

Helicopter Site Suitability

Step 1: Outline

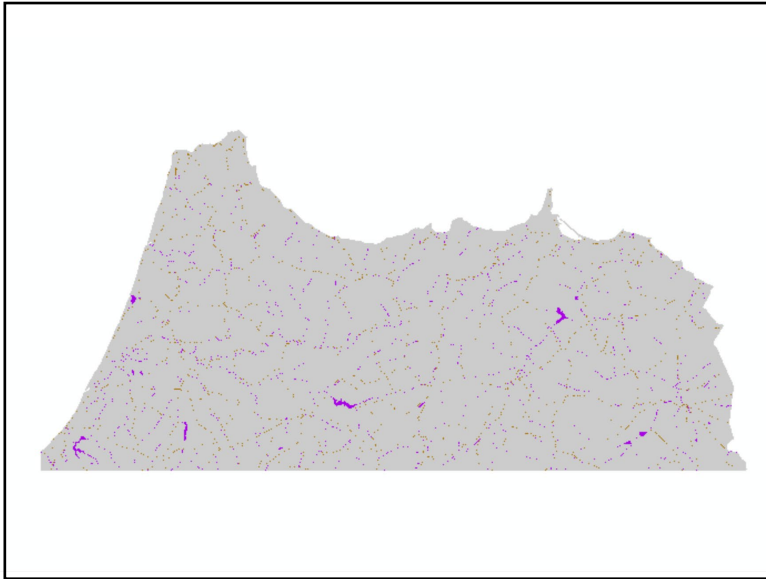


Figure 1a. roads&water

Description: road (brown), water (purple),
non-road or non-water land (gray)

Obtained

1. from raw folder



Figure 1b.outline

Description: gray (all land mass), used
purely for aesthetic purpose to overlay ontop
of other layers and show outline of North
Morocco

Obtained:

1. Reclassify(roads&water)

- Road → 1
- Non-Road/Non-Water → 1
- Water → 1

Step 2: Water Distance

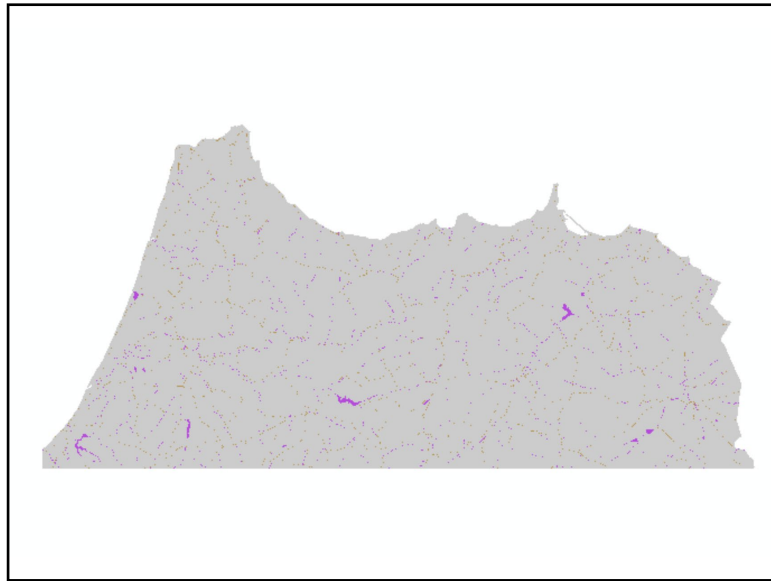


Figure 2/3a. roads&water

Description: road (brown), water (purple), non-road or non-water land (gray)

Obtained

1. from raw folder

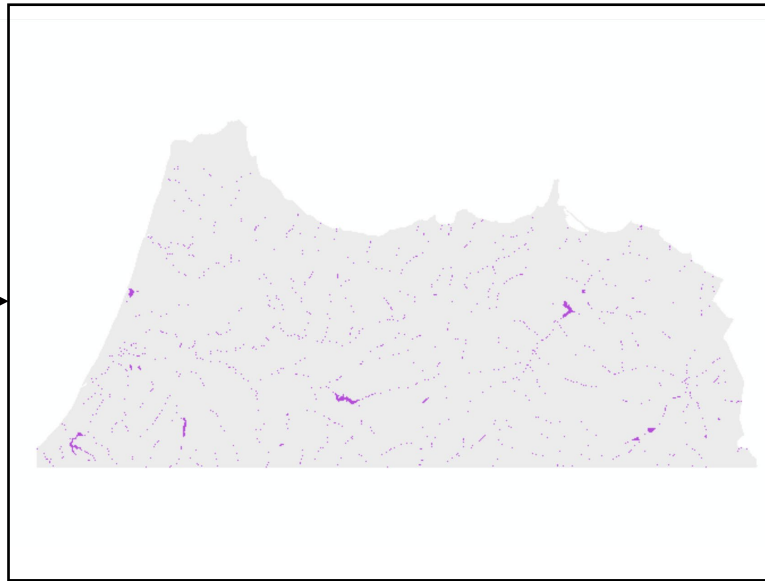


Figure 2b. w_only

Description: water (purple)

Obtained:

1. Reclassify(roads&water)
 - Road → NoData
 - Non-Road/Non-Water → NoData
 - Water → 1

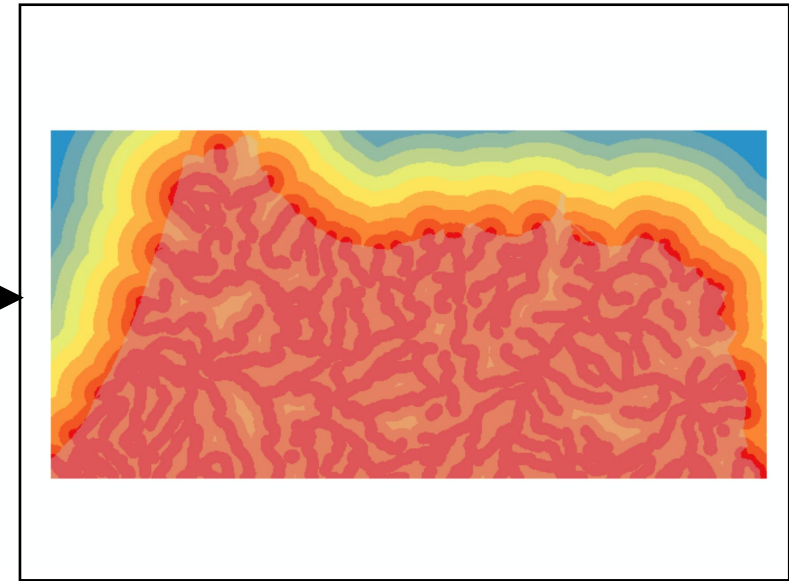


Figure 2c. w_dist

Description: distance from water source with red (closest) and blue (furthest)

Obtained:

1. Euclidian Distance(w_only)
 - Set to 10 equal quintiles

Step 3: Road Distance

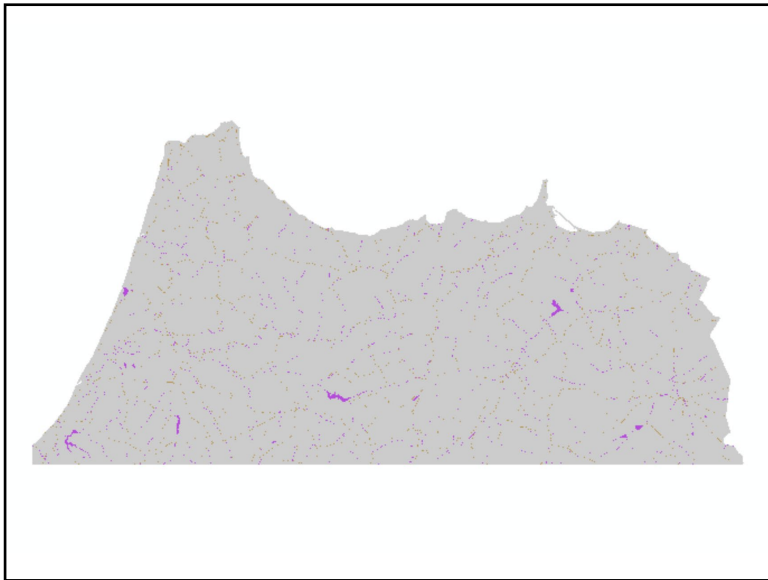


Figure 2/3a. roads&water

Description: road (brown), water (purple), non-road or non-water land (gray)

Obtained

1. from raw folder

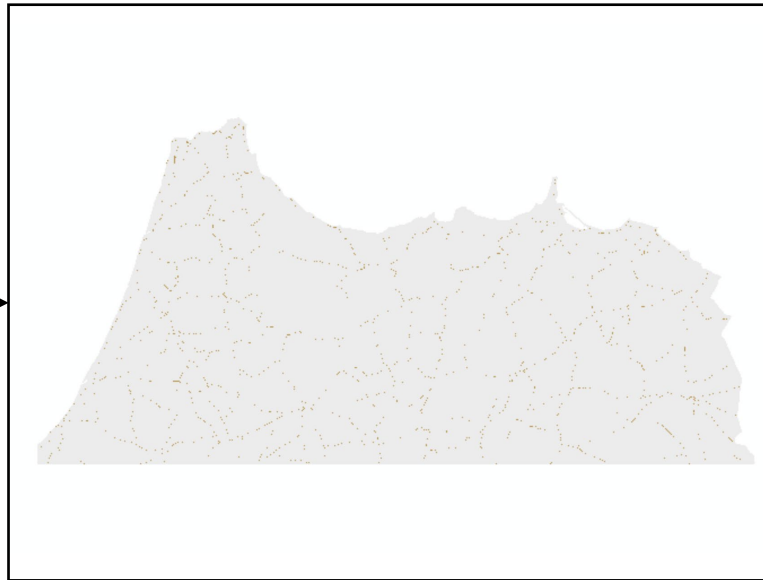


Figure 3b. r_only

Description: road (brown)

Obtained:

1. Reclassify(roads&water)
 - Water → NoData
 - Non-Road/Non-Water → NoData
 - Road → 1

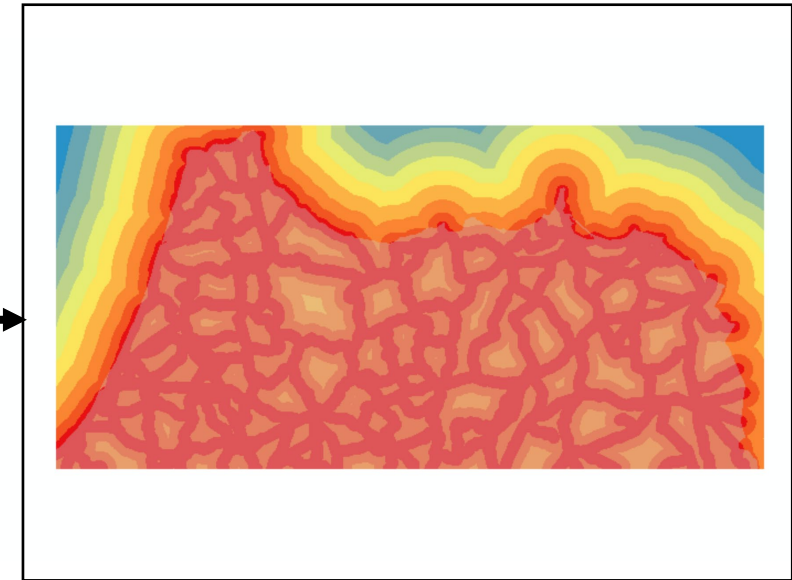


Figure 3c. r_dist

Description: distance from road source with red (closest) and blue (furthest)

Obtained:

1. Euclidian Distance(r_only)
 - Set to 10 equal quintiles

Step 4: Road & Water Distance

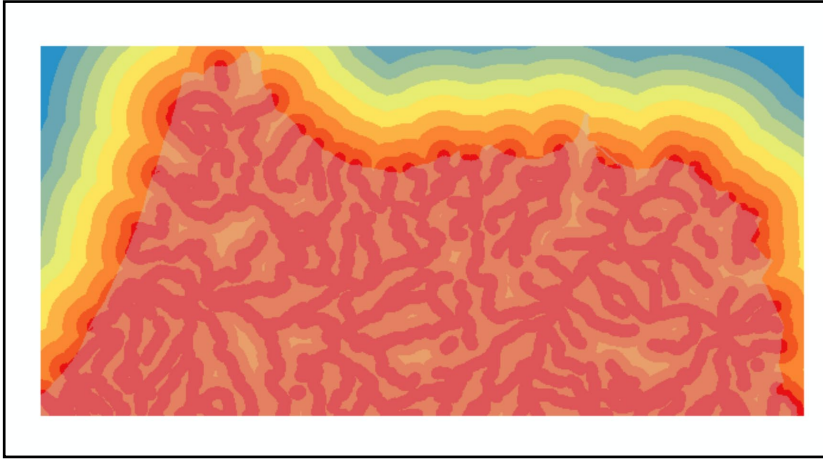


Figure 2c. w_dist

Description: distance from water source

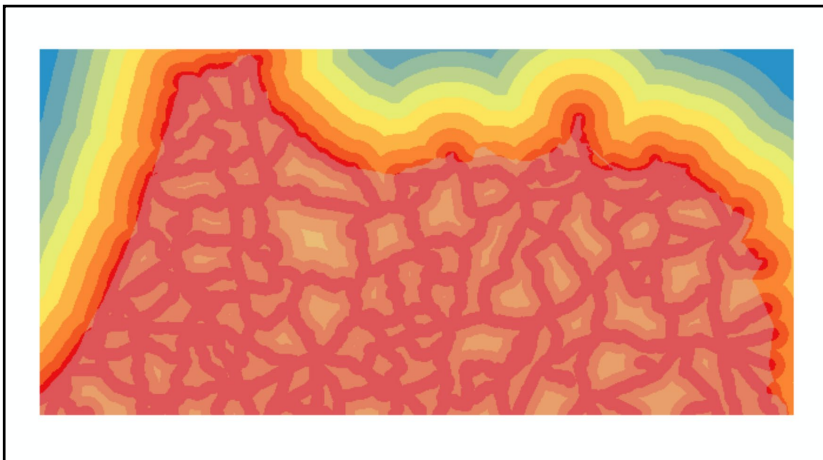


Figure 3c. r_dist

Description: distance from road source

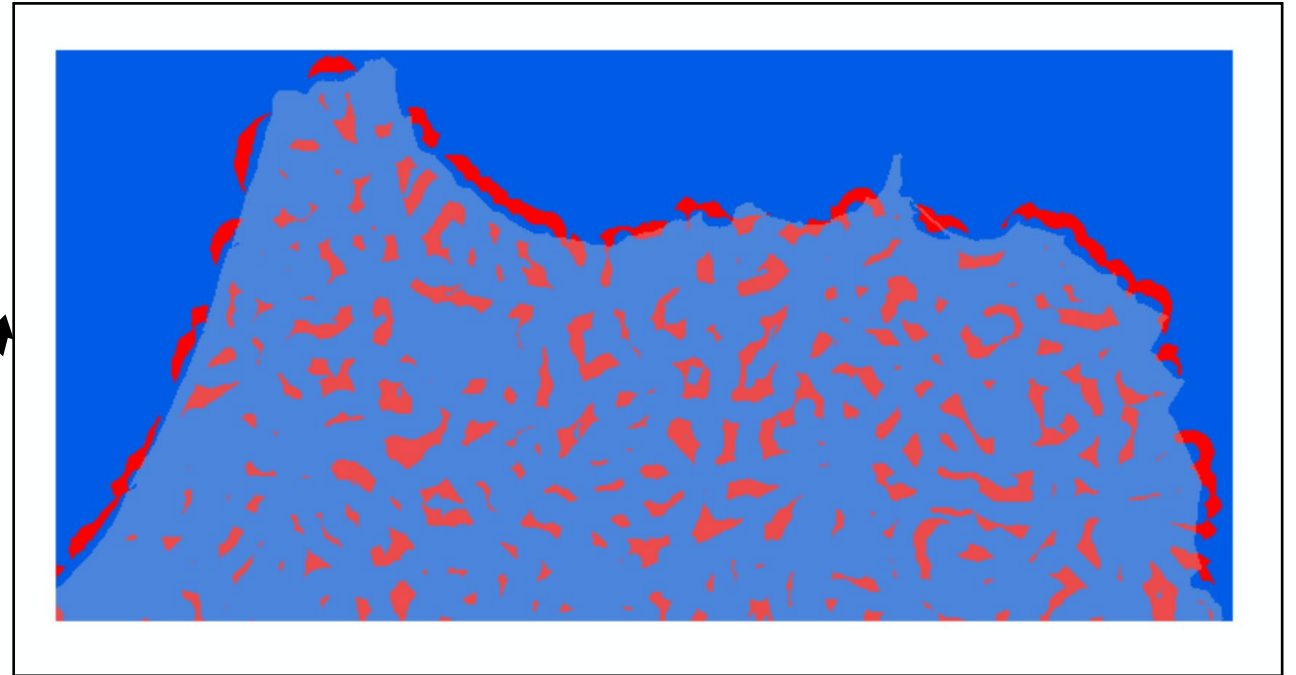


Figure 4a. w_r_dist

Description: indicates if area is both close to water and road source with red (close to both), blue (not close to road, water, or both)

Obtained:

1. Raster Calculator(w_dist, r_dist)
 1. ("w_dist" > 4000) & ("w_dist" < 11000) & ("r_dist" > 4000) & ("r_dist" < 11000) → 1

Step 5: Hospital Distance

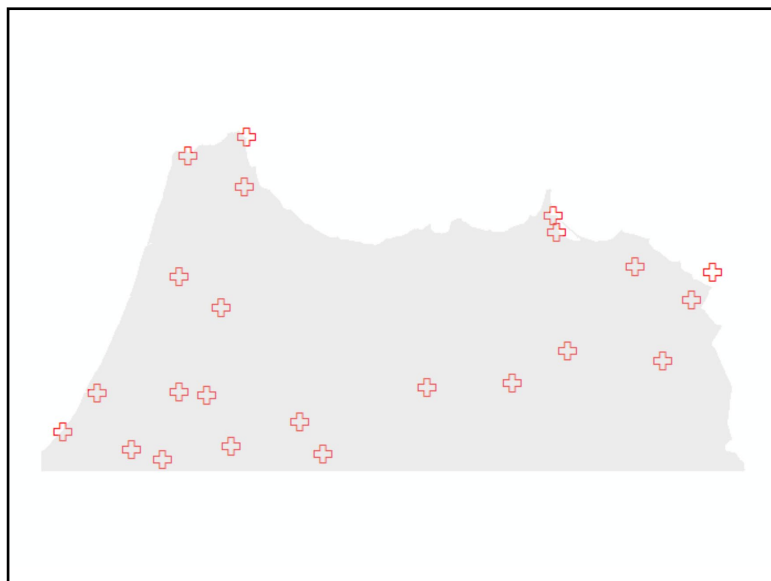


Figure 5a. Hospitals

Description: location of hospitals

Obtained

1. from raw folder

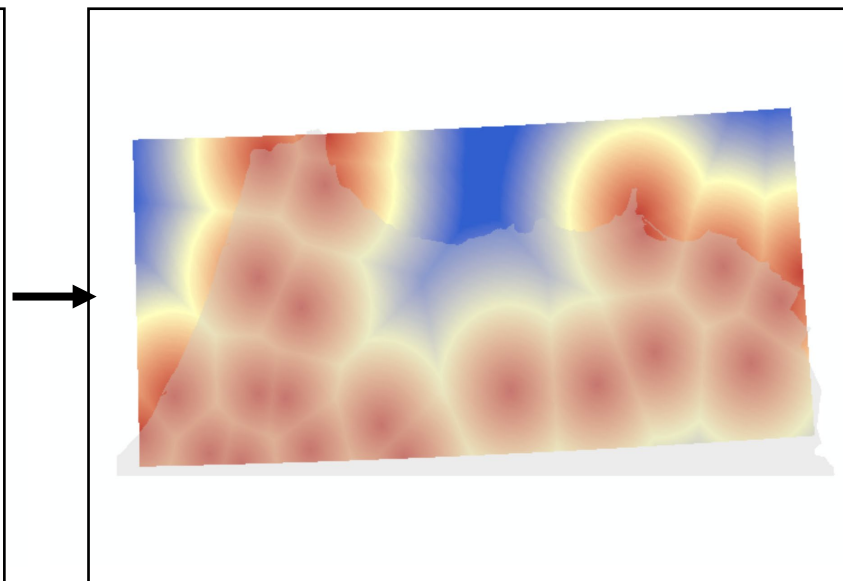


Figure 5b. hosp_dist

Description: distance from hospital with red (closest) and blue (furthest)

Obtained:

1. Euclidian Distance(Hospitals)
 - Set to 10 equal quintiles

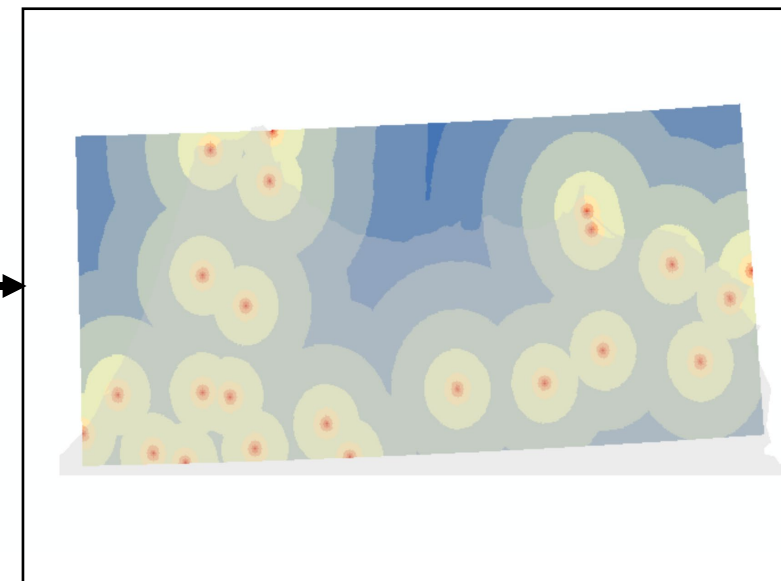


Figure 5c. hosp_class

Description: distance reclassified into 10 classes with red (closest, highest class - 10) and blue (furthest, lowest class - 1)

Obtained:

1. Reclassify(hosp_dist)
 - Set to 10 intervals (0 – 100, 100 – 1000, 1000 – 2500, 2500 – 5000, 5000 – 10000, 10000 – 25000, 25000 – 50000, 50000 – 80000, 80000 – 120000, 120000 – 160000)

Step 6: Helicopter Distance

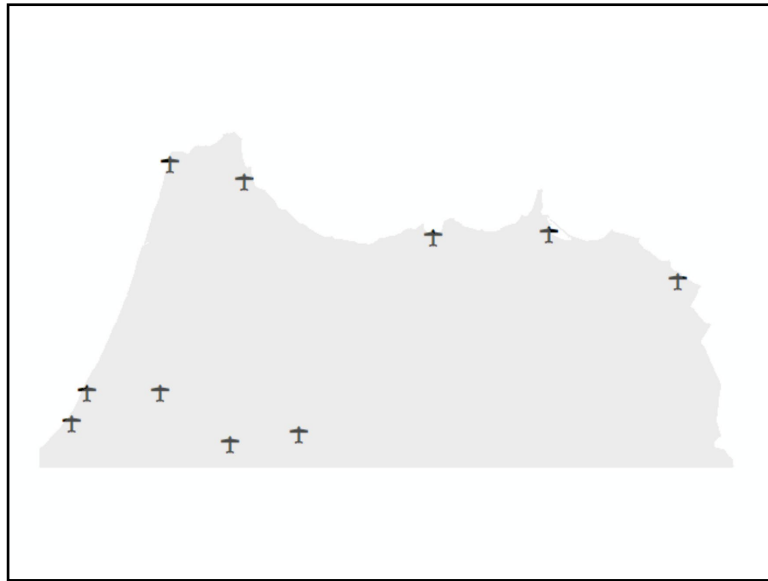


Figure 6a. Helicopters

Description: location of helicopters

Obtained

1. from raw folder

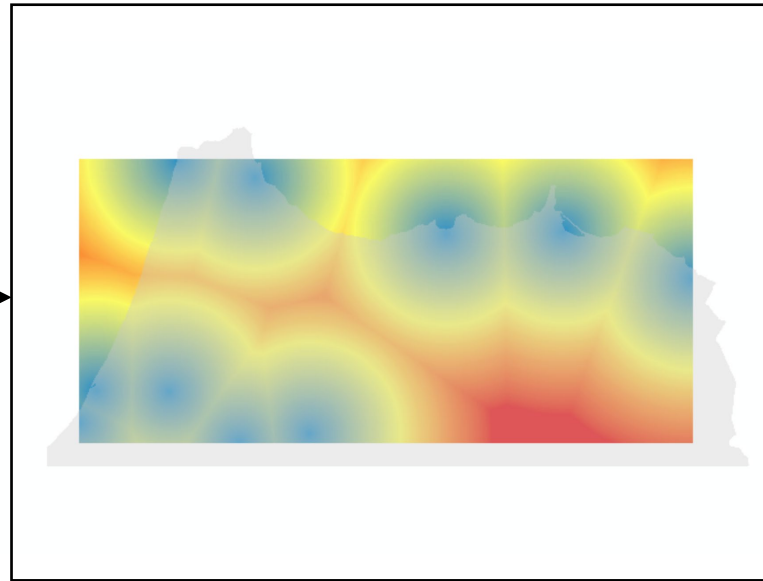


Figure 6b. heli_dist

Description: distance from helicopters with red (furthest) and blue (closest)

Obtained:

1. Euclidian Distance(Helicopters)
 - Set to 10 equal quintiles

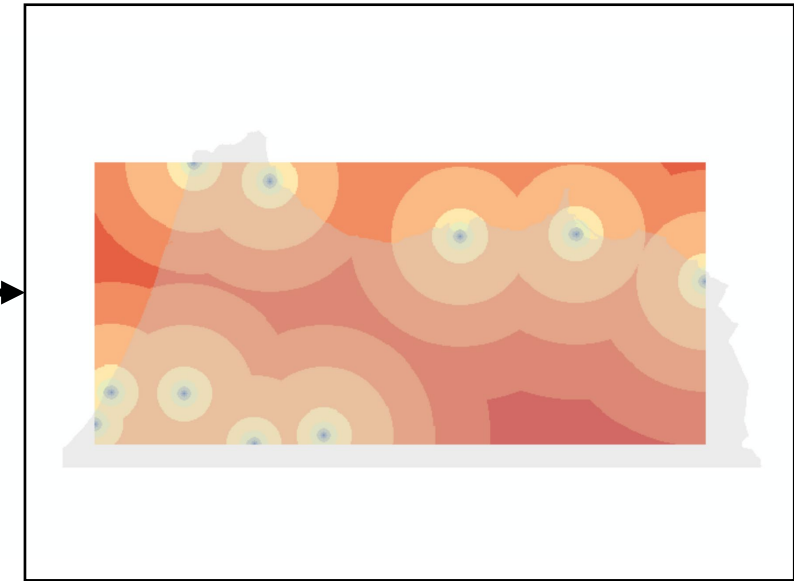


Figure 6c. heli_class

Description: distance reclassified into 10 classes with red (furthest, highest value) and blue (closest, lowest values)

Obtained:

1. Reclassify(heli_dist)
 - Set to 10 intervals (0 – 100, 100 – 1000, 1000 – 2500, 2500 – 5000, 5000 – 10000, 10000 – 25000, 25000 – 50000, 50000 – 80000, 80000 – 120000, 120000 – 160000)

Step 7: Weighting

The following figures give a score based on different weight. All use the raster calculator tool to assign such values

Figure 7a. Heli_pri (top): additional weight given to distance from helicopter over distance from hospital; Formula: $(\text{"heli_class"} * 3 + \text{"hosp_class"}) / 4$

Figure 7b. Equal_pri (mid): equal weight given to both distance from hospital and distance from helicopter; Formula: $(\text{"heli_class"} + \text{"hosp_class"}) / 2$

Figure 7c. Hosp_pri (bot): additional weight given to distance from hospital over distance from helicopter; Formula: $(\text{"heli_class"} + \text{"hosp_class"} * 3) / 4$

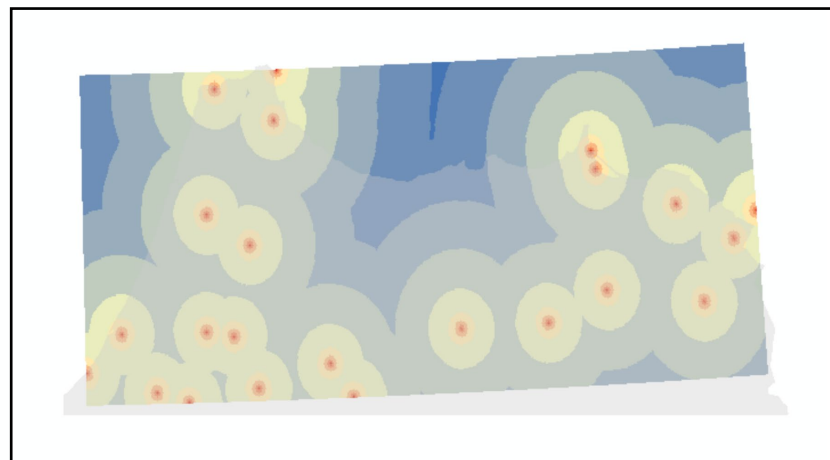


Figure 5c. hosp_class

Description: hospital distance classified

Key: higher value indicates closer to hospital

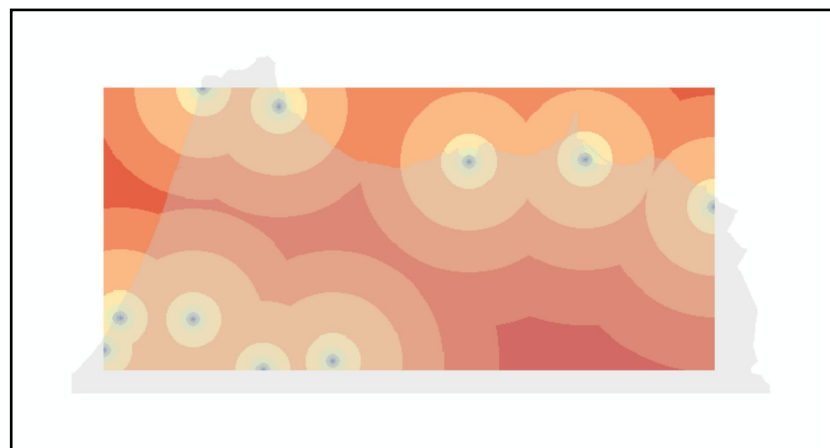
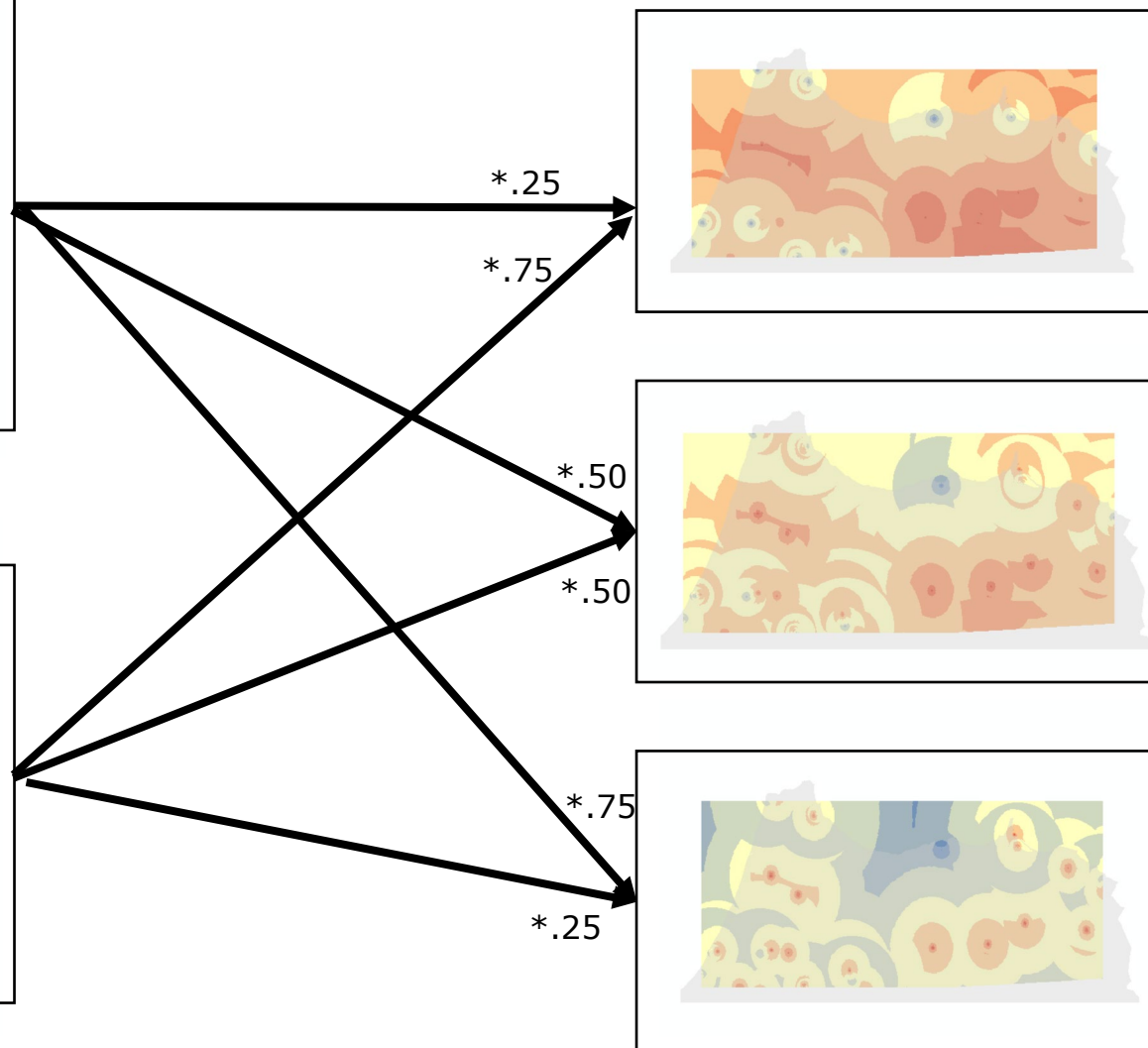


Figure 6c. heli_class

Description: helicopter distance classified

Key: higher value indicates further from base



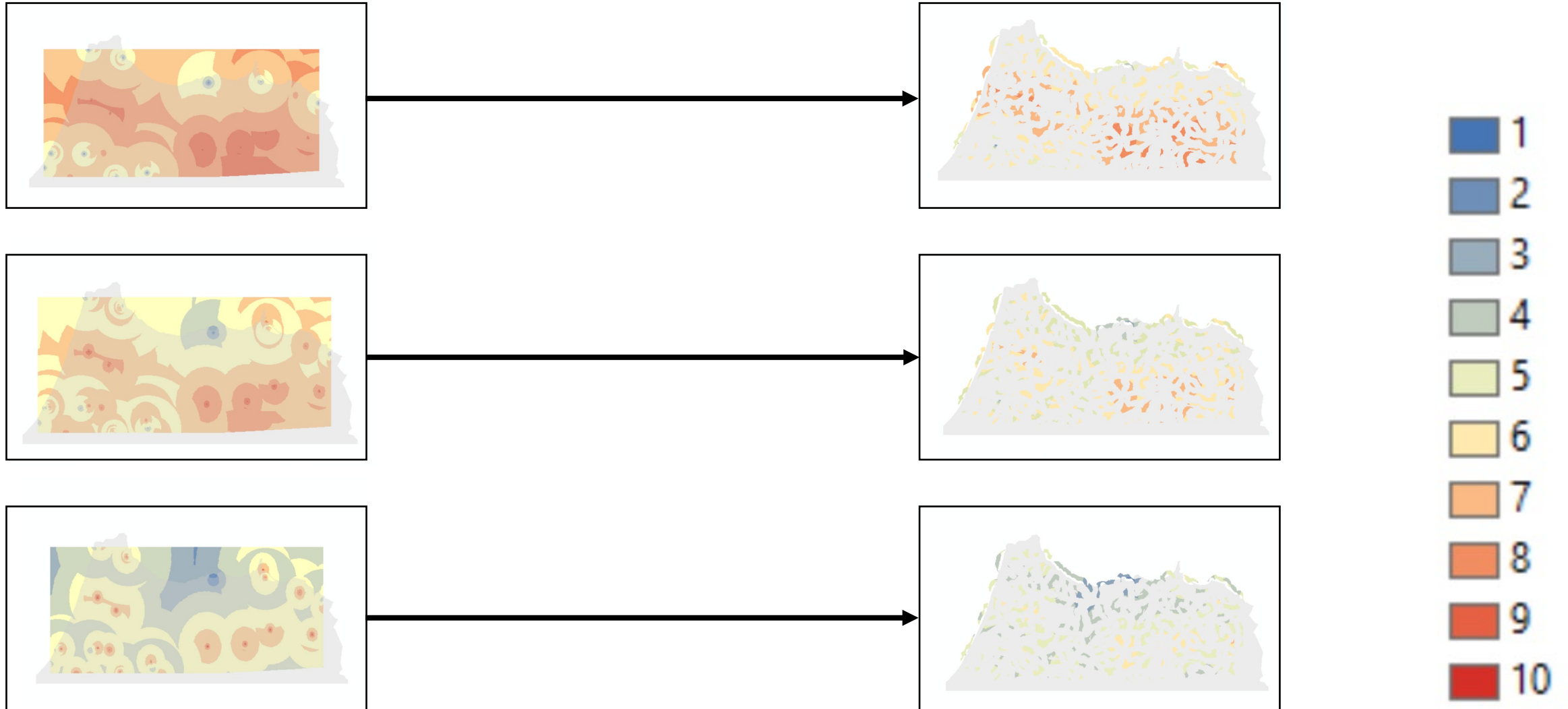
Step 8: Requirements

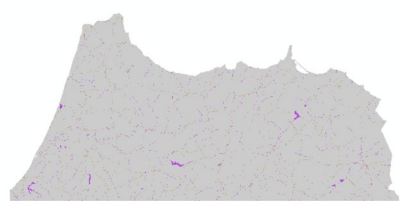
Use the class figures, but apply the water/road and helicopter requirements calculated before. For each map, use Raster Calculator $\text{Cond}(("w_r_dist") == 1)$

Figure 8a. Heli_pri_req (top): additional weight given to distance from helicopter over distance from hospital; Formula: $(\text{"heli_class"} * 3 + \text{"hosp_class"}) / 4$

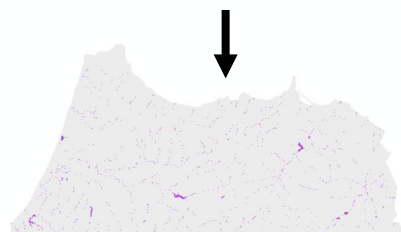
Figure 8b. Equal_pri_req (mid): equal weight given to both distance from hospital and distance from helicopter; Formula: $(\text{"heli_class"} + \text{"hosp_class"}) / 2$

Figure 8c. Hosp_pri_req (bot): additional weight given to distance from hospital over distance from helicopter; Formula: $(\text{"heli_class"} + \text{"hosp_class"} * 3) / 4$

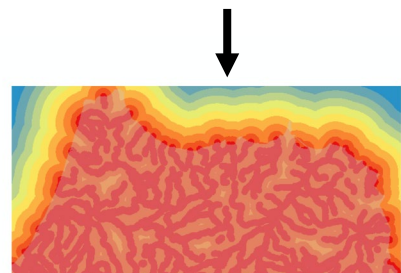




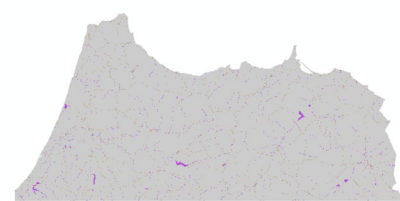
Water & Road



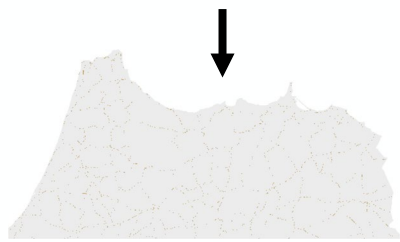
Reclassify to only have water



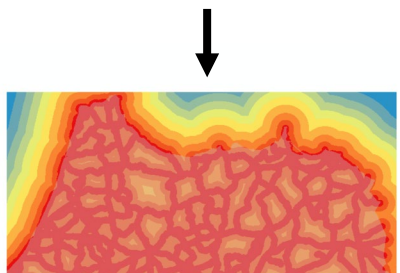
Euclidian Distance
(red as close)



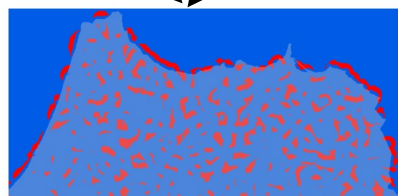
Water & Road



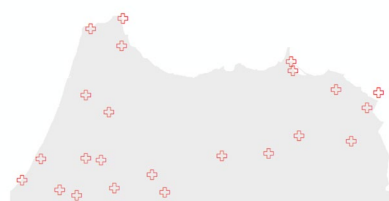
Reclassify to only have road



Euclidian Distance
(red as close)



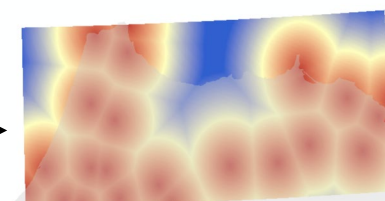
Raster Calculator
Finds all areas close to
both water and road



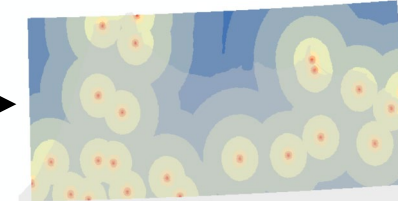
Hospitals



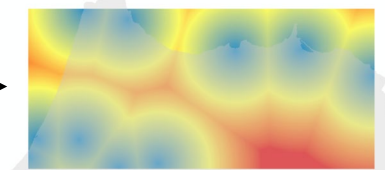
Helicopters



Euclidian Distance
(red as close)



Reclassify to 10
classes (red as high)



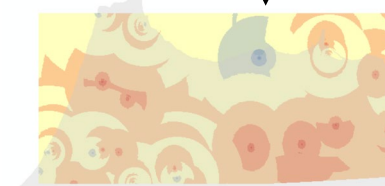
Euclidian Distance
(red as far)



Reclassify to 10
classes (red as high)



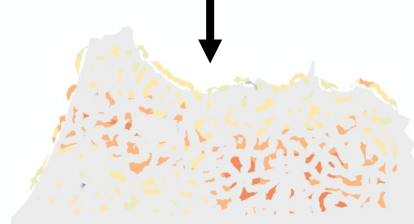
Raster Calculator Weight:
Heli 75%, Hosp 25%



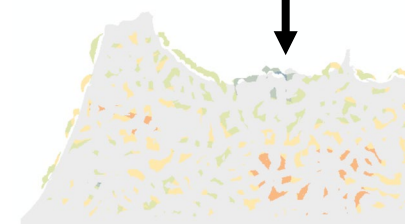
Raster Calculator Weight:
Heli 50%, Hosp 50%



Raster Calculator Weight:
Heli 50%, Hosp 75%



Apply requirements to also have to be close to road/water



Results

✈ HelicopterBases
+ Hospitals

