HUMAN GEOGRAPHY

LEVEL 2

Time or Distance

from the GeoInquiries™ collection for Human Geography

Target audience – Human geography **Time required – 25 minutes**

Activity	Students will discover how interstate highways affect the distance traveled in a given amount of time. Differences between drive time distances and buffers is alo explored.
Social Studies Standards	**APHG.I.C.5.** Use concepts like space, place, and region to examine geographic issues. **APHG.I.C.6.** Interpret patterns and processes at different scales.
Learning Outcomes	• Students will interpret patterns and process-compare drive time and distance. • Students will account for differences in drive times and distance. • Students will use and interpret geospatial data.
Level 2 GeoInquiry Requirements	• A free school ArcGIS Online organization account (www.esri.com/schools). Instructors or students must be signed in to the account to complete this activity. • Approximately 0.064 credits will be used per person in the completion of this activity as scripted.

Map URL: http://esriurl.com/HumanGeoInquiry1

Ask

How long does it take?

- Click the link above to launch the map.
- In the upper-right corner, click Sign in. Use your ArcGIS Online organization account to sign in.
- With the Details button underlined, click the button, Show Contents of Map (Content).
- Turn on the two layers, Boston City Limits and Drive Time From Boston (15 30 45 Minutes) .
- Zoom to the layer, Drive From Boston (15 30 45) .

? Does the 15-minute drive-time area include all of Boston? *[No]*

? Which parts of Boston are included in the 45-minute zone? *[Southwest]*

? Why does travel to that area take longer? *[No connecting interstate highways]*

- Turn off the layer, Boston City Limits. Turn on the two layers, USA Major Cities and Boston City Center.

? Which drive-time zone has the most cities? *[30-minute]*

Acquire

Where can you go?

- Click the button, Bookmarks. Select Traffic.
- Click Analysis, expand Use Proximity, and choose Find Nearest. (See the Find Nearest ToolTip on page 2.)
- In the Find Nearest tool, set the following parameters:

1. From the drop-down list, choose Boston City Center.
2. From the drop-down list, choose USA Major Cities.
3. Ensure that Line Distance is selected.
4. Uncheck the Limit The Number Of Nearest Locations To check box.
   Limit the Search Range to **45** miles.
5. Add your initials at the end of the result layer name.
   Keep the Include Route Layers box unchecked and Use Current Map Extent checked.
   Always click Show Credits to ensure acceptable credit usage.Click Run Analysis.

Explore

What does straight-line distance show?

- In the search field, type **Winthrop Town** and select the result in Massachusetts.
- Click the connecting line.

? How far from Boston is the city? *[4.39 miles]*

? Is the distance believable? *[No, the line cuts across the airport and across water.]*

more ▶

Analyze

What do buffers show?

– Buffers show distance from the Boston city center in all directions. Distance across the 15-mile buffer is 30 miles.
→ Turn on the layer, Buffer Of Boston. Zoom out to view all buffers.
? Why are buffers used? *[To show relative distance]*
? What do buffers and straight-line distance have in common? *[Both show distance from the city center, and both travel across water.]*
→ Click the 15-mile buffer.
? Which drive-time zones are included? *[15- and 30-minute]*
? What would you predict to be the average commute time in Boston? *[Answers will vary but should be around 30 minutes.]*

Act

Which measure is the most useful to commuters?

? How do interstate highways affect the distance traveled in a given amount of time? *[Higher speed limits on interstates can increase the distance covered.]*
? Why are drive times more useful than buffers? *[They are calculated on highway networks.]*

ZOOM TO A LAYER

- To the left of the map, click Details, if necessary, and then click Contents.
- Point to a layer name, click the More Options ellipses button, and choose Zoom To.

FIND NEAREST ANALYSIS

- This tool finds the nearest features and reports and ranks the distance to nearby features.
- The Find Nearest tool returns a layer containing the nearest features and a line layer that links the start locations to their nearest locations.

Next Steps

Continue using an ArcGIS Online organizational account (www.esri.com/schools) to dig deeper into data using the analysis tools, and save your maps to your account.

THEN TRY THIS...

• Create hot spots around local transportation hubs and corridors to visualize something closer to home.
• Use analysis tools such as Find Nearest to calculate straight-line distance between cities or buffers to visualize distance from the Boston City Center.

TEXT REFERENCES

This GIS map has been cross-referenced to material in sections of chapters from these high school texts.

- *Human Geography: A Short Introduction by Oxford University Press – Chapter 1*
- *The Cultural Landscape by Pearson – Chapter 1*
- *Human Geography: People, Place, and Culture by Wiley Press – Chapter 1*

Version Q3 2018. Send feedback: http://esriurl.com/GeoInquiryFeedback