NEW YORK TREE CENSUS 2015 ANALYSIS USING TABLEAU DASHBOARD

ALY6070 21601: Communications and Visualization for Data Analytics

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Tree Data: 2015 Street Tree Census

The New York Street tree data collected in 2015 by NYC Parks & Recreation personnel and volunteers, as well as other groups. It includes information about the tree's health status, total count, problems that come, and location, among other things.

We used this data to conduct an in-depth analysis with Tableau and create an interactive dashboard with Tableau Desktop that displays numerous characteristics linked to these trees, including borough-by-borough tree species, count, health, and problem. This dashboard has a side bar style with a side Filter pane for user input and a primary Data panes to represent the visual plots and relevant textual associated with the inputs.

Business Questions

1. What are the overall statistics of the tree plantation and urban forestry in New York?
2. How is the distribution of plantation among the Borough & different community Board ?
3. Which tree species are most dominant across boroughs in New York?
4. What are the problems associated with the trees and the areas with most affected trees ?
5. What are the places where guard replacement is required?

Data Used In the Analysis

- Geographical Role Selected:
  1. Latitude
  2. Longitude
  3. Postal Code
  4. Borough

- Categorical Variable:
  1. Tree Status
  2. Tree Health
  3. Side Walk
  4. Guard
  5. Trunk Problem – By Ropes, By Lights, and By others
  6. Root Problem – By paving stones, By Metal Grates, and By others
  7. Branch Problems – By Lights, By Shoes , and By others

- Numerical:
  1. Tree Diameter by Breast Height(Continuous)

OVERALL STATISTICS

Status
- ✔ Alive
- ✔ Dead
- ✔ Stump

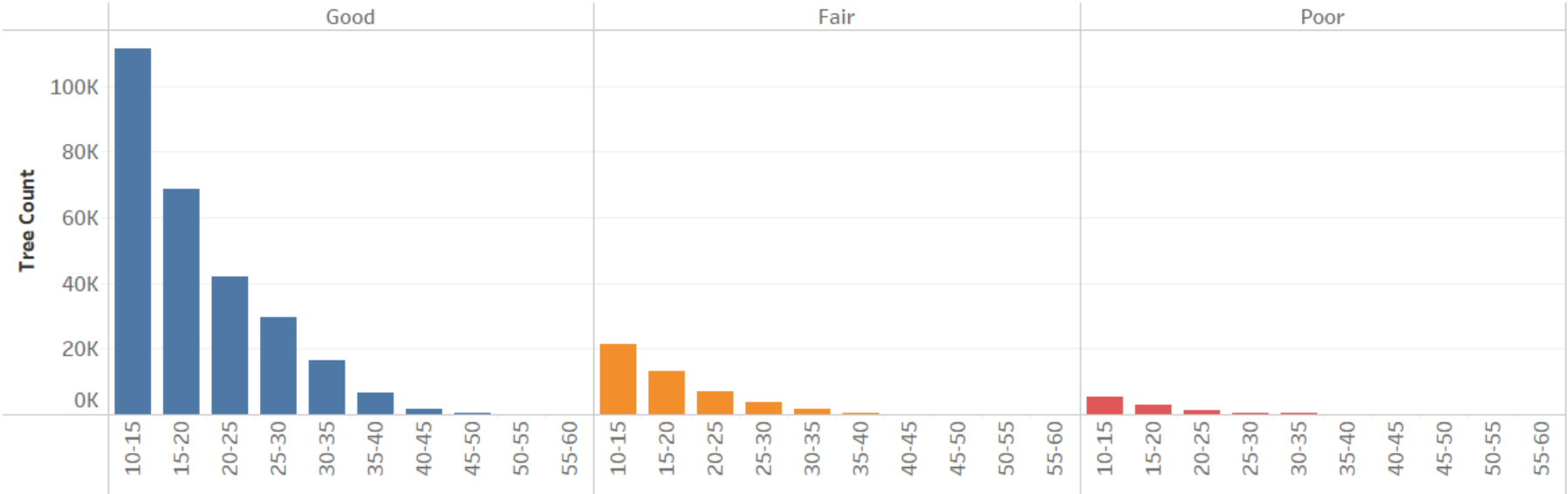
Tree distribution by health

Health	
Good	81.09%
Fair	14.80%
Poor	4.11%

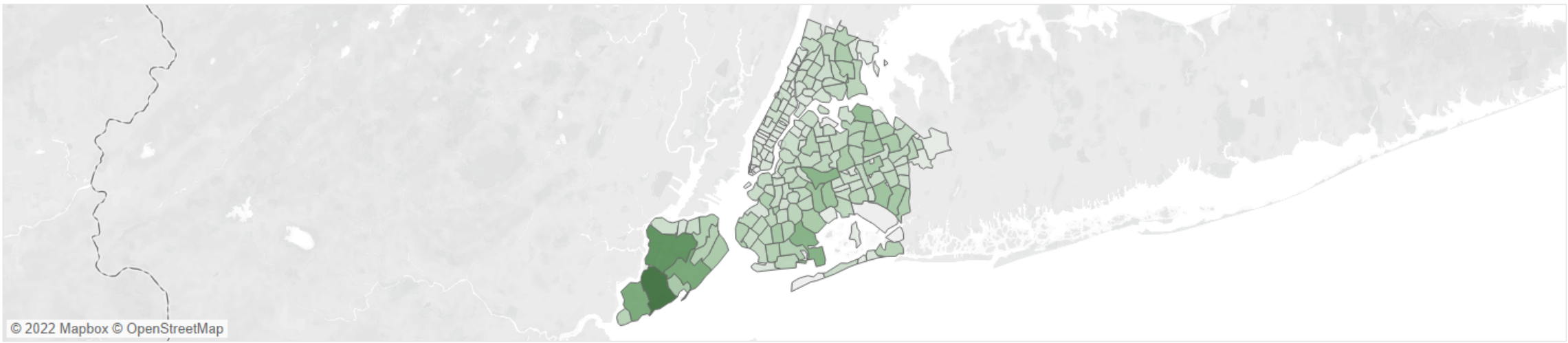
Tree distribution by status

Status	
Alive	95.38%
Stump	2.58%
Dead	2.04%

Most trees have diameter between 10 and 35 inches irrrespective of the health status of the trees.

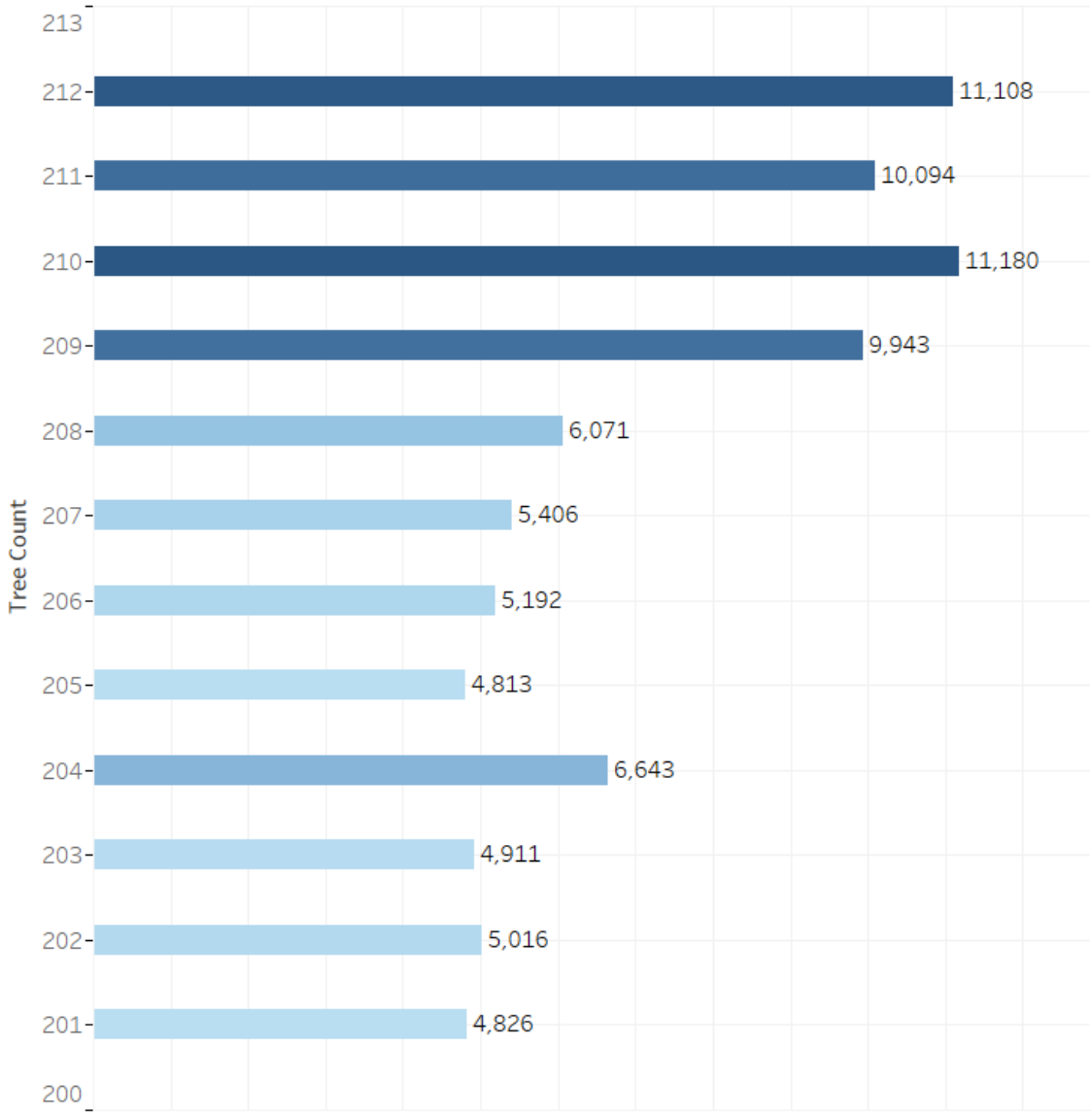


The postcodes 10312 and 10314 in Staten Island have the highest percentage of trees in New York

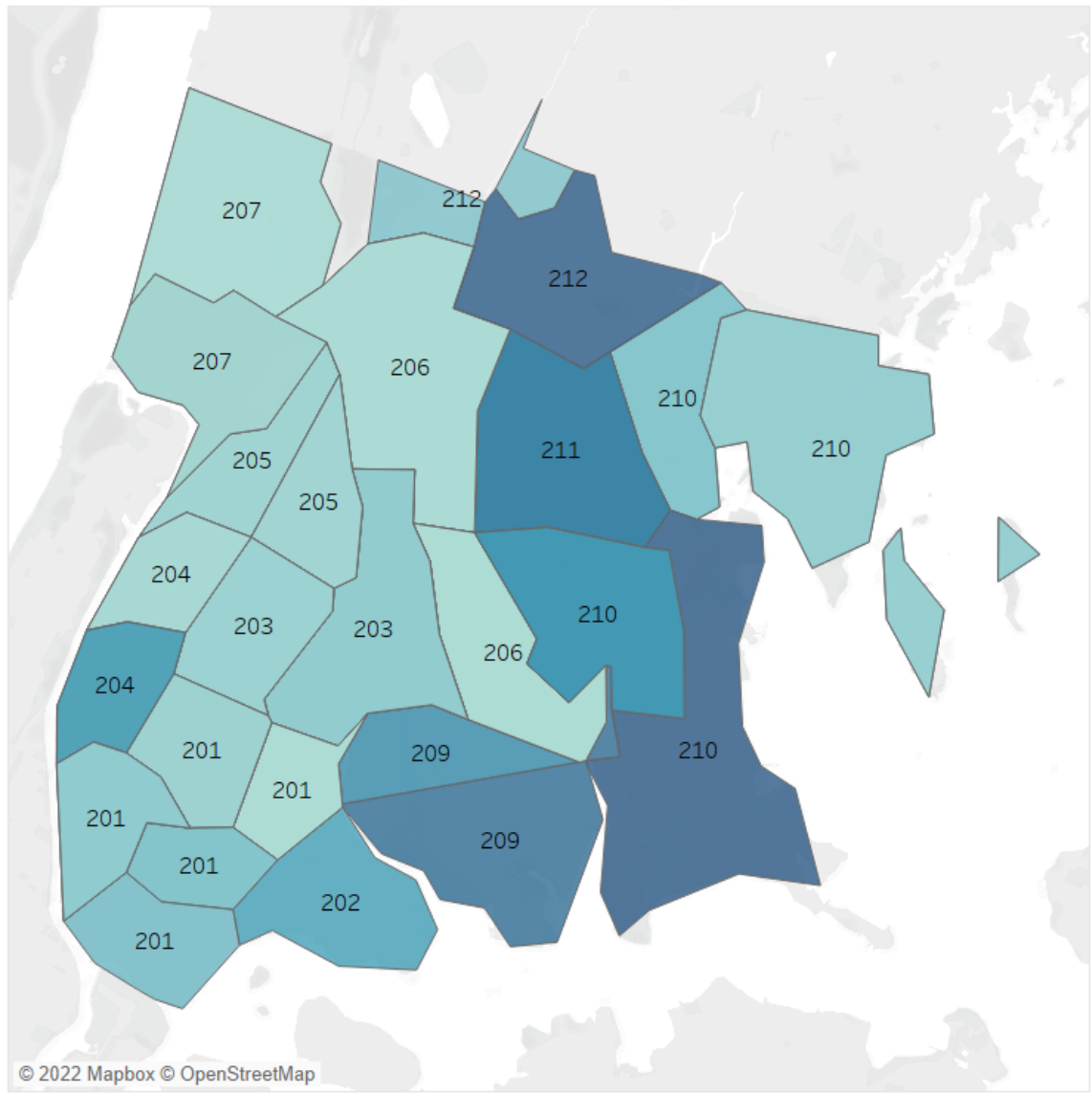


TREE COUNT BY COMMUNITY

Count of trees in each community board



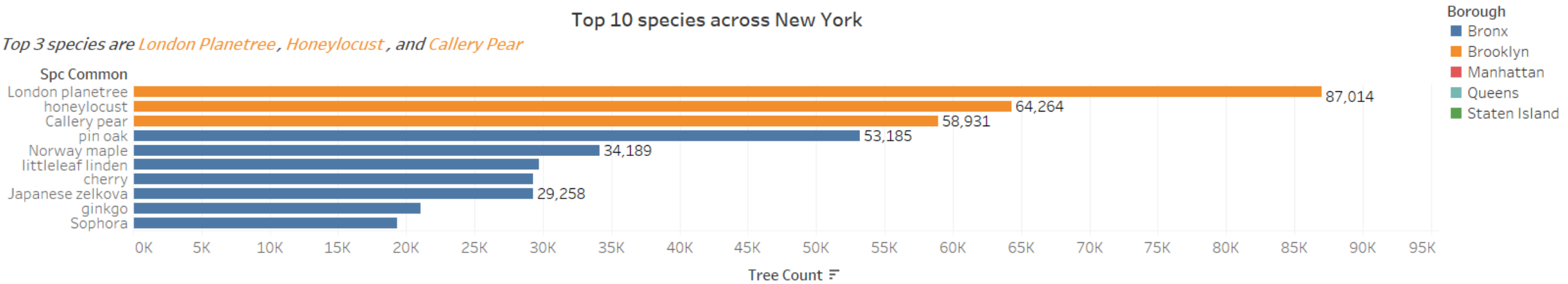
Tree count acoss community board



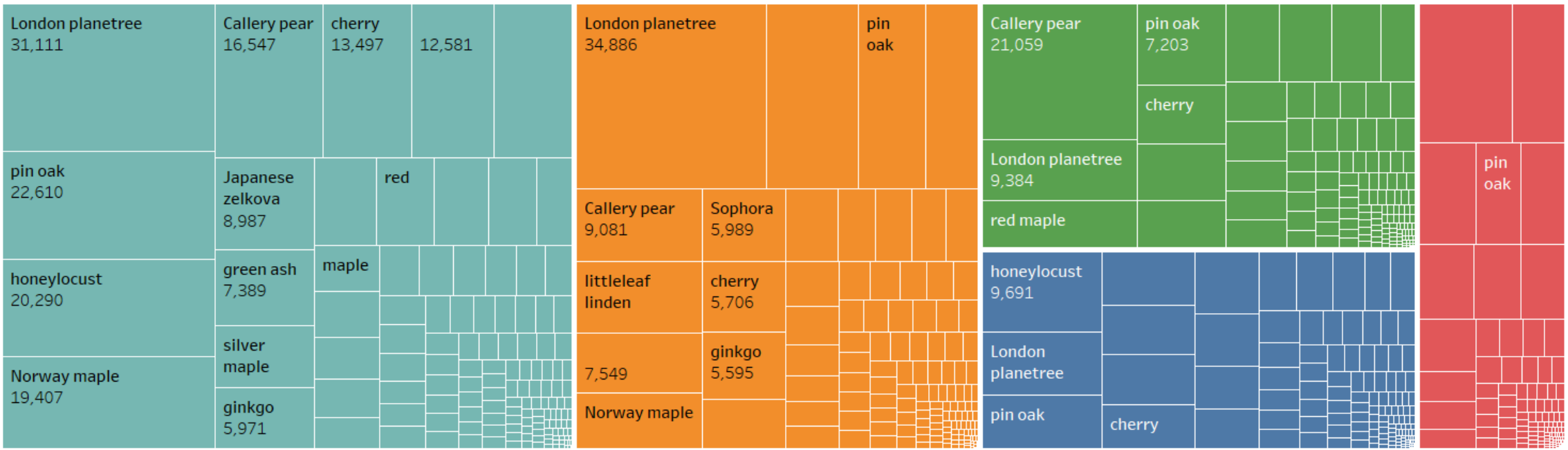
MOST COMMON SPECIES ACROSS NEW YORK

Top 10 species across New York

Top 3 species are London Planetree, Honeylocust, and Callery Pear

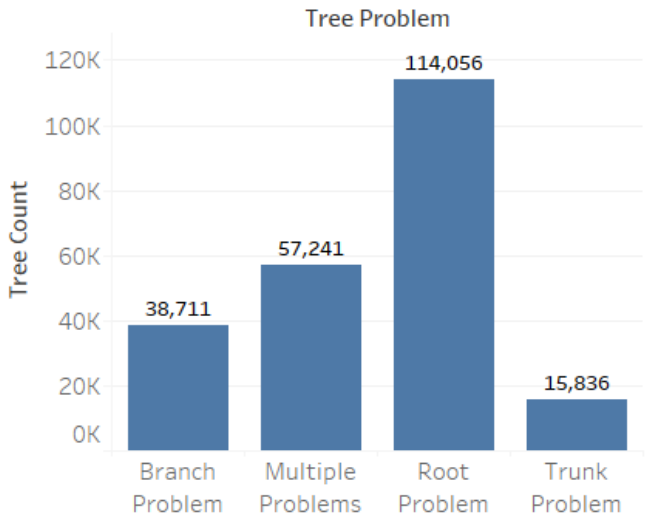


London planetree is the most common specie across Queens and Brooklyn, whereas Honeylocust is the most common specie in Bronx and Manhattan

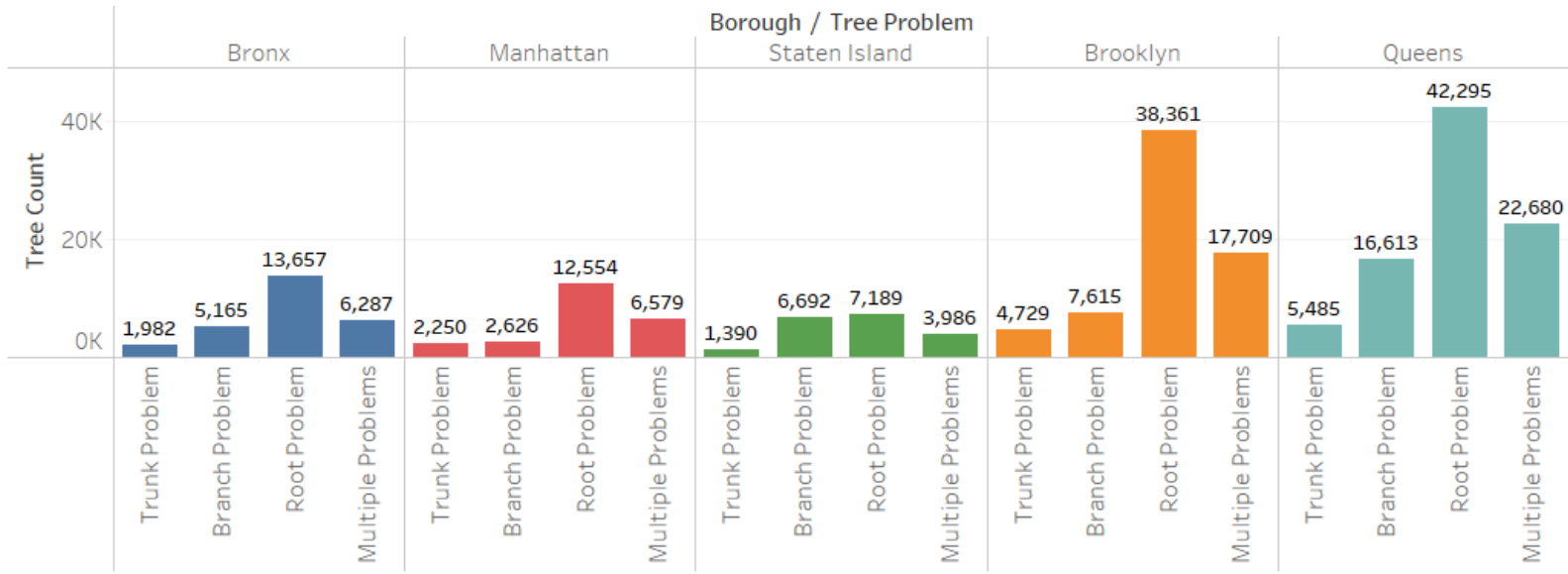


PROBLEMS ASSOCIATED WITH TREES

Most trees in NYC have root problem



Root and trunk problems are the major issues for trees across different boroughs.



Health
- [ ] Null
- [ ] Fair
- [ ] Good
- [x] Poor

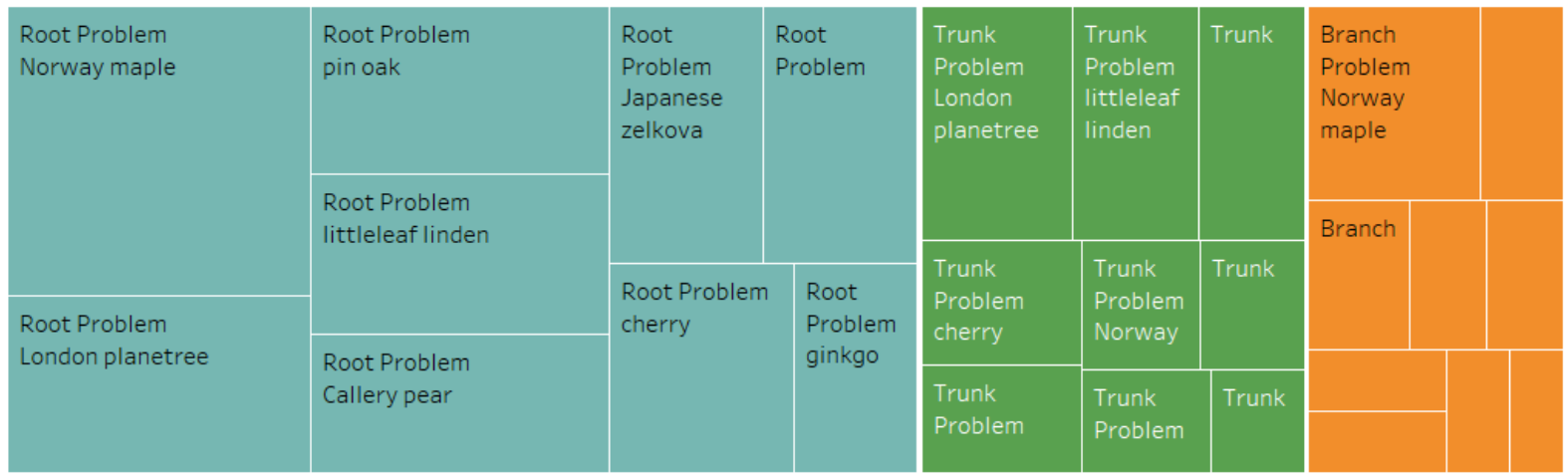
Tree Problem
- [ ] Null
- [x] Branch Problem
- [ ] None
- [x] Root Problem
- [x] Trunk Problem

Borough
- (●) Bronx
- ( ) Brooklyn
- ( ) Manhattan
- ( ) Queens
- ( ) Staten Island

More percentage of trees with branch and trunk problems have helpful guards installed

	Guards			
Tree Problem	Harmful	Helpful	None	Unsure
Branch Problem	2.89%	8.78%	86.01%	2.31%
Multiple Problems	5.80%	5.38%	87.02%	1.80%
Root Problem	4.51%	3.89%	90.69%	0.91%
Trunk Problem	5.51%	12.27%	80.07%	2.15%

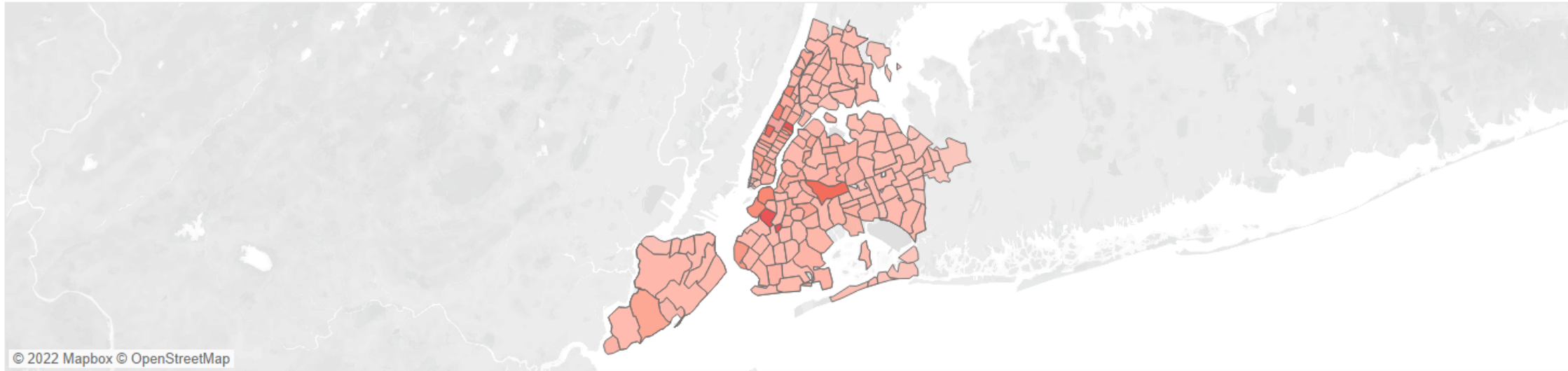
Top species associated with each tree problem



Problems_Grouped
- Branch Problem
- Root Problem
- Trunk Problem

GUARD REPLACEMENTS ACROSS NYC

Harmful tree guards needs replacement primarily at Manhattan and Queens, NY

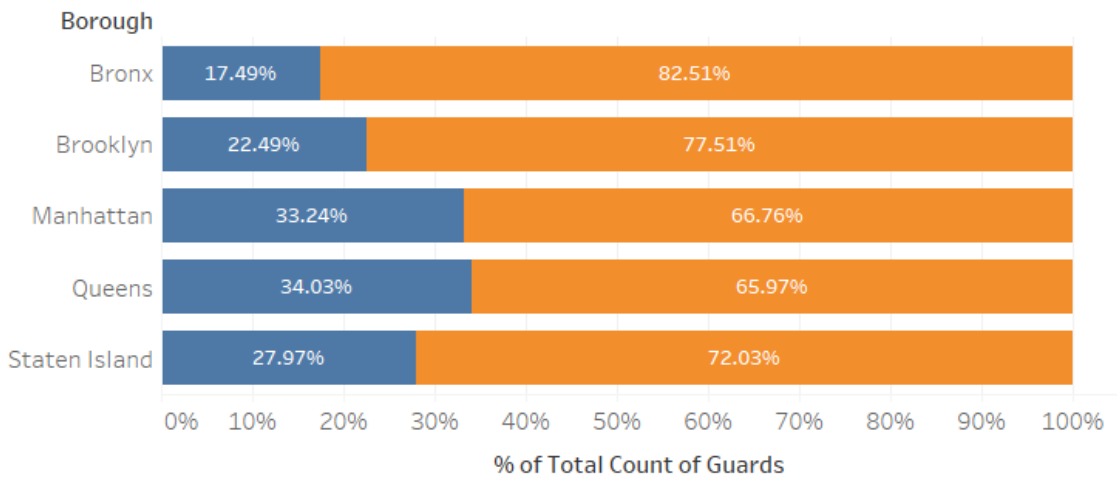


Borough
- ✔ Bronx
- ✔ Brooklyn
- ✔ Manhattan
- ✔ Queens
- ✔ Staten Island

Guards
- ☐ Null
- ✔ Harmful
- ☐ Helpful
- ☐ None
- ☐ Unsure

Count of Guards
1 — 749

Harmful Tree guard ratio was highest in Queens followed by Manhattan in NY



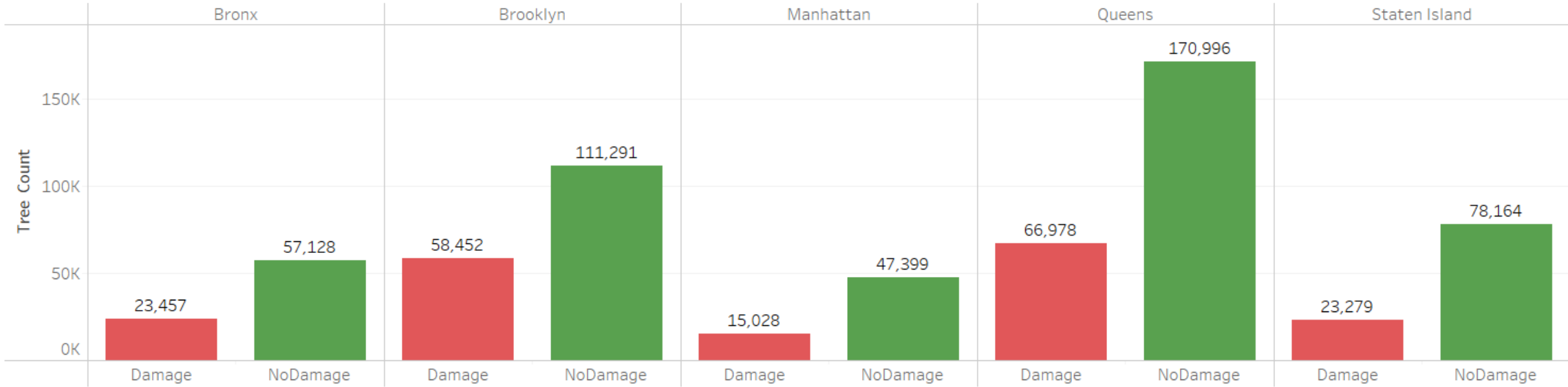
Top 10 Tree Species needed guard replacement across Boroughs in NY

Spc Common	Bronx	Brooklyn	Borough Manhattan	Queens	Staten Island
honeylocust	103	641	2,119	362	34
Callery pear	98	495	1,349	401	360
London planetree	62	837	414	365	42
ginkgo	58	227	1,092	104	13
littleleaf linden	43	418	591	240	17
Sophora	54	281	751	91	11
pin oak	86	390	453	185	63
Norway maple	41	334	26	366	32
Japanese zelkova	43	254	327	143	20
green ash	25	158	115	276	17

Guards
- Helpful
- Harmful

SIDEWALK DAMAGE ACROSS NEW YORK

Count of damaged & undamaged Sideealks across borough



Borough
- [x] Bronx
- [x] Brooklyn
- [x] Manhattan
- [x] Queens
- [x] Staten Island

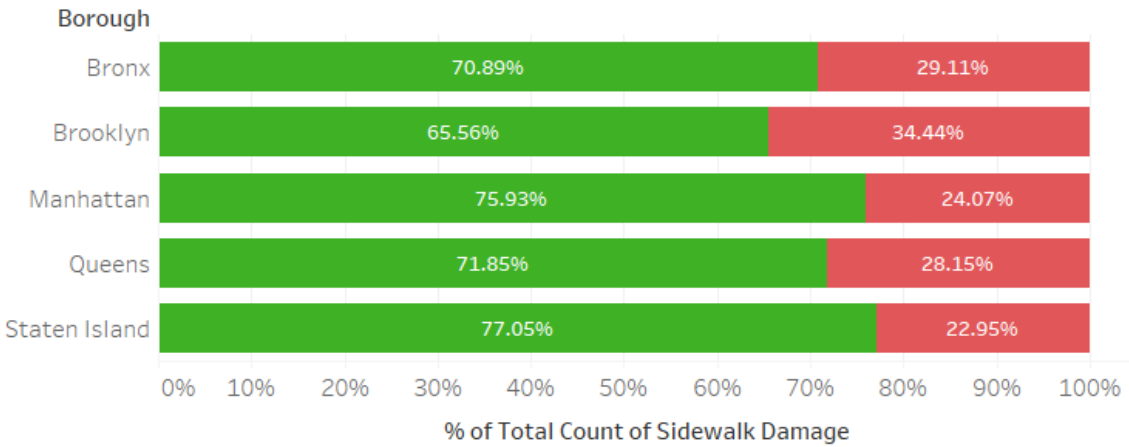
Sidewalk
- [ ] Null
- [x] Damage
- [ ] NoDamage

Sidewalk Damage C..
86 — 15,825

Sidewalk
- Damage
- NoDamage

Sidewalk
- [ ] Null
- [x] Damage
- [x] NoDamage

Brooklyn has the highest percentage of sidewalk damage followed by Bronx and Queens in NYC



London Planetree and Honeylocust bring most damage to sidewalk across Boroughs in NY

Spc Common	Borough: Bronx	Brooklyn	Manhattan	Queens	Staten Island
London planetree	2,663	15,825	971	11,509	3,465
honeylocust	3,649	6,842	4,079	7,128	1,158
pin oak	2,171	4,850	1,131	8,414	2,371
Callery pear	1,396	2,769	1,763	3,510	3,414
Norway maple	1,181	2,772	86	5,991	1,129
littleleaf linden	1,173	3,170	694	3,754	481
Japanese zelkova	1,314	2,771	697	2,093	487
green ash	664	1,547	208	2,959	764
Sophora	836	2,052	1,180	1,427	253
ginkgo	772	1,690	1,473	1,252	121

Inferences:

- 81 % of the survey tree showed to have good health status.
- 14.5% of the surveyed tree showed to have fair health status.
- 4.5 % of the surveyed trees showed to have poor health status.
- 95.4% of the surveyed tree has its status as alive.
- 2.6% of the surveyed trees has its status as Stump.
- 2% of the surveyed trees has its status as Dead.
- Two postal codes, 10312 & 10314 present in borough Staten Island has the highest density of plant among all the postal codes.
- Majority of the tree have a diameter between 10 – 32 inches regardless of their Health status.
- Honey locust, London Planetree, and Callery Pear are the three most common species found across New York.

Inferences:

- Honey locust is common in Manhattan & Bronx whereas London Planetree is common In Brooklyn & Queens.
- Most common problem associated to plant are related to its roots.
- Norway Maple is highly prone to root problems and branch problem.
- London Planetree is highly prone to trunk problems.
- Harmful plant guard ratio is highest in queens followed by Manhattan among all the boroughs.
- Honey Locust is the species which require highest number of guard replacement among all the species.
- Brooklyn reported the highest percentage of side walk damages among all the borough followed by Bronx & Queens.
- The species London Planetree & Honey locust causes higher damages to sidewalk among all the species.

THANK YOU