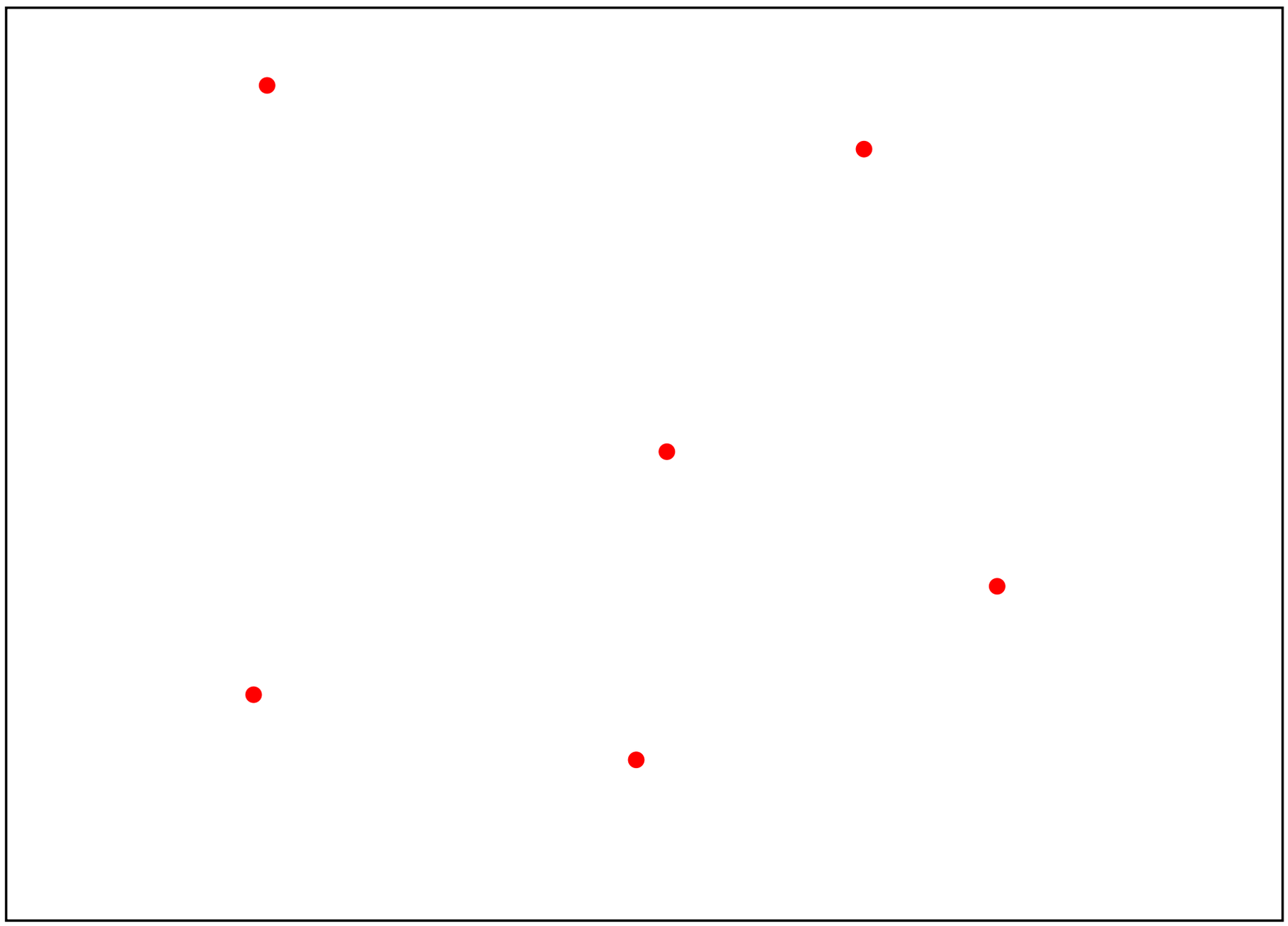
VORONOI DIAGRAMS

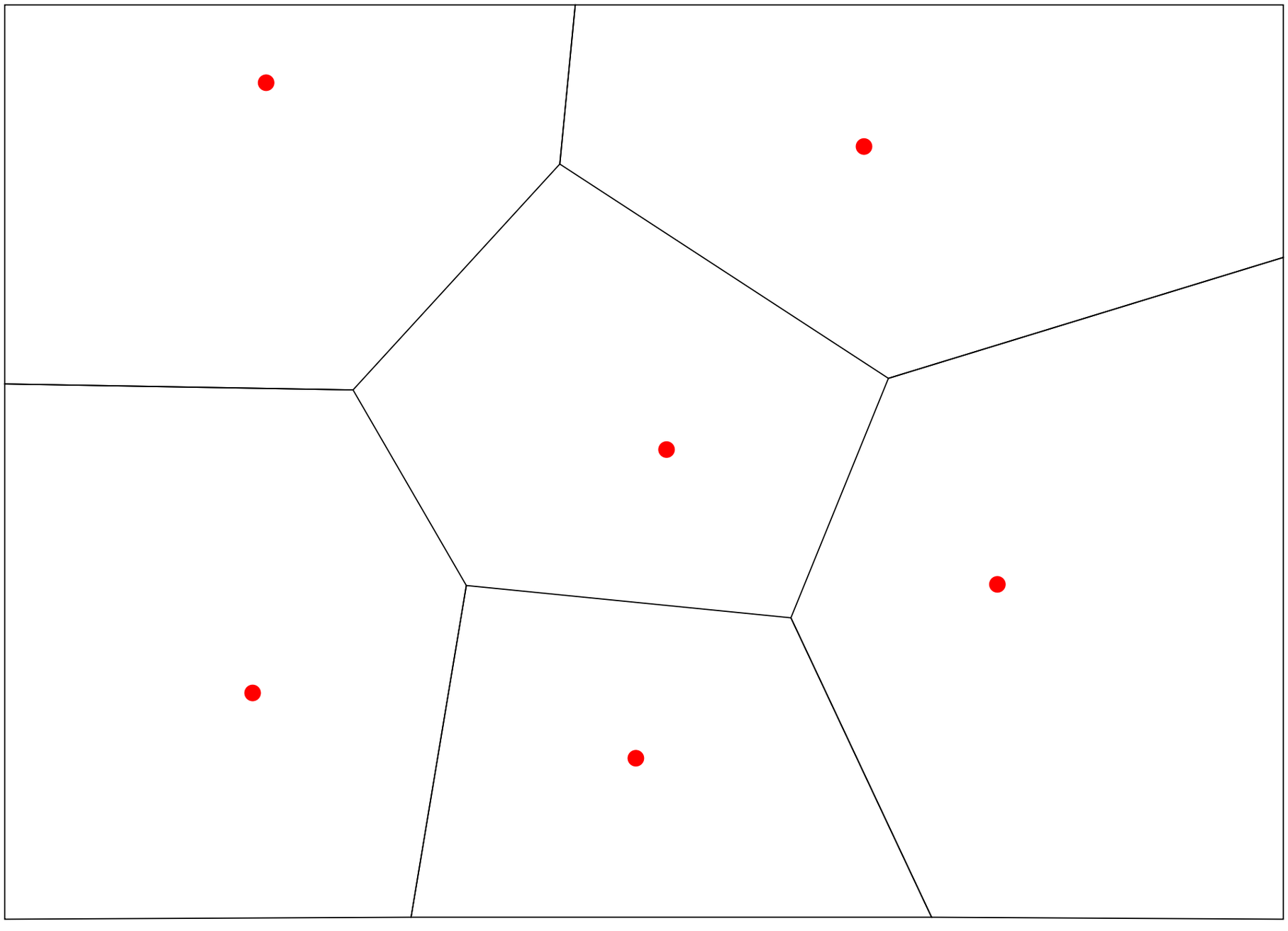
FIVE POLICE STATIONS

Which areas should they be responsible for?



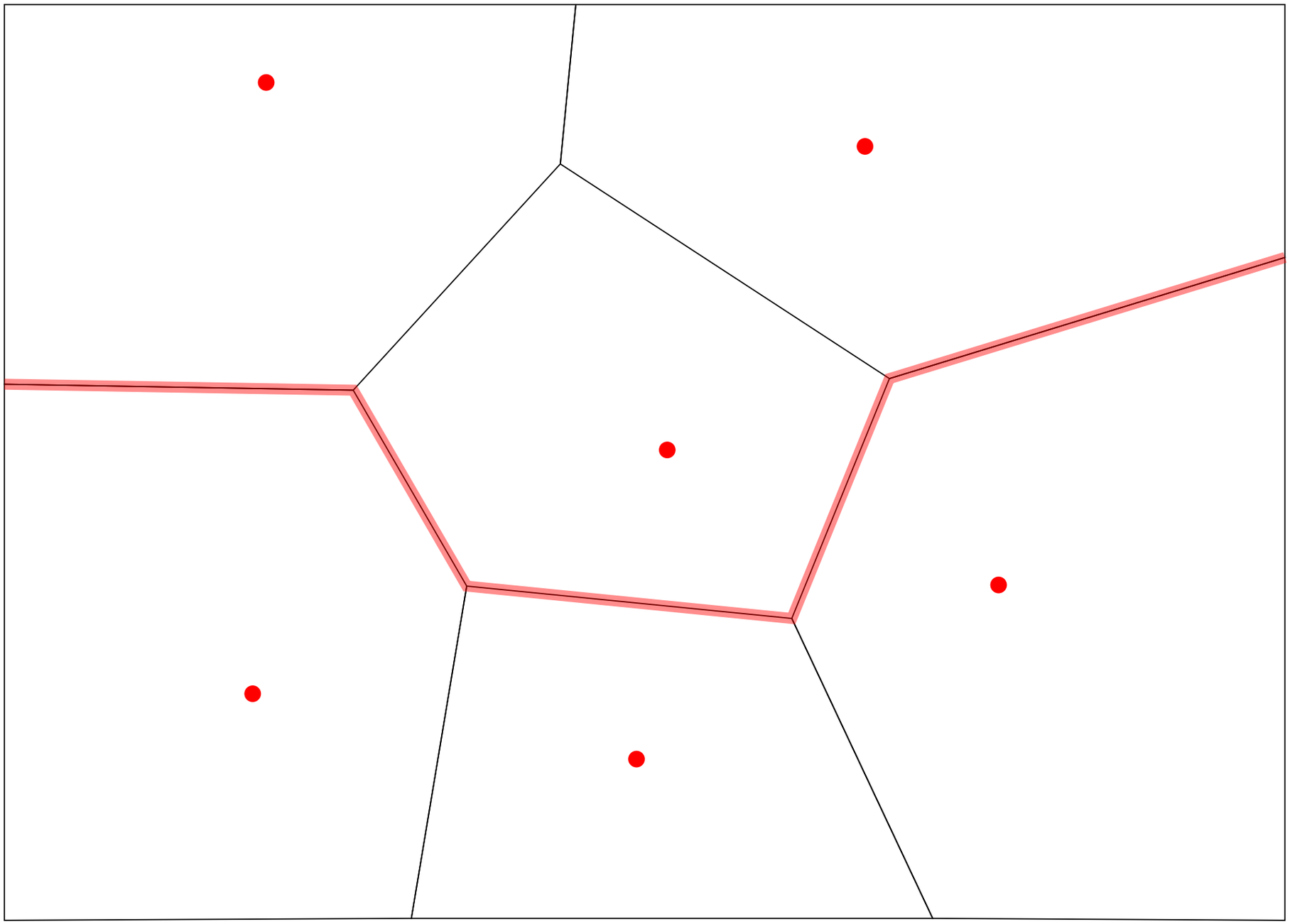
VORONOI TESSELLATION

The set of points in each polygon is closest to its seed (i.e station)



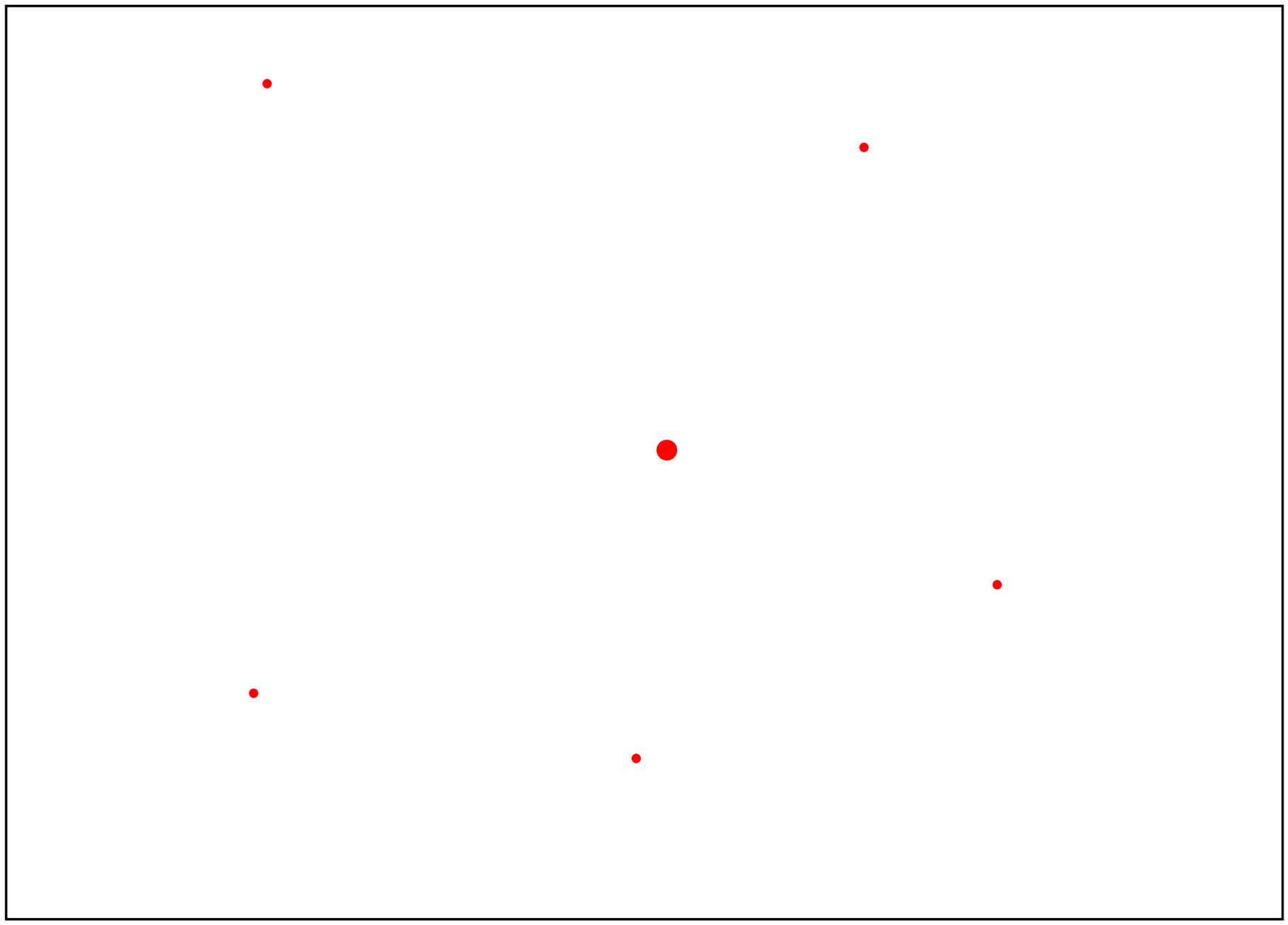
VORONOI EDGES

The edges trace a path which is furthest away from seeds (i.e. stations)



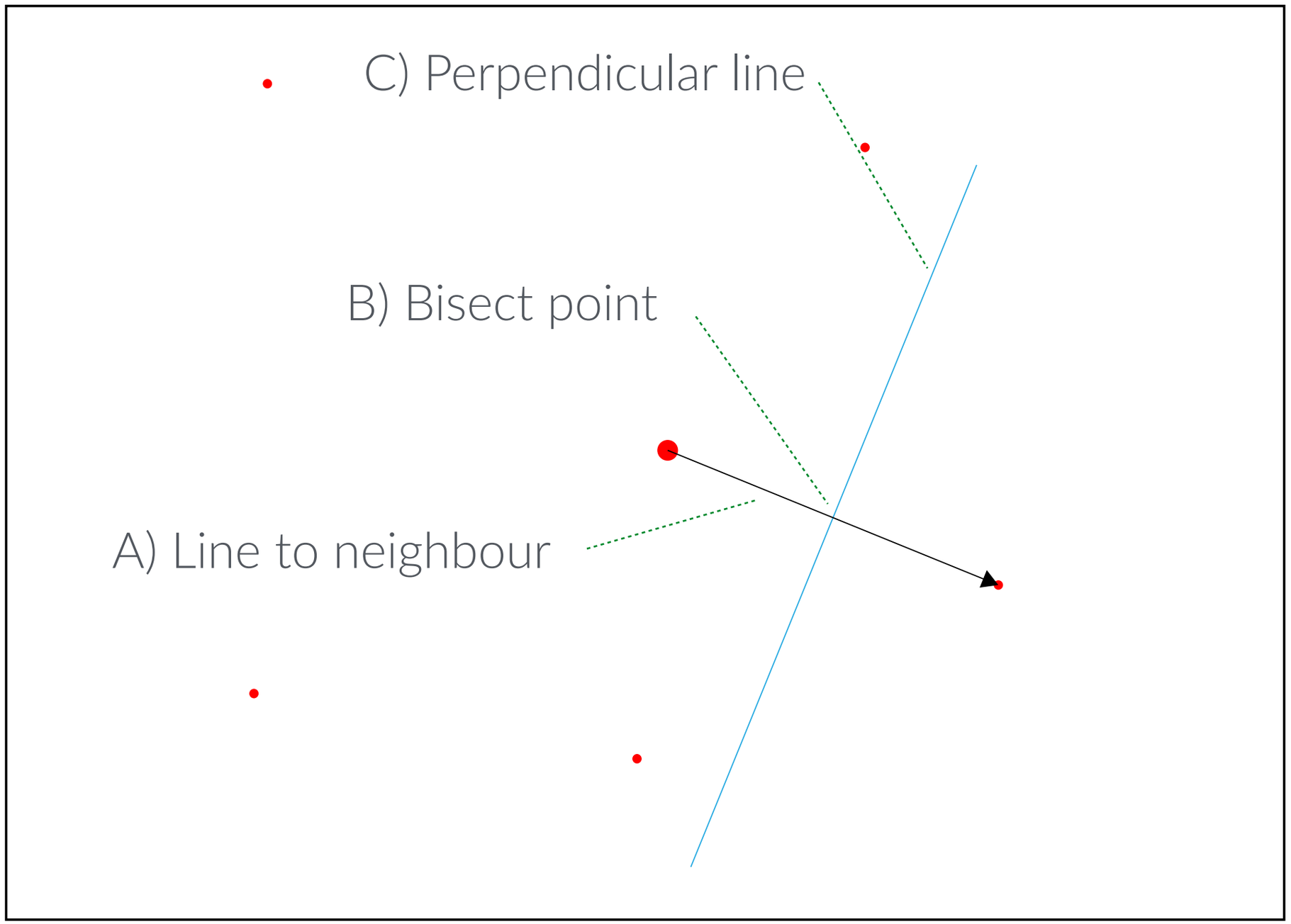
VORONOI CREATION

1. Choose a point and identify nearest neighbours



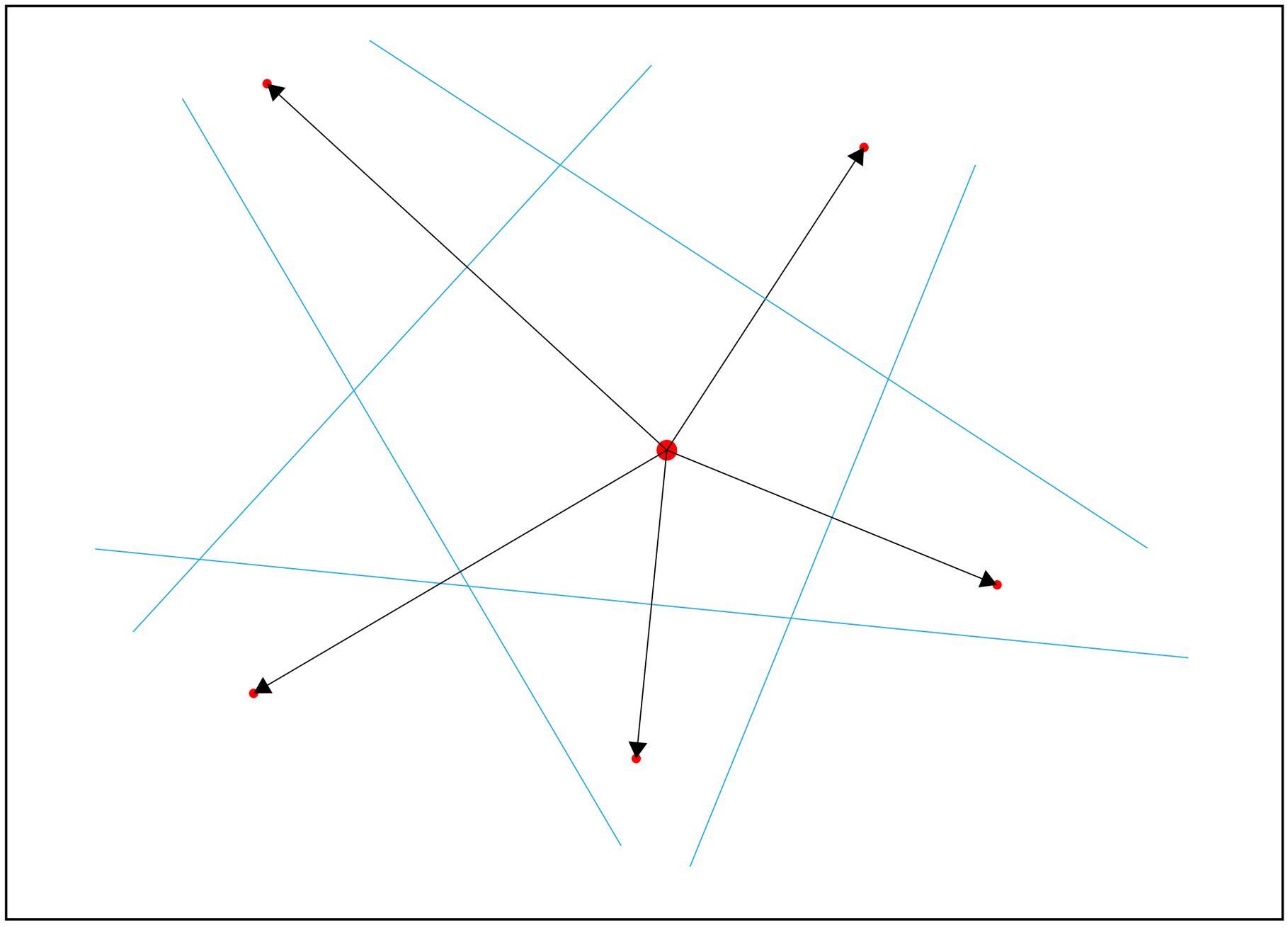
VORONOI CREATION

2. Draw a line to neighbours, create perpendicular line at bisect point



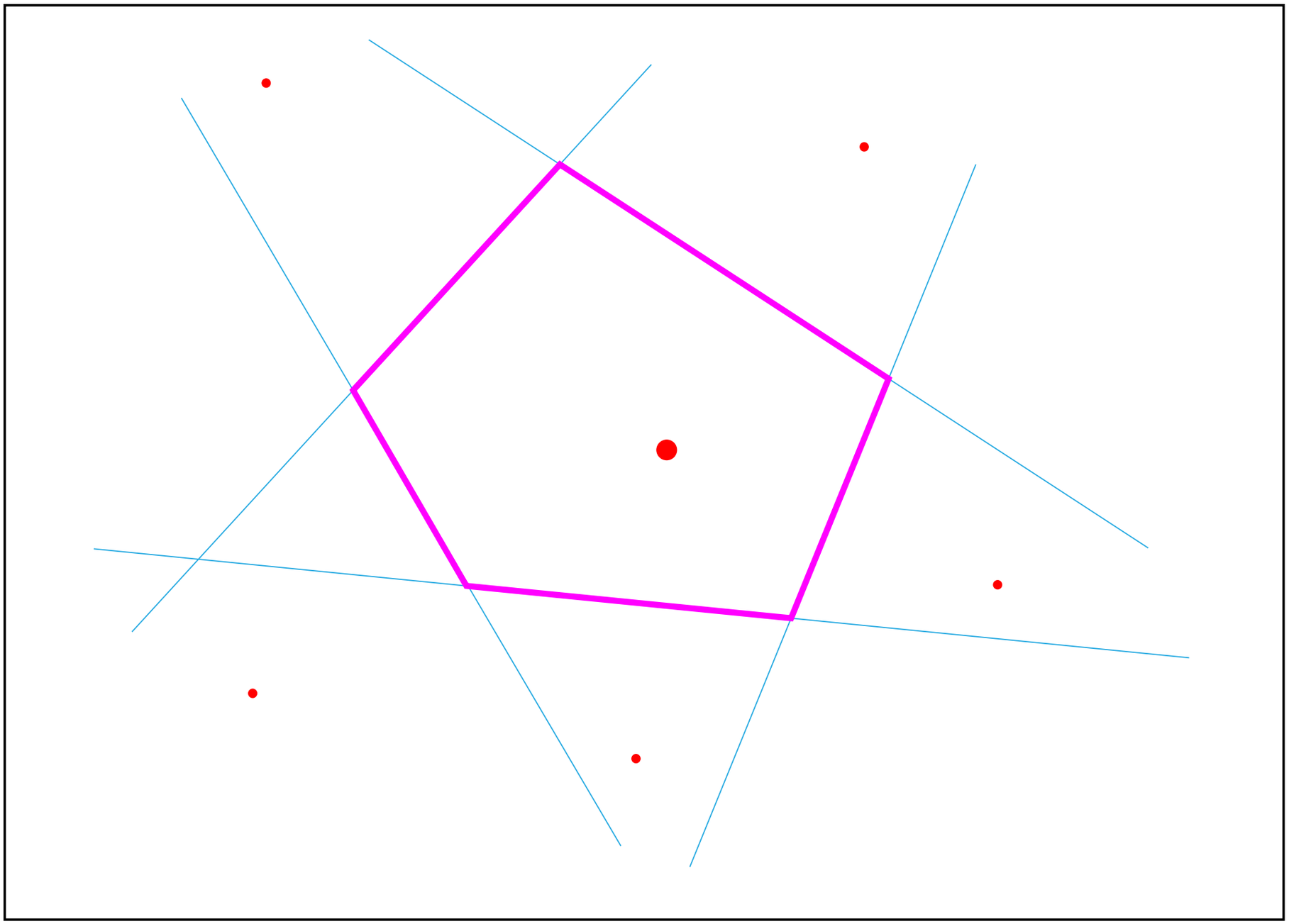
VORONOI CREATION

3. Iterate for other neighbours



VORONOI CREATION

4. Connect vertices

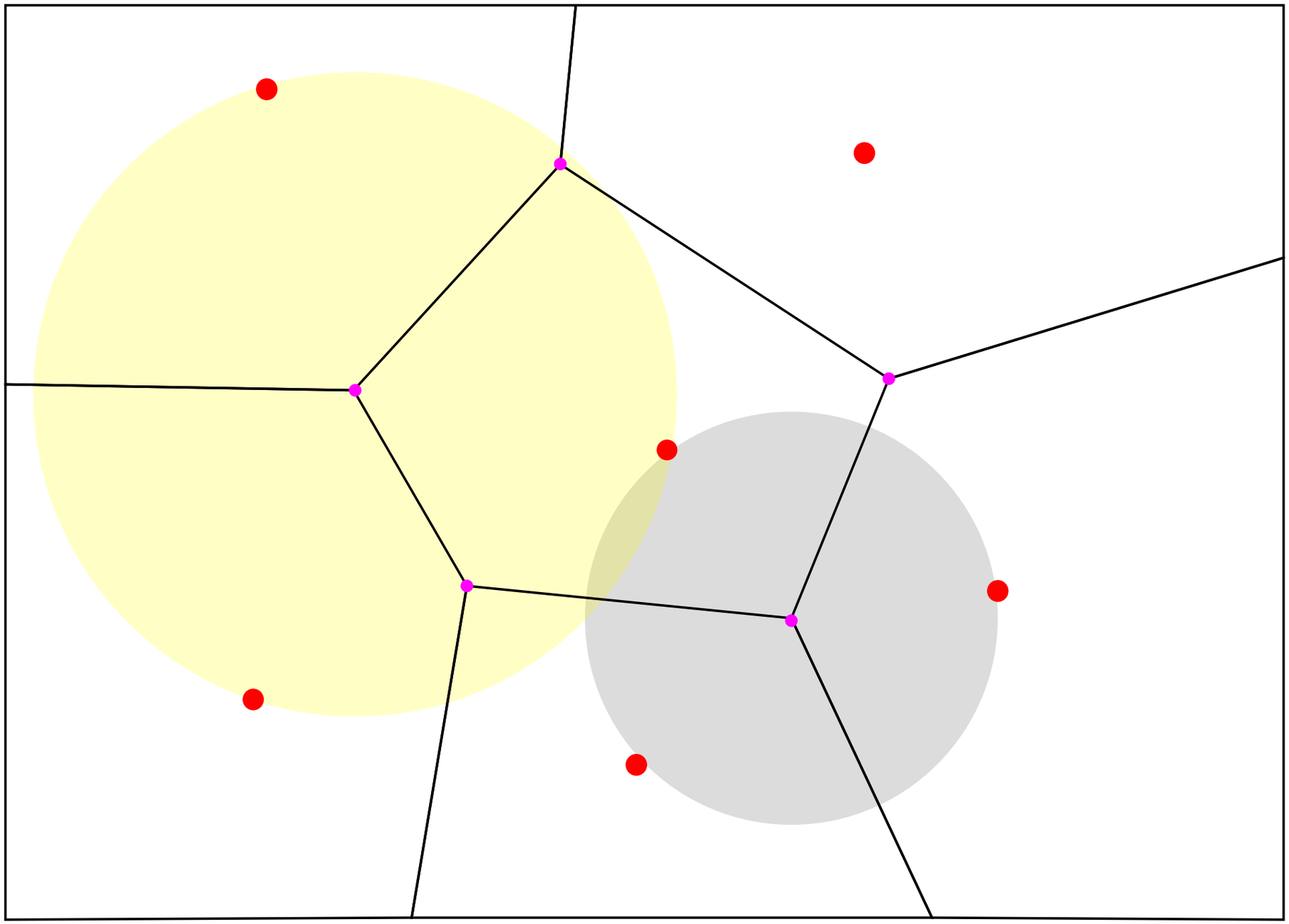


VORONOI CREATION

5. Repeat this procedure for other points

VORONOI PROPERTIES

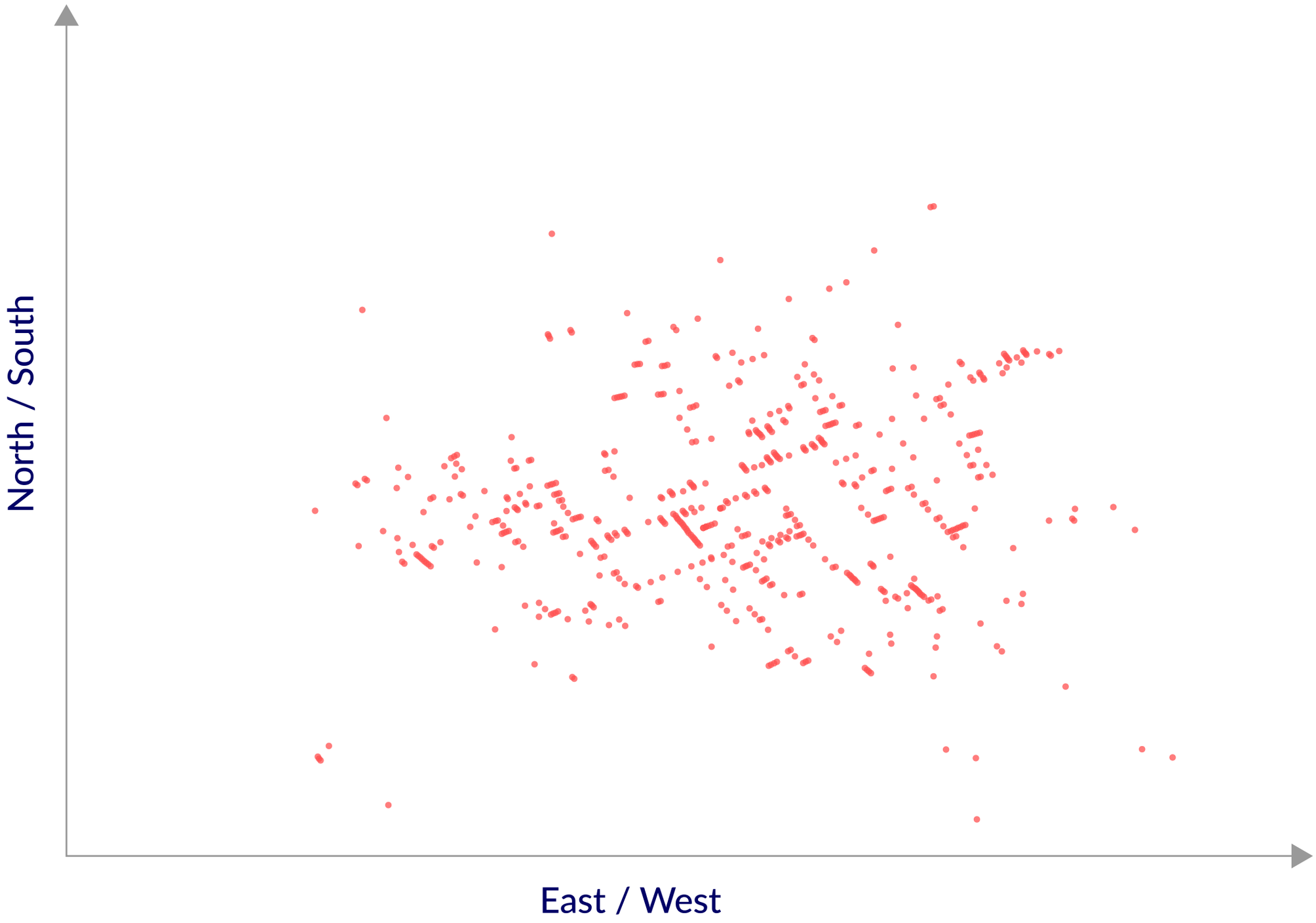
Vertices are equidistant to three seeds (two vertices diagrammed)



CHOLERA IN LONDON

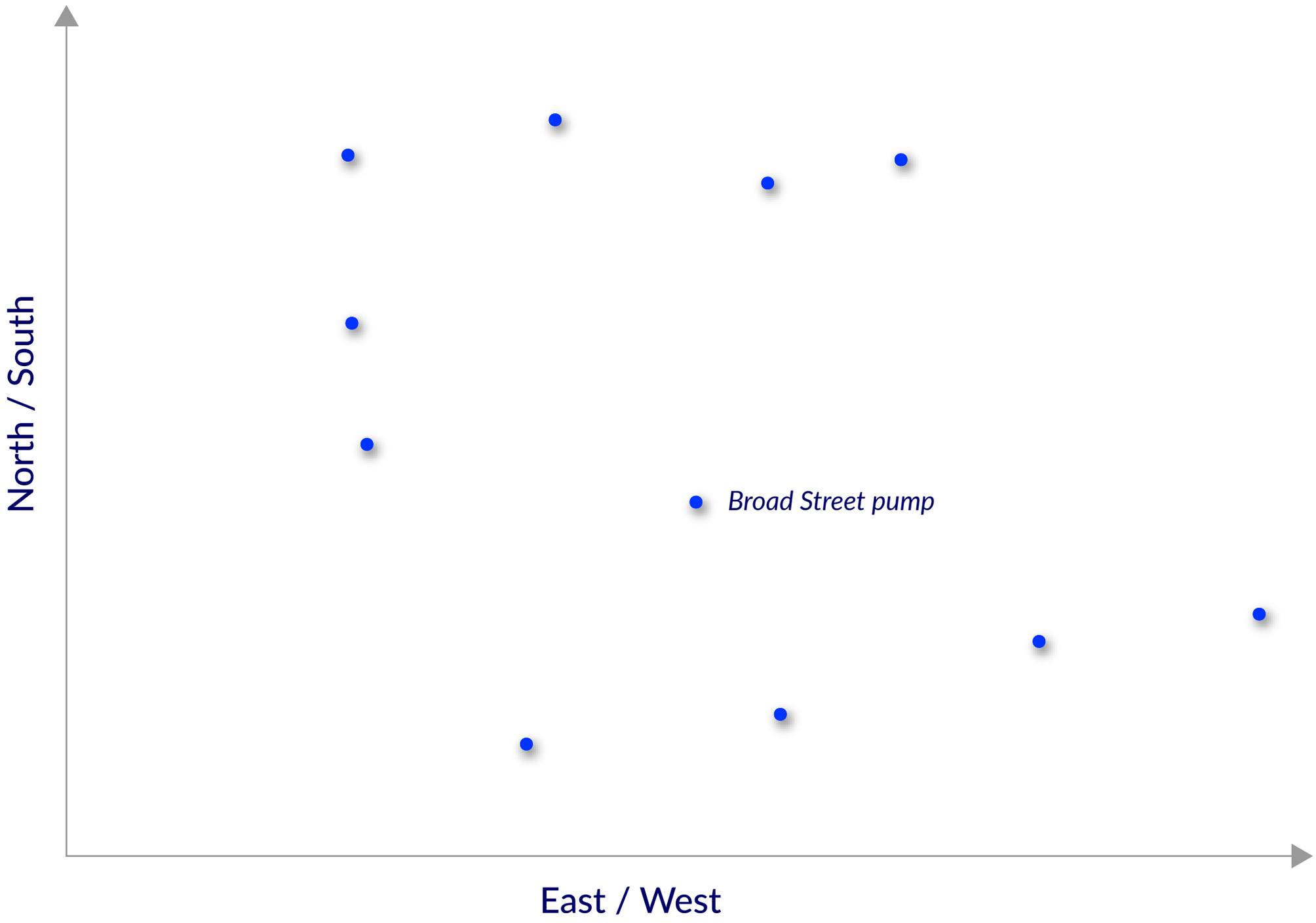
CHOLERA DEATHS IN LONDON

Cholera deaths in Soho, London 1854



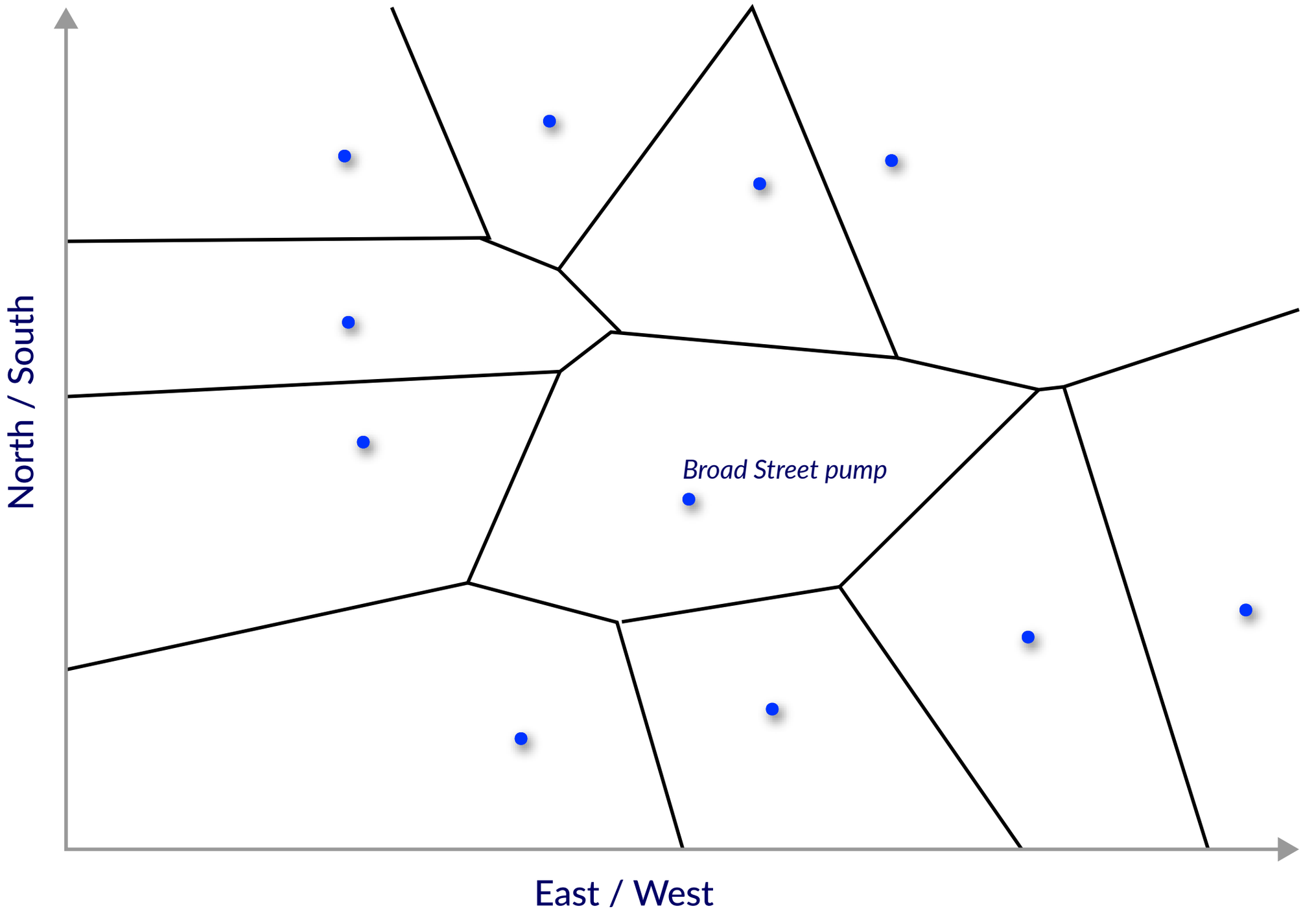
CHOLERA DEATHS IN LONDON

Location of water pumps



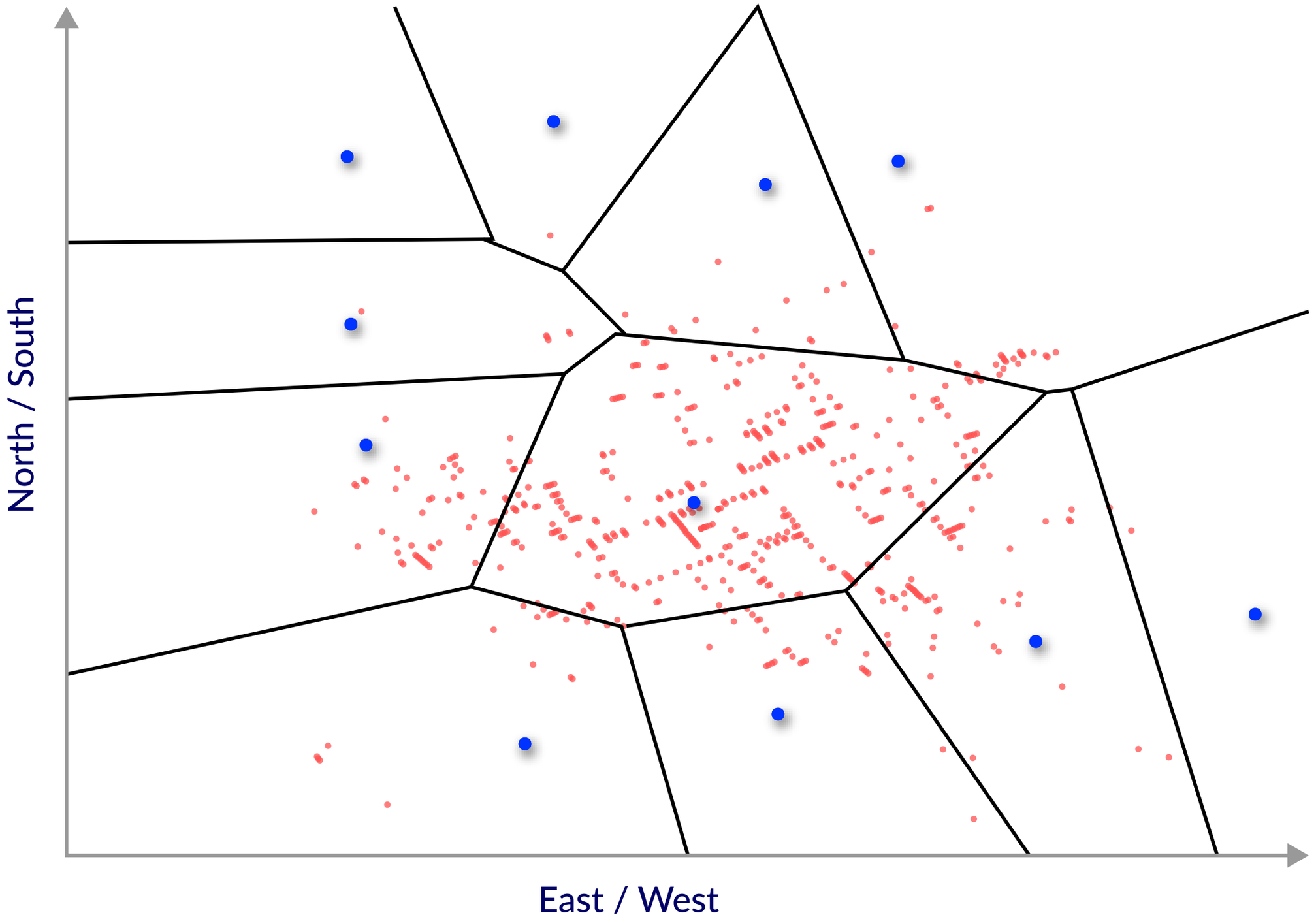
VORONOI TESSELLATION

Voronoi tessellation based on water pump location



VORONOI TESSELLATION

Deaths, water pumps and Voronoi tessellation



TABULATION

Count of deaths by Voronoi tessellation

Pump Name	Count	Percentage
Broad Street	359	62.1%
Soho	65	11.2%
Crown Chapel	61	10.5%
Briddle Street	28	4.8%
Oxford Street [2]	24	4.1%
Warick	20	3.4%
Oxford Street [1]	12	2.0%
Marlborough	6	1.0%
Dean Street	2	0.3%
Castle Street	1	0.2%

END