

Optimization of Refuse Routes

City of Glendale



Description

The Glendale pilot project focused on optimizing refuse collection routes to enhance efficiency and reduce VMT. The original collection routes were digitized and analyzed to establish a baseline for VMT. By redesigning these routes using advanced software analytics, the city aimed to decrease the miles traveled during refuse collection, thereby reducing operational costs and emissions. Through the development of the project it became evident that there was trade-off between optimizing routes to save VMT and optimizing to save staff time. While the final set of optimized routes did not reduce VMT, they actually reduce emissions because of less 'door-to-door' VMT (that suffers poor fuel consumption) and more VMT for trips to and from the dump (which is better fuel consumption). This initiative represents Glendale's commitment to integrating technology for sustainable city operations.



Vehicle Trips

Vehicle Miles Traveled (VMT/year)

○ -9,152 mi

Number of Trips

● ● 6,084

Average Trip Length

48.5 mi



Air Quality Improvements (pounds/year)



Socio-economic Benefits

Cost Effectiveness



\$202K

annualized direct project cost



NO

VMT saved

Cost Savings



Reduction of mileage & hourly labor across all routes



49

trips reduced to the dump per week

Number of Users Served



28,557 Trash



26,882 Green



29,859 Recycling

Resource Utilization



Number of vehicles deployed for daily routes increased from **19 to 27**, utilizing the full fleet of vehicles

Customer Satisfaction

New routes are more efficient with time, allowing workers to take breaks and reduce overtime.

Disadvantaged Communities Impacts

The program reduces emissions throughout the City of Glendale. We estimate that **55%** of the emissions saving occurs in disadvantaged areas, which improves quality of life through reductions in local pollutants and decongestion of the street network.