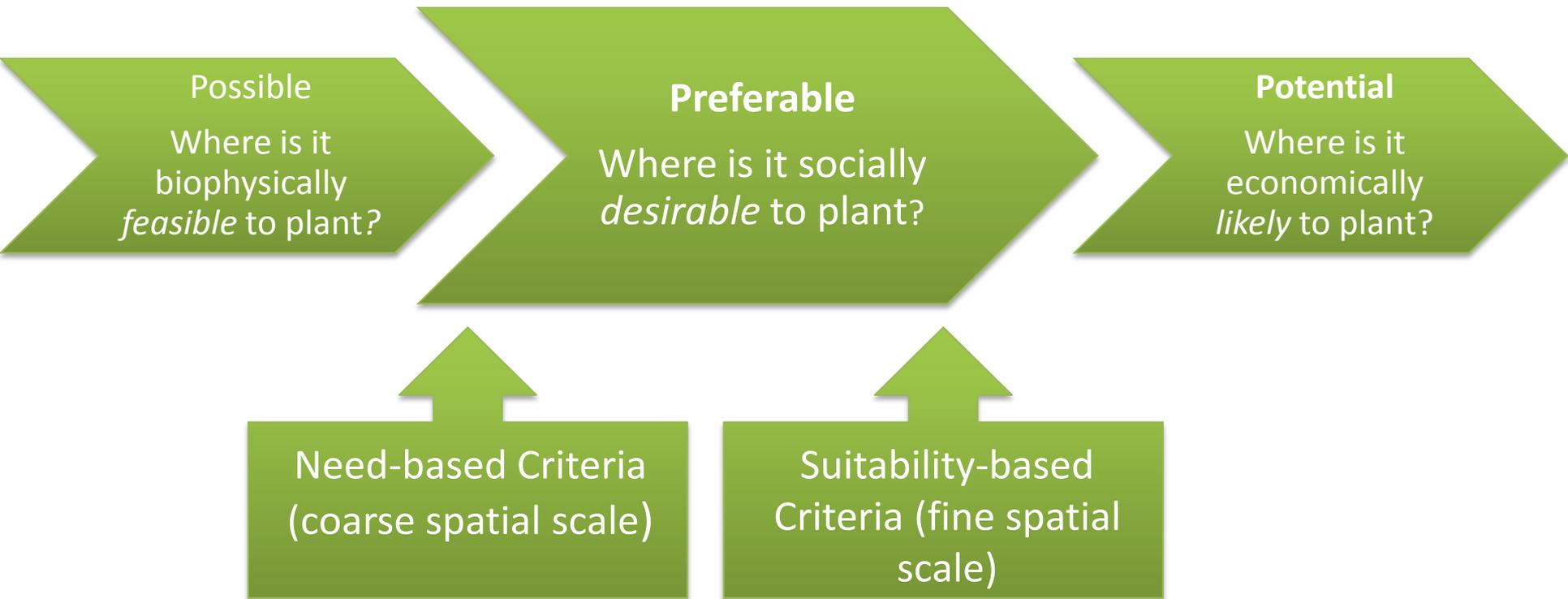


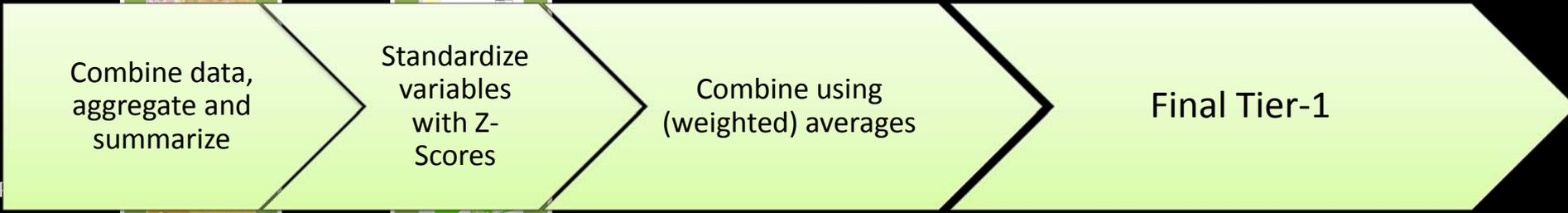
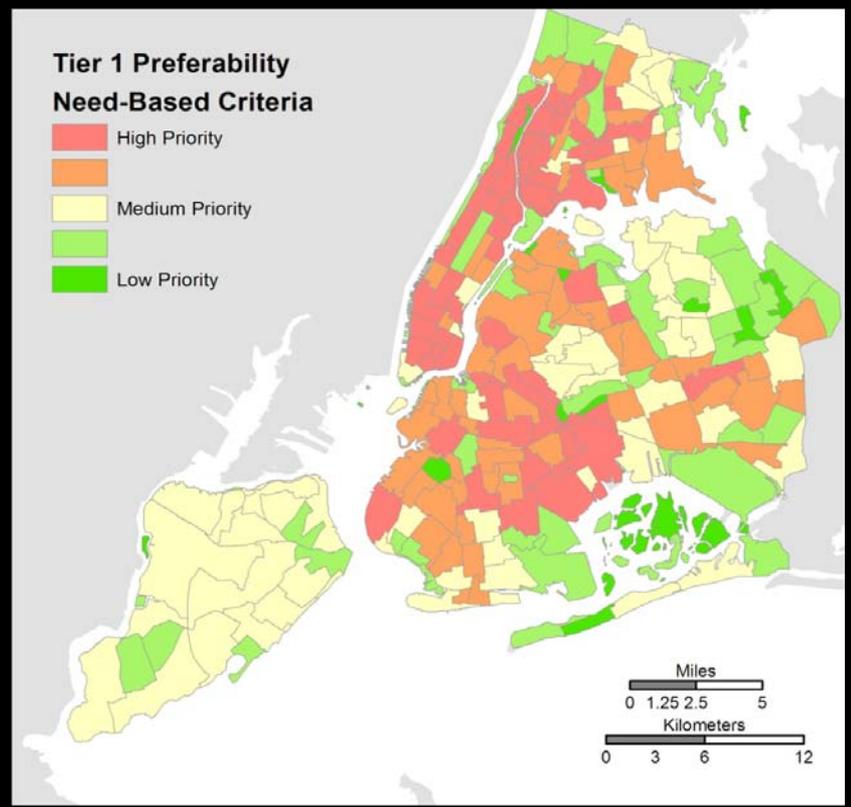
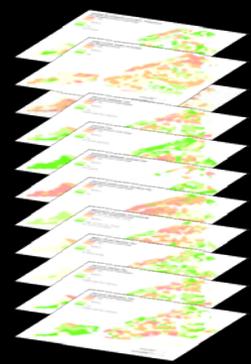
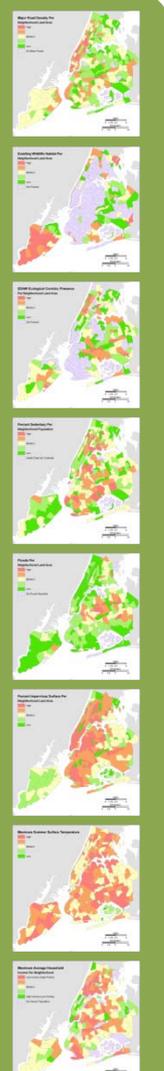
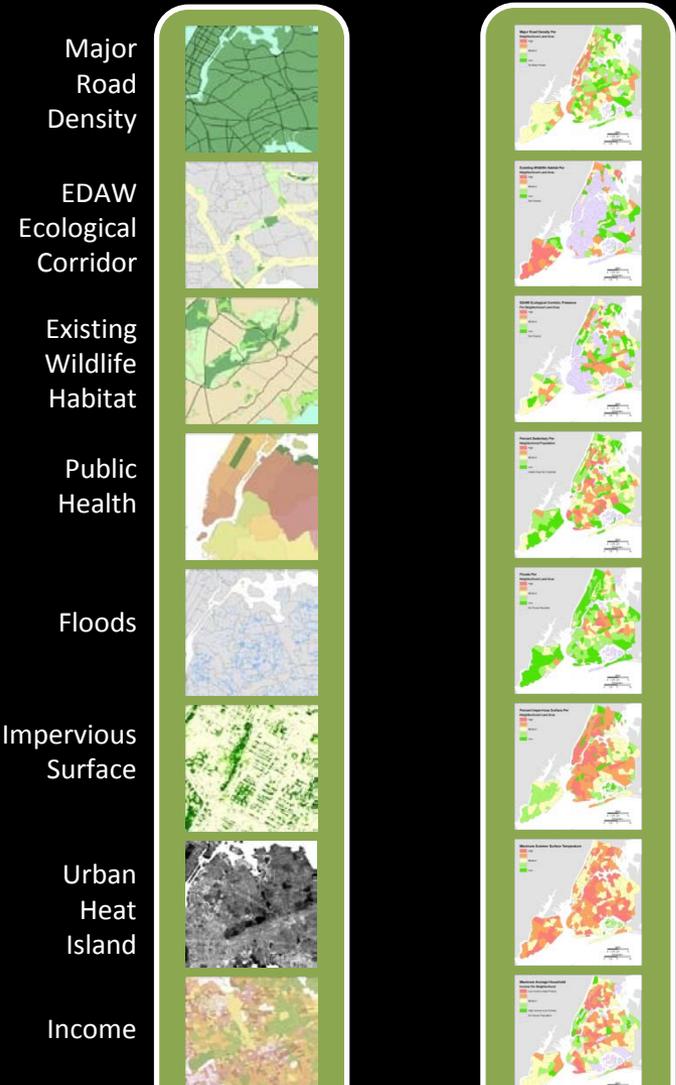
The 3Ps of UTC Prioritization



Tier 1: Variables

Cluster	Variable Chosen	Rationale
Air Quality/ Noise Pollution	Major Road Density	Planting trees in high traffic volume areas may mitigate some air pollution impacts. Major road density is used as a surrogate for traffic induced air and noise pollution.
Biodiversity	Ecological Corridor Density	Planting trees along and near ecological corridors will increase connectivity.
	Existing Habitat Density	Planting more trees in and near areas of existing habitat will improve the quality of the habitats and integrate them into the surrounding landscape.
Public Health	Sedentary Population (%)	Public health may be improved by planting trees and creating more walkable communities. These data identify areas of poor health by selected metrics.
	Obese Population (%)	
	Diabetic Population (%)	
	Hospitalized Asthmatics (%)	
Water	Flood Density	Planting trees may ease the burden on existing infrastructure caused by floods. These data identify flooding hotspots.
	Percent Impervious Surface	Planting trees reduces impervious cover which may reduce flooding and summer heat.
Urban Heat Island	Maximum Average Surface Temperature	Trees lower summer surface temperatures. These data identify areas of high temperature that could benefit from tree planting.
Socio-demographic	Income	Tree planting and design provide positive impacts such as community empowerment and neighborhood beautification. These data identify neighborhoods of low income and high crime.
	Crime	
Population	Population Density	Trees are planted to improve environmental quality and to provide other public benefits. Therefore, planting where the most people are will optimize the benefits per tree planted.

Tier 1 Preferability: Need-based Criteria



Final Tier-1

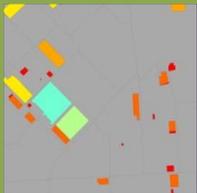
Cluster	City Agencies	Variable
Public Health & Safety	BCHD, Planning	Life expectancy, mortality rate, mortality rate from heart disease, mortality rate from strokes, mortality rate from repertory disease, mortality rate from diabetes, infant mortality rate
	BCHD, Planning	Asthma by zip code
	BCHD, Planning	Dependency Ratio
	BCHD, BCRP, Planning, DOT	Urban Heat Island: surface temperature and solar exposure
	Police	Crime: Personal, Property and Total
	BCHD, Planning, DOT	Transportation Connections
Environmental Justice	BCHD, Planning	Toxic Releases Inventory
	Planning, DPW	Brown fields
	Planning	Poverty, Race, Home ownership & vacant lots
	BCRP	Percent Parks
Water Quality	DPW, DOT, Planning	Percent Impervious Surface
	DPW	Watershed H2O quality assessments???
	DPW, BCRP	Stream corridors
	DPW, BCRP, Planning	Flood Plains
	BCRP, Planning	Critical Zone
	DPW, DOT, BCRP, Planning	Greenstreets
	DPW, DOT, BCRP, Planning	Blue alleys
	DPW, Planning	Flooding
Air Quality & Noise Pollution	DOT	(Major) Road Density
Crtical Places	BCPSS, DGS, BCRP, Planning	Schools, hospitals, libraries, recreation centers, and elderly care facilities
	Planning, DPW	Population density (per square mile)
Community Presence	BCRP, Planning	Potential stewardship

Tier 1: Where do we need trees?

Floodplain



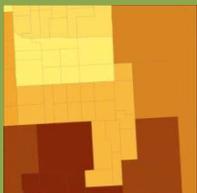
Critical Areas



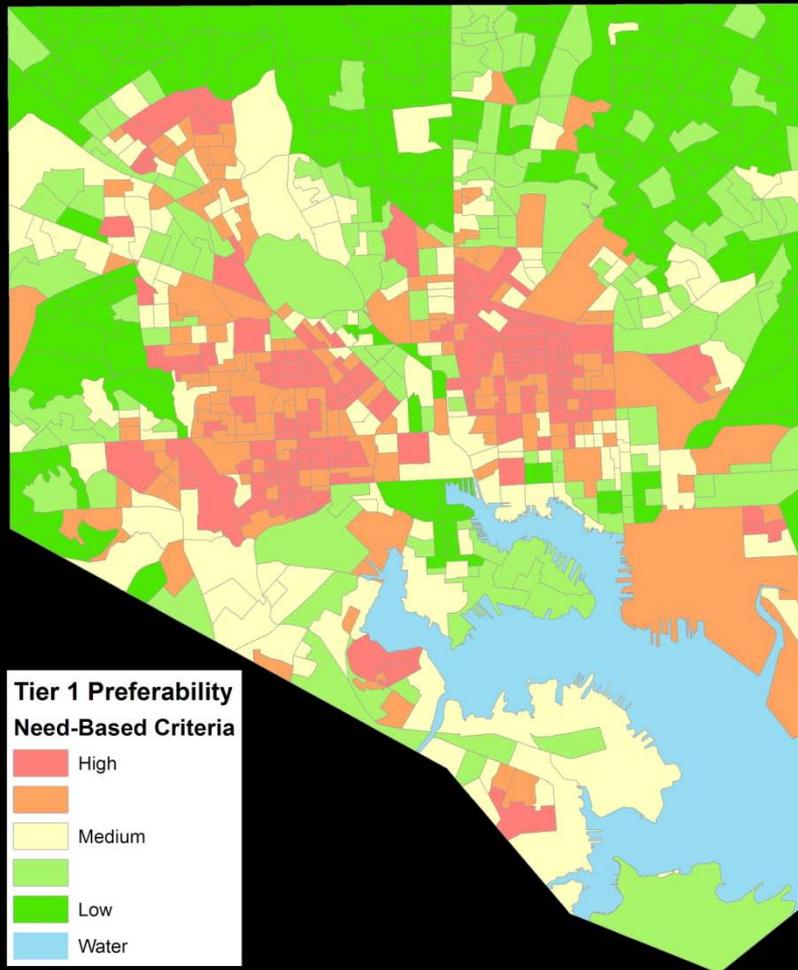
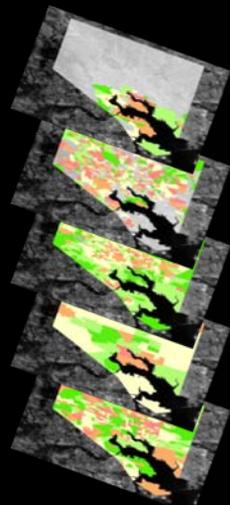
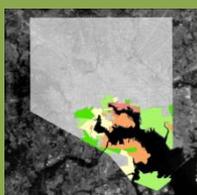
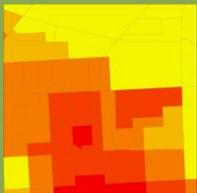
Percent In Poverty



Life Expectancy



Crime

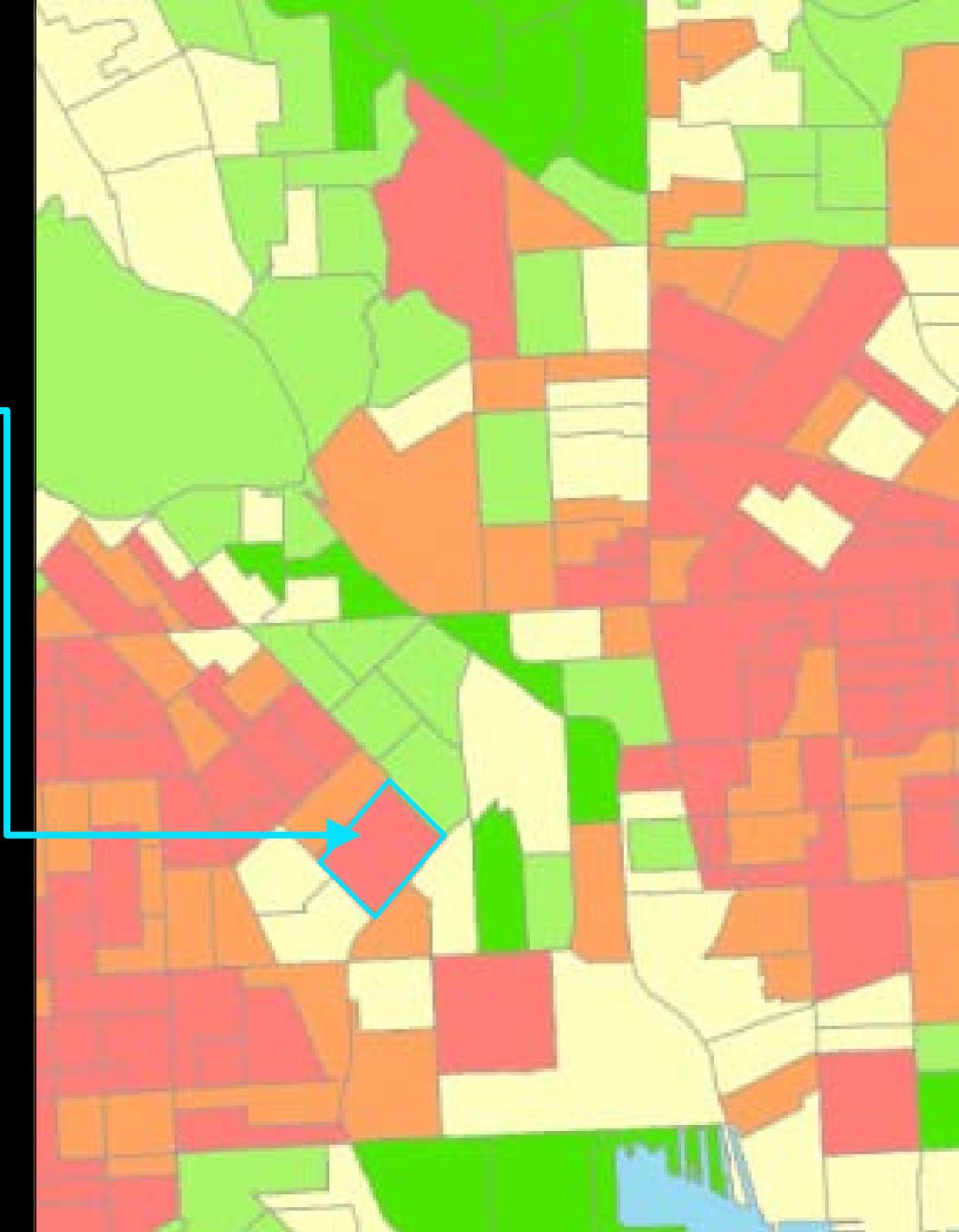
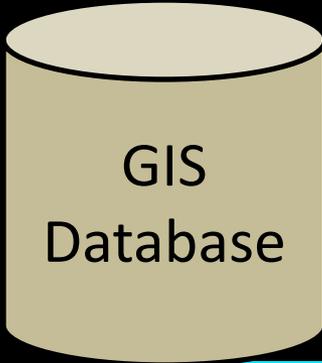


Combine data,
aggregate and
summarize

Standardize
variables with
Z-Scores

Combine using
(weighted)
averages

Final Tier-1
At the Block Group Scale



Block_Group	245101301004
Floodplain	34.15 %
Critical Area	0 %
Poverty	70 %
Life Expectancy	62 Years
Block Group Rank	94

Tier 1 & 2 Integration: the Phake Residence

Tier 1 score (need-based criteria at Neighborhood level)

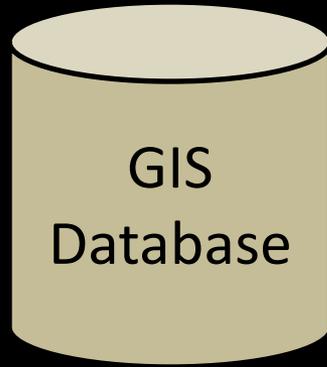
Tier 2 score (suitability-based criteria at parcel level)

132.31

Of 292 neighborhoods

Of 187 Parcels in that neighborhood

Parcel Scale Analysis: Hi-resolution land cover data

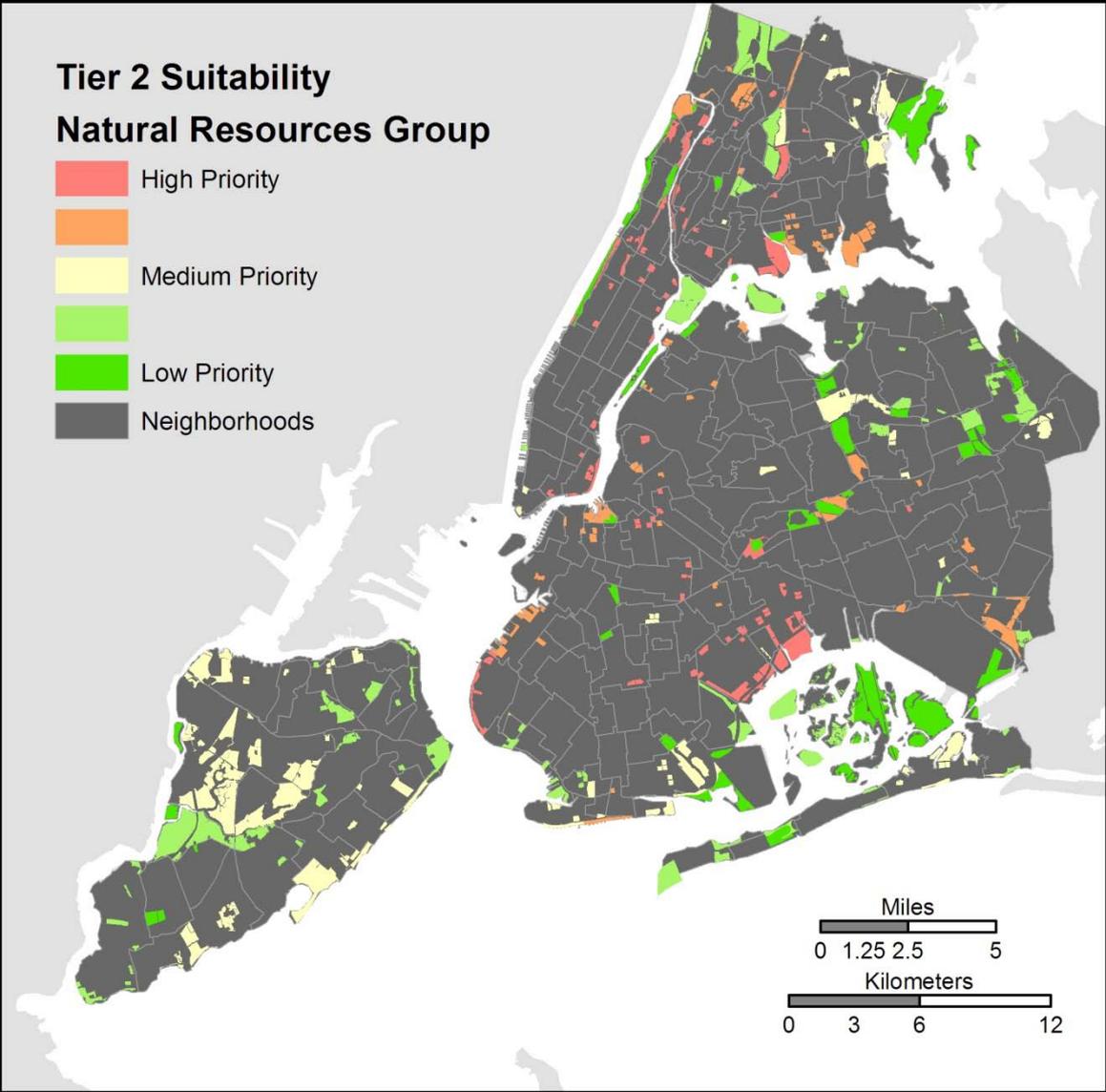


PARCEL_ID	3421001
Owner	The Phake's
Possible.UTC	9882
UTC_rank	37
Block_Group_ID	245101301004
Block_Group_rank	28
FINAL_RANK	28.37

Results

*Public land
greater than 10
acres evaluated
for need and
suitability.*

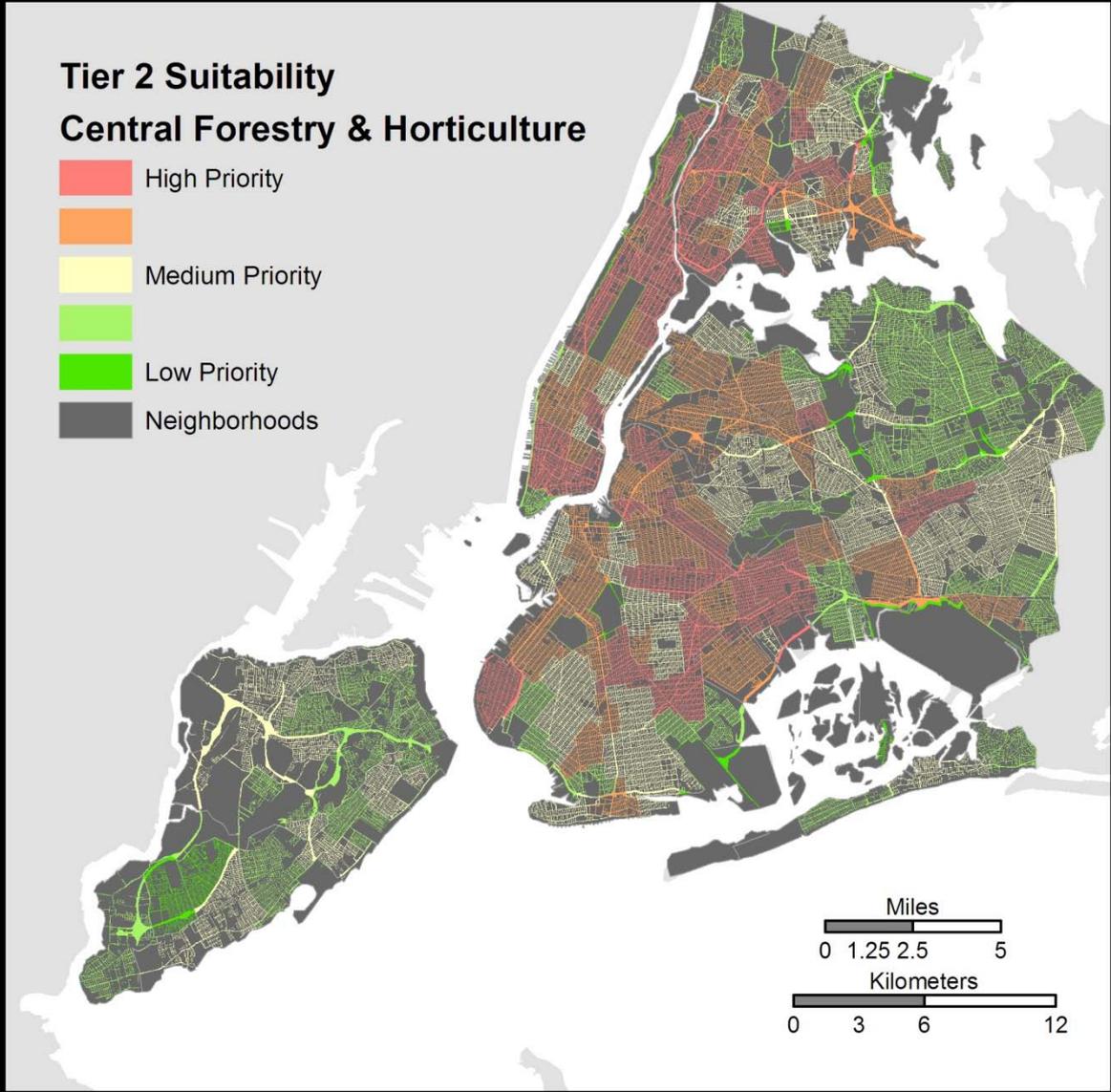
Tier 2 Suitability Natural Resources Group



Results

Public-right-of-way (PROW) evaluated for need and suitability for planting street trees.

Tier 2 Suitability Central Forestry & Horticulture



Thank you USDA Forest Service, NYC
Department of Parks and Recreation
University of Vermont Spatial Analysis
Lab, TreeBaltimore, and CaseyTrees



Dexter Locke
NYC Urban Field Station
NYC Department of Parks and Recreation
USDA Forest Service, Northern Research Station
718.225.3430 | dexter.locke@gmail.com

Variable Standardization

$$\frac{n - \bar{x}_n}{SD_n}$$

Where:

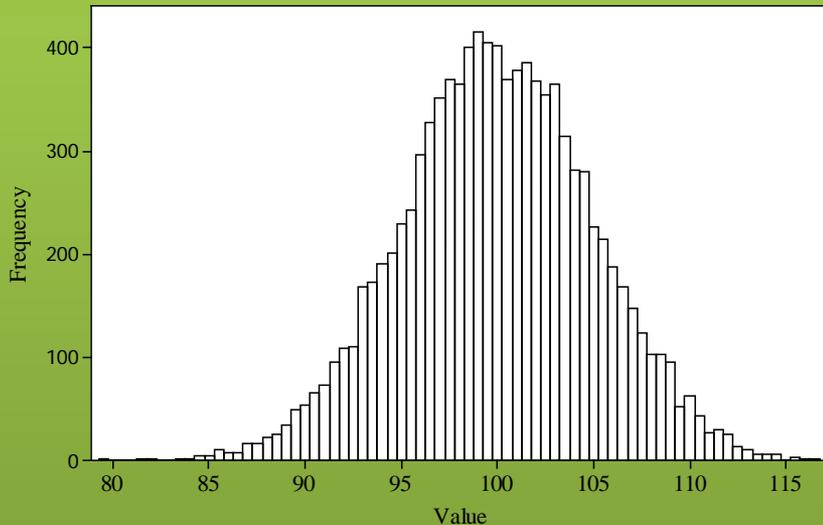
n = the observed value of variable n

\bar{x}_n = the mean of variable n

SD_n = the standard deviation of variable n

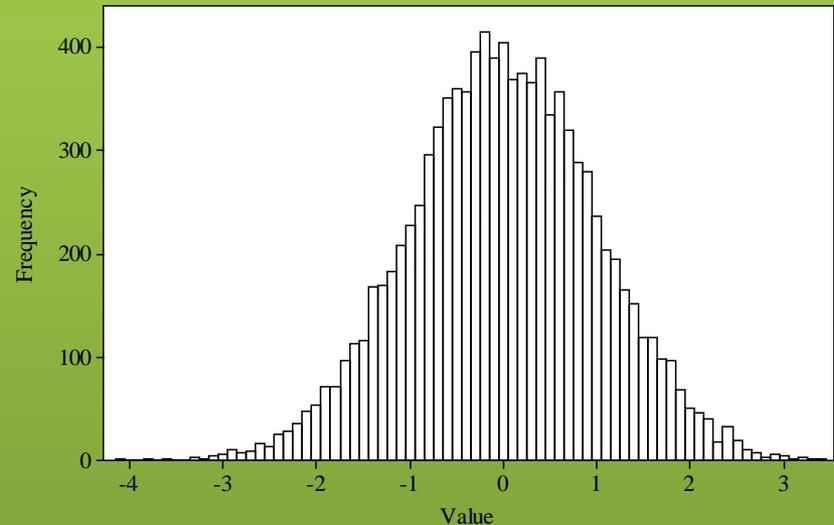
Z-Scores Explained

Raw Score



10,000 values,
Mean = 100
Standard Deviation = 5

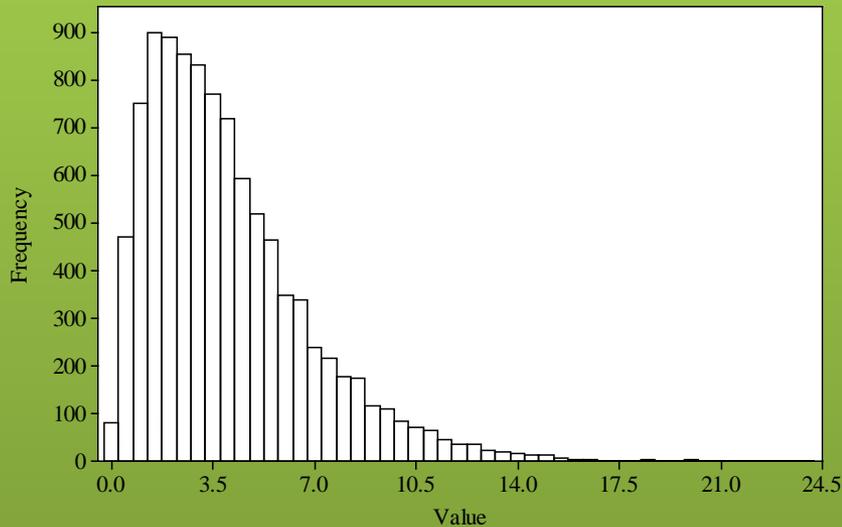
Standardized Z- Score



10,000 values,
Mean = 0
Standard Deviation = 1

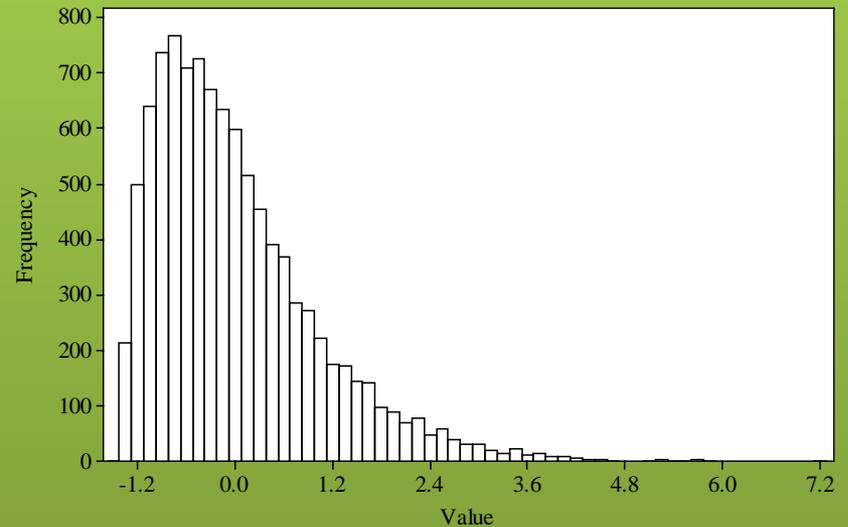
Z-Scores Explained

Raw Score



10,000 values,
Mean = 4
Standard Deviation = ~2.8

Standardized Z- Score



10,000 values,
Mean = **0**
Standard Deviation = **1**