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Performing Analysis in ArcGIS Online

This document contains step-by-step instructions on how to use the 'Create Drive-Time Areas' analysis tool.

The **Perform Analysis** function on ArcGIS Online allows users to access a range of virtual tools that make analysis and measurement of geographic relationships possible. This is useful as maps are used to identify patterns and relationships, assess trends, and make decisions. This is called spatial analysis.

In this instructional document, you will learn how to use some analysis tools in order to create simple, yet useful, manipulations to your data in order to identify patterns and relationships, assess trends, and make decisions.

NOTE:

Performing Analyses will use your organisational credits. Administrators can manage credits in a number of ways including allocating specific quantities of credits to each member. Administrators can also monitor their members' credit usage through dashboards, charts and reports.

If your organisation is part of the GIS for schools program, it will begin 30,000 credits. If credits are managed well, this will be a substantial amount.

Calculate travel times with the 'Create Drive-Time Areas' analysis tool

The Create Drive-Time Areas tool calculates the area that can be reached within a specified travel time or travel distance along a street network based on travel mode.
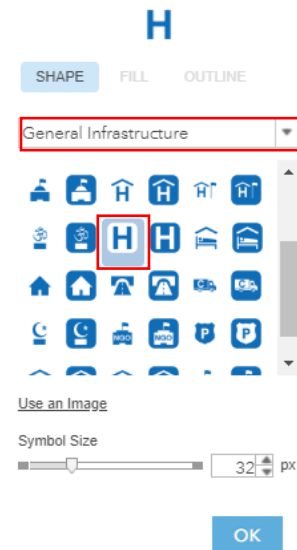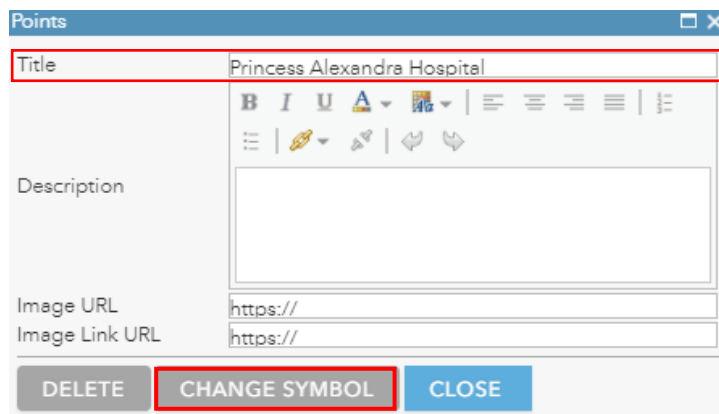
This analysis tool may be useful to teachers and students when trying to identify services available or unavailable to certain communities in an urban or rural area.

For the purpose of this instructional lesson, you will be looking to identify suburbs in Brisbane that do not have sufficient access to hospital services. A government may perform analysis on drive-time areas to inform their decision as to where to construct a new hospital facility.
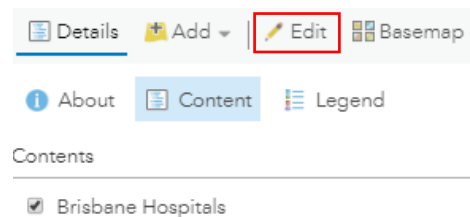
In order to use the **Create Drive-Time Areas** analysis tool, you will need point data – that is data that occurs at a single point, different to line or polygon data.

1. Log in to your ArcGIS Online account. Open a new map.
2. In the search bar, search the following hospitals:
   - Princess Alexandra Hospital

- Mater Hospital Brisbane
- Brisbane Private Hospital

3. As you locate each hospital, **Add a Map Note** to each location. Name these Map Notes 'Brisbane Hospitals'

4. Choose the **Stickpin (point)** and place it on the Princess Alexandra Hospital.

5. When the pop-up box appears, add the specific title of this hospital.

6. Change the stickpin icon to a more relevant icon. Press **Change Symbol**, then choose 'General Infrastructure' from the drop-down box. Choose the Hospital icon and press **OK**.
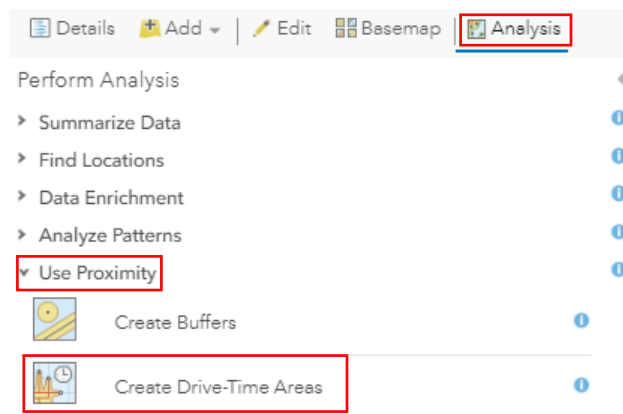
7. Without exiting the current Map Notes feature (Brisbane Hospitals), search for the other two hospitals. If you have already exited the Map Notes feature, you can add more by clicking **Details > Content > selecting 'Brisbane Hospitals' > Edit**.

You should now have created point data for three hospitals. Although there are more hospitals in Brisbane, this will suffice for training purposes. Now it is time to use the **Create Drive-Time Areas** analysis tool.

8. Select **Analysis**. Press **Use Proximity** to open a drop-down menu. Select **Create Drive-Time Areas**.

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Choose the relevant point layer data you wish to calculate drive-time areas round.

1 Choose point layer to calculate drive-time areas around

Brisbane Hospitals (Points)

2 Measure

Select Driving Time and the duration of the drive. To select multiple durations simply enter the numbers and separate with spaces.
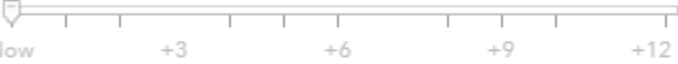
Driving Time

2 5 10   Minutes

To output multiple areas for each point, type sizes separated by spaces (2 3.5 5).

☑ Use traffic

◯ Live traffic

Now   +3   +6   +9   +12 hr

Select Use Traffic and choose Traffic based on typical conditions for a day and time of your choice. This example chose peak hour traffic times.

◉ Traffic based on typical conditions for

Tuesday   5:15 PM

See availability.

⊞ Select barrier layers

Travel direction:

Choose your travel direction. This example is measuring drive time for emergency vehicles leaving the hospital

Away from Facility   Towards Facility

3 Areas from different points

Choose how you want the layer to be displayed. Choose Dissolve.

Overlap   Dissolve   Split

☐ Show unreachable areas as holes

4 Result layer name

Travel time from Brisbane Hospitals

Rename your layer name.

☐ Include reachable streets

Save result in   jlovejoy_GIS_For_Schools

Uncheck Use current map extent.
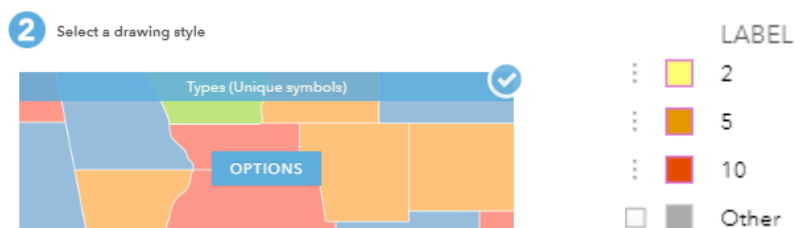
☑ Use current map extent   Show credits

RUN ANALYSIS.

RUN ANALYSIS

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It may take a couple of minutes for ArcGIS Online to complete the analysis. Your new layer, measuring drive-time areas for 2 minutes, 5 minutes and 10 minutes will display.

You can make changes to the colours of the different drive times by selecting the **Change Style** icon that appears when hovering over your data layer.
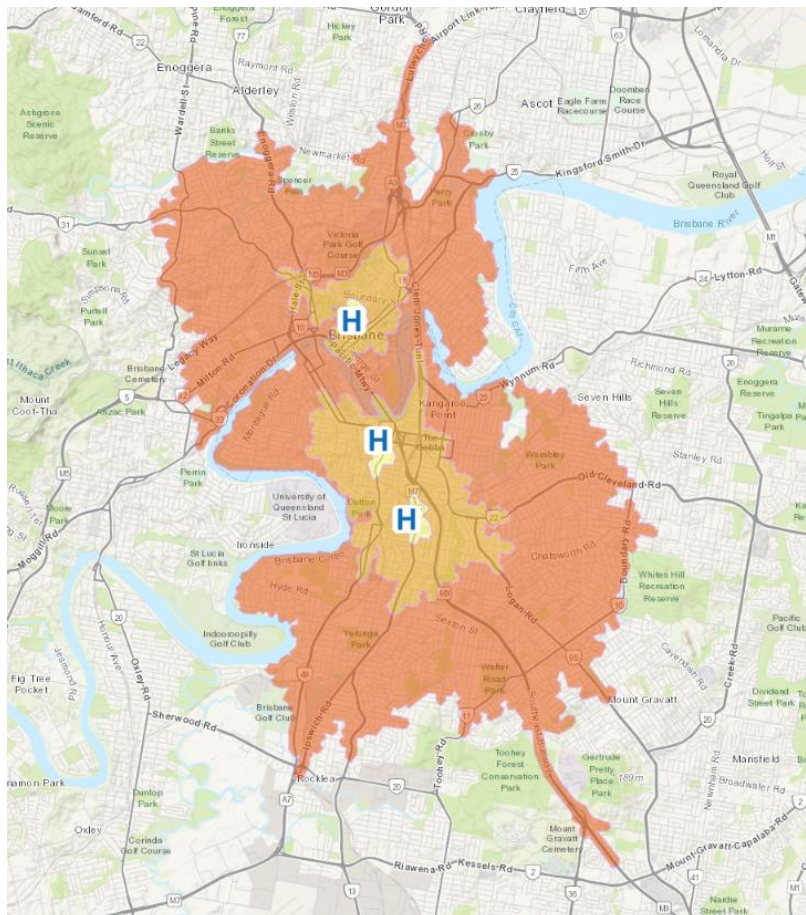
9. Select **Types (Unique symbols)** under **Select a drawing style**. Then, press **OPTIONS.**
10. Click on each coloured symbol to select a different fill. Press **OK** and then **DONE** when you have finished making changes.

Your map should now look like similar to this image.

If these hospitals were the only hospitals in Brisbane, recommendations may be made to the government to suggest the construction of new hospitals in Clayfield, Mansfield and Oxley so that these suburbs, and surrounding suburbs, had quicker access to emergency and health services.

If you wish, **Save** your map.

Next Steps:

Request a free ArcGIS Online Account for your school:

Australian schools can request a free ArcGIS Online account as part of Esri Australia's Classroom GIS Initiative. A school subscription provides additional map layers, content, features and privacy. Learn more about ArcGIS Online, and apply for your ArcGIS Online School subscription at http://esriaustralia.com.au/education

Speak to Esri Australia's Education Program Manager:

Australian schools can seek additional support or speak to our Education Program Manager by emailing education@esriaustralia.com.au.