SUMMARY

[6] According to a first aspect of the present disclosure, there is provided a method for determining a zone for an area on a map, the method comprising: determining, by a processor, for an area on a map, one or more other areas on the map based on a plurality of trips between the area and each of the one or more other areas, each of the area and the one or more other areas corresponding to at least one of a start location and an end location of at least one of the plurality of trips; and determining, by the processor, for the area, a corresponding zone based on a corresponding proportion of the plurality of trips between the area and each of the one or more other areas, the zone indicating an association of the area with at least one of the one or more other areas, wherein determining the corresponding zone further comprises: calculating a total number of the plurality of trips associated with the area, and a corresponding total number of trips between the area and each of the one or more other areas; calculating, for each of the one or more other areas, the corresponding proportion based on the total number of the plurality of trips and the corresponding total number of trips between the area and each of the one or more other areas; and determining a rank for each of the one or more other areas based on the calculated proportion.

[7] According to a second aspect of the present disclosure, there is provided a system for determining a zone for an area on a map, comprising: at least one processor; and at least one memory including computer program code; the at least one memory and the computer program code configured to, with the at least one processor, cause the system at least to: determine, for an area on a map, one or more other areas on the map based on a plurality of trips between the area and each of the one or more other areas, each of the area and the one or more other areas corresponding to at least one of a start location and an end location of at least one of the plurality of trips; and determine, for the area, a corresponding zone based on a corresponding proportion of the plurality of trips between the area and each of the one or more other areas, the zone indicating an association of the area with at least one of the one or more other areas, wherein determining the corresponding zone further comprises: calculating a total number of the plurality of trips associated with the area, and a corresponding total number of trips between the area and each of the one or more other areas; calculating, for each of the one or more

other areas, the corresponding proportion based on the total number of the plurality of trips and the corresponding total number of trips between the area and each of the one or more other areas; and determining a rank for each of the one or more other areas based on the calculated proportion.

BRIEF DESCRIPTION OF THE DRAWINGS

[8] Embodiments and implementations are provided by way of example only, and will be better understood and readily apparent to one of ordinary skill in the art from the following written description, read in conjunction with the drawings, in which:

[9] Fig. 1 illustrates a system for determining a zone for an area on a map according to various embodiments of the present disclosure.

CLAIMS

What is claimed is:

1. A method for determining a zone for an area on a map, comprising:

determining, by a processor, for an area on a map, one or more other areas on the map based on a plurality of trips between the area and each of the one or more other areas, each of the area and the one or more other areas corresponding to at least one of a start location and an end location of at least one of the plurality of trips; and

determining, by the processor, for the area, a corresponding zone based on a corresponding proportion of the plurality of trips between the area and each of the one or more other areas, the zone indicating an association of the area with at least one of the one or more other areas, wherein determining the corresponding zone further comprises:

calculating a total number of the plurality of trips associated with the area, and a corresponding total number of trips between the area and each of the one or more other areas;

calculating, for each of the one or more other areas, the corresponding proportion based on the total number of the plurality of trips and the corresponding total number of trips between the area and each of the one or more other areas; and

determining a rank for each of the one or more other areas based on the calculated proportion.

2. The method of claim 1, further comprising determining the corresponding zone based on a minimum proportion, the corresponding zone indicating only an association between the area and one or more other areas with the calculated proportion that is equal to or exceeds the minimum proportion.

3. The method of claim 1 or 2, further comprising determining the corresponding zone based on a maximum rank, the corresponding zone indicating only an association between the area and one or more other areas with the determined rank that is equal to or lower than the maximum rank.

4. The method of claim 1, wherein determining the one or more other areas further comprises:

calculating a first distance, the first distance being a summation of a distance between a start location of a first trip of the plurality of trips and a start location of a second trip of the plurality of trips and a distance between an end location of the first trip and an end location of the second trip, the first trip being between the area and a first other area, and the second trip being between the area and a second other area;

calculating a second distance, the second distance being a summation of a distance between the start location of the first trip and the end location of the second trip and a distance between the end location of the first trip and the start location of the second trip;

determining a shorter distance of the first and second distance; and

clustering the area, the first other area and the second other area together based on the determined shorter distance.

5. The method of claim 1, further comprising:

overlaying a plurality of gridlines over the map, each gridline representing a virtual boundary, road or street on the map; and

dividing the map into a plurality of areas based on the plurality of gridlines, the plurality of areas including the area and the one or more other areas.

6. The method of claims 1-5, further comprising determining the area and the one or more other areas based on latitudinal and longitudinal coordinates of the start location and end location of each of the plurality of trips.

7. A system for determining a zone for an area on a map, comprising:

at least one processor; and at least one memory including computer program code; the at least one memory and the computer program code configured to, with the at least one processor, cause the system at least to:

determine, for an area on a map, one or more other areas on the map based on a plurality of trips between the area and each of the one or more other areas, each of the area and the one or more other areas corresponding to at least one of a start location and an end location of at least one of the plurality of trips; and

determine, for the area, a corresponding zone based on a corresponding proportion of the plurality of trips between the area and each of the one or more other

areas, the zone indicating an association of the area with at least one of the one or more other areas, wherein determining the corresponding zone further comprises:

calculating a total number of the plurality of trips associated with the area, and a corresponding total number of trips between the area and each of the one or more other areas;

calculating, for each of the one or more other areas, the corresponding proportion based on the total number of the plurality of trips and the corresponding total number of trips between the area and each of the one or more other areas; and

determining a rank for each of the one or more other areas based on the calculated proportion.

8. The system of claim 7, further configured to determine the corresponding zone based on a minimum proportion, the corresponding zone indicating only an association between the area and one or more other areas with the calculated proportion that is equal to or exceeds the minimum proportion.

9. The system of claim 7 or 8, further configured to determine the corresponding zone based on a maximum rank, the corresponding zone indicating only an association between the area and one or more other areas with the determined rank that is equal to or lower than the maximum rank.

10. The system of claim 7, wherein determining the one or more other areas further comprises:

calculating a first distance, the first distance being a summation of a distance between a start location of a first trip of the plurality of trips and a start location of a second trip of the plurality of trips and a distance between an end location of the first trip and an end location of the second trip, the first trip being between the area and a first other area, and the second trip being between the area and a second other area;

calculating a second distance, the second distance being a summation of a distance between the start location of the first trip and the end location of the second trip and a distance between the end location of the first trip and the start location of the second trip;

determining a shorter distance of the first and second distance; and

clustering the area, the first other area and the second other area together based on the determined shorter distance.

11. The system of claim 7, further configured to:

overlay a plurality of gridlines over the map, each gridline representing a virtual boundary, road or street on the map; and

divide the map into a plurality of areas based on the plurality of gridlines, the plurality of areas including the area and the one or more other areas.

12. The system of claims 7-11, further configured to determine the area and the one or more other areas based on latitudinal and longitudinal coordinates of the start location and end location of each of the plurality of trips.