Exercise 1: Create optimized travel routes to reduce greenhouse gas emissions

How can I print an exercise to PDF format?

Software requirements

- ArcGIS Pro 3.2
- ArcGIS Network Analyst extension
- ArcGIS Online

Introduction

Studies have shown that optimizing vehicle routes can reduce fuel consumption and greenhouse gas emissions by 10 to 30 percent. The ArcGIS Network Analyst extension is designed to enhance operational efficiency through vehicle coordination and strategic route planning. The vehicle routing problem is a type of network analysis for routing a fleet of vehicles to service a set of orders, with the goal of minimizing an objective, such as reducing greenhouse gases, while satisfying certain constraints, such as time windows, multiple route capacities, or travel duration.

Both ArcGIS Pro and ArcGIS Online offer multiple vehicle fleet routing options. ArcGIS Pro includes more robust network analyst features; ArcGIS Online's cloud-based solution is quick to implement but has fewer customization options. However, if you create optimized routes in ArcGIS Pro, you must share your analysis results to ArcGIS Online to give drivers access to the route information.

Many types of organizations could benefit from optimizing travel routes, from small businesses like mobile dog grooming or landscaping companies to citywide public or school transportation systems. These organizations could leverage Network Analyst at different scales to begin to reduce their greenhouse gas emissions while optimizing efficiency. In this exercise, you will use ArcGIS to solve a vehicle routing problem. Your goal will be to reduce greenhouse gas emissions from a fleet of vehicles by finding the most efficient routes for the drivers.

Scenario

Imagine the following scenario: Farm Collective delivers fresh produce from the farms in Canterbury, New Zealand, directly to residents in the nearby city of Christchurch and surrounding towns. The popularity of Farm Collective's service is rapidly growing and the business needs help planning its fresh produce deliveries.

Farm Collective assigns drivers based on geographic regions but is running into issues with the amount of time that some routes take. Farm Collective realizes that, to do a better job, it must account for the driving time and density of deliveries in each region.

Customers can choose weekly or biweekly subscriptions for boxes of fresh produce. However, customers may cancel their week's order or add an additional order to their usual nondelivery week. This flexibility—and the ever-increasing number of new customers— has led to constantly changing delivery routes. Farm Collective needs a solution that will update and optimize the route each week, ensuring reduced greenhouse gas emissions and efficient service.

You will use ArcGIS Network Analyst for ArcGIS Pro to solve Farm Collective's vehicle routing problem.

Note: The exercises in this course include View Result links. Click these links to confirm that your results match what is expected.

Estimated completion time in minutes: 75 minutes

Expand all steps | Collapse all steps

- Step 1: Download the exercise data files

In this step, you will download the exercise data files.

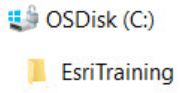
a Open a new web browser tab or window.

b Go to CLIM Section 2: Vehicle Routing Problem.

Note: The complete URL to the exercise data file is https://www.arcgis.com/home/item.html?id=21684bb39b8244a899a18ff0300ab248.

c On the right, click Download to download the exercise data ZIP file.

d In File Explorer, extract the zipped exercise data files to the EsriTraining folder on your local computer.



*Step 1d***: Download the exercise data files.*

Remember that, throughout the course, you will save your data to this folder. There should not be any spaces or special characters in the folder name.

e After you extract the ZIP file, confirm that the data files are stored in the OptimizedRoutes folder.

f Close File Explorer.

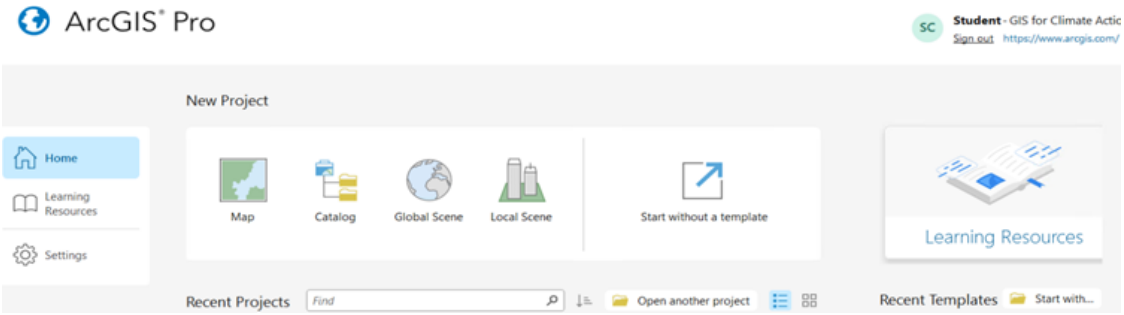
You have downloaded and extracted the exercise data files that you will need to complete the exercise.

- Step 2: Create an ArcGIS Pro project

In this step, you will create an ArcGIS Pro project and then add the Farm Collective data and run the vehicle routing problem analysis.

a On your computer taskbar, click the Start button and expand the ArcGIS folder.

b Click ArcGIS Pro.



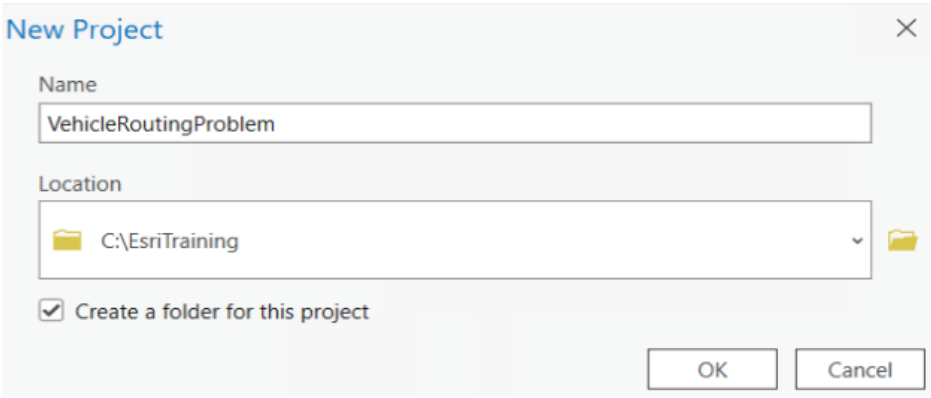
*Step 2b***: Create an ArcGIS Pro project.*

The ArcGIS Pro home page opens with different options for creating a new project. You will create a new project from a map.

c Under New Project, click Map.

d In the New Project dialog box, for Name, type **VehicleRoutingProblem**.

e For Location, click the Browse button , browse to and select your EsriTraining folder, and click OK.



*Step 2e***: Create an ArcGIS Pro project.*

f In the New Project dialog box, click OK to create your project.

ArcGIS Pro opens with a default basemap.

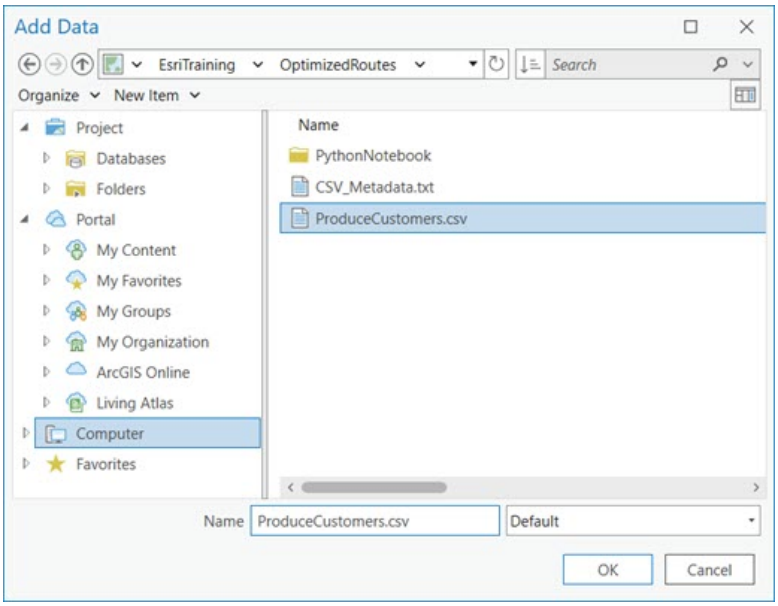
You will now add the data for your analysis to the ArcGIS Pro project.

g On the ribbon, click the Map tab.

h In the Layer group, click the Add Data down arrow and choose Data.

i In the Add Data dialog box, browse to the **..\EsriTraining\OptimizedRoutes** folder.

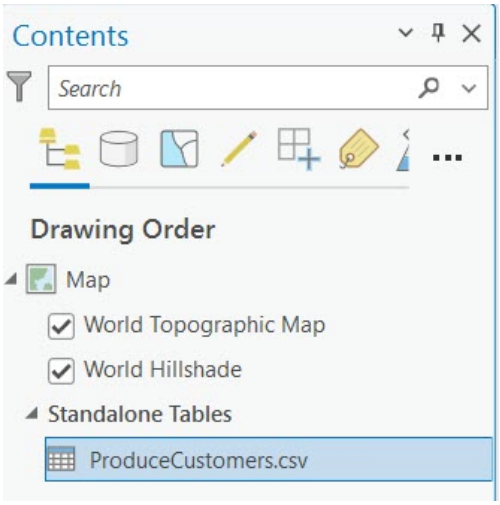
j Click the ProduceCustomers.csv file.



*Step 2j***: Create an ArcGIS Pro project.*

You will add this CSV file to your project so that you can map the data.

k Click OK.



*Step 2k***: Create an ArcGIS Pro project.*

You have created an ArcGIS Pro project and added the data that you will use to run the vehicle routing problem analysis for Farm Collective.

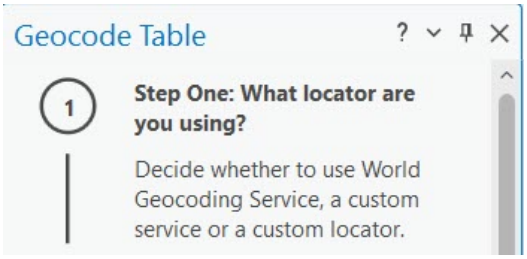
Next, you will geocode the CSV file so that you can map the data.

- Step 3: Geocode your data

Farm Collective uses a CSV file to store customer information for a week of scheduled deliveries. For each customer, the CSV file contains an address, an ID, and the number of boxes to deliver. To use this customer information in GIS, you will need to geocode the locations based on address. Geocoding is the process of transforming a description of a location, like an address or x,y, coordinates, into a location on the earth's surface.

In this step, you will geocode the Farm Collective customer addresses to display them on your map.

a In the Contents pane, under Standalone Tables, right-click the ProduceCustomers.csv file and choose Geocode Table.



*Step 3a***: Geocode your data.*

The Geocode Table tool workflow opens on the right.

This guided workflow walks you through the steps to fill out the tool parameters to geocode the customer addresses. The addresses can be displayed in a single table field or in more than one table field. In this case, your data is structured in more than one field.

Note: Rather than working through the guided steps provided here, users who are familiar with the process of geocoding could use the geoprocessing tool to achieve the same result.

b At the bottom of the Geocode Table tool, click Start.

c For Input Locator, click the down arrow and choose ArcGIS World Geocoding Service.

d Click Next.

e For Step Two: About Your Table, confirm the following parameters:

- Input table: ProduceCustomers.csv
- How Is Your Data Structured: More Than One Field

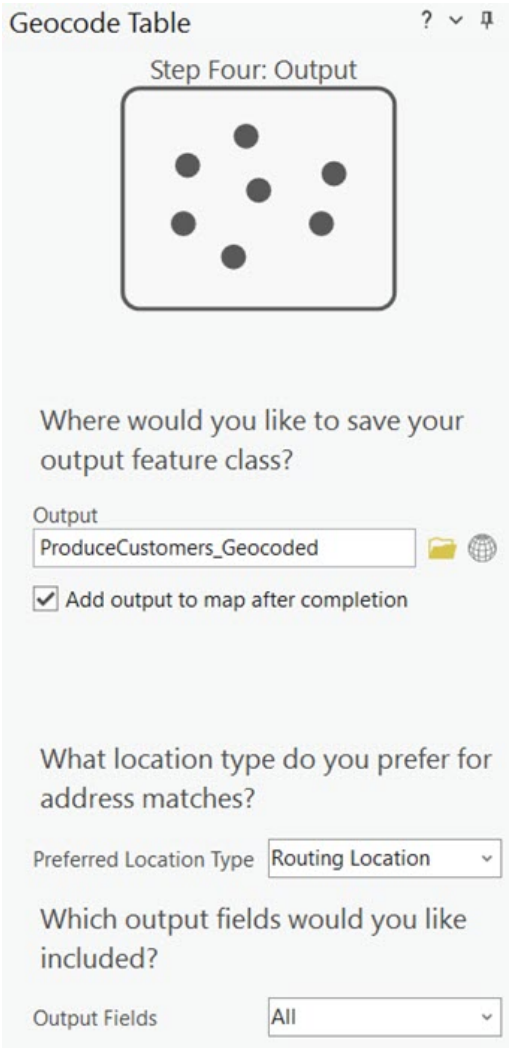
f Click Next.

g For Step Three: Mapping The Fields In Your Table, set or confirm the following parameters:

- Address Or Place: StreetAddress
- City: City
- ZIP: Postal

h Click Next.

i For Preferred Location Type, click the down arrow and choose Routing Location.



*Step 3i***: Geocode your data.*

Selecting the Routing Location option places the address location on a street network rather than on the center of a building. In Network Analyst, points are spatially located at the closest street edge. The center of a building can sometimes be closer to a different street than the driveway-access street. By selecting Routing Locations, you are keeping the located features on the correct street.

j Click Next.

k For Country, check New Zealand and click Next.

l Under Only Categories Selected Here, check Address.

m Click Finish.

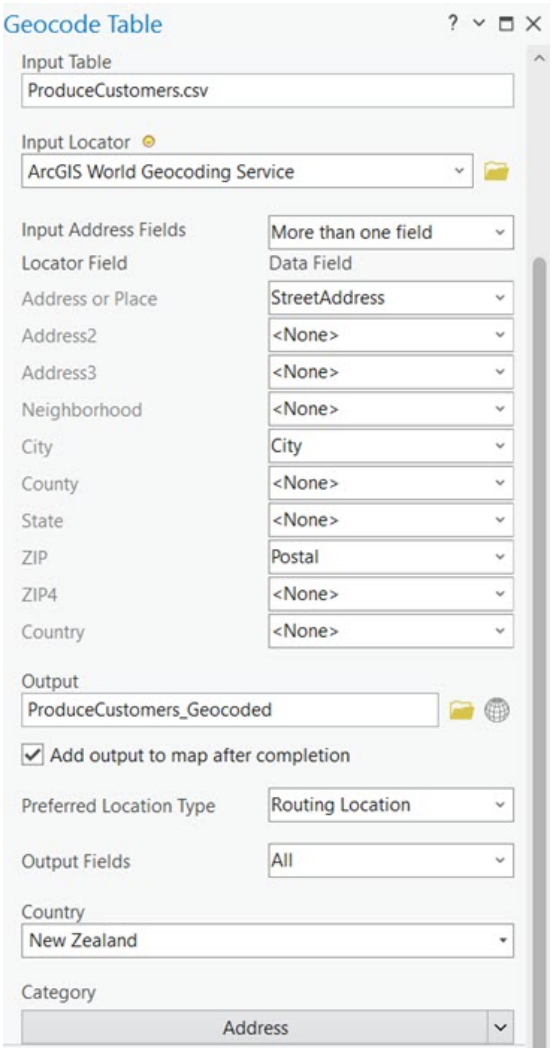
n At the top of the Geocode Table tool, click Estimate Credits.

? How many credits are needed to geocode the ProduceCustomers.csv file?

- Answer
19.32 credits

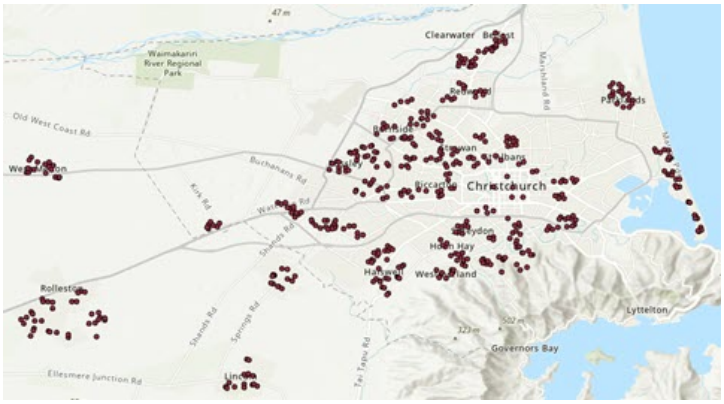
Credits are the currency used across ArcGIS to perform specific transactions and access certain types of functionality, such as storing features, geocoding, and performing analytics. For this MOOC, you have been provided with enough credits to complete the course. The credits are assigned to the course ArcGIS Online account that you use to sign into ArcGIS Online.

o Confirm that your Geocode Table parameters match the following graphic:



p Click Run.

q In the Geocoding Completed message, click No, because all locations were matched correctly.



*Step 3q***: Geocode your data.*

You have geocoded the addresses from the CSV file to map the locations of Farm Collective customers for a week of deliveries. Adding data to your map is the first step in the analysis process.

r Close the Geocode Table pane and save your project.

Next, you will create a vehicle routing problem analysis layer.

- Step 4: Create a vehicle routing problem analysis layer

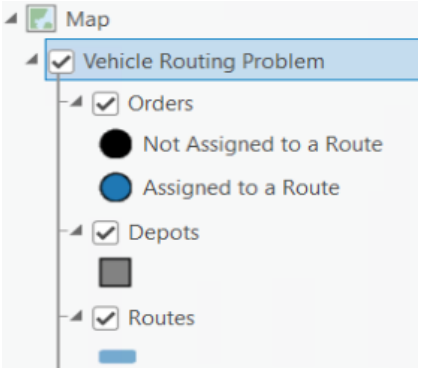
The Network Analyst extension in ArcGIS Pro provides six different solvers that support specific types of analysis on transportation networks. To use the Vehicle Routing Problem solver, you first need to create a vehicle routing problem (VRP)

layer for your analysis. The VRP layer allows you to add information about the customers, route start and end locations, the vehicles, and the drivers.

In this step, you will create a VRP layer for your analysis.

a On the ribbon, click the Analysis tab.

b In the Workflows group, click Network Analysis and choose Vehicle Routing Problem.



*Step 4b***: Create a vehicle routing problem analysis layer.*

The Vehicle Routing Problem analysis layer is added to the Contents pane. This layer stores the inputs, parameters, and results for a given VRP. The layer is a template that contains the network analysis objects that are used when solving the VRP.

You will now add your data to the VRP layer.

c On the ribbon, click the VRP Layer tab.

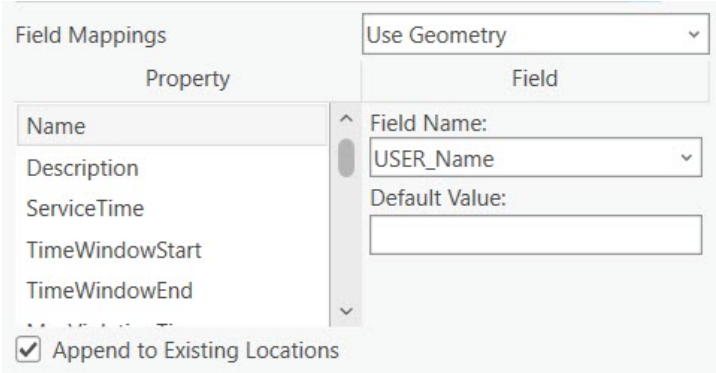
d In the Input Data group, click Import Orders.

Orders are the information about the customers. Each order can include information about the amount of time that the driver is expected to be at that location, the quantity of items being delivered or picked up, and appointment times. You will set the orders for the Farm Collective deliveries.

e In the Add Locations dialog box, for Input Locations, click the down arrow and choose ProduceCustomers_Geocoded.

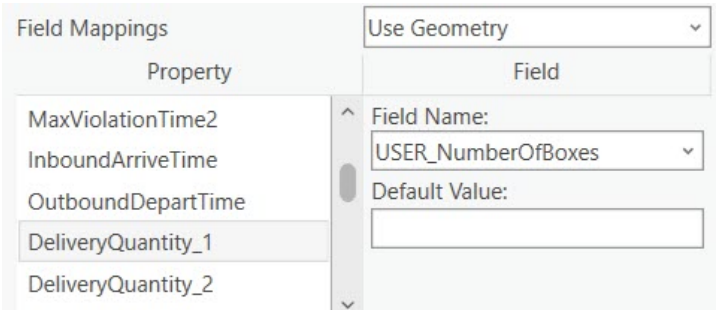
f Under Property, click Name.

g Under Field, for Field Name, click the down arrow and choose USER_Name.



*Step 4g***: Create a vehicle routing problem analysis layer.*

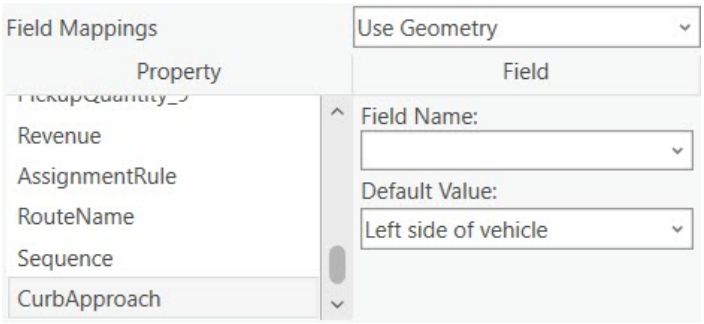
h Under Property, click Delivery Quantity_1 and, for Field Name, choose USER_NumberOfBoxes.



*Step 4h***: Create a vehicle routing problem analysis layer.*

i Under Property, scroll to the bottom of the list and click CurbApproach.

j Under Field, for Default Value, click the down arrow and choose Left Side Of Vehicle.



*Step 4j***: Create a vehicle routing problem analysis layer.*

k Click OK to apply the orders.

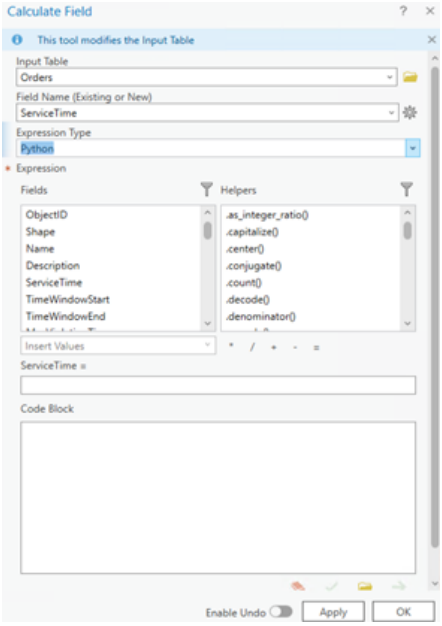
A warning message appears, alerting you that the ProduceCustomers_Geocoded name field is too long for the Orders Name field. You will ignore this warning because it will not affect your results.

l Close the warning message.

You notice that some customers decided to order two boxes for the week instead of the standard one box. You will need to update the service time based on the number of boxes delivered.

m In the Contents pane, right-click Orders and choose Attribute Table.

n In the attribute table, right-click the Service Time heading and choose Calculate Field.



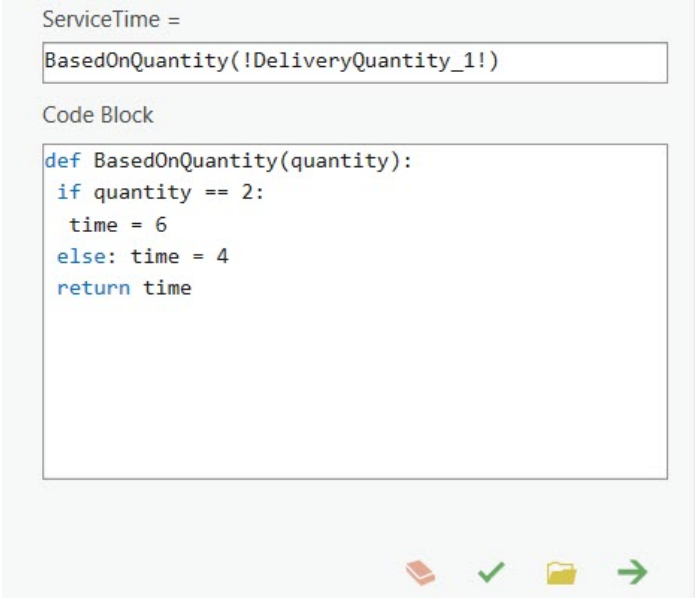
*Step 4n***: Create a vehicle routing problem analysis layer.*

The Calculate Field dialog box opens. You will use the Code Block field to write a conditional statement using Python that states that if two boxes are being delivered to an address, then the service time should be set to 6 minutes; if not, then the service time should be set to 4 minutes.

o In the field below ServiceTime =, type **`BasedOnQuantity(!DeliveryQuantity_1!)`**

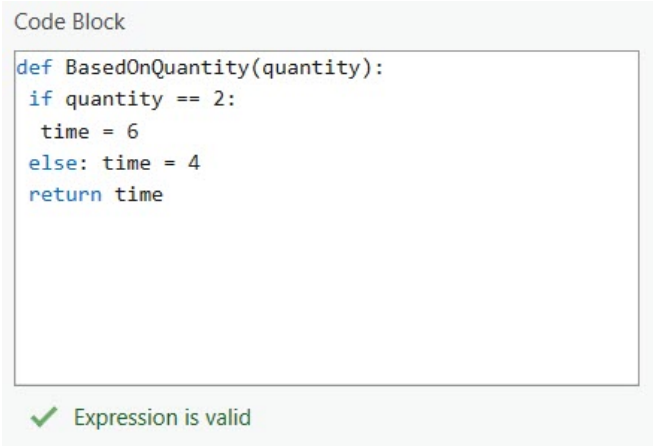
p In the Code Block field, type or copy the following lines of code:

```
def BasedOnQuantity(quantity):
  if quantity == 2:
   time = 6
  else: time = 4
  return time
```



*Step 4p***: Create a vehicle routing problem analysis layer.*

q Click the Verify button ✓ to confirm that the expression is valid.



*Step 4q***: Create a vehicle routing problem analysis layer.*

You have written and validated an expression that calculates the service time for a delivery based on the quantity of boxes being delivered.

r Click OK.

s Close the Orders attribute table and save your project.

You have created the VRP layer and added data to solve the VRP to create optimized routes for Farm Collective.

- Step 5: Add depots to the VRP layer

In Network Analyst, depots are used to identify where routes start and end. Each route can start and end at its own unique depot or all routes can start and end at the same depot, like an office.

In this step, you will set the depot to the Farm Collective processing barn.

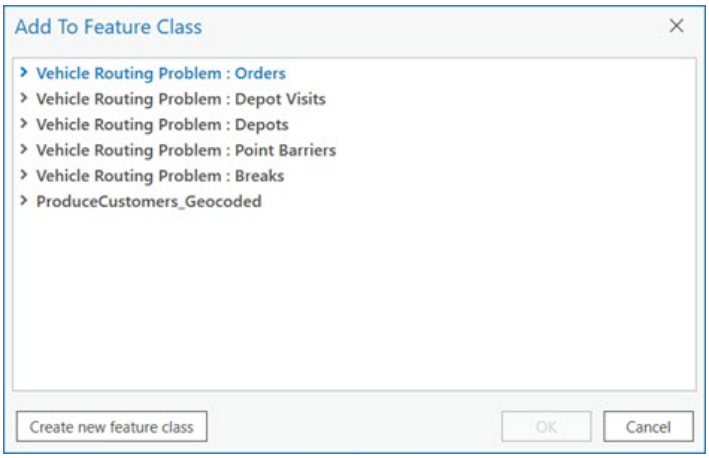
a On the ribbon, click the Map tab.

b In the Inquiry group, click the Locate button .

You will search for the address of the Farm Collective processing barn.

c In the Locate pane, in the Search field, type **5110 Arundel Rakaia Gorge Road, Alford Forest, Mount Somers, Canterbury, 7771**, and then press Enter.

d In the Locate pane, right-click A and choose Add To Feature Class.



*Step 5d***: Add depots to the VRP layer.*

The Add To Feature Class dialog box opens. You will use this dialog box to select the feature class that the processing barn will be added to. Because the processing barn will act as the depot for Farm Collective, you will select the depot feature class.

e Click Vehicle Routing Problem: Depots to expand the feature class.

f Click Depots, and then click OK.

g In the Contents pane, right-click Depots and choose Attribute Table.

The Depots attribute table shows the address of the processing barn in the Name field.

h On the ribbon, click the Edit tab and, in the Selection group, click Clear.

i In the Manage Edits group, click Save.

j If necessary, In the Save Edits dialog box, click Yes to save your edits to the Depots feature class.

k Close the attribute table and the Locate pane.

l Save your project.

You have assigned the Farm Collective processing barn to be the depot for your VRP layer. You can now use the processing barn as the start and end points for the delivery routes.

- Step 6: Add routes to the VRP layer

Routes include information on both the vehicles and the drivers. You can add information about the workday for the drivers, such as when the drivers start work and how many hours they work each day. You can also add information about the vehicles, such as their capacity and operating costs.

In this step, you will add route information for one week of Farm Collective deliveries.

a In the Contents pane, right-click the Vehicle Routing Problem layer and choose Zoom To Layer.

b On the ribbon, click the VRP Layer tab.

c In the Input Data group, click the Import Routes down arrow and choose Add Routes.

There are nine delivery trucks and drivers that distribute the fresh produce for Farm Collective. Deliveries begin at 9:00 at night so that customers have their produce available the morning of their delivery date.

d In the Add Vehicle Routing Problem Routes dialog box, set the following parameters:

- For Number Of Routes, type **9**.
- For Start Depot Name, click the down arrow and choose the processing barn address.
- For End Depot Name, click the down arrow and choose the processing barn address.

e For Earliest Start Time, click the Clock button .

f Select Date And Time and set the date to November 8, 2023 9:00:00 PM.

g For Latest Start Time, click the Clock button .

h Select Date And Time and set the date to November 8, 2023 9:00:00 PM.

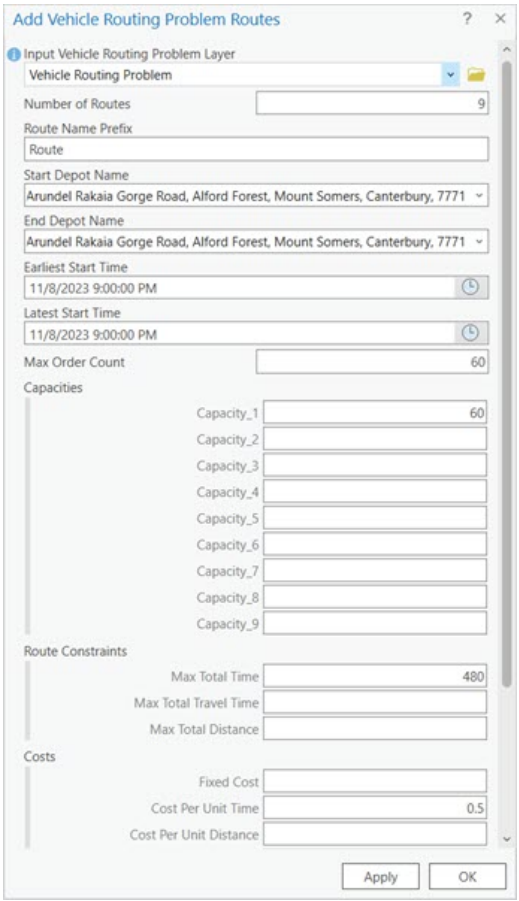
Each delivery truck can hold a maximum capacity of 60 fresh produce boxes. By limiting the maximum time that a vehicle can drive, you also indicate the maximum length of the driver's day. So you will set the maximum total time to 480 minutes to limit the driver's work day to 8 hours. You will also set the cost per unit time to 0.5 to indicate $30 per hour.

i For Max Order Count, type **60**.

j For Capacity_1, type **60**.

k For Max Total Time, type **480**.

l Cost Per Unit Time, type **0.5**.



*Step 6l***: Add routes to the VRP layer.*

You have now entered the necessary parameters for the Farm Collective delivery routes.

m Click OK.

To view the routes after running your analysis, you will need to change the default time in the VRP layer.

n On the ribbon, in the Default Date group, click the Today down arrow and choose Date.

o Set the date to November 8, 2023.

p Save your project.

You have set up the delivery routes for the Farm Collective drivers for the week of November 8, 2023.

Next, you will run the VRP analysis.

- Step 7: Run the VRP analysis

Everything for your VRP layer is set up and ready to run. When you created the VRP layer, the network dataset chosen was ArcGIS Online. Using ArcGIS Online to run a VRP analysis costs credits. It is best practice to estimate the number of credits before running a geoprocessing tool.

In this step, you will run the analysis to view the Farm Collective delivery routes.

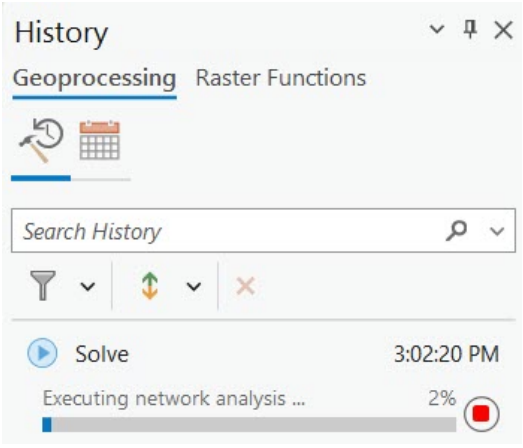
a On the VRP Layer tab, in the Analysis group, click Estimate Credits.

? How many credits are needed to solve this network analysis layer?

- Answer
9 credits

b Click OK to close the ArcGIS Credits To Solve message.

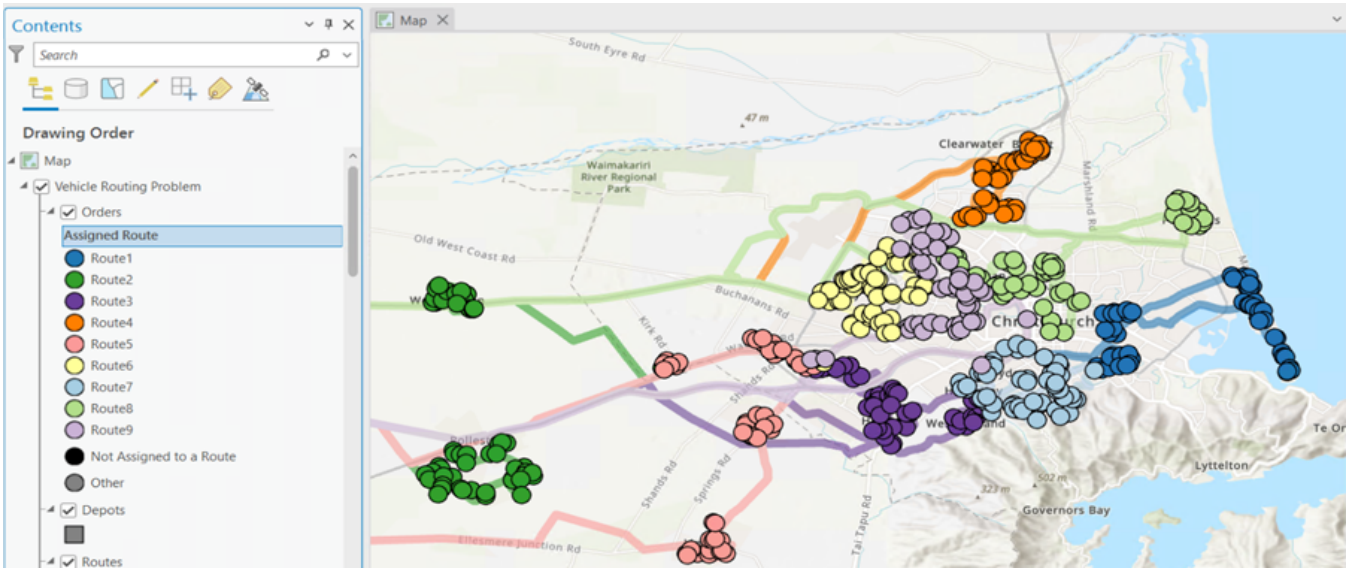
c In the Analysis group, click Run.



*Step 7c***: Run the VRP analysis.*

The History pane opens and shows the progress of the tool. After the tool finishes running, your map will update with the nine optimized routes.

d Save your project.



*Step 7d***: Run the VRP analysis.*

You have created nine optimized delivery routes that start and end at the Farm Collective processing barn. These routes take the orders that you set in the VRP layer to create delivery routes that minimize fuel cost and, ultimately, greenhouse gas emissions from the delivery vehicles.

- Step 8: Set overtime to the VRP layer

After you run the VRP layer, many of the sublayers have output fields in the attribute tables that give details about the solved solution. For example, the Routes sublayer attribute table shows an overview of each route and details about each order. In the Routes attribute table, you can see how many locations each driver goes to, the total time of the route, when the route starts, and when the route is expected to return to the processing barn.

In this step, you will review the attribute table for the Routes sublayer to determine the average span of time for the Farm Collective delivery routes.

a For the Routes sublayer, open the attribute table.

- Hint

  Right-click Routes and choose Attribute Table.

b In the attribute table, scroll to the right until the OrderCount field is the first field listed, as shown in the following graphic:

Routes

Field: Add Calculate Selection: Select By Attributes Zoom To Switch Clear Delete Copy

	OrderCount	TotalCost	RegularTimeCost	OvertimeCost	DistanceCost	TotalTime	TotalOrderServiceTime	TotalBreakServiceTime	TotalTravelTime	Total
1	55	226.839573	226.839573	0	0	453.679146	230	0	223.679146	15
2	54	206.375313	206.375313	0	0	412.750626	228	0	184.750626	13
3	57	226.402695	226.402695	0	0	452.80539	234	0	218.80539	15
4	41	187.879	187.879	0	0	375.758	180	0	195.758	1
5	53	217.28279	217.28279	0	0	434.565581	226	0	208.565581	1
6	57	221.7376	221.7376	0	0	443.4752	234	0	209.4752	14
7	55	235.671168	235.671168	0	0	471.342336	230	0	241.342336	1
8	55	236.68796	236.68796	0	0	473.37592	226	0	247.37592	16
9	56	236.252053	236.252053	0	0	472.504107	232	0	240.504107	15

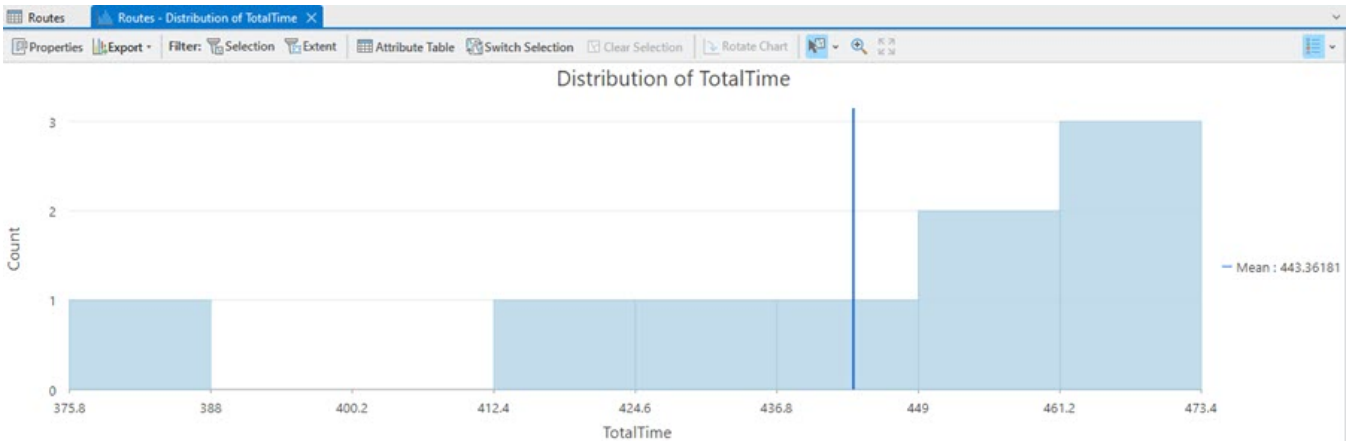
? What is the range (the shortest route time and the longest route time) shown in the TotalTime field?

- Answer

  The shortest route takes about 375 minutes to complete and the longest route takes about 473 minutes to complete.

Farm Collective would like the routes to be as balanced as possible in terms of the drivers' work times. Returning to the farm at roughly the same time keeps the drivers happy. Balancing the route times will require determining the average work time for the routes and then using that information to add overtime to the VRP layer. You will calculate the average time of the routes so that you can decide when overtime will start for a driver.

c In the attribute table, right-click the TotalTime heading and choose Visualize Statistics.



*Step 8c***: Set overtime to the VRP layer.*

In ArcGIS Pro, statistics such as mean, standard deviation, and median can help you understand the distribution of values in a numeric field in the attribute data.

? What is the average, or mean, time for the nine delivery routes?

- Answer

The average time to complete a delivery route is 443 minutes.

d Close the Routes - Distribution Of TotalTime chart.

e In the attribute table, scroll to the left until you see the OvertimeStartTime and CostPerUnitOvertime fields.

Overtime is offered to compensate drivers who extend their workday beyond normal hours to finish their work. Farm Collective starts overtime after 443 minutes of work.

There are two fields for overtime in the Routes attribute table:

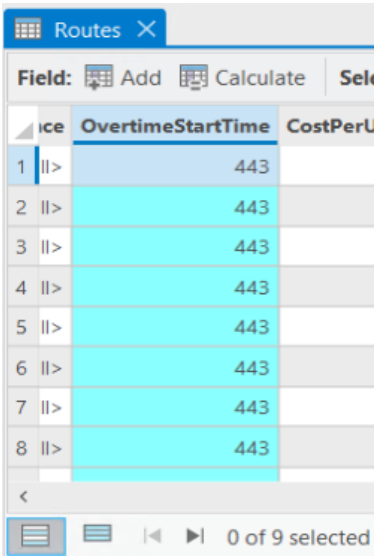
- OvertimeStartTime
- CostPerUnitOvertime

OvertimeStartTime indicates how long after the start of the route overtime begins. CostPerUnitOvertime is how much a route costs for the portion that is in overtime. This value needs to be larger than the value used for CostPerUnitTime, 0.5 in this case.

f Right-click the OvertimeStartTime heading and choose Calculate Field.

g In the Calculate Field dialog box, in the field under OvertimeStartTime =, type **443**.

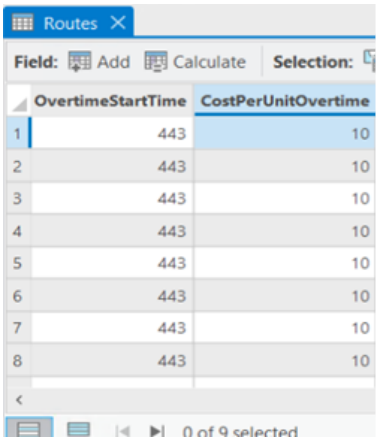
h Click OK.



*Step 8h***: Set overtime to the VRP layer.*

i Right-click the CostPerUnitOvertime heading and choose Calculate Field.

j In the field under CostPerUnitOvertime =, type **10**, and then click OK.



*Step 8j***: Set overtime to the VRP layer.*

After setting the overtime in the VRP layer, you can run the tool again to consider the changes.

k On the ribbon, click the VRP Layer tab.

l In the Analysis group, click Run.

m In the Routes attribute table, locate the TotalTime field.

> ? With overtime now added to the VRP layer, what is the new range for route delivery times?
>
> - Answer
> The shortest route takes about 412 minutes and the longest route takes about 462 minutes.

By adding more constraints, such as overtime, you were able to optimize and better balance the nine routes. These optimized routes will not only satisfy the drivers' request for similar total route times but will also increase efficiency and reduce GHG emissions. You could even model additional variables, like driver breaks, road closures or other obstacles, and traffic. But, for now, Farm Collective has approved the routes that you created using ArcGIS Network Analyst, and you are ready to share the routes with the delivery drivers.

n Close the attribute table and save your project.

- Step 9: Share the optimized routes

The final step is to share the routes with the Farm Collective drivers. You will share the routes to ArcGIS Online so that the drivers can access them using ArcGIS Navigator.

a On the ribbon, from the VRP Layer tab, in the Share As group, click Route Layers.

b In the Share As Route Layers dialog box, confirm that Input Network Analysis Layer Or Route Data is set to Vehicle Routing Problem.

c For Summary, type **Optimized routes for November 8 deliveries.**

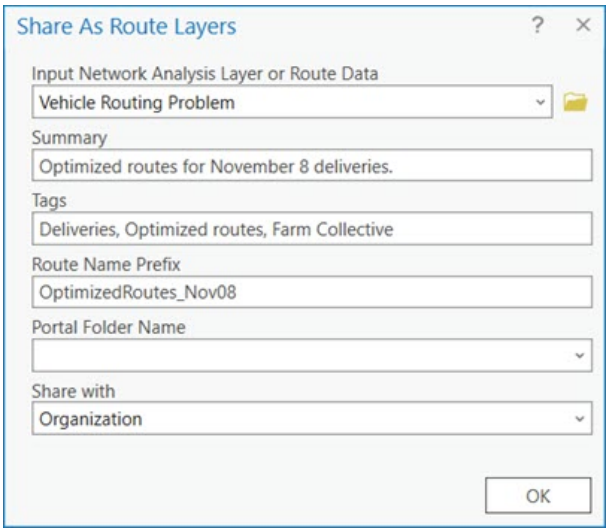
d For tags, type **Deliveries, Optimized routes, Farm Collective**.

e For Route Name Prefix, delete Vehicle Routing Problem and type **OptimizedRoutes_Nov08_<your first name and last name>**.

Note: MOOC participants will be sharing their maps to the same ArcGIS Online organization. Therefore, you must give your web map a unique name by adding your full name to the web map name, for example, OptimizedRoutes_Nov08_StudentName.

f For Portal Folder Name, leave the default.

g For Share With, click the down arrow and choose Organization.



*Step 9g***: Share the optimized routes.*

h Click OK.

Note: It may take a couple of minutes to share the layer.

In this exercise, you used the ArcGIS Network Analyst extension in ArcGIS Pro to create optimized travel routes for nine Farm Collective delivery drivers that enhance operational efficiencies and reduce GHG emissions. You shared the routes to ArcGIS Online so that the drivers could access them.

i Save your project.

You may end the exercise here or continue to the optional stretch goals. In this section's stretch goals, you have the opportunity to either optimize routes using ArcGIS Online or optimize routes using a Python notebook in ArcGIS Pro.

j If you are continuing to the stretch goals, leave ArcGIS Pro open; otherwise, exit ArcGIS Pro.

- Step 10: Stretch goal 1 (optional): Use Python to automate the VRP analysis

You would like to automate the process of optimizing routes for Farm Collective's weekly deliveries. You can automate the process using ArcGIS Notebooks in ArcGIS Pro. ArcGIS Notebooks are built on top of the Jupyter Notebook web application. With ArcGIS Notebooks integrated into ArcGIS Pro, you can perform analysis, interact with and visualize data, document and automate your workflow, and save it for later use or share it, all using Python.

For this stretch goal, a notebook with all the code needed to automate the weekly deliveries workflow has been written for you. You will open the notebook in ArcGIS Pro and run each cell, changing the code where needed.

You will use the following high-level steps to complete the stretch goal.

a In ArcGIS Pro, from the ribbon, click the Insert tab.

b In the Project group, click the New Notebook down arrow and choose Add Notebook.

c Browse to **..\EsriTraining\OptimizedRoutes\PythonNotebook** and open the VRP_MOOC.ipynb file.

d In the Catalog pane on the right, expand the Notebooks folder, right-click VRP_MOOC.ipynb and choose Open.

e Read each step in the notebook and follow the instructions to run the cells and complete the workflow.

f After you finish your ArcGIS Pro analysis, create a Forum post named **#StretchSection2Automate** and share your results or experience.

For more information on ArcGIS Notebooks, go to ArcGIS Pro Help: Notebooks in ArcGIS Pro.

- Step 11: Stretch goal 2 (optional): Use ArcGIS Online to optimize routes

Network Analyst in ArcGIS Online is a cloud-based solution that is quick to implement and only requires a web browser. For this stretch goal, you can run the same workflow that you completed in ArcGIS Online to solve Farm Collective's vehicle routing problem using the Plan Routes tool. The Plan Routes tool has fewer capabilities than the VRP Layer in ArcGIS Pro, such as adding overtime. However, the tool is helpful for small businesses or organizations that prefer to use a cloud-based environment to optimize vehicle routes quickly and efficiently.

Use the following high-level steps to complete the stretch goal.

a Sign in to ArcGIS Online using your course account username (ending in _CLIM) and password, and then open Map Viewer.

b Add the ProduceCustomers CSV file as a layer from a file.

c Use the ProduceCustomers CSV to create a hosted feature layer and add the layer to the map.

d Geocode the ProduceCustomers CSV.

e Search for Christchurch, Canterbury, NZL.

f Create a sketch layer for the processing barn location of 5110 Arundel Rakaia Gorge Road, Alford Forest, Mount Somers, Canterbury, 7771.

g Open the Plan Routes analysis tool.

h Fill out the parameters for the Plan Routes analysis tool and run the tool.

i Save your map.

j After you finish your ArcGIS Online analysis, create a Forum post named **#StretchSection2ArcGISOnline** and share your results or experience.

For more information on sketch layers, go to ArcGIS Online Help: Create sketch layers.
For more information on Plan Routes analysis tool, go to ArcGIS Online Help: Plan Routes (Map Viewer).
For more information on adding a layer from a file, go to ArcGIS Online Help: Add layers from files.