



# Introduction

**ATTITUDINAL SURVEYS AND MARKET RESEARCH  
FOR THE  
VIRGINIA RAILWAY EXPRESS**

**PART I:  
INTRODUCTION**

Prepared for:

**Potomac and Rappahannock Transportation Commission,  
Northern Virginia Transportation Commission,  
and Virginia Railway Express**

Prepared by:

**JHK & Associates, Inc.**

In Association with:

**Catherine Bryant & Associates, Inc.**

**and**

**John Gobis**

May 1991

## PART I: INTRODUCTION

### TABLE OF CONTENTS

	<u>Page</u>
<b>Background and Study Objectives</b> . . . . .	I-1
Background . . . . .	I-1
Study Objectives . . . . .	I-4
<b>Methodology</b> . . . . .	I-5
Overall Approach . . . . .	I-5
Surveys and Market Research . . . . .	I-5
Ridership Estimation . . . . .	I-6
<b>Report Organization</b> . . . . .	I-7

### LIST OF EXHIBITS

Exhibit <u>No.</u>		
I-1	VRE System Map . . . . .	I-2
I-2	VRE Travel Time and Fares Between Stations . . . . .	I-3

## BACKGROUND AND STUDY OBJECTIVES

### BACKGROUND

The Virginia Railway Express (VRE) was created to establish and operate commuter rail service from Northern Virginia to the District of Columbia. The VRE is supported jointly by the Potomac and Rappahannock Transportation Commission (PRTC) and the Northern Virginia Transportation Commission (NVTC).

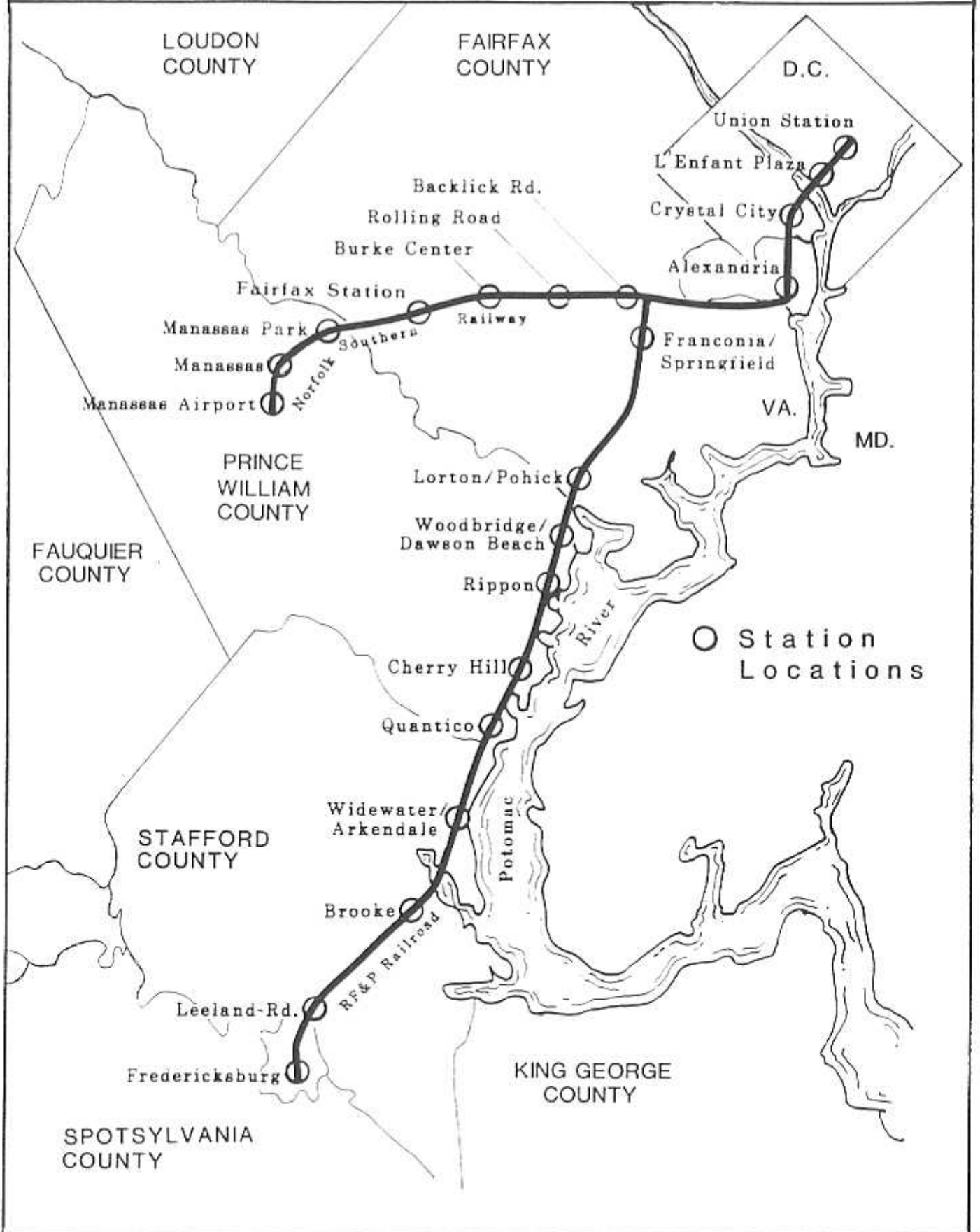
The VRE project is the largest new commuter rail service project in North America in the past 20 years. Service is scheduled to begin in October of 1991. The VRE system will consist of over 100 miles of track. There has not been a commuter rail service in Northern Virginia since World War II. The MARC system, operating in Maryland and the District of Columbia is the nearest service to the VRE.

The VRE will operate commuter rail service in two corridors, using the RF&P and Norfolk Southern Railroads. The RF&P service will start at Fredericksburg and include stations at Leeland Road, Brooke, Quantico, Rippon, Woodbridge, and Pohick. Possible future stations are planned for Widewater, Cherry Hill and Springfield. The Norfolk Southern service will begin at Manassas Airport and include stops at Manassas, Manassas Park, Burke Centre, Rolling Road, and Backlick Road. A possible future station is being considered for Fairfax Station. In addition to the terminus at Washington Union Station, trains from both lines will stop at Alexandria Union Station (King Street), Crystal City and L'Enfant Plaza. To assist further passenger distribution, all four inner stations will offer connections to WMATA Metrorail and Metrobus services. A map of the VRE network is included in Exhibit I-1. The proposed travel times and fares between stations are shown in Exhibit I-2.

The VRE system will initially consist of four trains from Fredericksburg and four trains from Manassas heading into Union Station and returning on a daily basis during the peak traffic periods. The running time from Fredericksburg to Union Station is estimated at 84 minutes, and 61 minutes from the Manassas Airport. Trains are scheduled to run on each line every 30 minutes during the "peak period." This schedule will require a total of eight in-bound morning and eight out-bound evening trains systemwide.

Until now, very little information regarding attitudinal and customer preference has been available. Metrorail patronage information and a VRE ridership forecast model by Richard Pratt & Associates are the most current sources of information on this topic.

Exhibit I-1. VRE System Map



## TRAVEL TIME &amp; FARE MATRIX

FROM STATION	TO ALEXANDRIA		TO CRYSTAL CITY		TO L'ENFANT PLAZA		TO UNION STATION	
	Minutes	\$/round	Minutes	\$/round	Minutes	\$/round	Minutes	\$/round
	trip		trip		trip		trip	
Manassas Airport	41	6.50	49	6.50	57	7.00	61	7.00
Manassas	35	6.50	43	6.50	51	7.00	55	7.00
Manassas Park	31	6.50	39	6.50	47	7.00	51	7.00
Burke Center	20	5.50	28	5.50	36	6.00	40	6.00
Rolling Road	15	5.50	23	5.50	31	6.00	35	6.00
Backlick	9	5.00	17	5.00	25	5.50	29	5.50
Fredericksburg	64	8.00	72	8.00	80	8.50	84	8.50
Leeland	58	7.50	66	7.50	74	8.00	78	8.00
Brooke	50	7.50	58	7.50	66	8.00	70	8.00
Quantico	38	6.50	46	6.50	54	7.00	58	7.00
Rippon	29	6.00	37	6.00	45	6.50	49	6.50
Woodbridge	23	6.00	31	6.00	39	6.50	43	6.50
Lorton	17	5.50	25	5.50	33	6.00	37	6.00

NOTE: Cost per round trip is based on the purchase of a monthly pass.

The need to analyze more specific data is heightened due to the fact that commuter rail markets and services are notably different from urban rail (e.g. Metrorail) markets and services.

PRTC and NVTC contracted with JHK & Associates (JHK) and its two subcontractors, Catherine Bryant & Associates and John Gobis, to conduct attitudinal surveys and market research for the VRE.

### STUDY OBJECTIVES

The primary objectives of this market research project are:

- To determine public awareness and acceptance of the VRE;
- To establish a profile of potential patrons of VRE;
- To determine customer expectations of the VRE; and
- To provide data for the estimation of patronage activity at specific stations and systemwide.

The information from the surveys will be used in conjunction with information from other research segments of the overall study to help VRE management facilitate a smooth and successful initiation of commuter rail service and help plan for future growth.

## METHODOLOGY

### OVERALL APPROACH

The JHK team designed a market research approach to achieve the study objectives in a timely and cost-effective manner. This approach recognizes the three population segments that are of particular interest to the study, namely:

1. The General Population: All residents within the commuter shed defined as those whose home zip codes fall within approximately five miles of any rail station within the entire VRE system, regardless of expectations of using the VRE when the service becomes available;
2. The Targeted Station Potential Rider Population: All residents whose home zip codes fall within approximately five miles of the following rail stations:
  - a) Burke Center
  - b) Rolling Road
  - c) Manassas Airport
  - d) Leeland
  - e) Woodbridge

who have positive expectations of using the VRE when the service becomes available; and

3. The Systemwide Potential Rider Population: All residents of the general population, including those inside and outside the targeted station service areas who have positive expectations of using the VRE when the service becomes available.

These population segments are, therefore, differentiated primarily by the respondent's home address and geographic relationship to the specific stations of interest and the system as whole, and by the respondent's propensity to become a VRE rider.

### SURVEYS AND MARKET RESEARCH

To effectively use the resources allocated to this project, the surveys on the three population segments described above were nested within one integrated methodology - a random telephone interview survey utilizing quota based subsamples which allows for analysis of the individual population segments as well as the overall population. It has been found in the past that this approach yields much more statistical precision than a compartmentalized methodology within the same cost and time constraints. This integrated telephone survey method was designed to collect, within a logical framework,

data on public awareness and acceptance, potential patron characteristics, expectations, and preferences, and current commuting habits and patterns.

To supplement the data gathered from the telephone survey, the following market research activities were conducted to generate qualitative information and current transit-user specific data:

- Focus group sessions with resident of areas near the VRE stations and commuters of the I-66 and I-95 corridors,
- Personal interviews with key decision makers in the VRE service area, and
- On-board survey of commuter bus riders to profile current transit commuters and identify their likelihood to switch to the VRE service.

Data and insights obtained from these supplemental surveys enhance the interpretation of the results obtained from the telephone survey, but also provide a deeper understanding of the public issues and concerns that should be addressed, and individual attitudes and preferences that should be considered in making start-up plans for the VRE.

The JHK team developed the survey instruments in close consultation with the PRTC, NVTC, and VRE staff so that time and resources allocated to data collection could be prioritized in a manner that would gain maximum benefits out of the effort. All of the surveys were implemented under strict adherence to rules that ensure randomness of the samples and minimize response biases. All telephone interviewers were professionally trained market researchers.

Data processing included quality control checks and verification to ensure that the data was validated prior to analysis. Appropriate analytical techniques were used to process the survey data.

### **RIDERSHIP ESTIMATION**

The ridership estimation procedure was designed to fully utilized the market survey data. The objective was to estimate the magnitude of potential ridership from the market research perspective. For the five targeted stations, the sampling data from the telephone survey was expanded in order to determine station-specific commuter rail patronage. For the rest of the stations, the patronage was estimated based on an extrapolation of the results obtained from the five targeted stations.

A key element in the estimation of ridership was the assessment of the relationship between the survey respondent's expressed intention to ride the VRE, and his or her likely actual behavior when the VRE service becomes operational. This issue is addressed in this study by using a mode-choice model based screening of the survey responses. This screening approach enabled the estimation of the expected proportion of VRE riders from the surveyed population. This proportion was then used to directly estimate the expected VRE riders from the household population within the service area.

Additional details on the research techniques, analysis and findings are described in the remaining parts of this report.

## **REPORT ORGANIZATION**

The rest of this report is divided into the following remaining parts:

- Part II: Telephone Surveys
- Part III: Focus Group Sessions and In-Depth Interviews
- Part IV: On-Board Commuter Bus Survey
- Part V: Ridership Estimation

Part II presents the detailed methodology and analysis of the random telephone survey conducted by Catherine Bryant & Associates, under subcontract to JHK. This survey is the major research component of the VRE study because it provides the quantitative data necessary for ridership estimation.

Part III contains the methodology and findings of the qualitative research component conducted by John Gobis under subcontract to JHK. Research activities involved five focus group sessions and in-depth interviews with 15 key decision-makers from the area.

Part IV presents the methodology and results of the on-board commuter bus survey conducted by JHK. The results of the on-board commuter bus survey were used to profile the people who are now currently using transit as their commuting mode, and to generate insights on their attitudes and expectations regarding the new commuter rail service.

Part V is the last section of the report and provides the VRE ridership estimates calculated by JHK. Part V includes a detailed discussion of JHK's ridership estimation model.

The technical appendices are presented under separate cover by corresponding part for Part II, Part III and Part IV. Appendices include the survey instruments, discussion guides, and computer tabulated data.