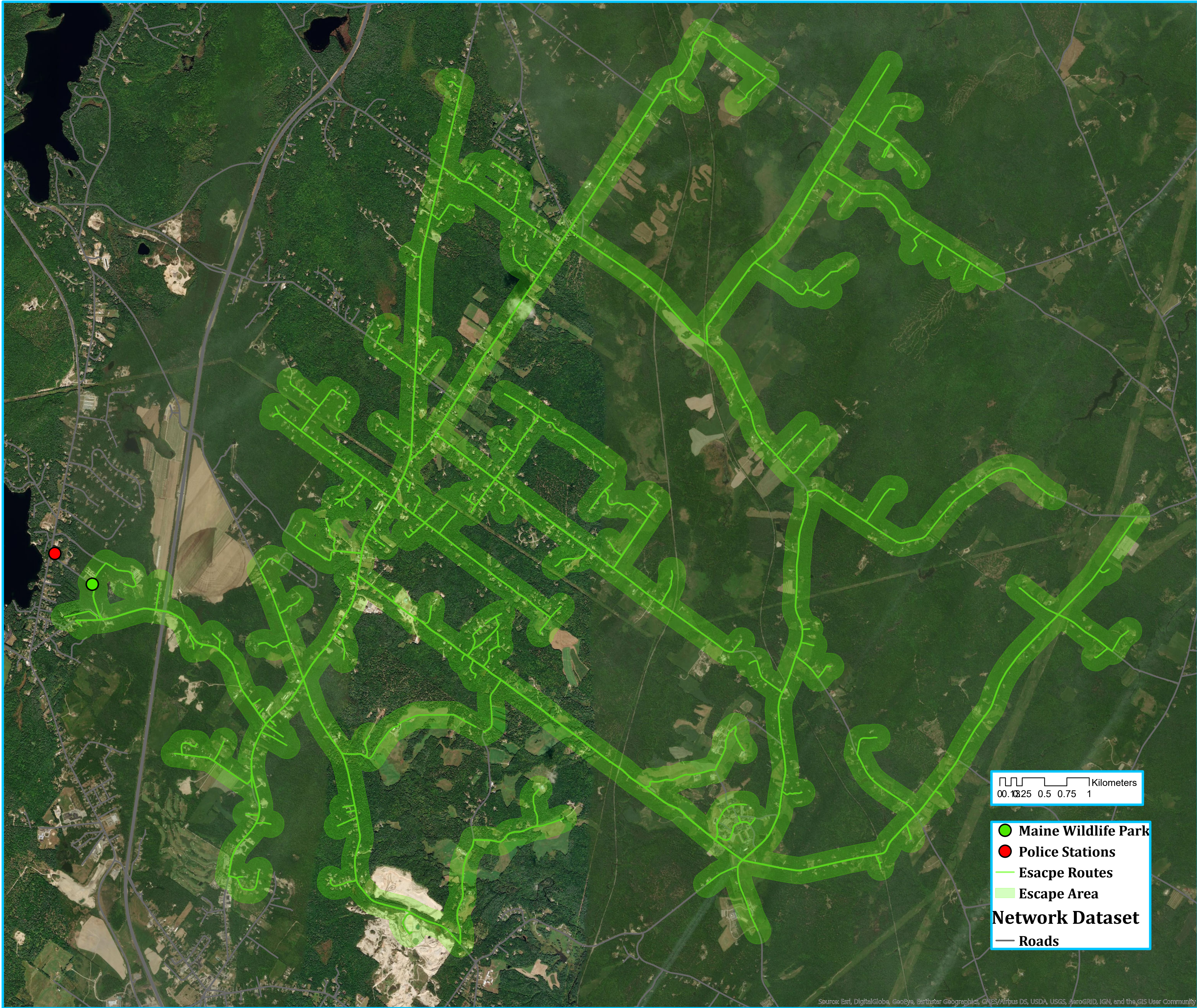


Zoo Escape! Using Network Analysis



Data from MEGIS. Network dataset derived from Open Street Map

The aim of this project was to figure out how far from the zoo one could get before the police could intercept. The assumption is that upon leaving the zoo, police from all nearby stations are immediately dispatched and will take the quickest route to the escapee.

Maine Wildlife Park is the zoo studied. As you can see on the zoom on the left, there is a police station immediately West of the zoo, limiting the escape routes to the East.

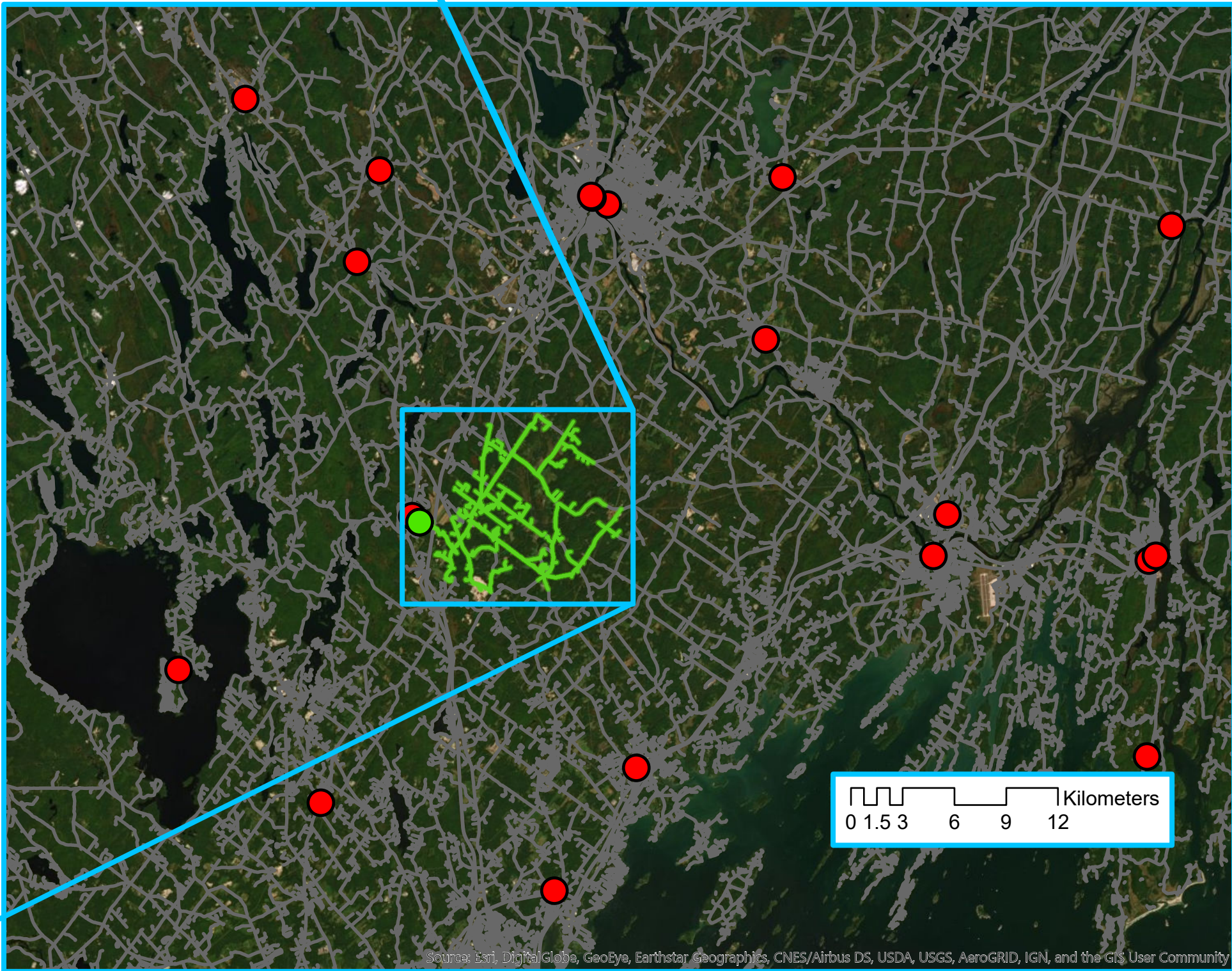
The map below shows how the zoo is beseeched on all sides by police stations. From this view it looks like it's lucky to have as much space to the East as it does.

The analysis was done by using the Closest Facility tool in ArcGIS, to calculate, for each intersection on the road network: from which place could one reach that intersection fastest? The zoo, or a police station? The green roads are all of those to which an escapee from the zoo can get before a police officer from a station.

The analysis assumes all parties abide by traffic laws.

The network dataset was derived from Open Street Map data using the OSM Toolbox for ArcMap.

It was found that no bodies of water are within the escape route, though there are a few swimming pools. This makes it unlikely that aquatic animals can be freed from the zoo. There are some dense forests within the escape range, though they are mostly broken into smaller forests. This means there is limited potential to free forest dwelling animals from the zoo.



By Scott Waechter for GEO 108 at USM Fall 2019