b) Collect some historic photos of Melbourne from [here](#).
    - c) Collect modern images of some of these locations from Google Streetview or by visiting Melbourne and taking your own photos.
    - d) Paste the historic and modern images side-by-side and compare them by listing the changes that have occurred over time.
  6. Create your own interactive panoramic photo.
    - a) Take a panoramic photo of your local area using the panorama feature on your phone or an app such as Panorama 360 Camera.
    - b) Install a trial version of Panorama Studio 3 Pro from [here](#).
    - c) Open your panoramic photo using Panorama Studio and add hotspots with links about your photo's location and features and descriptive text.
    - d) Save your image as an interactive panorama and share it with your classmates.
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