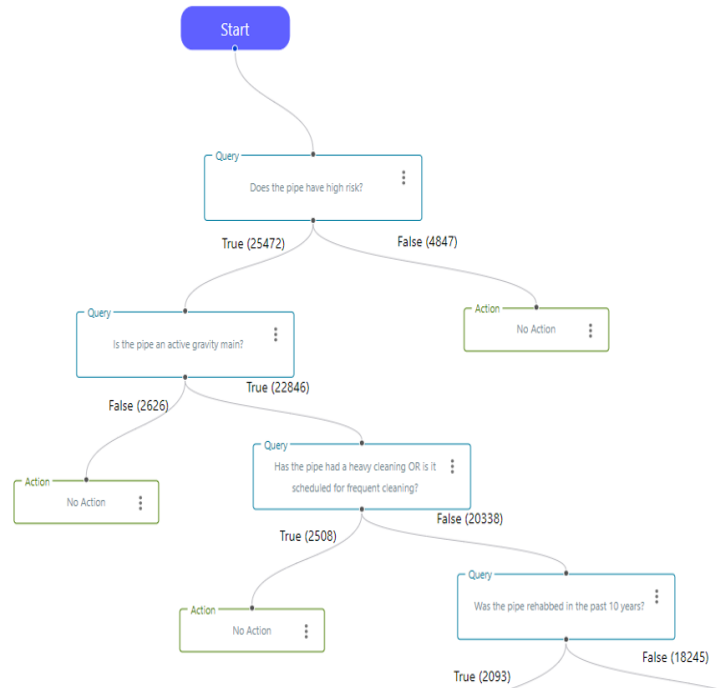# Decision Tree: Root Foaming

Queries:

Risk results
CCTV findings
Historical Pipe Cleans
Historical Rehabilitations
Historical SSOs

Actions:

Has likelihood of roots
Conduct root foaming

Sewer System Risk Delineation - LOF

	Criteria	Scoring Criteria					Scoring Weight	Rating Logic
		1	2	3	4	5		
Structural Failure	Condition: PACP Structural Peak Score	Peak Structure Score = 1; No Defects Noted (Score = 0)	Peak Structure Score = 2	Peak Structure Score = 3	Peak Structure Score = 4	Peak Structure Score = 5	44.45%	Defect Rating is primary (if no CCTV use Age)
	Installation Year/Rehab Year	> 1990	1971 - 1990	1951-1970; unknown	<=1950	Not Used		
Maintenance Failure	Condition: PACP O&M Peak Score	Peak O&M Score = 1; No Defects Noted (Score = 0)	Peak O&M Score = 2	Peak O&M Score = 3	Peak O&M Score = 4	Peak O&M Score = 5	33.33%	Maximum score used from all 4 factors
	Roots/Grease Observed During Cleaning	Clear; Not Observed (N/A, Blank)	Not Used	Light	Moderate	Heavy		
	Debris Observed During Cleaning	Clear; Not Observed (N/A, Blank)	Light	Moderate	Heavy	Not Used		
	SSO occurences at pipe locations	No documented SSOs	Not Used	Not Used	1 SSO	> 1 SSO		
	Condition (Based on Cleaning Frequency)	Pipes not identified for frequent cleaning	Pipes identified for 12 month cleaning frequency	Pipes identified for 6 month cleaning frequency	Pipes identified for 3 month cleaning frequency	Pipes identified for weekly cleaning frequency		
Hydraulic Capacity Failure	Modeled Capacity - Identified Restrictions (d/D)	<= 0.5 (< 50% full)	0.5 - 0.75 (50% - 75% full)	0.75 - 1.0 (75% - 100% full)	Surcharge due to Backwater	Surcharge due to Capacity Exceedance	22.22%	Modeled capacity restrictions is primary factor; if no model data for individual pipe,

Likelihood of Failure (LOF) - SSO& I/I Reduction Focus Only

Sewer System Risk Delineation - COF

	Criteria	Definition	Scoring Criteria 1	2	3	4	5	Scoring Weight	Rating Logic
Consequence of Failure (COF) — Potential Spill Volume	Potential Spill Volume (Based on Modeled Peak Wet Weather Flow)	State Water Resources Control Board requires that reported discharges be categorized by spill type as Category 1 (Any volume and reaches waterway), Category 2 (1000 gallons or greater and does not reach water way), Category 3 (Less than 1000 gallons and does not reach water way).	<0.25 mgd	0.25 mgd - 0.50mgd	0.51 - 1.0 mgd	1.01 mgd - 3.0mgd	>3.0 mgd	20%	Modeled peak flow is primary factor (if not modeled diameter is used)
	Estimated Spill Volume Based on Pipe Diameter	Spill volume estimated based on pipe diameter (when modeled data not available)	<=6 in	7in - 8 in; Unknown	9 in - 10 in	12 in	>12 in		
Environmental Impact	Proximity to Water Ways	Locations where gravity main crosses or is within 25 to 250 ft of a water body (streams, lakes)	Greater than 250ft of water body or outside FEMA 100-yr Flood Zone	Within FEMA 100-year Flood Zone	Within 100 - 250 ft of water body	Within 50 - 100 ft of water body	Crosses or within 50 ft of water body	22%	Single factor
Public Exposure	Based on Pedestrian Traffic	Walkable streets downtown/urban areas; Bicycle lanes/trails; Neighborhoods - Chinatown, Downtown, East 14th Street Business, Fruitvale Station; BART Stations; High Use Areas (Zoo, Lion Creek, Dimond Park, City Slicker Farms)	Not within proximity	Not Used	Within 75 - 150 ft of high pedestrian traffic area	Within 25 - 75 ft of high pedestrian traffic area	Intersecting or within 25ft high pedestrian traffic area	23%	Maximum score used between both factors
	Based on Facility	Types of customers/facilities near a sewer main	Not within proximity	Not Used	Within 150 ft of Commercial Area	Within 150 ft of Schools	Within 150 ft of Hospitals, Medical Facilities, Nursing Homes		
Social Equity	Equity/Investment In Underserved Oakland Communities	Equity/Investment In underserved Oakland Communities - Based on location within Priority Neighborhood or Within 1/4 mile of 100% affordable housing development (adjustment only for Highest, High, Medium priority neighborhoods)	Lowest Priority Neighborhood; Area not included in priority neighborhood	Low Priority Neighborhood	Medium Priority Neighborhood	High Priority Neighborhood or Medium Priority Neighborhood and within 1/4 mile proximity to affordable housing	Highest Priority Neighborhood or High Priority Neighborhood and within 1/4 mile proximity to affordable housing	23%	Maximum score used between Equity/Investment in Underserved Communities and Preservation of existing facilities
		Preservation/Enhancement of Existing Cultural, Historical, or Natural Resources Within the Park - Based on Areas Identified as Primary and Secondary Importance	Not within identified areas of primary/secondary importance		Within identified areas of primary/secondary importance				
Emergency Response and Construction Impact	Proximity to Road/Railroad and Easement Access	Locations where sewer gravity main crosses/within street. Assumed if sewer gravity main is not within designated road width, access is more difficult and may be in customer property.	Within 30 ft of Local Street road centerline	Within 40 ft of Minor/Major Collector road centerline	Within 50 ft to 100 ft of railroad centerline	Within 75 ft of Other Principal Arterial, Minor Arterial road centerline; Within steep hills designated area and within 10 ft of road centerline; Sewer gravity main outside designated road width for local/collector/arterial.	Within 75 ft of Interstate, Other Freeways or Expressways road centerline; Within steep hills designated area and outside of 10 ft of road centerline; Within 50ft of railroad centerline	12%	Maximum score used from all 3 factors
	Difficulty of Repair/ Potential Contaminated Soils (Brownfield Sites)		Greater than 300 ft from contaminated site	Not Used	Not Used	Within 300 ft of contaminated site	Not Used		
	Difficulty of Repair/Depth of Pipe	Pipe depth based on manhole depth with populated City/Model data selected the deepest depth between selected data. City data was used when available, model data was used where data was not available. Shallower manholes have higher chance for SSO.	<10 ft; Unknown	Not Used	10 ft - 12 ft	12 ft - 18 ft	>18 ft		
	Total COF Score							100%	