EXECUTIVE SUMMARY  
OFFICE REALIGNMENT PROJECT

Introduction

\*Introduction to the problem  
The Ram Wireless home office, responsible for supporting stores across Virginia, faces a critical issue with the efficiency of its regional office service areas. These areas, which facilitate inventory management, payroll, hiring, marketing, and merchandising, were originally designed based on demographic models over a decade ago. However, inefficiencies in travel costs and employee productivity have emerged due to outdated service area assignments. In particular, regional offices such as Staunton and Warrenton experience significant travel burdens, which reduce their ability to effectively support stores. As a result, the COO, Melissa Jones, and regional manager, Vance Larson, seek to realign store assignments to minimize costs while maintaining productivity and staff satisfaction. They have engaged Verve Consulting to assist in creating a cost-effective solution for reassigning stores to regional offices.

\*Introduction to you and how you came to work on this  
We are a group of five students—[Name 1], [Name 2], [Name 3], [Name 4], and [Name 5]—currently enrolled in Masters of decision analytics, concentration in data science. This project was assigned to us as part of our coursework to apply optimization techniques to real-world business challenges. The assignment was divided into two phases. In Phase I, submitted on October 31, 2024, we analyzed preliminary data and explored potential optimization methods. We sought an assignment of each store to one of the four regional offices that would minimize travel costs, which included mileage and salary components. In this phase, we created a spreadsheet model of the optimization and submitted its essential components along with our findings.

In Phase II, we are tasked with refining our model, implementing the solution in AMPL, and providing detailed recommendations. This includes creating a model that finds the lowest-cost assignment of all stores to regional offices while respecting area availability constraints. We compare this optimal assignment to the closest-office assignment from Phase I and analyze similarities and differences. We also examine the geographic implications of the solution, addressing any unusual patterns, and propose remedies to enhance practicality. Throughout this project, we collaborated to collect and analyze data, develop optimization models, and ensure our findings align with the client’s objectives.

\*Description of the problem  
The primary challenge is to reassign stores to the Staunton, Richmond, Warrenton, and Tappahannock regional offices in a manner that minimizes travel costs. Travel costs are composed of two components: mileage costs, based on the state mileage rate, and salary costs, reflecting employee compensation for travel time. The current store assignments lead to inefficiencies, as some stores are assigned to regional offices that require excessive travel. Furthermore, any new assignments must respect the staff hour availability at each regional office. The problem requires an optimization model that integrates cost minimization with these constraints, ensuring feasible and efficient store-to-office assignments while addressing geographic disparities.

\*Summary of approach and summary of results and recommendations