**Tree Failure Origins & Avoidance**

**TREE FAILURE ORIGINS AND AVOIDANCE** - What trees are most likely to suffer tree damage or failure? Identifying the factors most likely to lead to damage/failure will improve interventions. If there are no clear factors, we can look more closely at tree risk identification methodologies.

1. Analyze dataset of tree damage/failure cases during and outside of severe weather events including prior tree inspection and work order histories (individual trees as well as block pruning cohorts)
2. What are the independent variables that most predict future damage? (size, species, prior inspection data including type and/or location of defect, tree location, risk rating, prior maintenance history, especially block pruning etc., prior application for work permit to fix trees)
3. ~~Examine photographs, if available, from inspections (photos are now in ForMS) of trees that subsequently failed~~
   1. Deferred until further notice

**Datasets**

Failed Trees

* Dataset of all failed trees and information from the post failure inspection, work order, and service request, and information on the most recent pre-failure inspection if one exists. Each record represents one failed tree and it’s corresponding information.
* There can be multiple service requests addressed by one inspection, but the way this is handled is that one of the service requests is selected as the “parent” and the rest of them are set as duplicates. Then, only the parent is related to the inspection.

Work History

* All inspections and work orders prior to the failure. Includes the most recent pre-failure inspection in the failed trees dataset
* Work orders and inspections are related to each other one-to-one.
* Join this to Failed Trees by Tree GlobalID to see all work history on the tree

Risk Assessments

* All risk assessments created on the tree prior to failure.
* There can be multiple risk assessments per inspection, each one about a specific defect. Each defect is rated based on 4 criteria, explained in detail in the Level 2 Cheat-Sheet document
* Join this to Work History using the Inspection GlobalID to see all risk assessments for a particular inspection. Join this to Work History using the Tree GlobalID to see all risk assessments for the tree (across [potentially] multiple inspections).

**Schema Document:** <https://nyco365.sharepoint.com/:x:/s/Team-FHNR/Ec5882rULD1Dk7bTYEkIbJABVkX0wvAUsjCXLur3RqWp7w?e=AfFAc6>