CASE STUDY

AI Route Planning Optimization

Client	Industry	Solution
Multi-Regional Delivery Service in Houston, Texas	Last-Mile Delivery Logistics	Dynamic Route Planning Real-Time Optimization

Challenge

180-vehicle delivery fleet with static route planning resulted in 45% excess mileage, $4.8M fuel costs, 31% missed delivery windows, and 4+ hours daily manual route planning with limited adaptability to real-time conditions.

AI Consulting Approach

AI Solution

• Dynamic Routing: Real-time route recalculation based on traffic, weather, and new delivery requests

• Stop Sequencing: Machine learning for optimal delivery order considering customer availability and geography

• Traffic Prediction: AI forecasting of Houston traffic patterns using historical data and event calendars

• Load Balancing: Smart delivery distribution across drivers based on capacity, experience, and performance

Implementation (33 weeks total)

• Analysis (3 weeks)

• Development (12 weeks)

• Integration (8 weeks)

• Training (4 weeks)

• Deployment (6 weeks)

Key Results

Route Efficiency:
• 38% mileage reduction, 50% more stops per route (12→18), 94% on-time completion, 42% delivery density improvement

Customer Impact:
• 92% on-time delivery (vs. 69%), 89% first-attempt success, 73% fewer complaints

Financial Performance:
• $5.1M annual savings, $1.9M fuel reduction, 35% lower cost per delivery, 420% ROI

Technologies:
• Optimization algorithms
• machine learning
• real-time data processing
• geographic intelligence