



NYC Street Trees Census

ALY 6070 Communication and Visualization for Data Analytics

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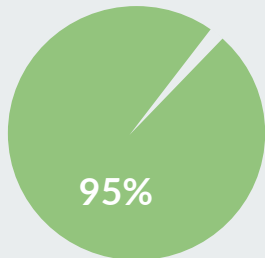
Sindhu Sundararajan

Insights on Tree Population: Key Data Statistics



683,788

Total number of trees



Trees Alive

Analysing NYC's 2015 tree census data that reveals a diverse street tree population of over 683,000, with important ecosystem services and implications for urban planning and management.

NYC has approximately 1000 live trees per square mile, but not all are healthy, prompting a focus on identifying factors affecting tree health.



11.7 inches

The mean diameter of alive trees



Business Question that Addresses Tree Problem



How can we identify and locate tree problems in NYC to assist urban planning and management decisions on where to invest in maintenance and care?



Data Selection Process for Developing an Informative Dashboard



- 50.8% of trees in New York City have problems
- Survival in the city is hard for trees.



Root(stone)



Branch(shoe)



Trunk(light)

<9 types of problems in trees>

Root – Stone, Grate, Other

Branch – Shoe, Light, Other

Trunk – Light, Wire, Other

“Yes” / “No”

Character

Convert

1 / 0

Numeric

“We can find out how many problems each tree has”

The Importance of Guards for Tree Root Protection: Analysis and Recommendations



"No guard" Causes "Many problems"

- Total of 347,695 problems, 186,495(53.6%) are Root problems without Guards
- The highest relation between Guards and Root
- Recommendation: Protect trees with Guards

Problems occur frequently when there is 'No guard'				
	Guards			
	Harmful	Helpful	None	Unsure
Branch	0.45%	1.26%	22.14%	0.36%
Root	2.97%	1.96%	53.64%	0.78%
Trunk	0.57%	1.35%	14.25%	0.26%



<Tree guard>

Managing Tree Root Problems to Prevent Sidewalk Damage: Analysis and Recommendations



The problem of 'Root' causes the sidewalk problem.

	Sidewalk	
	Damage	NoDamage
Branch	9.41%	14.81%
Root	38.35%	21.00%
Trunk	5.74%	10.69%

There is a strong relationship between root problems and sidewalk damage

- 38.35% of tree with root problems damage the sidewalk
- Recommendation: The city government identify trees with root problems to avoid further damage to sidewalk
- Install root barriers

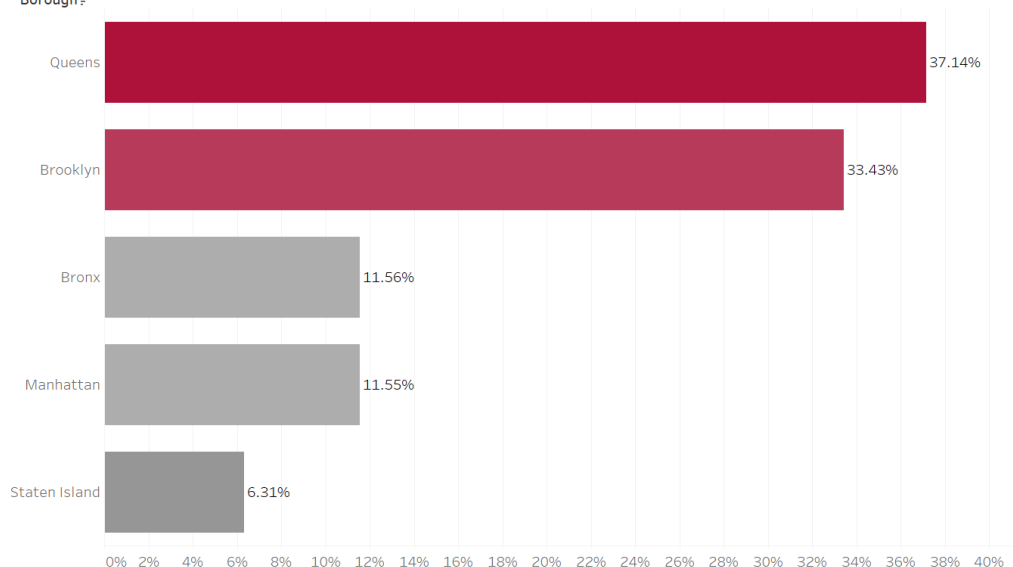


Address Root Problems in Queens and Brooklyn



Urgent action needed for Root problems in Queens.

Borough =



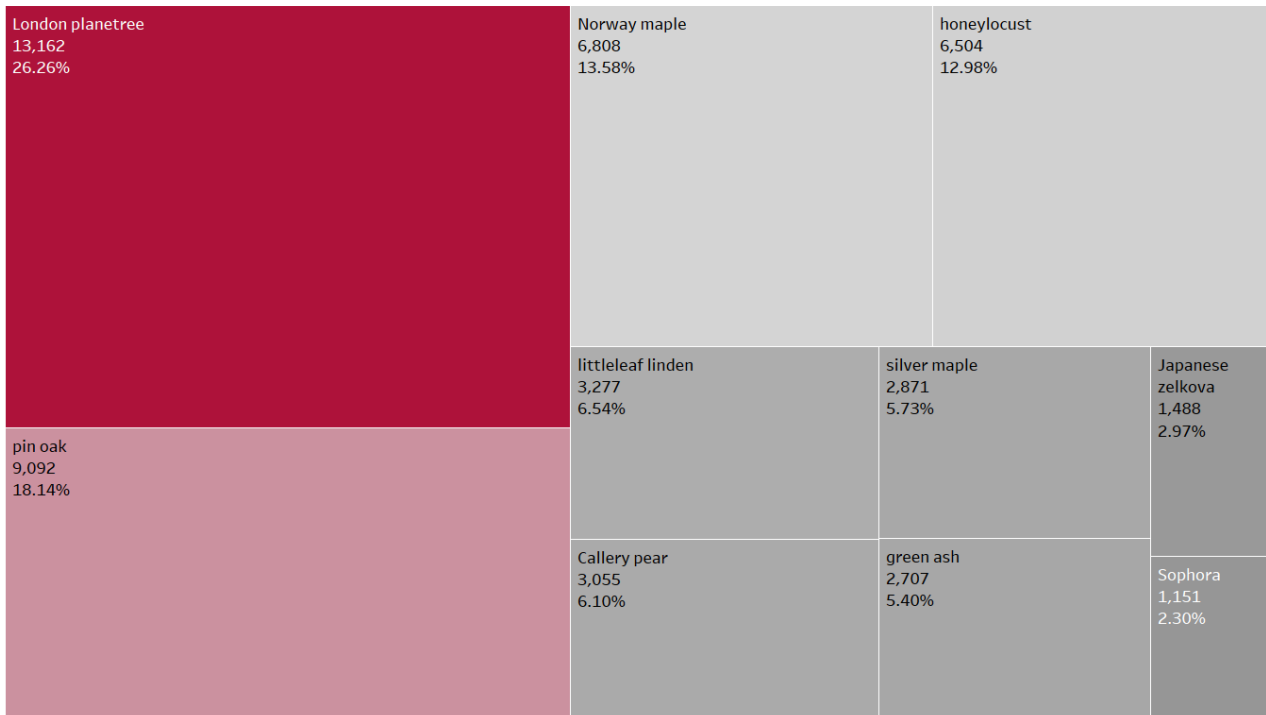
Queens and Brooklyn need urgent action for root problems

- 37.14% of Trees in Queens has root problems and 33.43% of Trees in Brooklyn also has the same issue
- Recommendation: The city government should develop a plan to address roots problems in both boroughs

Top 10 Tree Species with Root Problems in NYC

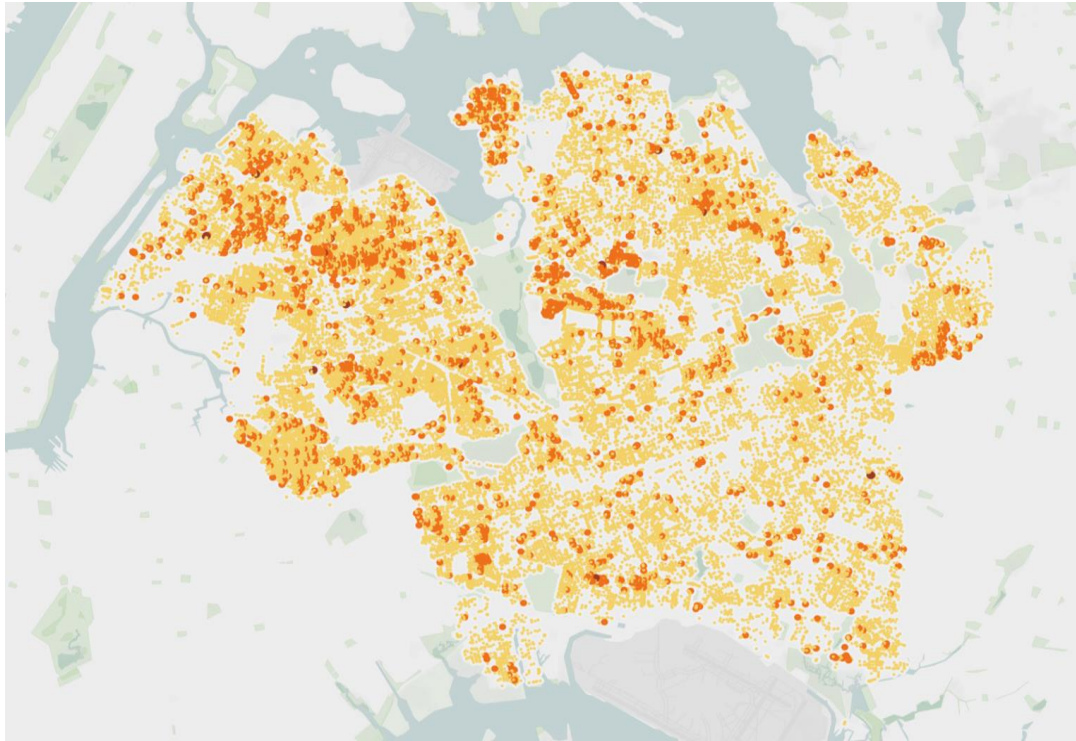


Top 10 tree species in Queens which require Root problem solving.



- Here can see the heat map, which helps us interpret the top 10 tree species with the root problem
- London planetree is the species with the largest number of trees with root problems, followed by pin oak
- Second highest is Pin oak with 9,092 problems
- We can see Sophora has the lowest problems compared to other species

Map View to locate Root Problems



Total number of root problems of each tree in Queens

Yellow: 1 type of root problem

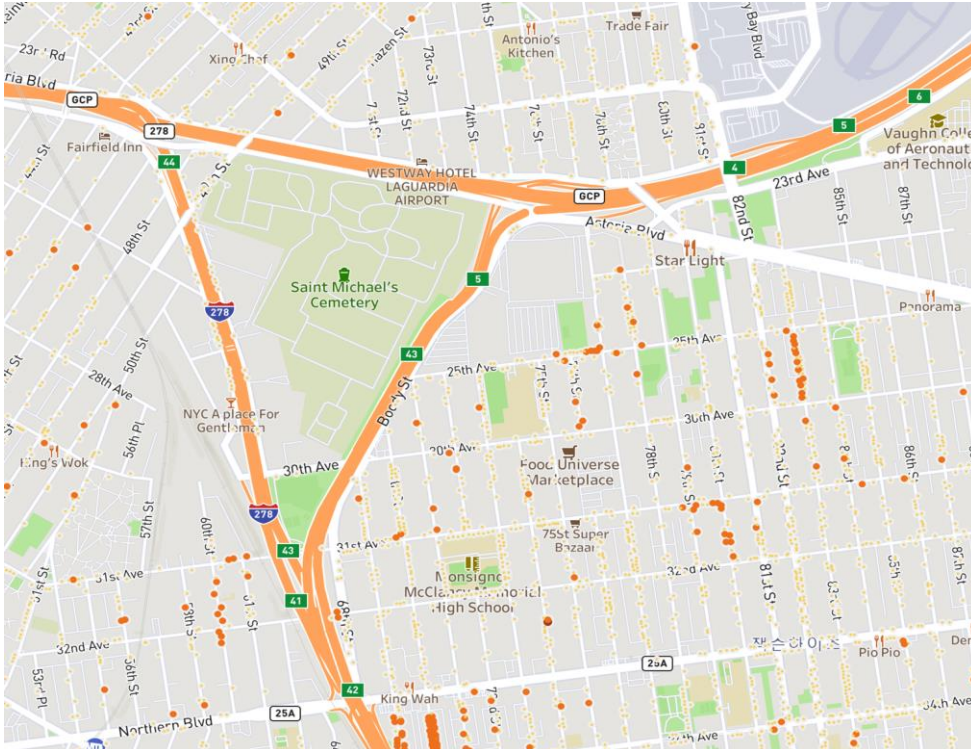
Orange: 2 types of the root problem

Deep red: 3 types of the root problem

Most trees have one or two types of root problems.

Very few trees have all three root problems.

Map View to locate Root Problems



Zoom in on the map to track the condition of each tree

- Here is the street view of trees with root problems
- It will allow us to locate each tree specifically at particular location
- Government staff can pinpoint each tree and identify the type of problem and health condition of the tree for further action.

Dashboard Overview



Tree problems in NYC

Select Borough

Queens

Select problems

Root

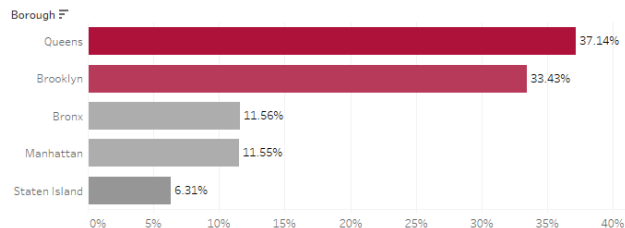
Problems occur frequently when there is 'No guard'

	Guards			
	Harmful	Helpful	None	Unsure
Branch	0.32%	0.59%	25.30%	0.49%
Root	1.67%	0.63%	54.44%	0.70%
Trunk	0.25%	0.48%	14.95%	0.20%

The problem of 'Root' causes the sidewalk problem.

	Sidewalk	
	Damage	NoDamage
Branch	10.08%	16.62%
Root	37.60%	19.83%
Trunk	5.06%	10.81%

Urgent action needed for Root problems in Queens.



Detailed location of Root problem in Queens



Top 10 tree species in Queens which require Root problem solving.

London planetree 13,162 26.26%	pin oak 9,092 18.14%	Norway maple 6,808 13.58%	honeylocust 6,504 12.98%	littleleaf linden 3,277 6.54%	silver maple 2,871 5.73%	
				Callery pear 3,055 6.10%	green ash 2,707 5.40%	

Conclusion - Addressing Business Question



Our team has thoroughly analysed the tree problems in NYC state and found that 50% of trees have issues. With only approximately 1000 alive trees per square mile, and half of them having problems, it is crucial to focus on saving the current trees before planting new ones. Our goal is to help the urban planning and management teams by identifying solutions to mitigate these problems and ensure the sustainability of the city's tree population.





Thank You