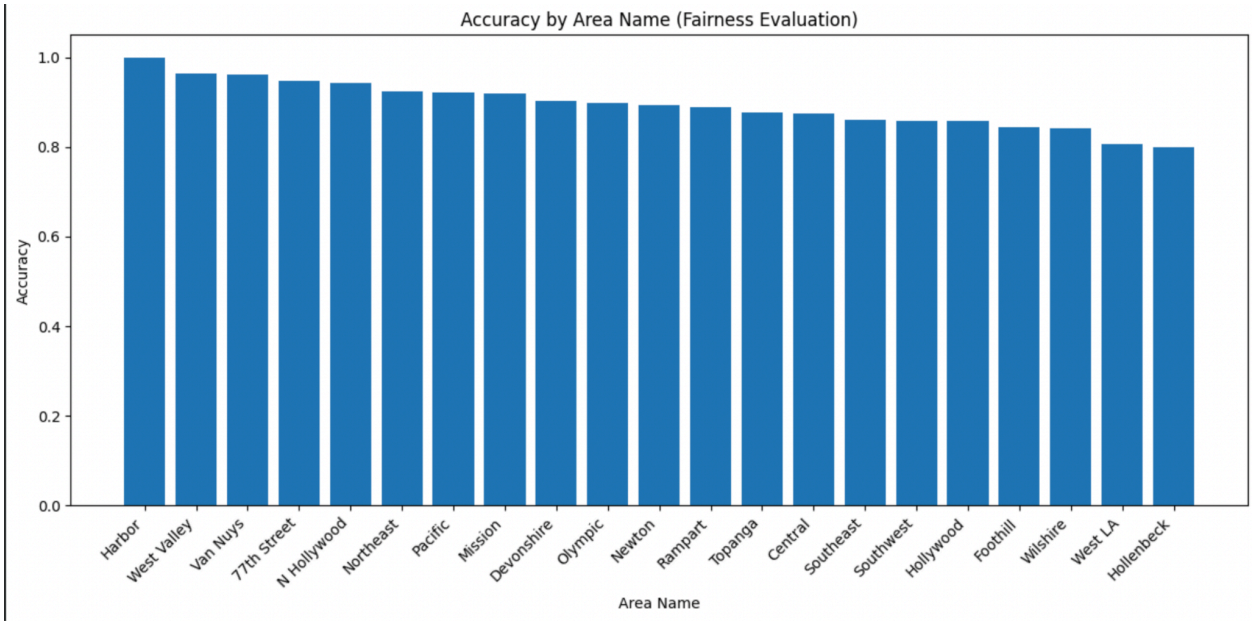
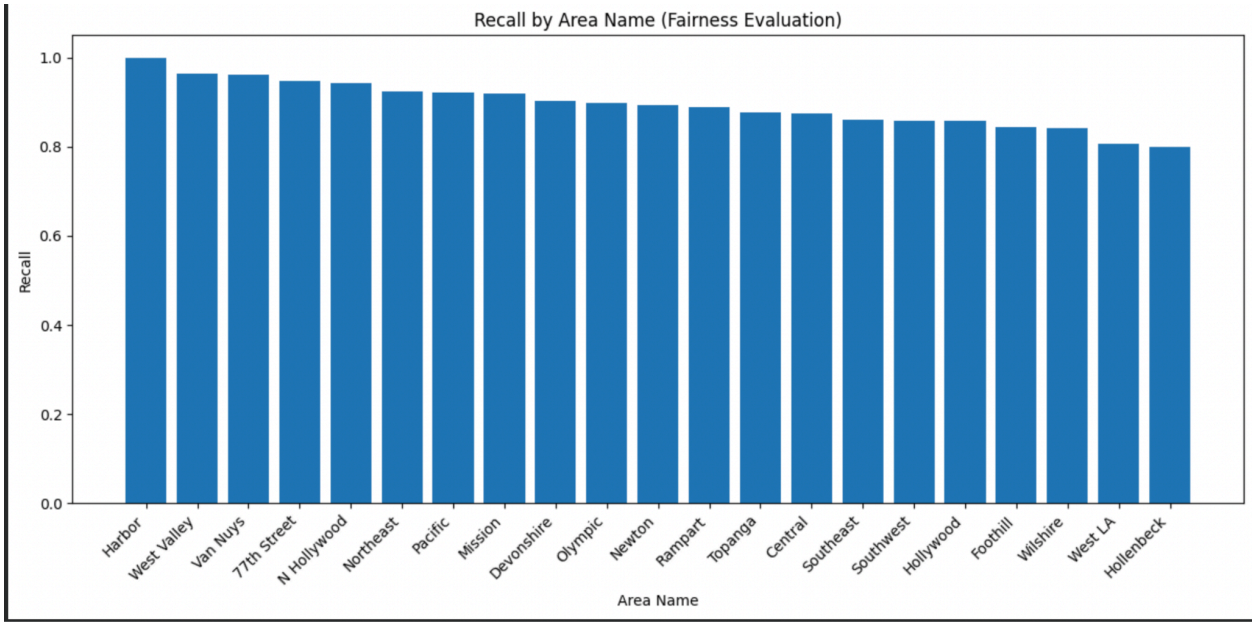
We evaluated fairness across LAPD Area Names because location is a major factor in crime data and we wanted to see whether the model performed differently across neighborhoods. We found clear differences in performance: areas like Harbor had perfect accuracy and recall, while places such as Hollywood, Foothill, and Hollenbeck scored much lower (around 0.80–0.86). The fairness metrics—Demographic Parity Difference (0.29) and Equal Opportunity Difference (1.0)—confirmed that the model's selection and true positive rates vary significantly by area. These disparities seem mostly tied to data imbalance and uneven representation, since some areas appear far more often in the dataset than others. While improving fairness may reduce overall accuracy slightly, it would lead to more balanced performance. To address these issues, we would try reweighting or resampling underrepresented areas, revisiting feature choices, and monitoring group-level metrics to improve fairness going forward.




Recall by Area Name (Fairness Evaluation)
Recall
1.0
0.8
0.6
0.4
0.2
0.0
Harbor
West Valley
Van Nuys
77th Street
N Hollywood
Northeast
Pacific
Mission
Devonshire
Olympic
Newton
Rampart
Topanga
Central
Southeast
Southwest
Hollywood
Foothill
Wilshire
West LA
Hollenbeck
Area Name

	Area Name	Accuracy	Precision	Recall	F1-score
4	Harbor	1.000000	1.000000	1.000000	1.000000
19	West Valley	0.962963	0.927875	0.962963	0.944945
17	Van Nuys	0.961538	0.932692	0.961538	0.945055
0	77th Street	0.947368	0.912281	0.947368	0.926316
8	N Hollywood	0.942652	0.931927	0.942652	0.936131
10	Northeast	0.923077	0.938462	0.923077	0.914530
12	Pacific	0.922652	0.907462	0.922652	0.911587
7	Mission	0.919786	0.890642	0.919786	0.901157
2	Devonshire	0.903346	0.903650	0.903346	0.898274
11	Olympic	0.898785	0.888708	0.898785	0.883628
9	Newton	0.893805	0.849649	0.893805	0.869137
13	Rampart	0.888889	0.944444	0.888889	0.888889
16	Topanga	0.877256	0.871654	0.877256	0.858874
1	Central	0.875000	0.910714	0.875000	0.854167
14	Southeast	0.859459	0.826091	0.859459	0.839094
15	Southwest	0.857143	0.809524	0.857143	0.816017
6	Hollywood	0.857143	0.836735	0.857143	0.834215
3	Foothill	0.843137	0.817227	0.843137	0.824359
20	Wilshire	0.842105	0.770677	0.842105	0.800270
18	West LA	0.806452	0.751920	0.806452	0.765407
5	Hollenbeck	0.800000	0.800000	0.800000	0.800000