

# Impervious Surfaces: Methodology Update – Exploring other Approaches

Conservation Halton

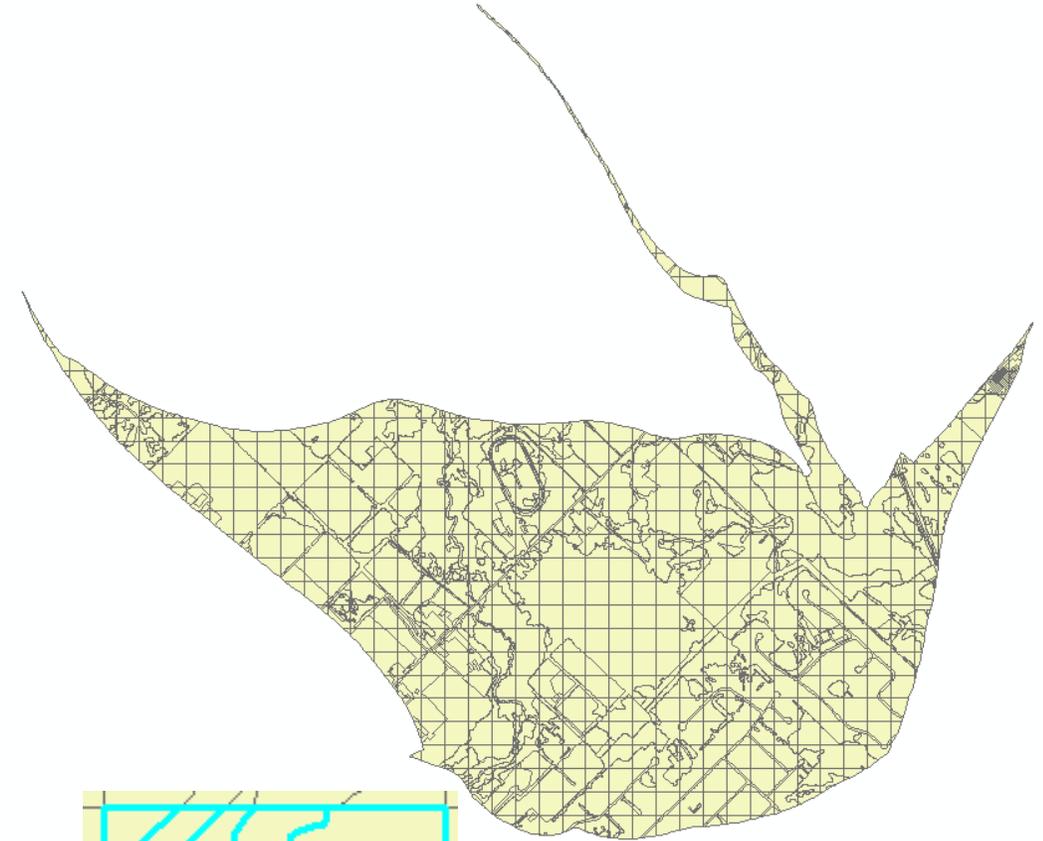


# 100m x 100m Grid Method

Centered on each WHPA using 100m x 100m grid.

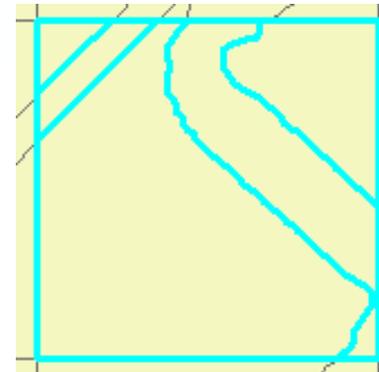
Assume % Impervious for Salt Application for each Land Use Category.

Calculate the impervious area of each land cover type in each grid square.



PageNumber	COVER	Salt	Shape_Area	Salt_Imp_Area	Impervious
1350	Forest	0	1998.682105	0	0
1350	Rural Residential	10	7613.270326	761.327033	30
1350	Transportation	100	388.047568	388.047568	100

Total Area of Potential Salt Application = Shape Area x Salt Impervious %



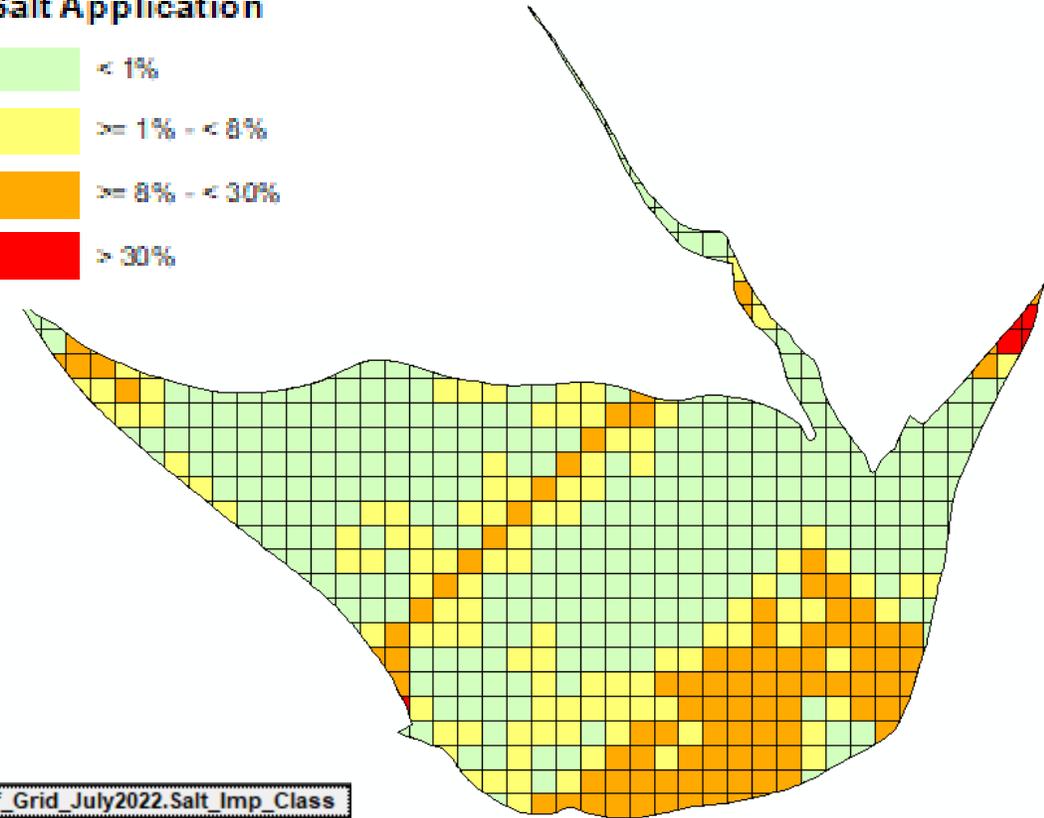
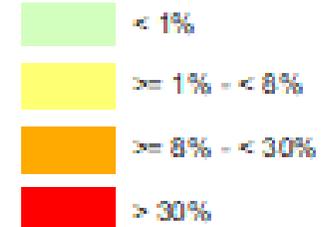
# 100m x 100m Grid Method

Sum the Total Impervious Areas for each grid.

Calculate the Percent Impervious.

Classify according to the Technical Rules.

Percent Impervious Surface -  
Salt Application



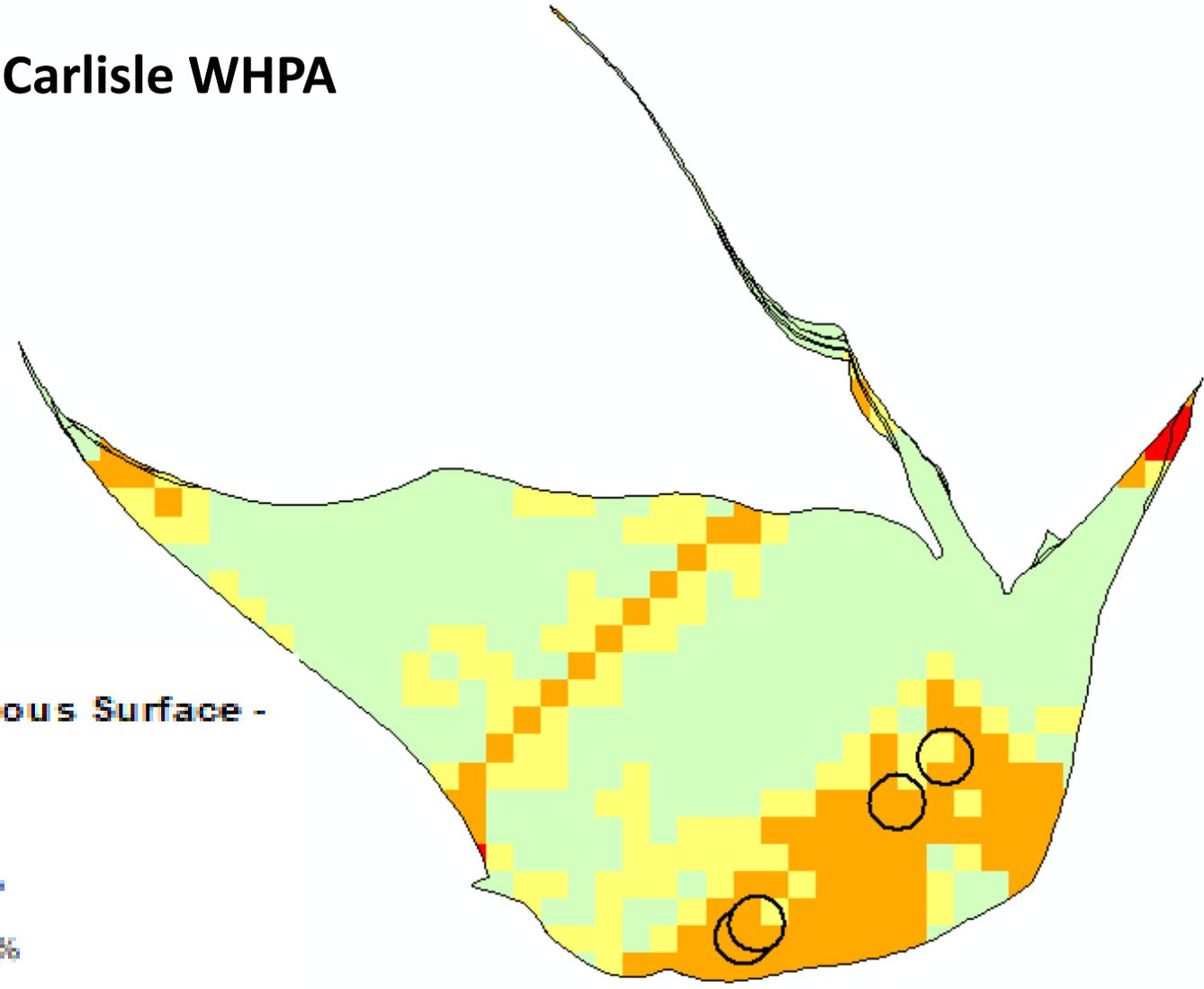
PageNumber *	Sum_Salt_Imp_Area	Shape_Area	Carlisle_ImpSurf_Grid_July2022.Percent_Salt_Imp	Carlisle_ImpSurf_Grid_July2022.Salt_Imp_Class
1349	1838.598524	10000	18.385985	3
1350	1149.374601	10000	11.493746	3
1351	1191.095282	10000	11.910953	3

$$\text{Percent Impervious} = (\text{Sum Impervious Areas} / \text{Grid Shape Area}) \times 100$$

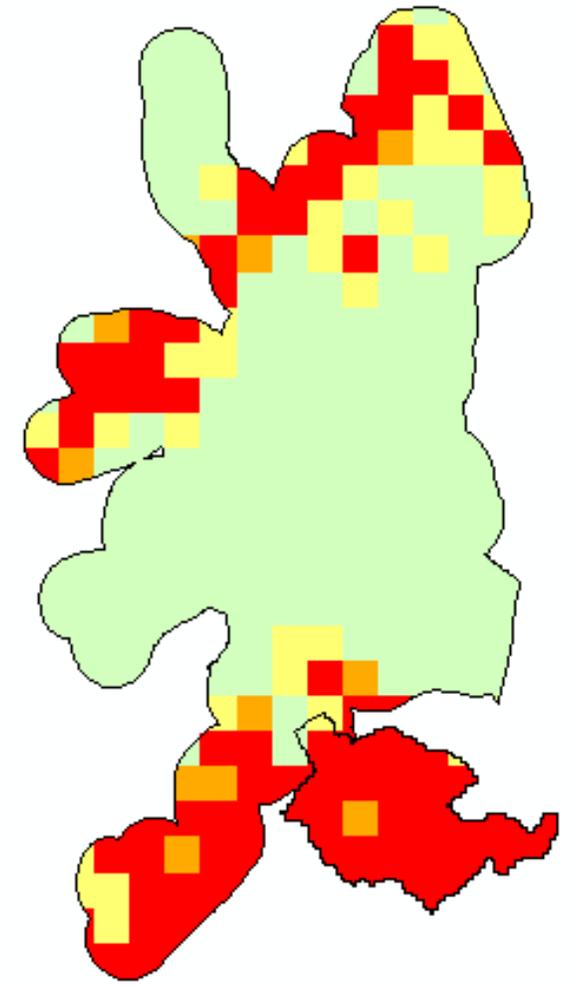


# % Impervious Surface

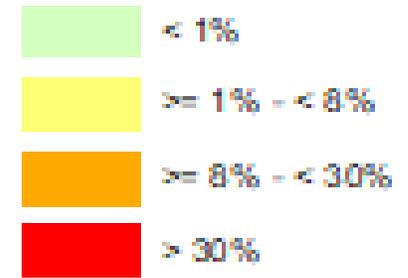
## Carlisle WHPA



## Carlisle WHPA E



Percent Impervious Surface -  
Salt Application



# Technical Rule Changes

C12.1.4

1. The road salt is applied in an area where the percentage of total impervious surface area, as set out on a total impervious surface area map, is 80 percent or more.

IPZ/WHPA-E

9 – 10

WHPA 10

1. The road salt is applied in an area where the default percentage of impervious surface area, as set out on a total impervious surface area map, is 30 percent or more in WHPA-A, B, C, C1, D or HVA; or is 8 percent or more in IPZ-1, 2, 3 and WHPA-E.

Carlisle WHPA E

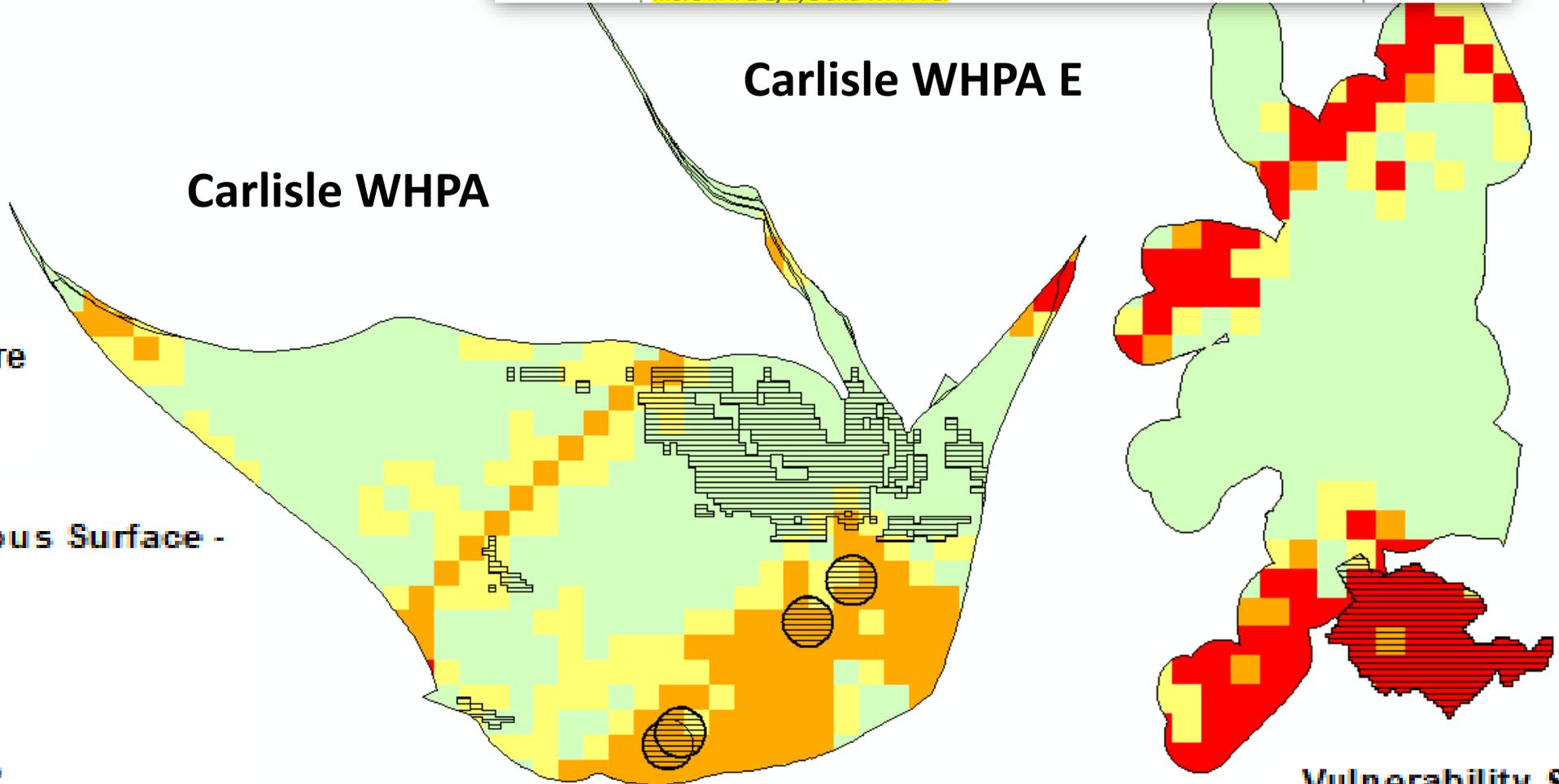
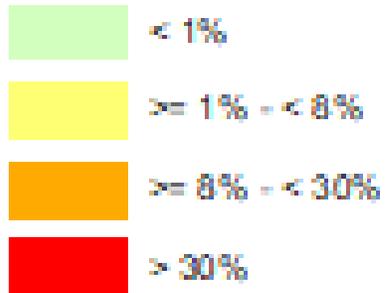
Carlisle WHPA

## Vulnerability Score



10

## Percent Impervious Surface - Salt Application



## Vulnerability Score

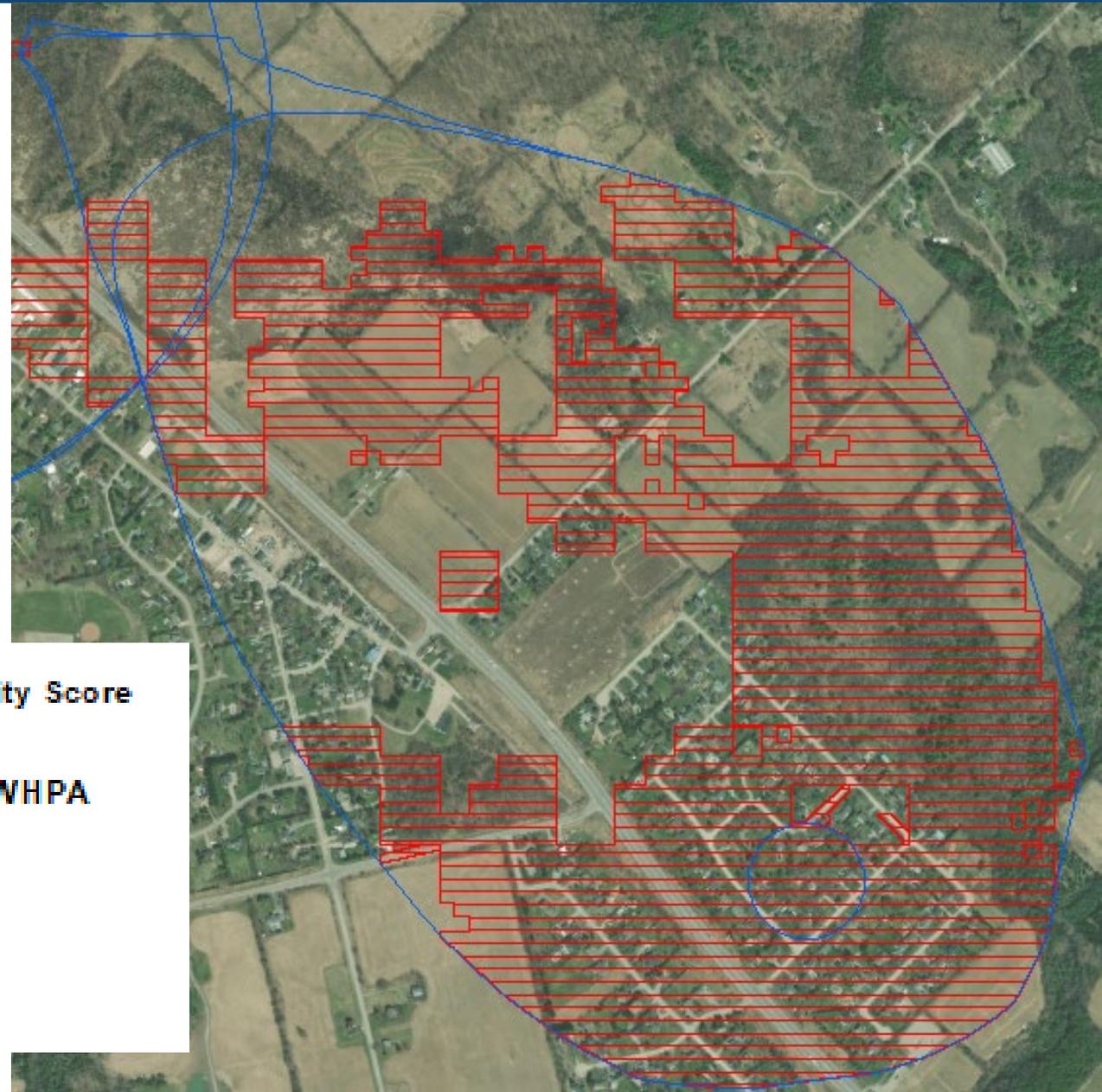


9

# Freelton WHPA Example

## Increased:

- number of residential properties & streets
- area with vulnerability score 10
- increased significant threats



Vulnerability Score

 10

Freelton WHPA

 A

 B

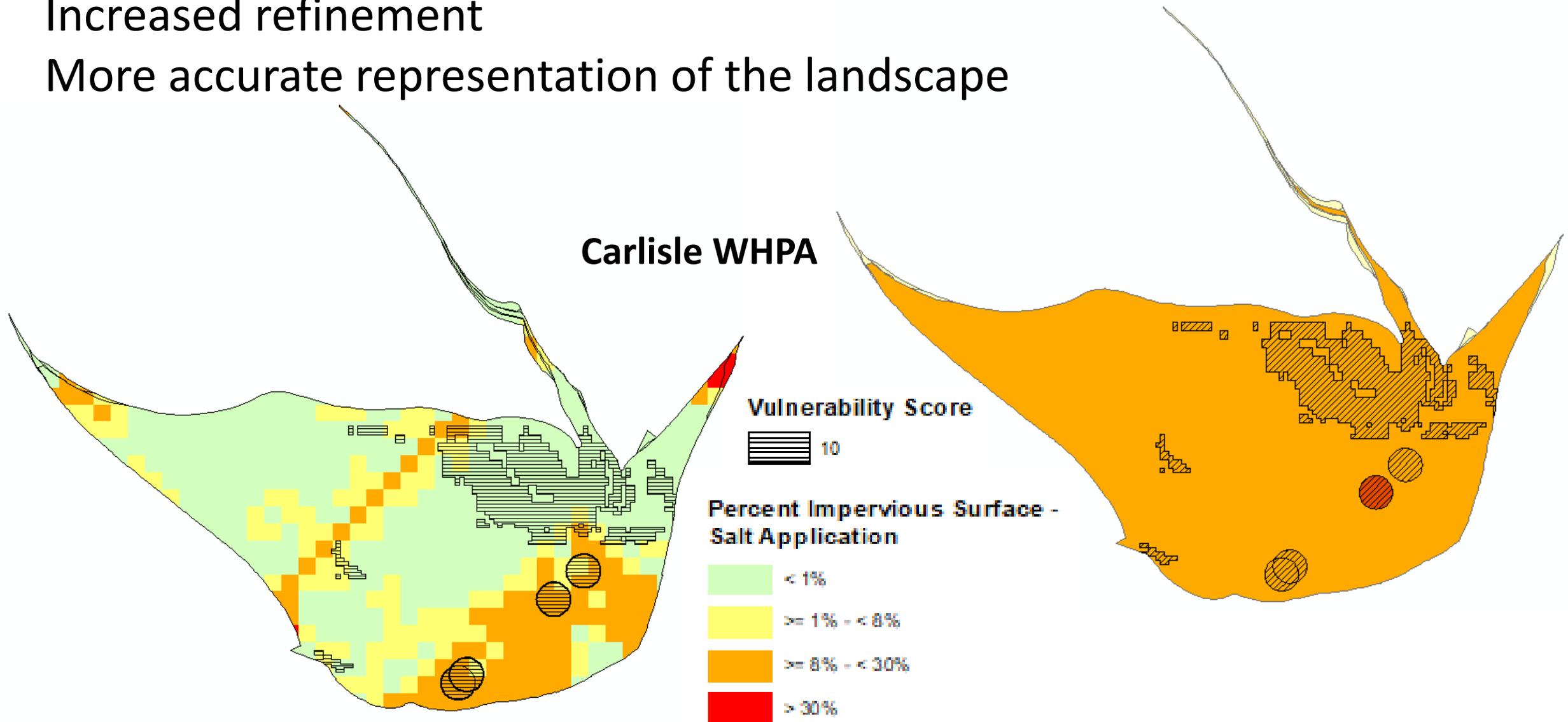
 C

 D

# Method Comparison

100m x 100m Grid vs WHPA Area

- Increased refinement
- More accurate representation of the landscape



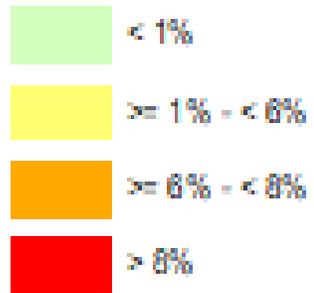
# Method Comparison

## 100m x 100m Grid vs WHPA E Area

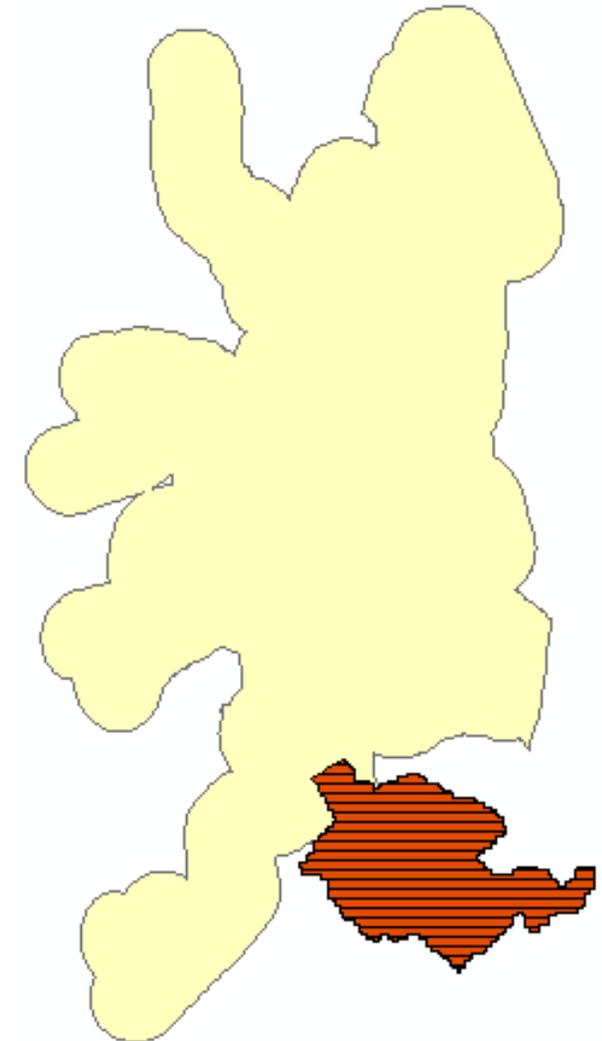
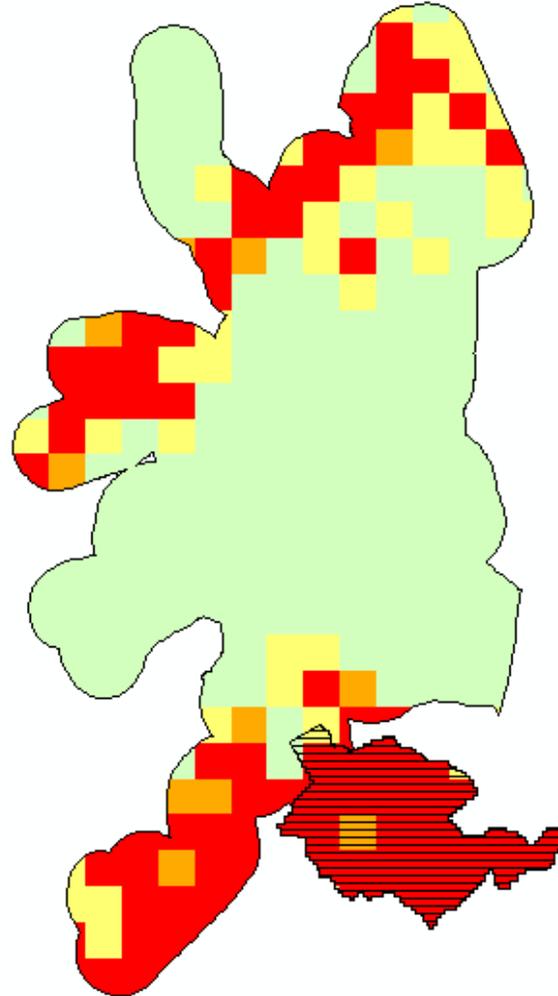
- Increased refinement
- More accurate representation of the landscape

### Carlisle WHPA E

Percent Impervious Surface  
Salt Application



Vulnerability Score





# Continued Investigation

Reduced grid size (20m x 20m)

- Increased accuracy
- More extreme values

Challenge

- Find a level of accuracy & ability to implement

