Hydraulic Performance of Maintained and Unmaintained Permeable Pavement

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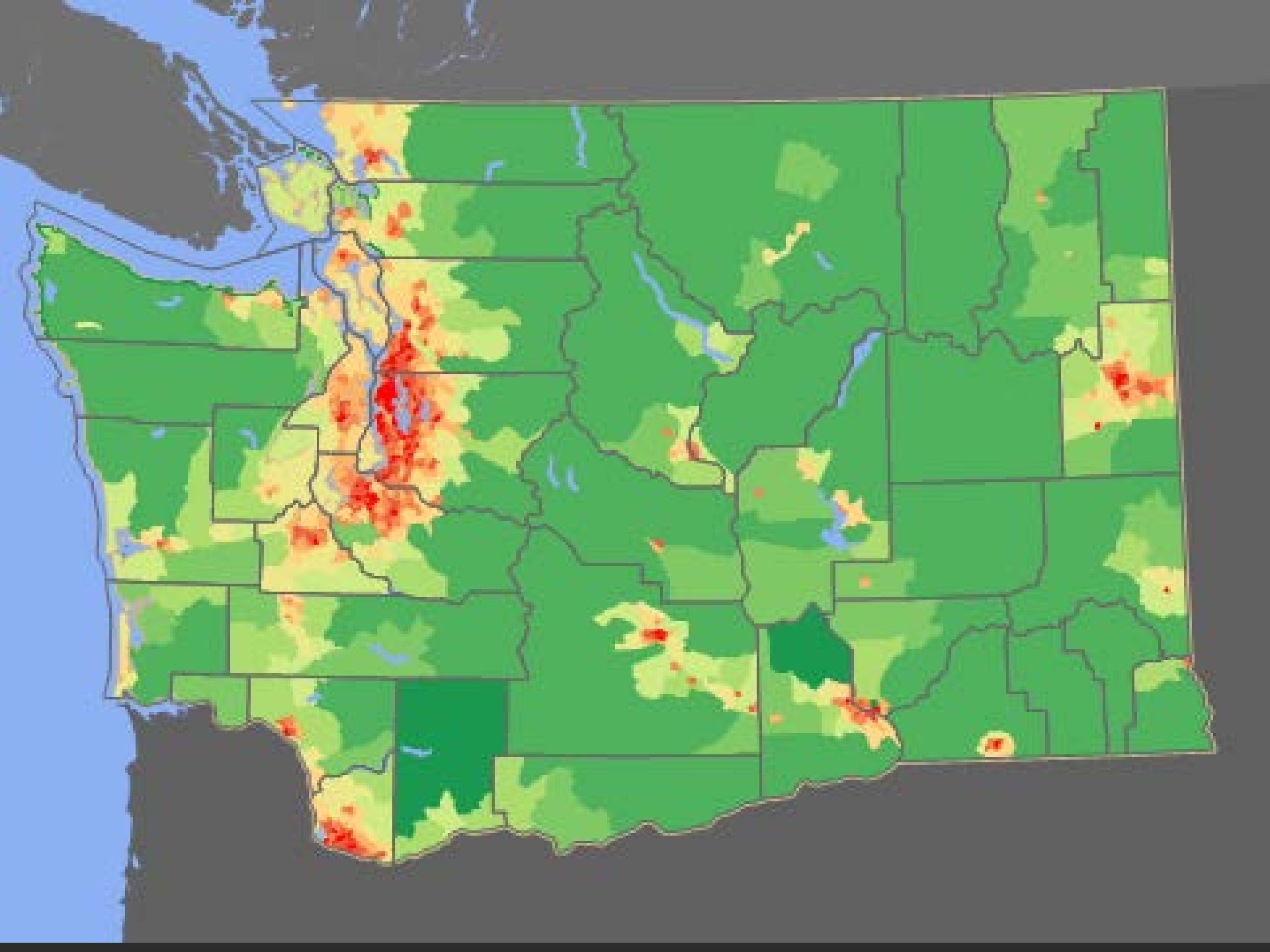
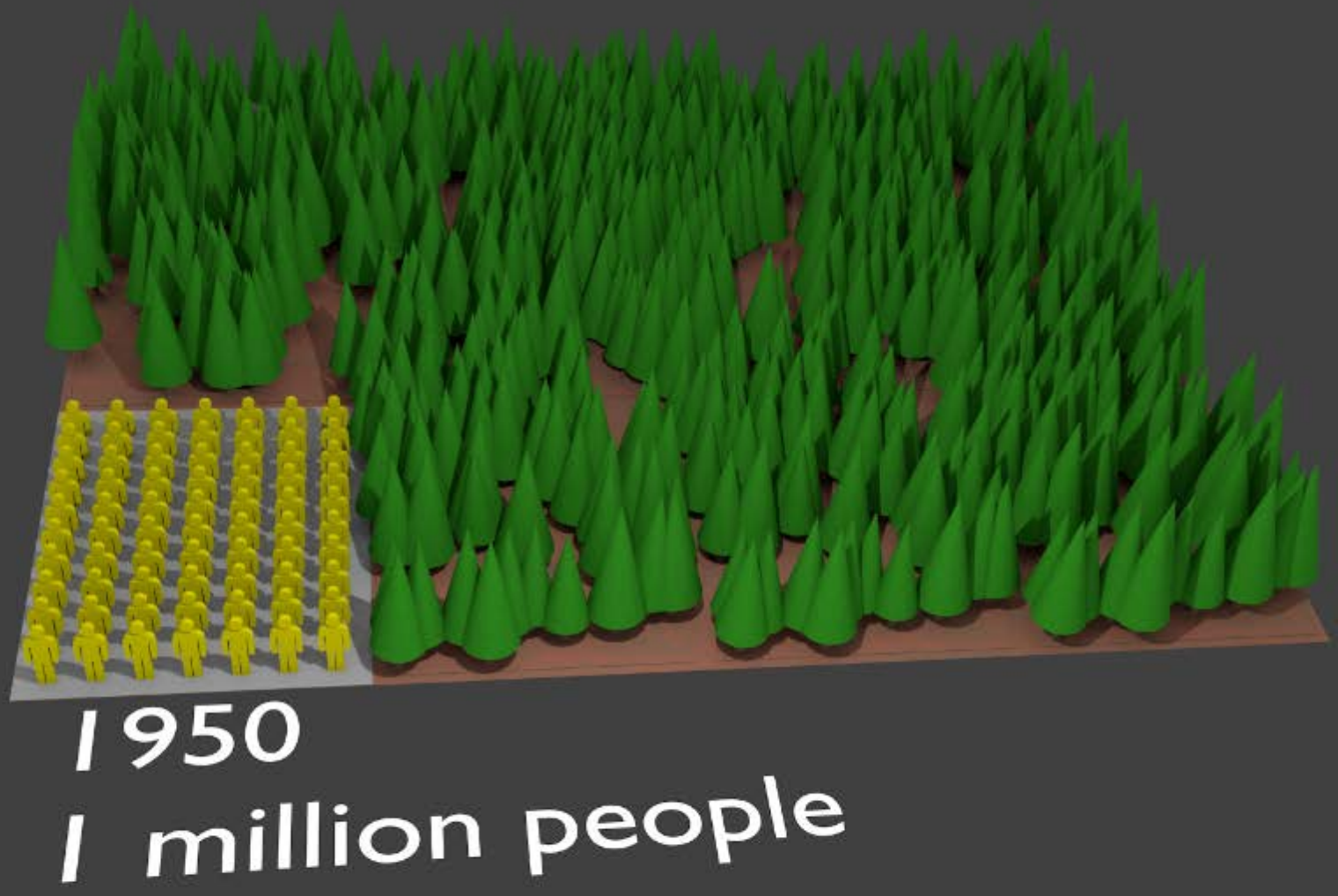
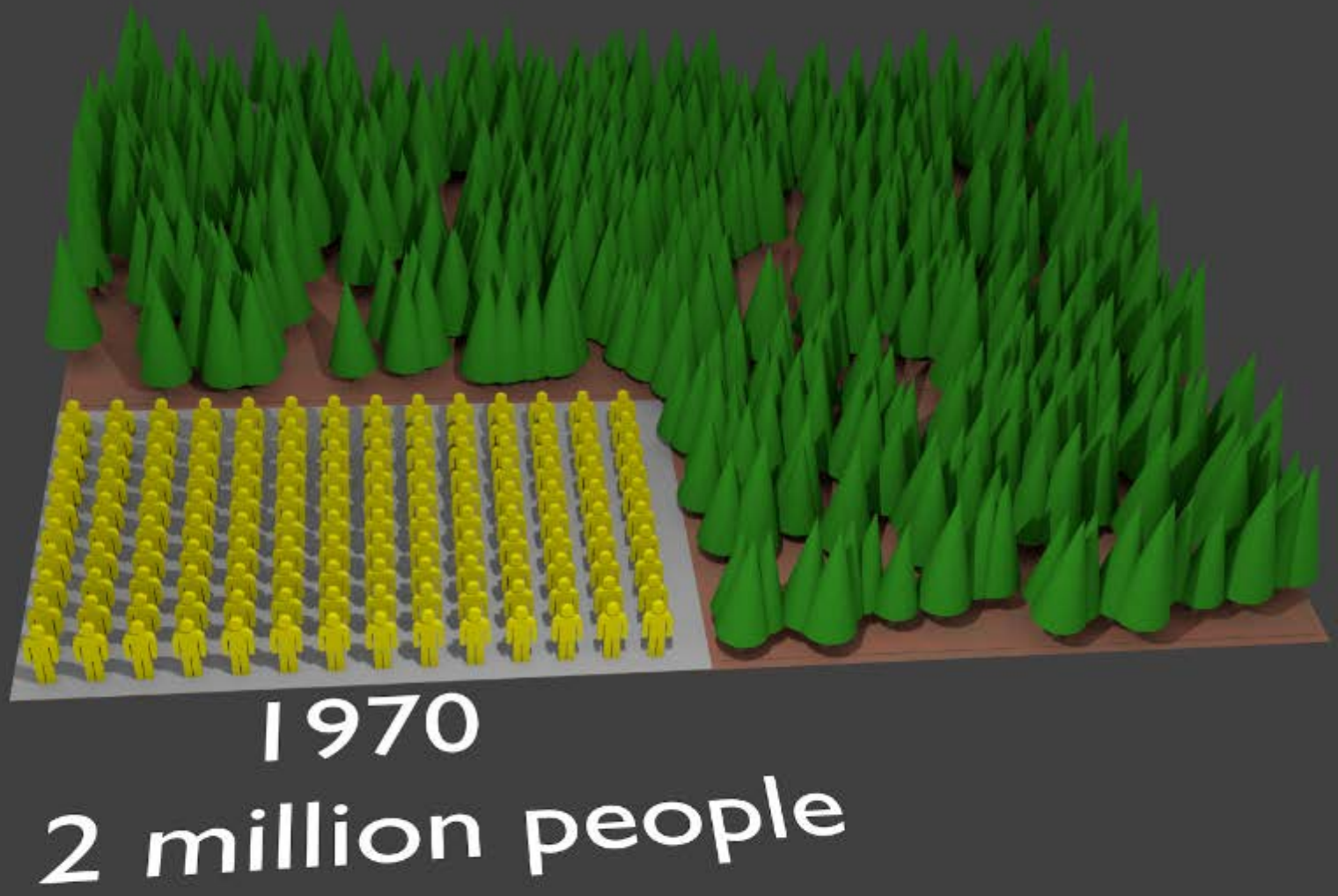


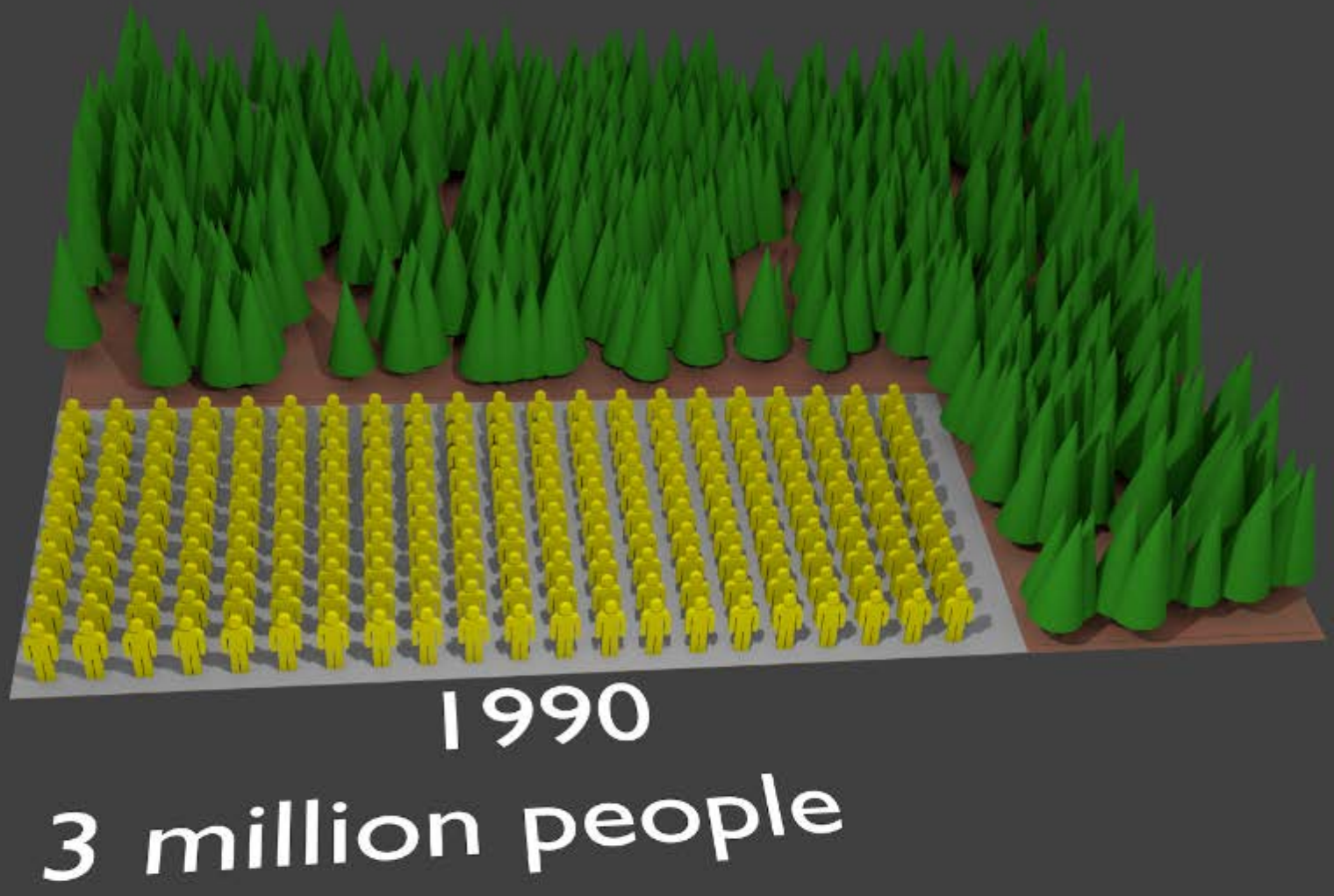
Population of Seattle



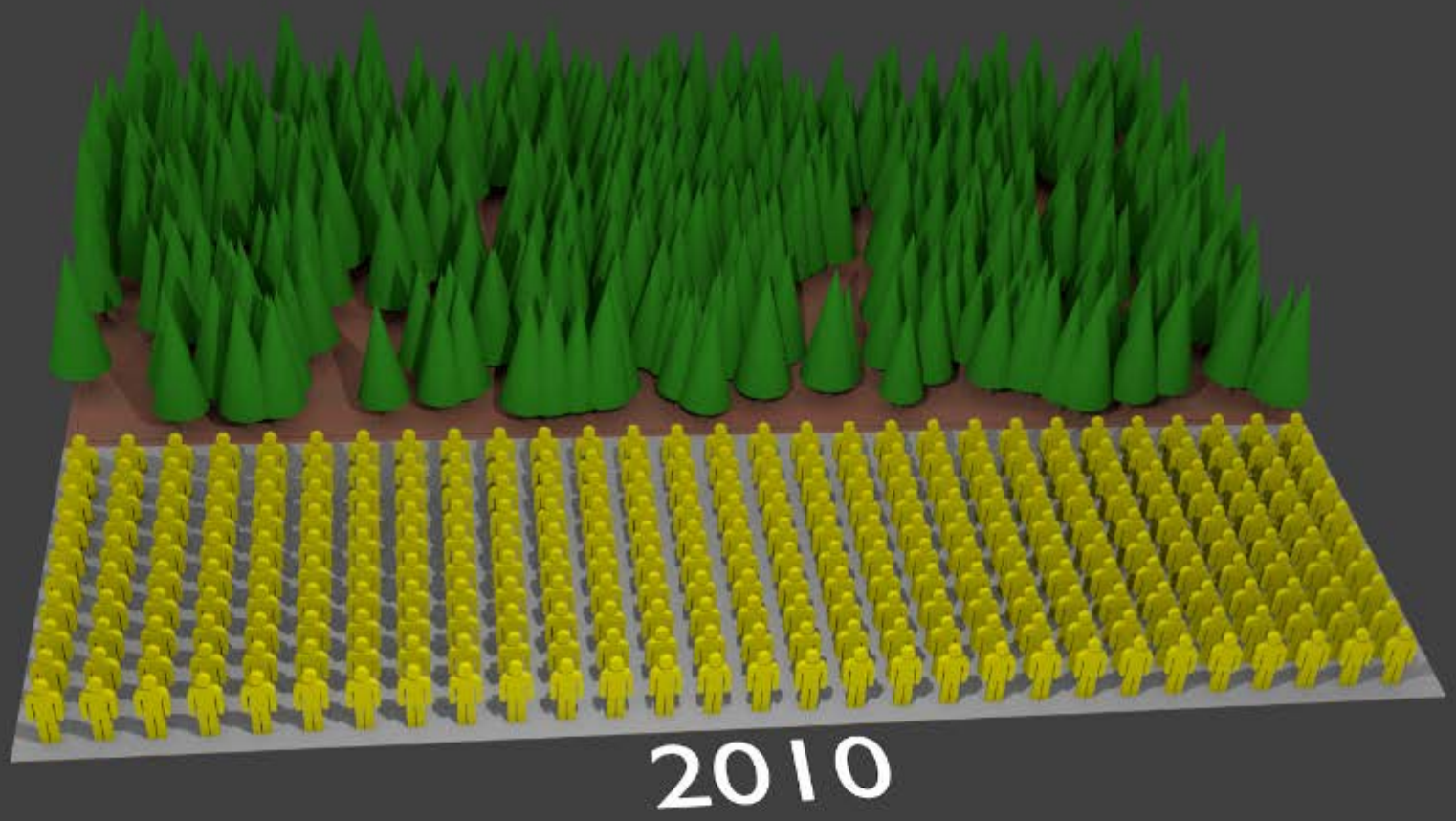
Population of Seattle



Population of Seattle



Population of Seattle



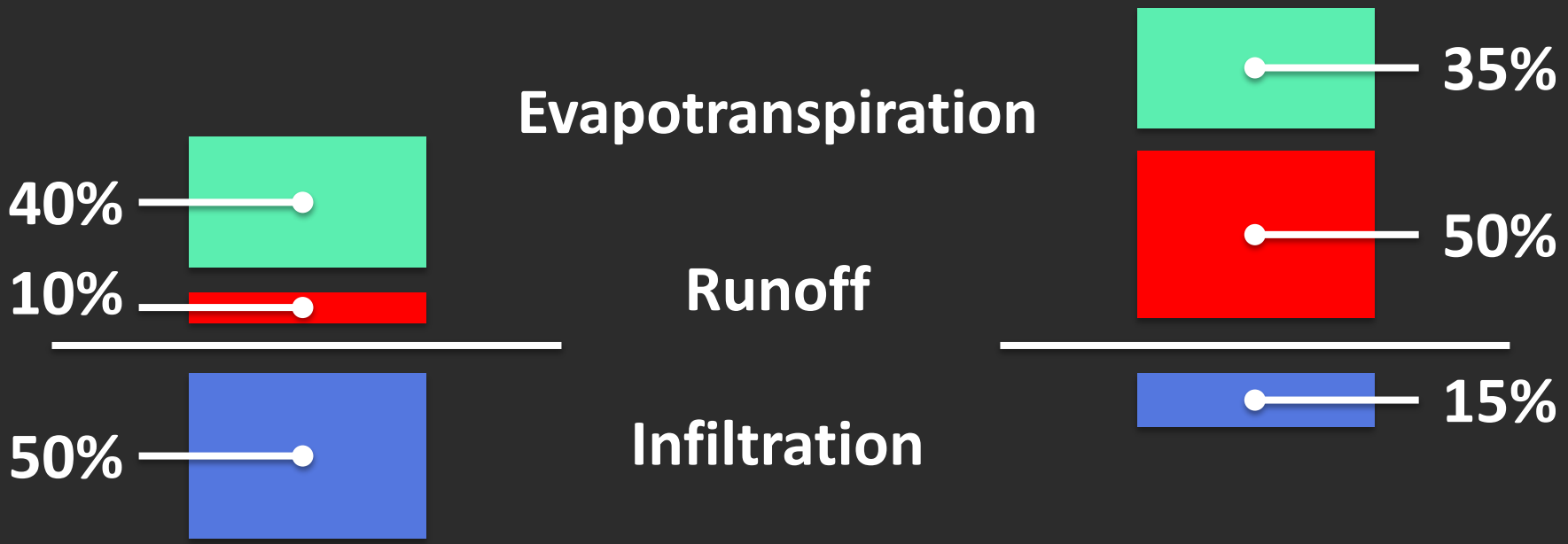
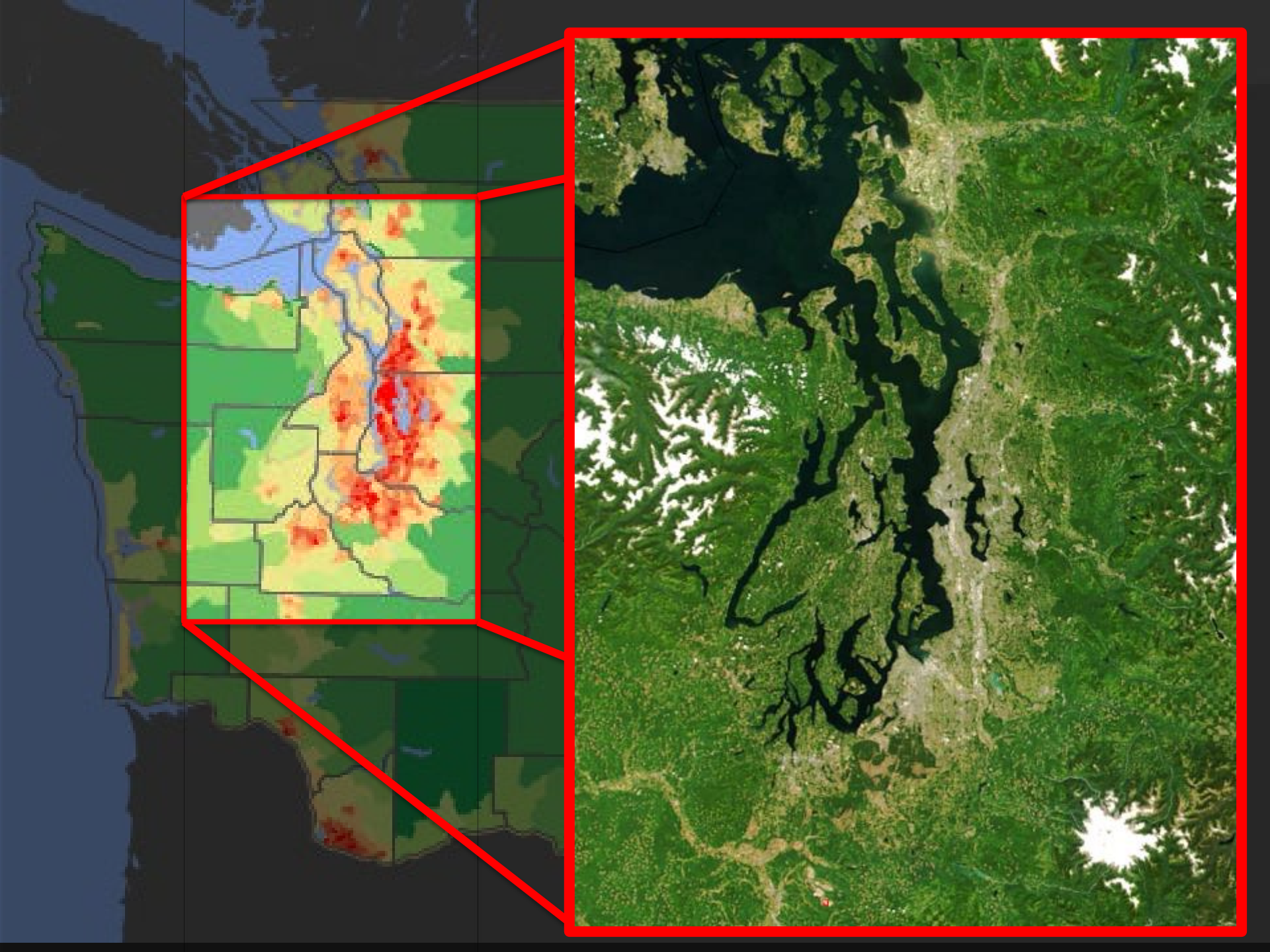


Image courtesy: aplusarchitecture.wordpress.com



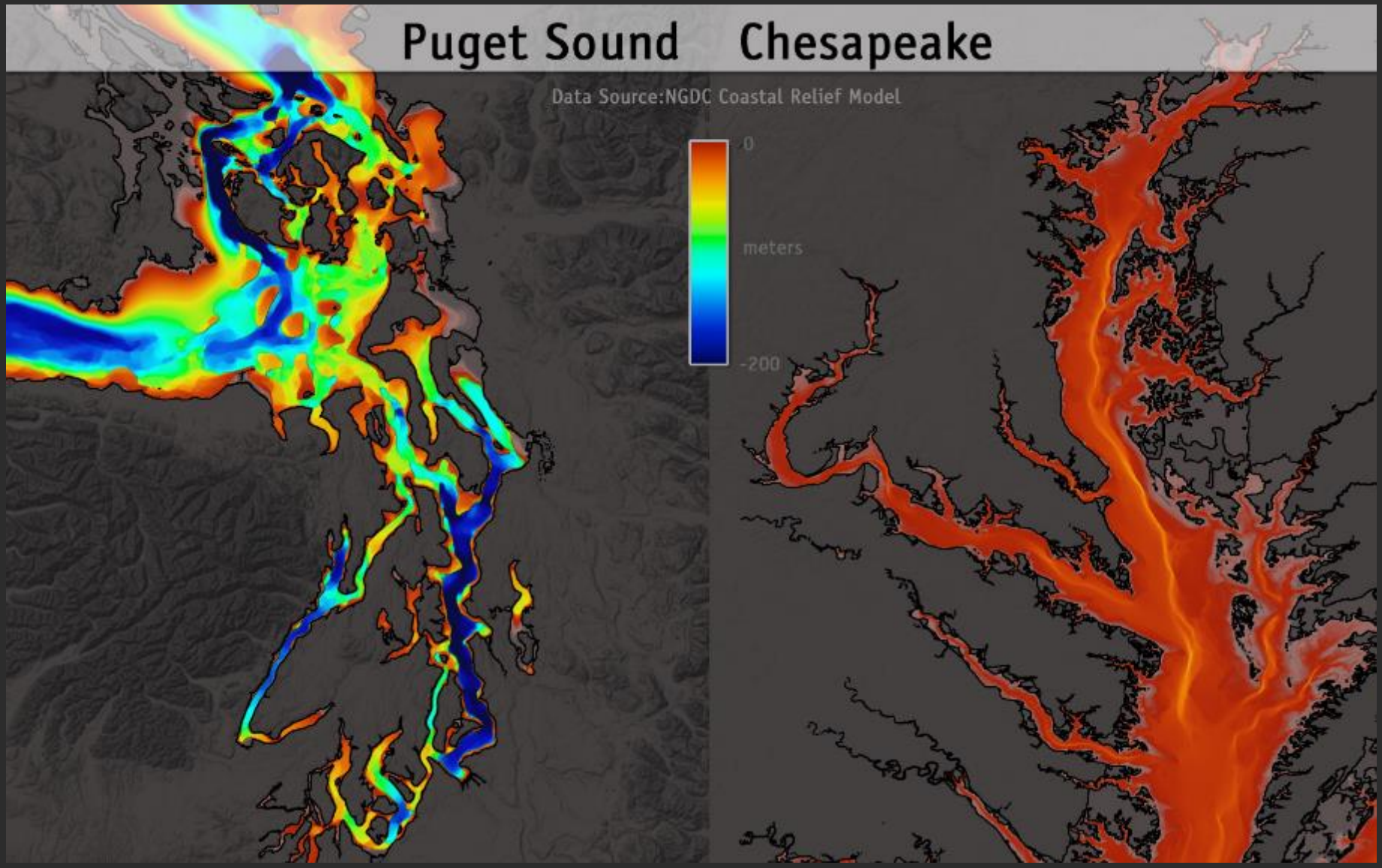
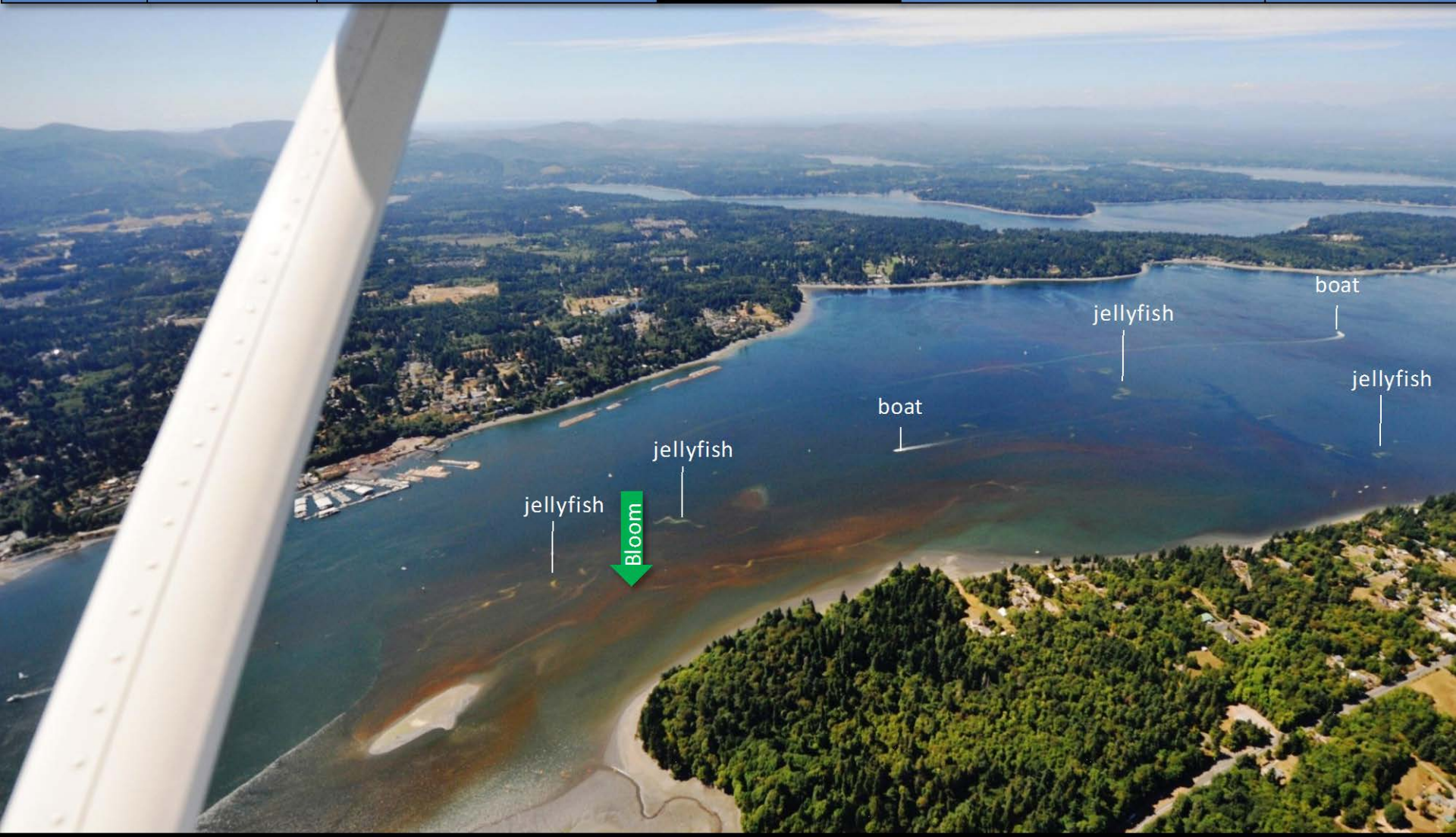


Image courtesy: UW Center for Environmental Visualization



Numerous patches of jellyfish in water containing bright red-brown algal bloom.
Location: Priest Point Park, Budd Inlet (South Sound), 2:59 PM.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Permeable Asphalt Test

Permeable Asphalt Test

Annual Maintenance

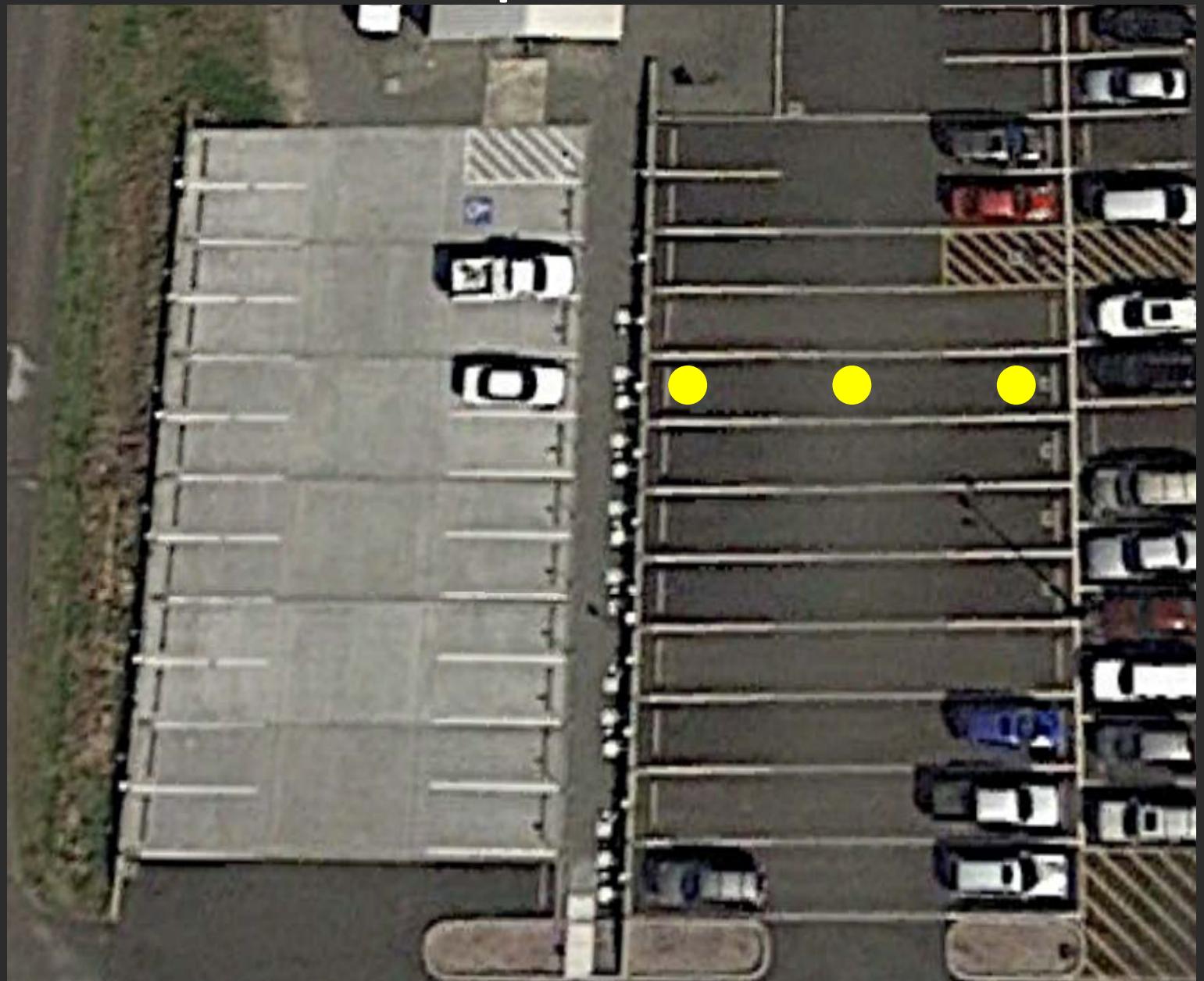
Hypotheses

1) Street Dirt Clogs Porous Asphalt and Reduces Infiltration Rates Over Time

2) Maintenance Maintains Infiltration Rates

3) Stormwater Flowing Through Porous Asphalt is Attenuated in Comparison to Stormwater Which Runs of Impervious Asphalt

Porous Asphalt Infiltration



Permeable Asphalt Statistical Results

Year	Control > Maintained	Control > Unmaintained
2011	NA	NA
2012	0.45	0.31
2013	1.00	0.69
2014	0.34	1.00
2015	0.48	0.48

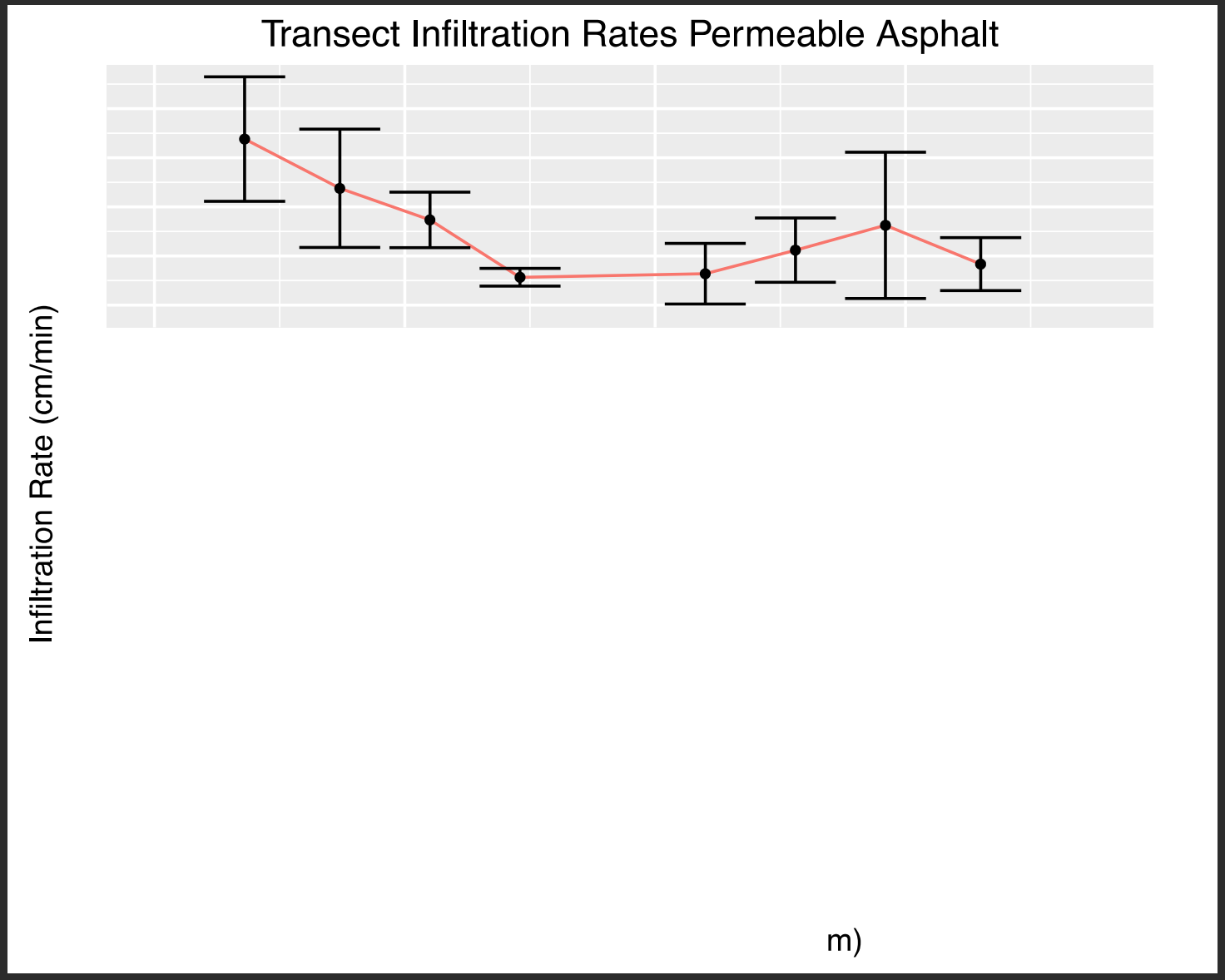
Mann-Whitney U Test

Permeable Asphalt Statistical Results

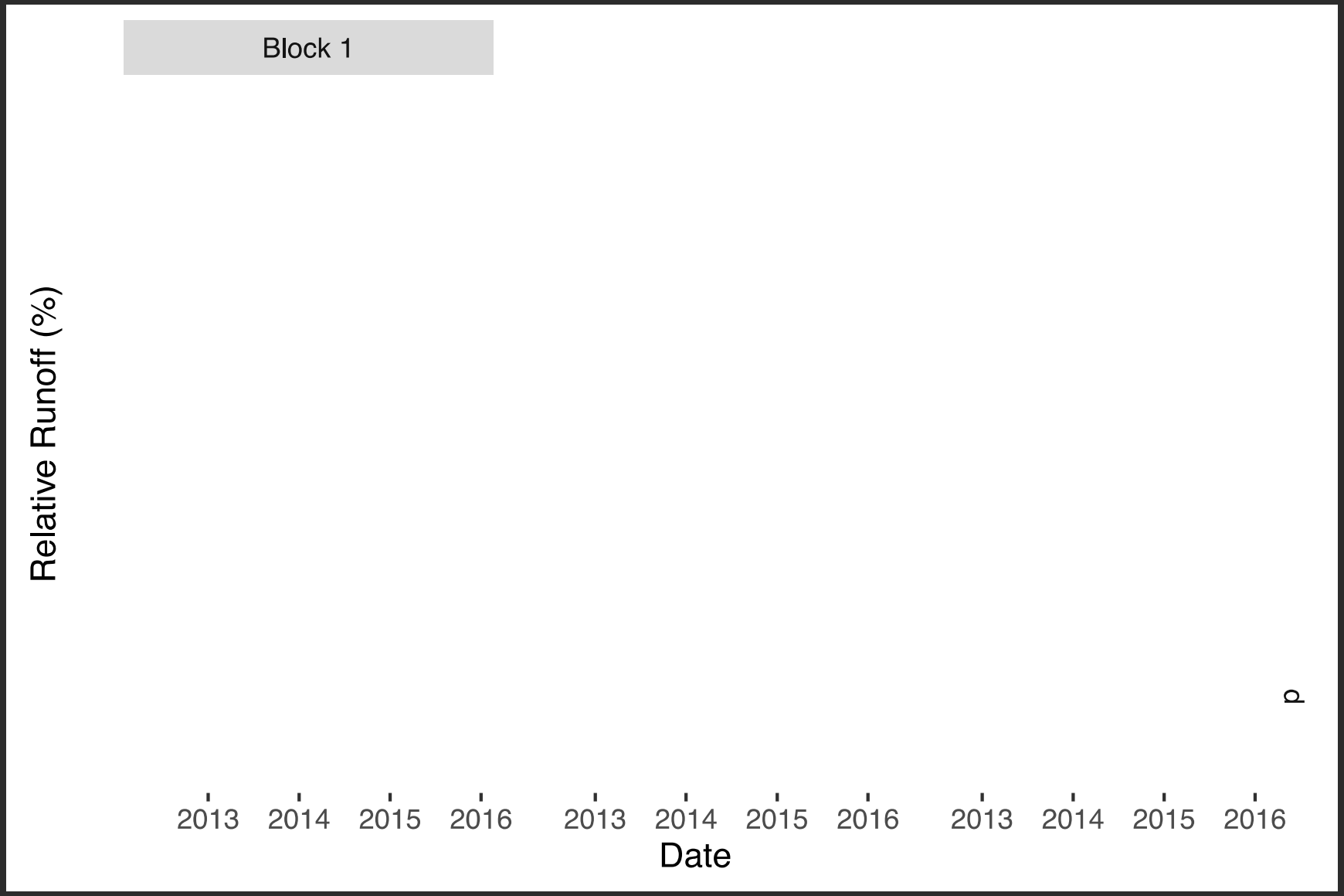
Year	Maintained > Unmaintained
2011	0.96
2012	0.67
2013	0.82
2014	0.98
2015	0.93

Paired Wilcoxon Signed Rank Test

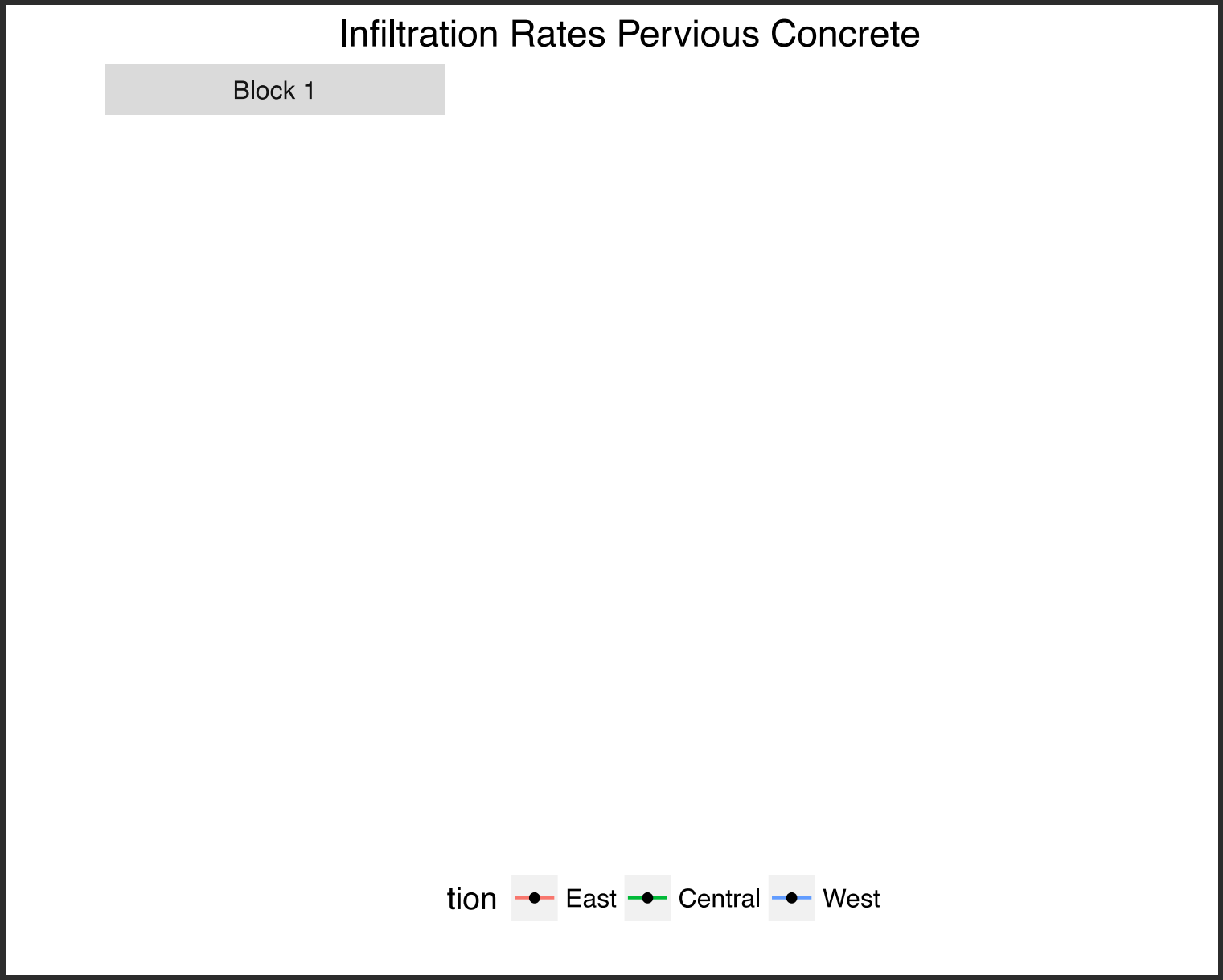
Permeable Asphalt Transects



Permeable Asphalt Relative Runoff



Pervious Concrete Infiltration

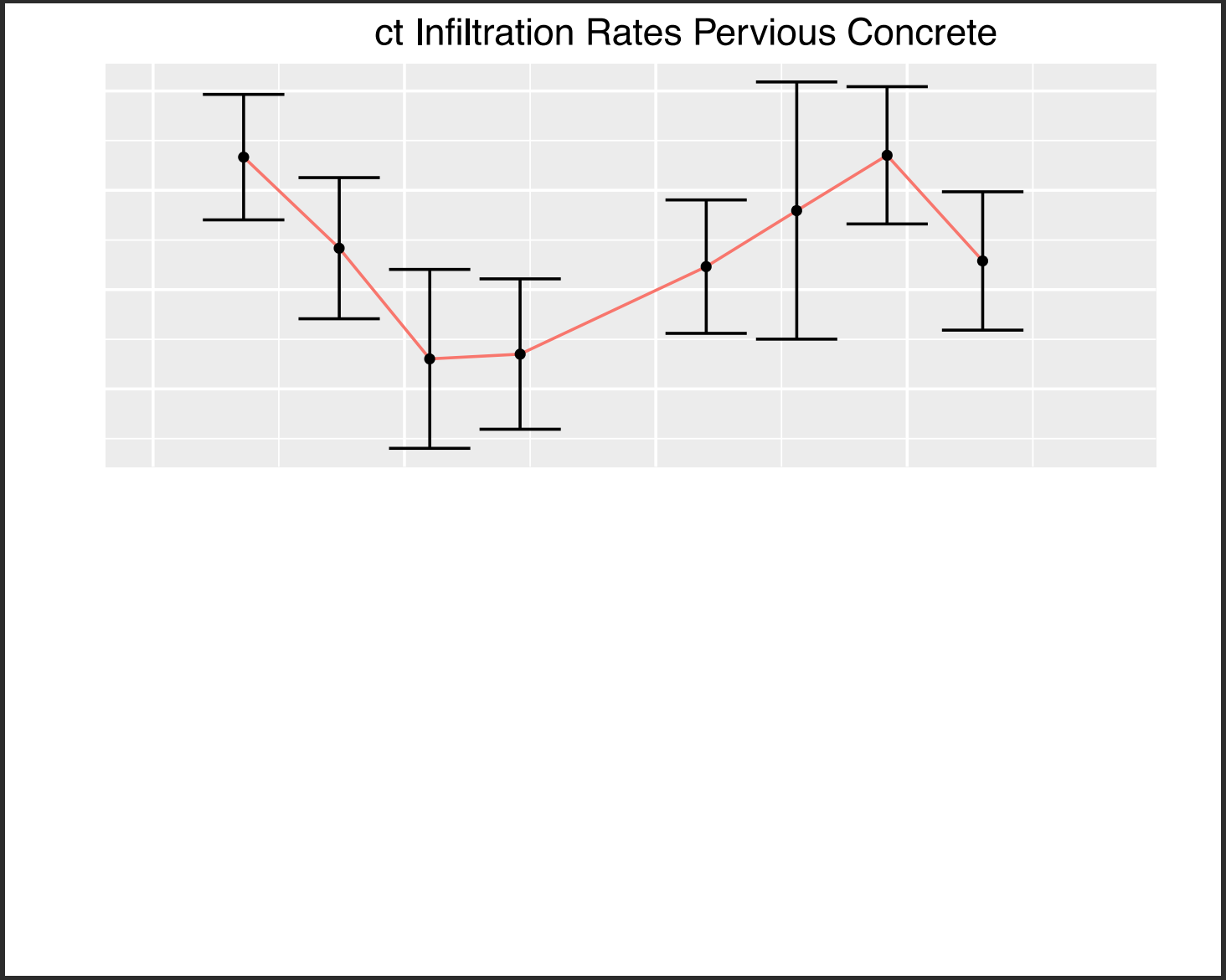


Pervious Concrete Statistical Results

Year	Maintained > Unmaintained
2011	0.06
2012	0.05
2013	0.18
2014	0.02
2015	0.12

Paired Wilcoxon Signed Rank Test

Pervious Concrete Transects



Cleaning 2016

Conclusions

Up to date, street dirt application has not reduced the functionality of the permeable asphalt.

Maintenance does not improve infiltration rates on permeable asphalt.

Permeable pavements attenuate stormwater.

Thank you for your attention!