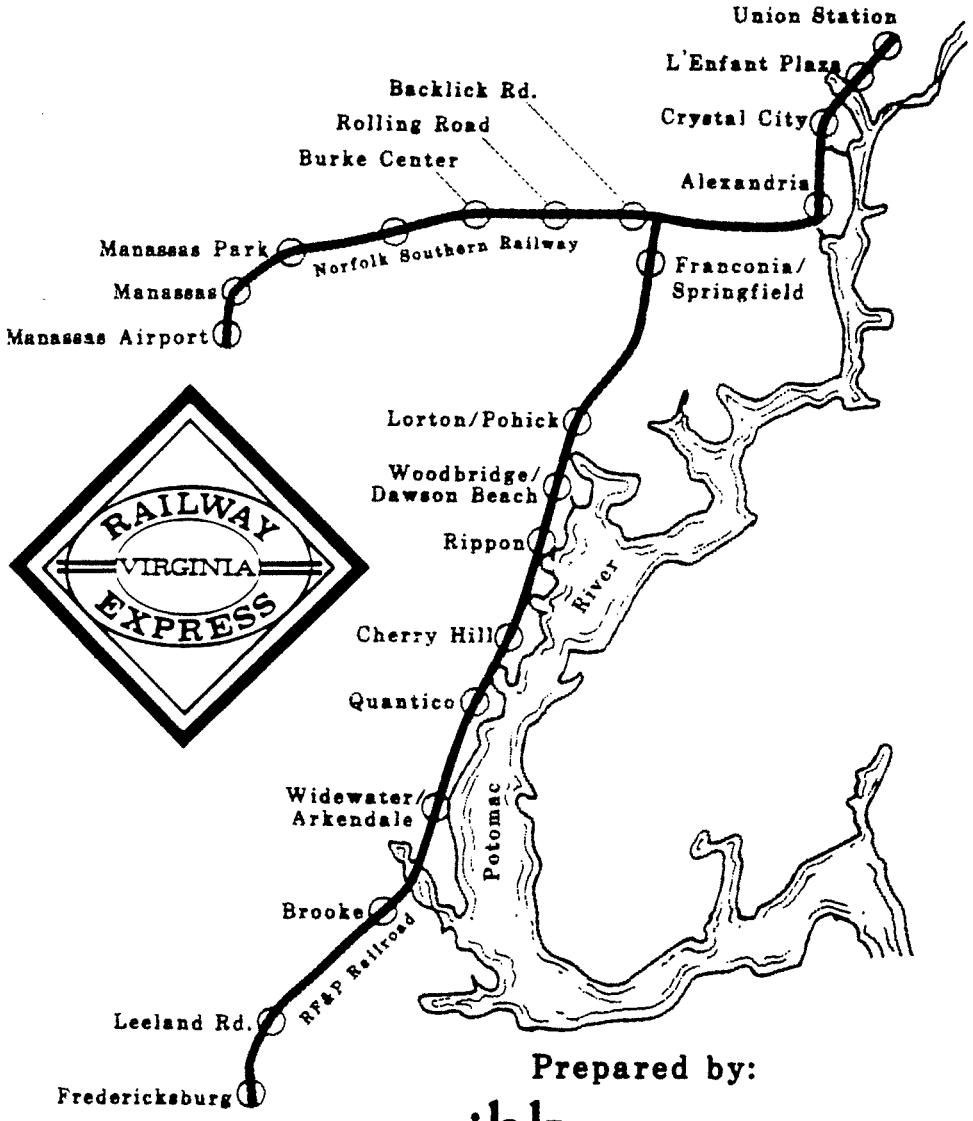
FINAL REPORT

Attitudinal Surveys and Market Research for the Virginia Railway Express



Prepared by:

jhk & associates

In Association with:

Catherine Bryant & Associates
and
John Gobis

May 1991

jhk & associates

May 27, 1991
Project No. 1685

Mr. Randall G. Farwell
Senior Planner
Potomac and Rappahannock Transportation
Commission
12906 Occoquan Road, Suite 2
Woodbridge, VA 22192

Re: Final Report for the VRE Market Research Study

Dear Mr. Farwell:

We are pleased to present the Final Report for our study titled Attitudinal Surveys and Market Research for the Virginia Railway Express. It represents the culmination of a variety of market research efforts, both quantitative and qualitative, and provides a comprehensive baseline of consumer information for the VRE, PRTC and NVTC.

The report consists of two volumes: 1) the Final Report containing the analysis and findings; and 2) the Technical Appendices providing the survey instruments, additional technical background, and tabulated results of the surveys. The Final Report is structured into five parts plus an Executive Summary which was prepared by PRTC.

Thank you for your support and guidance throughout this project. We have enjoyed working with you and the Study Advisory Committee.

Sincerely,

JHK & ASSOCIATES

Bee Buergler

Blanche B. Buergler
Senior Associate

Enclosures

4660 Kenmore Avenue · Alexandria, Virginia 22304 · 703/370-2411 · Fax: 703/823-8347

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VIRGINIA RAILWAY EXPRESS

FINAL REPORT

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

Acknowledgements

JHK & Associates along with its subcontractors would like to recognize and thank the many agencies and individuals who contributed to this study. In particular the senior staff of PRTC, NVTC and VRE provided important guidance and technical assistance throughout the study. The planning staff from Prince William County, Fairfax County, WMATA and MARC provided useful information regarding area transit services. Information developed by MWCOG and RADCO was also used. JHK and its subcontractors would like to thank the Commissions and VDOT for the opportunity to conduct this market research and develop information that will facilitate operational planning and marketing for VRE commuter rail service.

Disclaimer

The findings and conclusions in this report are those of JHK & Associates, Catherine Bryant & Associates, and John Gobis and not necessarily those of the Virginia Railway Express, Northern Virginia Transportation Commission, or Potomac and Rappahannock Transportation Commission.

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VRE

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Executive Summary

jhk & associates

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VIRGINIA RAILWAY EXPRESS

EXECUTIVE SUMMARY

Prepared by the:

Potomac and Rappahannock Transportation Commission

May 1991

Potomac and Rappahannock
Transportation Commission

12906 Occoquan Road
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A Transportation District
Serving 400,000 People
(703) 490-4811
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EXECUTIVE SUMMARY
VIRGINIA RAILWAY EXPRESS
ATTITUDINAL AND MARKET RESEARCH STUDY FINDINGS

BACKGROUND

The VRE engaged the services of JHK & Associates, Inc. and that firm's subcontractors Catherine Bryant & Associates, Inc. and John Gobis to conduct attitudinal and market research related to the start of commuter rail service.

The primary objectives of the study were to:

determine public awareness and acceptance of VRE;

establish a profile of potential VRE patrons;

determine customer expectations of the VRE; and

provide data for the estimation of patronage activity at specific stations and systemwide.

The study entailed the administration of 584 telephone interviews, 1009 on-board commuter bus surveys, and a series of focus group sessions and in-depth interviews. The telephone interviews and on-board surveys constituted the collection of quantitative data. The focus group sessions and in-depth interviews elicited qualitative data.

KEY FINDINGS

A summary of the key findings of the research follow.

Sixty-six percent of those interviewed were aware of the VRE.

Public opinion is generally positive towards VRE.

The use of general tax dollars to support the VRE is generally acceptable.

VRE as a commuting option is an attractive concept to a substantial number of residents of the service area.

Most potential riders expect the VRE running times to be less than those cited by the VRE management at the time of the study.

Proposed VRE fares are greater than potential riders anticipated.

Referencing information obtained outside of this study it appears that current actual commute time and costs by auto and other modes tend to be greater than perceived by the commuter.

Off-hour service demand exists particularly for late trains, also for weekend and holiday trains, somewhat for midday trains.

Most riders will drive and park at the station, therefore parking availability is critical.

Potential patrons would pay a nominal fee [$1-$2] for parking, but based on comments made by focus group participants, they would expect security and lighting for this fee.

Potential patrons stated they are most likely to write a check [56%] or use cash [24%] for monthly passes and least likely to use credit cards [20%].

If using credit cards, a Ticket Vending Machine is acceptable.

Of those stating that they are most likely to use the VRE, over half [51%] currently drive alone to work.

The data collected by way of the telephone interviews reflect that one in five persons commuting in our market area initially stated they are likely to use commuter rail. The incidence of likely users decreased to 12% after respondents were given VRE travel time and cost information.

RIDERSHIP

The stated ridership may be considered to be an indicator of the potential ridership market. To determine a more realistic estimate of actual ridership, the telephone interview data was passed through a series of decision screens in the form of a LOGIT computer model. The model, in essence, applies "weights" to the components of the commuter's trip and compares the total "weight" of the commute by rail to the commuter's current mode. The

"weights" are indicators of time, cost, and convenience. If the commuter rail trip "weighs" less than the current mode, then the commuter is likely to use commuter rail. Otherwise the commuter will not. Based on this exercise, the model estimates that the mature systemwide ridership would be 4,587 morning trips. This number is consistent with the updated ridership estimate provided by Richard H. Pratt, Consultants, Inc.

RIDER PROFILE

The potential commuter rail rider/household, based on the most frequent response, is described as follows:

36 to 64 years of age [59%];

household income of $60,001 - $100,000 [46%];

two adults in the household [74%];

two available vehicles per household [50%];

one commuter per household [72%];

white collar worker [63%];

61% are regular commuters;

Almost half [45%] are commuting to a location near Alexandria, Crystal City, the Pentagon, or Downtown Washington, D. C.;

Half currently drive alone to work (51%);

About twenty percent make stops related to their commute, mostly for child care or school [51%], incidental shopping [41%], banking [26%], dry cleaners [27%], and eating [18%];

Half [51%] of those questioned can set their own work hours;

About a third have adjusted their work hours because of traffic patterns;

The average commute time was one hour while the most frequently stated commute time was 45 minutes [stated travel times and costs are less than what VDOT and MWCOG travel time and AAA travel cost data indicate would be the case].

CONCLUSION

The JHK & Associates effort provides the VRE with a base line of market information. This information will prove invaluable in setting policy and developing public informational and promotional campaigns. It is recommended that this base line be used by the VRE marketing firm in developing public informational and promotional material and as a metric with which subsequent routine and specific survey efforts can be measured to form a longitudinal VRE service "report card".

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

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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).

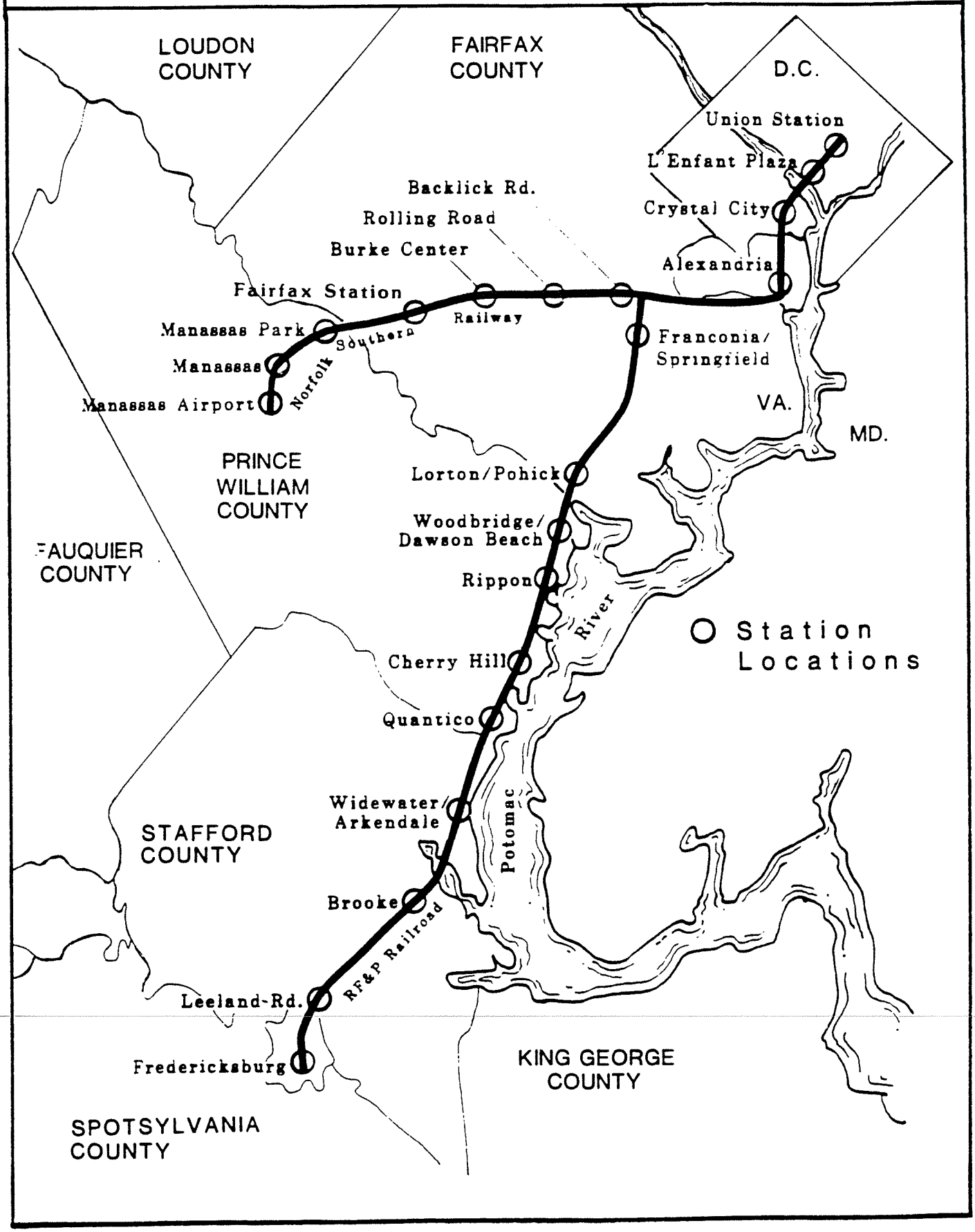
The VRE project is the largest new commuter rail service project in North America in the past 20 years. Service is scheduled to begin in October of 1991. The VRE system will consist of over 100 miles of track. There has not been a commuter rail service in Northern Virginia since World War II. The MARC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

FROM STATION	TO ALEXANDRIA		TO CRYSTAL CITY		TO L'ENFANT PLAZA		TO UNION STATION	
	Minutes	$/round trip	Minutes	$/round trip	Minutes	$/round trip	Minutes	$/round 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.

Exhibit I-2. VRE Travel Time and Fare Matrix

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.

PART II

Telephone Survey

jhk & associates

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VIRGINIA RAILWAY EXPRESS

PART II: TELEPHONE SURVEY

Prepared for:

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

Prepared by:

Catherine Bryant & Associates, Inc.

Under Subcontract to:

JHK & Associates, Inc.

May 1991

Disclaimer

The findings and conclusions in this part are those of Catherine Bryant & Associates and not necessarily those of the Virginia Railway Express, Northern Virginia Transportation Commission, or Potomac and Rappahannock Transportation Commission.

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VRE

PART II: TELEPHONE SURVEY

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PART II: TELEPHONE SURVEY

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Key Findings (continued)

INTRODUCTION AND STATEMENT OF OBJECTIVES

INTRODUCTION

This part of the report discusses the results of a telephone survey of 584 residents of the Virginia Railway Express service area. The survey was conducted by Catherine Bryant & Associates, Inc. (CBA) in January 1991 under subcontract to JHK & Associates, Inc. (JHK) The survey will provide data to be incorporated in the JHK Commuter Rail Ridership Estimate (See Part IV). Furthermore, telephone survey data will provide an overview of community awareness, perceptions and attitudes toward the Virginia Railway Express (VRE).

This part of the report consists of seven sections in addition to this Introduction and Statement of Objectives. The following section describes the methodology governing the administration of the survey. After this, six sections describe the results in each of the five station areas and the general service area. Part II ends with a statement of key findings.

OBJECTIVES

The primary objectives of this study are:

- To provide data to be used in a JHK proprietary model to estimate VRE ridership at specific locations and systemwide;
- To establish a profile of potential patrons of the VRE;
- To determine potential rider expectations of the VRE; and
- To determine public awareness of the VRE.

The information from the survey will be used in conjunction with information from other 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

This portion of the study consisted of a telephone survey of 584 residents of the VRE service area.

DEFINITION OF SERVICE AREA

The service area was defined as those zip codes falling within five miles of any station within the entire VRE system. The five-mile radius limit is based on past commuter rail ridership studies conducted by JHK and Associates.

Since all zip codes did not fall within 100% of the five-mile radius, staff members from PRTC, VRE, JHK and CBA stipulated that at least 51% percent of the geographic area of a zip code must fall within a five-mile radius of a station for that zip code to be included in that station's service area.

Zip codes may also fall simultaneously within a five-mile radius of two adjacent stations. The decision regarding the assignment of such zip codes to specific stations was based on the assumption that riders will take the first available station in the direction of their final destination, with the exception that a rider will backtrack to a nearer station if that will result in a shorter overall travel time.

Five stations -- Leeland, Manassas Airport, Burke Center, Rolling Road and Woodbridge -- were of particular interest to VRE. For this reason, specific subquotas were assigned to each of them. Because the service areas of Burke Center and Rolling Road overlapped significantly, their subquotas were combined. The remainder of the service area was grouped into one subquota, "Outliers."

Exhibit II-1 presents the assignments of zip codes to station service areas.

Exhibit II-1
Station Zip Code Assignments

Station	Zip Codes		
Burke Center/Rolling Road	22003	22015	22024
	22030	22031	22032
	22039	22042	22044
	22116	22150	22151
	22152	22153	22312
Leeland	22403	22405	22554
Manassas Airport	22013	22019	22065
	22110	22111	22123
Woodbridge	22079	22125	22191
	22192	22193	22194
	22199		
Outliers	22018	22020	22021
	22026	22033	22041
	22121	22122	22124
	22134	22172	22302
	22303	22304	22306
	22307	22308	22309
	22310	22311	22401
	22430	22463	22471
	22553	22565	

SAMPLE SELECTION AND QUALIFICATIONS

Sampling Frame

The sampling frame, or list of telephone numbers, was randomly generated by computer, using electronic cross-checks to ensure that all numbers were part of a working exchange in the appropriate service area and part of a working block of numbers (the first two digits after the exchange). Zip codes covering the five targeted areas had a disproportionate representation in the list to ensure a sufficient pool of numbers from which to complete subquotas.

After the list of numbers was produced and checked for duplicates, it was further checked to exclude business listings. The list was purchased from an

independent company specializing in telephone list generation, and included both listed and unlisted numbers.

Respondent Selection within Household

Respondent selection within each household was accomplished using a two-stage process. The first stage of the process was to determine the number of household members who commuted to Alexandria, Crystal City, the Pentagon or downtown Washington, D.C. areas. Then, based on the response, the interviewer selected the qualified person within the household as presented in Exhibit II-2.

This decision rule was designed to maximize the probability of finding potential VRE riders while minimizing response bias related to demographics (e.g., the greater propensity of females to answer the phone).

Exhibit II-2
Respondent Selection Procedure

Situation	Selection
No commuters in household	Speak with adult in household who had most recent birthday
One commuter in household	Speak with the commuter
More than one commuter in household	Speak with the commuter in household who had most recent birthday

Once a member of the household was selected, no other member of the household was eligible for inclusion in the study. The interviewer was instructed to make up to four attempts on different days and at different times of the day to interview the selected member of the household before replacing that household with a substitute household.

Subquotas

Subquotas based on geographic location were set, as previously described in "Definition of Service Area." Furthermore, because the same sampling frame was used to select both potential riders and non-riders, respondents were assigned to subquotas based on their responses to a series of screening criteria at the beginning of the interview. First, all respondents were asked about their awareness of VRE. Then the interviewer read a brief description of the proposed commuter rail service and asked a series of questions regarding anticipated ridership. Respondents were categorized according to their responses, as described in Exhibit II-3.

Exhibit II-3
Ridership Subquota Definitions

Potential Rider	Very likely or somewhat likely to ride the new commuter train
Non-Rider, Commuter	Not likely to ride the new commuter train, works near Alexandria, Crystal City, the Pentagon or downtown Washington D.C.
Non-Rider, Non-Commuter	Not likely to ride the new commuter train, does not work near Alexandria, Crystal City, the Pentagon, or downtown Washington D.C.

A detailed breakdown of the ridership status of respondents from each of the five targeted rail stations and outlyers is included in Exhibit II-4.

Exhibit II-4
Ridership Subsamples by Station, Overall VRE Service Area
(Base: Total respondents)

	Burke Ctr/ Rolling Rd.	Leeland	Manassas Airport	Wood-bridge	Out-lyers
	%	%	%	%	%
Potential Riders	22	16	16	45	14
Non-Riders/ Commuters	29	6	6	18	33
Non-Riders/ Non-Commuters	49	78	78	38	53

QUESTIONNAIRE DESIGN

The field materials consisted of a screener and three questionnaires, one each for Potential Riders, Non-Riders/Commuters and Non-Riders/Non-Commuters, as defined earlier. The screener and questionnaires were designed by CBA in consultation with representatives of VRE, PRTC and JHK. Copies of the screener and the three questionnaires are presented in Appendix II-A of this report.

Screener

The screener was designed to determine to which of the three rider categories (Potential Rider, Non-Rider/Commuter, Non-Rider/Non-Commuter) the respondent should be assigned. Screener questions included home zip code, awareness of VRE, likelihood of riding VRE given an acceptable fare and schedule, current commuting patterns, and specific work address.

Potential Rider Questionnaire

The Potential Rider questionnaire was the longest survey instrument. It began with a series of questions regarding anticipated VRE ridership, such as expected number of days per week the respondent would ride the train, the

distance from the train station to their work location, and their perceptions and attitudes regarding VRE fares and schedules. The questionnaire then solicited additional information regarding tcurrent commuting patterns, such as work hours, mode of transit and associated costs, and intermittent stops during the commute. After this, the respondent was asked to agree or disagree with a series of attitudinal questions regarding VRE. The survey concluded with a series of demographic questions.

Non-Rider/Commuter Questionnaire

The Non-Rider/Commuter questionnaire began with a series of questions regarding current commuting patterns (e.g., work schedule, mode of transit and associated costs), then asked a series of attitudinal questions regarding VRE and the relative importance of various factors associated with commuter trains (safety, reliability, etc.). The survey concluded with a series of demographic questions.

Non-Rider/Non-Commuter Questionnaire

The Non-Rider/Non-Commuter questionnaire began with a question regarding the respondent's reasons why he/she would not ride the new commuter train, then asked a similar series of attitudinal questions to those asked of Potential Riders and Non-Riders/Commuters. The survey concluded with a series of demographic questions.

SURVEY ADMINISTRATION

The survey was conducted during weekday evening and weekend hours to increase the likelihood of reaching employed respondents/commuters.

The interviews were administered from the supervised in-house WATS telephone facility of CBA. All interviewers were extensively briefed on all survey definitions and concepts prior to the start of the project. Standard quality control measures throughout the study included spot monitoring of all interviewers throughout each interviewing shift, a ten percent callback verification of each interviewer's work by the supervisor on the following day, and 100% editing of each interviewer's work during the same shift.

More than 6,000 telephone numbers were dialled during the survey administration portion of the study. The results of the dials are presented in Appendix II-B.

DATA PROCESSING

After data collection, each interview was coded by the CBA staff for machine tabulation. Questionnaire data were keyed into the computer directly from the questionnaires by the CBA staff, using *The Survey System* software, and were 100% machine verified. Questionnaire data are on file at Catherine Bryant & Associates, Inc.

Because a disproportionate sampling scheme was utilized to meet station and rider subquotas, responses were weighted during tabulation to more accurately reflect the actual population within and among stations. Weighting was accomplished through a specialized function of *The Survey System* (See Appendix II-C for a technical description of the weighting process).

ANALYSIS

Computer tabulation of the telephone survey data was accomplished through the use of *The Survey System* and consisted of frequency distributions, crosstabulations, means and other statistical techniques as appropriate. A copy of the computer printout is available under separate cover.

Questionnaire data were also provided on computer diskette to JHK & Associates for use in the ridership model.

The staff of Catherine Bryant & Associates, Inc., in consultation with JHK & Associates, has prepared this written description and analysis of the telephone survey.

BURKE CENTER/ROLLING ROAD STATIONS

This section of the report describes the responses of those people residing within a five-mile radius of either of the proposed Burke Center or Rolling Road stations. Although the Burke Center and Rolling Road Stations are separate, their service areas overlap considerably. For this reason, the two stations were combined into one subgroup, and the normal subquota was doubled.

When they were initially asked how likely they would be to ride the new commuter train if the schedule and fare met their needs. 11 percent of the respondents in the Burke Center/Rolling Road Stations area said they would be very likely, 11 percent said they would be somewhat likely and 78 percent said they would not be likely at all. Probable VRE ridership declined over the course of the survey, however, after respondents were given information relating to actual travel times and fares.

RESPONDENT DEMOGRAPHICS

Exhibit II-5 presents the demographic characteristics of respondents in the Burke Center/Rolling Road Station area. The first column of the Exhibit presents the distribution of the overall Burke Center/Rolling Road subsample among the response categories, while the second through fourth columns present the distribution of Potential Riders, Non-Riders/Commuters and Non-Riders/Non-Commuters, respectively.

Exhibit II-5
Demographic Characteristics
Burke Center/Rolling Road Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Age				
18 to 35	34	31	20	44
36 to 64	64	69	80	52
65+	2	0	0	4

Exhibit II-5 (continued)
Demographic Characteristics
Burke Center/Rolling Road Stations Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Household Income				
Less than $30,000	3	2	0	4
$30,000 to $60,000	44	39	48	45
$60,001 to $100,000	38	52	35	34
Over $100,000	15	6	17	17
Adults in Household				
One	15	6	13	20
Two	64	72	67	58
Three	12	14	13	10
Four	7	4	7	8
Five or more	3	4	0	4
Number of Vehicles Available to Household				
One	20	11	23	22
Two	53	61	57	46
Three	17	20	10	20
Four	7	7	10	6
Five or more	3	0	0	6
Number of Commuters in Household[1]				
One	39	76	77	0
Two	10	18	20	0
Three	1	3	0	0
None	50	2	3	100

[1] Commuters to Alexandria, Crystal City, the Pentagon or downtown Washington, D.C.

Exhibit II-5 (continued)
Demographic Characteristics
Burke Center/Rolling Road Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Occupation				
Professional	32	29	43	26
Technical	11	18	13	6
Manager	9	12	3	12
Proprietor	4	1	7	4
Clerical	9	13	7	8
Sales	7	2	7	10
Craftsmen/Foremen	12	18	10	10
Service Worker	4	3	7	2
Operatives	*	1	0	0
Non-Worker	10	3	0	18
Unemployed	2	0	0	4
Refused	1	1	3	0
Occupation Category				
White collar	56	60	66	48
Gray collar	16	15	14	18
Blue collar	16	21	17	12

* less than one percent

CURRENT COMMUTING CHARACTERISTICS

Two out of three respondents (67 percent) from the Burke Center/Rolling Road Stations area said they considered themselves regular commuters; most commuted for work-related reasons (98 percent), while the others commuted for different reasons.

Approximately one-half of the respondents from the Burke Center/Rolling Road Stations area worked near Alexandria, Crystal City, the Pentagon or downtown Washington D.C. (48 percent), while 41 percent did not work near any of those locations and 11 percent did not work outside the home.

Respondents who commuted to work most often drove alone, although 21 percent participated in a shared ride, carpool or vanpool. Potential Riders and Non-Riders/ Commuters were equally likely to drive alone. Exhibit II-6 presents these responses.

Exhibit II-6
Current Method of Transportation to Work
Burke Center/Rolling Road Stations Area

(Base: Total commuters)

Method	Total %	Potential Riders %	Non-Rider/ Commuter %
Drive alone	64	50	50
Metro Rail	9	12	13
Bus	3	9	0
Shared ride	7	8	7
Carpool/Vanpool	14	21	27
Other (bicycle)	2	1	3

Commuters from the Burke Center/Rolling Road Stations area were most likely to travel directly to work from their homes; only 16 percent said they typically made stops on their way to work from home. The most typical reasons commuters from Burke Center/Rolling Road area would stop on their way from home to work included banking (37 percent), shopping for incidentals such as cigarettes or gas (35 percent), child care or school (28 percent), eating (23 percent) and laundry/dry cleaning (17 percent). Some respondents stopped for more than one reason on their way to work.

Just over half of the respondents in the Burke Center/Rolling Road Stations area set their own work schedules (51 percent), while the remainder have schedules that have been determined by their employers. Potential Riders had more flexibility in their work hours, as 56 percent set their own schedules, compared to 47 percent of the Non-Rider/Commuters. Approximately one-third of the Burke Center/Rolling Road Stations area respondents' work schedules have been adjusted because of traffic patterns, e.g., to avoid traffic congestion (31 percent); Potential Riders are more likely to have adjusted their work schedules (42 percent versus 23 percent of the Non-Rider/Commuters).

Respondents in the Burke Center/Rolling Road Station area reported commute times ranging from 10 minutes to two hours, but most often said the commute from home to work takes about 45 minutes. Potential riders generally reported longer commutes than Non-Riders/Commuters. Exhibit II-7 presents these results.

Exhibit II-7
Total Commute From Home to Work
Burke Center/Rolling Road Stations Area

(Base: Total commuters)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Minutes			
30 minutes or less	39	25	50
31 to 49 minutes	37	43	33
50 to 60 minutes	15	23	10
61 to 89 minutes	6	5	7
90 minutes or more	2	5	0
Mode (minutes)	45	45	20/30
Mean (minutes)	40	45	36

Approximately one out of five respondents from the Burke Center/Rolling Road Station area said they were expected to be at work by 7:00 AM or earlier (22 percent), and an additional 39 percent said they had to be at work between 7:00 AM and 8:00 AM. Non-Riders/Commuters were more likely than Potential Riders to report work start times before 7:00 AM. Virtually all respondents were expected at their workplaces no later than 9:00 AM.

Just under one-half of the respondents said they get off work between 5:00 PM and 6:00 PM (46 percent). One-quarter leave work between 4:00 PM and 5:00 PM (25 percent), and 14 percent have workdays ending between 2:00 PM and 4:00 PM. Fewer than five percent of the respondents said their workday was over during the morning hours, and fewer than 10 percent reported workdays ending later than 6:00 PM. Non-Riders/Commuters tended to get off work earlier than Potential Riders.

Potential Riders were more likely than Non-Riders/Commuters to stay late after their normal workday ended -- 25 percent said they stayed more than 15

minutes late at work four to five times a week, compared to 16 percent of the Non-Rider/Commuters. One-third of the Non-Rider/Commuters from the Burke Center/Rolling Road Stations area never stay more than 15 minutes late after work, compared to 21 percent of the Potential Riders. Most respondents who work after hours leave their workplaces between 5:30 PM and 7:00 PM (58 percent), while 12 percent reported leaving their workplaces between 7:00 PM and 9:00 PM.

Respondents Who Drive to Work Alone

As stated earlier, 64 percent of the respondents in the Burke Center/Rolling Road Station area said they usually drove from home to work alone. Non-Rider/Commuters and Potential Riders were equally likely to drive alone.

Almost six out of ten respondents who usually drove to work alone said they paid no parking fees (58 percent); the highest daily parking fee reported was $8.75 (one respondent). The mean (average) parking fee was $1.50.

Frequently the respondents who commuted to the target area (Alexandria, Crystal City, the Pentagon or downtown Washington D.C.) were unable to estimate their daily round-trip cost of driving a car to work, excluding parking when applicable -- 13 percent could not estimate their costs. The average (mean) cost among those giving estimates was $3.22. Non-Riders/Commuters and Potential Riders estimated approximately the same daily commuting costs, as Exhibit II-8 shows.

Exhibit II-8
Cost to Drive Car Round Trip- Excluding Parking
Burke Center/Rolling Road Stations Area
(Base: Commuters driving alone)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Drive alone	64	50	50
Cost			
$3.00 or less	60	50	67
$3.01 to $4.75	13	22	7
$4.76 to $5.00	7	8	7
More than $5.00	7	8	7
Don't Know	13	12	13
Mode	$2.00	$2.00/$4.00	$2.00

Two out of three respondents who said they drove alone to work said they were able to park within one or two minutes of their workplace (65 percent), while eight percent reported parking 10 minutes or more from their workplaces.

Respondents Participating in Carpools/Vanpools

Approximately one out of five respondents in the Burke Center/Rolling Road Station area said they participated in carpools, vanpools or ridesharing (21 percent). Potential Riders were very slightly less likely than Non-Riders/Commuters to participate in pools (29 percent versus 34 percent).

Virtually all of the respondents who participated in carpools or vanpools said they were part of prearranged carpools/vanpools (99 percent). Most were members of pools of four or five riders (27 percent each); 22 percent rode with one other person, 14 percent with two other riders and 10 percent with six or more riders.

Only four percent of the respondents who participated in any kind of carpool, vanpool or ridesharing system were dropped off at the door of their workplaces. Carpoolers/vanpoolers/ridersharers typically said they walked from their dropoff locations to their workplaces (92 percent), although some said they take Metrorail/bus (four percent). No Non-Rider/Commuter took the Metrorail or bus.

Nine out of ten respondents who participated in carpools/vanpools/ ridesharing said it took them five minutes or less to get from the dropoff location to their workplaces (93 percent). Four percent said it took them more than 10 minutes.

Most of the respondents who participated in some type of pool or ridesharing system used the same mode of transportation to go from work to home, although seven percent of the Potential Riders said they rode Metrorail or the bus home.

Twelve percent of the respondents who participated in carpooling/ vanpooling/ridesharing said they had no daily round-trip commuting costs. Fewer than one out of five said they had daily costs of more than $3.00 (18 percent). The average (mean) cost reported by the respondents was $2.36.

Respondents Who Ride Metrorail/Bus

Approximately 12 percent of the respondents said they were most likely to commute to work using Metrorail or bus. Potential Riders were more likely than Non-Riders/Commuters to use these modes of transit (21 percent versus 13 percent). Of these respondents, approximately one-third each said they rode the bus only, Metrorail only, or a combination of bus and Metrorail. Potential Riders are more likely than Non-Riders/Commuters to use only the bus or a combination of the bus and Metrorail, while Non-Riders/Commuters are more likely to rely solely on Metrorail.

Most respondents in the Burke Center/Rolling Road Station area who rode the Metrorail or bus said they most often walked to the stop (51 percent). The rest said they drove to the station or stop and parked (41 percent), or that they were dropped off (five percent) or took a feeder bus or van (three percent).

Approximately one-third of the respondents who took Metrorail or the bus said they had joined informal carpools while waiting for the bus or train (31 percent); all of these were Potential Riders.

Two-thirds of the respondents who took the bus or Metrorail said it took five minutes or less to walk from the bus stop or station to their workplace (67 percent), while five percent said it took them more than fifteen minutes.

The total round-trip transit fare reported by respondents from the Burke Center/Rolling Road Station area for their Metrorail/bus commute ranged from $1.75 to $7.00; $3.80 was the mean (average) price reported.

Respondents with Other Commuting Modes

A few respondents in the Burke Center/Rolling Road Stations area reported commuting to work by bicycle; they reported no commuting expenses.

REACTIONS TO VIRGINIA RAILWAY EXPRESS

Awareness of VRE

More than two out of three respondents in the Burke Center/Rolling Road Station area had heard of VRE prior to being interviewed. Awareness was particularly high among Potential Riders, as Exhibit II-9 shows.

Exhibit II-9
Awareness of VRE Commuter Train
Burke Center/Rolling Road Stations Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Awareness				
Yes	69	82	70	62
No	31	18	30	38

Likelihood of Riding VRE

Just over one out of ten respondents from the Burke Center/Rolling Road Station area said he would be very likely to ride the new commuter train if the fare and schedule fit his needs (11 percent), and an additional 11 percent said they would be somewhat likely. Most said they would not be likely at all to ride the new train (77 percent), as Exhibit II-10 shows.

Exhibit II-10
Expected Usage of VRE Commuter Train
Burke Center/Rolling Road Stations Area

(Base: Total respondents)

	Total %	Potential Riders %	Not Rider/ Commuter %	Non-Rider/ Non-Commuter %
Usage				
Very likely	11	51	0	0
Somewhat likely	11	49	0	0
Not likely at all	78	0	100	100

Factors Influencing VRE Ridership

Respondents who commuted to targeted areas (Alexandria, Crystal City, the Pentagon or downtown Washington D.C.) were asked to use a four-point scale to say how important each of eleven factors would be to them in deciding whether or not to ride the new commuter train. Burke Center/Rolling Road Stations area

respondents were most likely to rate "reasonable cost" and "reliable service" as very important. Exhibit II-11 presents the results of these questions.

Exhibit II-11
Importance of Factors
in Deciding Whether or Not to Use the New Commuter Train
Burke Center/Rolling Road Stations Area
(Base: Total commuters)

(Mean Ratings)

Factor	Total	Potential Riders	Non-Rider/ Commuter
Safe trains/stations	3.59	3.76	3.47
Reliable service/ trains are on time	3.75	3.87	3.67
Clean trains/stations	3.50	3.55	3.47
The length of time it takes to get from home to work	3.67	3.75	3.60
Frequency of service (all day or only peak)	3.45	3.47	3.43
Adequate parking at stations	3.54	3.58	3.50
Late/evening trains	3.16	3.19	3.13
Adequate public info./signs	3.32	3.43	3.23
Not having to drive	3.34	3.52	3.20
Reasonable cost	3.76	3.89	3.67
Amenities at the stations (food, etc.)	2.70	2.39	2.23

Scale: 4 = Very important
3 = Somewhat important
2 = Somewhat unimportant
1 = Very unimportant

VRE Expectations, Potential Riders: Frequency of Use

When Potential Riders were asked how many days per week they would expect to ride the new commuter train, two out of three said they would ride it five days a week. An additional nine percent said they would ride the train four days a week, while five percent each said they would ride the new train three times a week, 11 percent said twice a week and eight percent said once a week.

VRE Expectations, Potential Riders: Station to Workplace Distance and Travel

Over half of the Potential Riders in the Burke Center/Rolling Road Station area said their workplace was more than five blocks from the VRE Station where they would detrain (57 percent), while 25 percent said the station would be two to five blocks from their workplace, and 18 percent said the station would be within two blocks.

Potential Riders in the Burke Center/Rolling Road Station area were most likely to say they would walk (52 percent) or take the Metro (31 percent) from the VRE station to work, but some respondents said they would transfer to the bus (15 percent) or get a ride (three percent).

VRE Expectations, Potential Riders: Commute Time

When they were asked how long they would expect their overall one way commute to take from the time they left home to the time they arrived at work, Potential Riders generally expected their VRE commute time to be about the same as their current commute times. Exhibit II-12 presents this comparison.

Exhibit II-12
Expected Length of One Way Commute From Respondent's House to Work and Total Commute From Home to Work

Burke Center/Rolling Road Stations Area
(Base: Potential Riders)

	Current Commute	Anticipated Commute with VRE
	Potential Riders % Minutes	Potential Riders % Minutes
30 minutes or less	25	30
31 to 49 minutes	43	41
50 to 60 minutes	23	17
61 to 89 minutes	5	4
90 minutes or more	5	5
Don't Know	0	4
Mode (Minutes)	45	45
Mean (Minutes)	45	44

After the Potential Riders had said how long they expected the commute from their homes to the workplace to take on VRE, they were informed of the actual scheduled time of 35 to 40 minutes and asked how likely they would be to ride the new commuter train, given this additional information. There was some softening in anticipated ridership, as Exhibit II-13 shows.

Exhibit II-13
Likelihood of Ridership
Burke Center/Rolling Road Stations Area
(Base: Potential Riders)

	Initial Likelihood	Likelihood with Trip Length Info.
	%	%
Very likely	51	44
Somewhat likely	49	51
Not likely at all	0	6

VRE Expectations, Potential Riders: Cost/Payment

The respondents were then asked how much they would expect to have to pay to ride the new commuter train to and from work each day from the Burke Center/Rolling Road Station. After they had given their estimated costs, they were told of the choices of actual anticipated round-trip fares of $8.50 (based on a one-ride ticket), $7.25 (based on a 15% discount for a ten-ride ticket) and $6.00 (based on a 30% discount for a monthly pass), and asked how this additional information would affect their likelihood to ride the new train. Following this, they were asked the absolute maximum price they would pay to ride the train. Exhibit II-14 presents the responses regarding anticipated cost and maximum acceptable cost, while Exhibit II-15 presents the respondents' likelihood of riding the train given the various costs.

Exhibit II-14
Cost Expectations for Roundtrip Fare
Burke Center/Rolling Road Stations Area
(Base: Potential Riders)

Amount	Before Pricing Suggested %	Maximum Willing to Pay %
Less than $5.00	56	26
$5.00 - $6.00	26	45
$6.01 - $7.00	5	6
$7.01 - 8.00	6	9
$8.01 - $10.00	2	14
Over $10.00	0	0
Don't Know	6	1
Mode (Dollars)	$4.00	$5.00

Exhibit II-15
Likelihood of Ridership From Burke Center/Rolling Road Stations to Downtown D.C.
At Three Different Prices

(Base: Potential Riders)

	Base Cost (One-way x two) %	15% Less (Ten-trip ticket) %	30% Less (Monthly pass) %
Very likely to ride	11	16	36
Somewhat likely to ride	27	35	37
Not at all likely to ride	62	50	28

Potential Riders were then given more information regarding the discounted fare structure for 10-ride tickets and monthly passes, and were asked which type of ticket they would be most likely to buy. Most respondents said they would buy monthly passes (69 percent), but some said they would buy 10-ride tickets (25 percent) or one-ride tickets (six percent).

Following this, the respondents were told that the cost of a monthly pass from the Burke Center/Rolling Road Station to downtown Washington D.C. would be $130, and asked how likely they would be to purchase a monthly pass at that price. Fifteen percent of the respondents said they would be very likely to purchase a monthly pass at that price, while 42 percent said they would be somewhat likely and 44 percent said they would not be at all likely.

Respondents who said they would purchase monthly passes were then asked about their preferred payment method, and then all Potential Riders were asked about their likelihood of using credit cards in automatic ticketing machines and their preferences regarding where to purchase tickets. Exhibits II-16 through II-18 present the responses to these questions.

Exhibit II-16
Preferred Method of Payment for Monthly Pass
Burke Center/Rolling Road Stations Area

(Base: Potential Riders likely to buy monthly pass)

	Potential Riders %
Very/Somewhat Likely To Buy Monthly Pass	57
Method	
Credit Card	28
Cash	26
Check	46

Exhibit II-17
Likelihood of Using a Credit Card in Automatic Ticketing Machine
Burke Center/Rolling Road Stations Area

(Base: Potential Riders)

	Potential Riders %
Likelihood	
Very Likely	47
Somewhat Likely	33
Not Likely at All	21

Exhibit II-18
Preference of Buying Tickets at the Station or in Advance
Burke Center/Rolling Road Stations Area

(Base: Potential Riders)

	Potential Riders %
Method	
Purchase at Station	47
Purchase in Advance, Other Location	54

VRE Expectations, Potential Riders: Travel To/From Station

Most Potential Riders said they would drive from their homes to the Burke Center/Rolling Road Stations and park there (79 percent). Some, however, said they would walk (13 percent), be dropped off at the station (six percent), or take a bike or bus to the station (one percent each).

Potential Riders who indicated they would drive to the train station from their homes were asked if they would be willing to pay for parking at the station. Two out of three said they would pay a nominal parking fee (66 percent). Two-thirds of these respondents said they would be willing to pay up to $1.00 per day (66 percent), while 23 percent said they would pay between $1.00 and $2.00 and 11 percent said they would pay between $2.00 and $5.00.

Approximately one-half of the Potential Riders said they would be very likely to use feeder bus service if it were available to the Burke Center/Rolling Road Station (51 percent), and an additional 29 percent said they would be somewhat likely. One out of five respondents said they would not be likely to use the feeder bus service (21 percent).

VRE Expectations, Potential Riders: Off-Hour Use

Over one-third of the respondents said they would frequently (10 percent) or sometimes (27 percent) use the commuter train on holidays and weekends, while 19 percent said they would never ride it on non-workdays.

One-third of the Potential Respondents said they would frequently (six percent) or sometimes (26 percent) use a midday commuter train if such service were available, while 25 percent said they would never ride the train during midday.

Almost two out of three respondents said they would frequently (20 percent) or sometimes (43 percent) ride a late train out of the city into the Burke Center/Rolling Road Station, while nine percent said they would never ride a late train. Exhibit II-19 presents the suggested times the late train should run to meet the needs of Potential Riders.

Exhibit II-19
Time Late Train Should Run
Burke Center/Rolling Road Stations Area

(Base: Potential Riders who would use late train)

	Potential Riders %
Time	
Before 5:00 pm	8
5:00 pm to 5:59 pm	2
6:00 pm to 6:29 pm	5
6:30 pm to 6:59 pm	3
7:00 pm to 7:59 pm	25
8:00 pm to 8:59 pm	21
9:00 pm or later	37
Mode	7:00 pm

Non-Rider/Non-Commuter Responses

As would be expected, the primary reason Non-Riders/Non-Commuters would not ride the train is that they do not commute to the areas it serves, either because they do not work near the route or because they do not commute at all. Other reasons for non-ridership centered around convenience and safety, as Exhibit II-20 shows.

Exhibit II-20
Reasons for Not Riding VRE Commuter Train
Burke Center/Rolling Road Stations Area

(Base: Non-Riders/Non-Commuters)

Reason	Non-Riders/ Non-Commuters %
Train doesn't run where I go	64
Don't work/retired	22
Inconvenient station location	10
Inconvenient schedule	4
Live close to Metro/bus stop	4
Train safety (e.g., derailment)	2
Passenger safety (e.g., violence)	2

Almost two out of three Non-Riders/Non-Commuters would use the train for non-work related purposes (62 percent). Of these, most said they would take the train into Washington for entertainment (36 percent), appointments (36 percent), or shopping (16 percent).

PUBLIC OPINION REGARDING VRE

In order to get a measure of public opinion regarding VRE, all respondents were asked to agree or disagree with a series of six statements about the new commuter train in terms of its social impact.

There is general agreement among all ridership groups that VRE will help conserve energy, reduce rush hour traffic congestion, reduce pollution and provide a convenient way to get to and from downtown Washington D.C. There is less agreement among ridership groups over who should bear the cost of commuter train operations, with Potential Riders being more likely to support general tax funds for the train and Non-Riders/Non-Commuters being more likely to say that the cost of the train should be borne by those who ride it through their daily fares. Exhibit II-21 presents the results to this series of public opinion questions.

Exhibit II-21
Agreement/Disagreement with Statements
About the New Commuter Train

Burke Center/Rolling Road Stations

(Means)

Statement	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commute
The cost of the train should be borne entirely by those who ride it, through daily fares.	2.73	2.62	2.60	2.86
Using general tax funds to set up and operate the train is a good use of taxpayer dollars.	3.16	3.44	3.20	3.02
The train will be a convenient way to get to and from downtown Washington.	3.54	3.71	3.30	3.60
The train will help reduce rush hour traffic congestion in the region.	3.59	3.59	3.63	3.56
The train will help reduce pollution in the region.	3.54	3.51	3.77	3.42
The train will help conserve energy.	3.57	3.64	3.62	3.50

Scale: 4 = Strongly agree
3 = Somewhat agree
2 = Somewhat disagree
1 = Strongly disagree

LEELAND STATION

This section of the report describes the responses of those people residing within a five-mile radius of the proposed Leeland station.

When they were initially asked how likely they would be to ride the new commuter train if the schedule and fare met their needs. 11 percent of the respondents in the Leeland Station area said they would be very likely, five percent said they would be somewhat likely and 84 percent said they would not be likely at all. Probable VRE ridership declined over the course of the survey, however, after respondents were given information relating to actual travel times and fares.

RESPONDENT DEMOGRAPHICS

Exhibit II-22 presents the demographic characteristics of respondents in the Leeland Station area. The first column of the Exhibit presents the distribution of the overall Leeland subsample among the response categories, while the second through fourth columns present the distribution of Potential Riders, Non-Riders/Commuters and Non-Riders/Non-Commuters, respectively.

Exhibit II-22
Demographic Characteristics
Leeland Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Age				
18 to 35	41	43	50	40
36 to 64	50	57	50	48
65 +	9	0	0	12
Household Income				
Less than $30,000	11	6	0	13
$30,000 to $60,000	53	38	50	57
$60,001 to $100,000	34	42	50	30
Over $100,000	2	15	0	0

Exhibit II-22 (continued)
Demographic Characteristics
Leeland Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Adults in Household				
One	7	2	0	8
Two	71	76	100	68
Three	21	17	0	24
Four	*	2	0	0
Five	1	4	0	0
Number of Vehicles Available to Household				
One	11	8	0	12
Two	55	53	0	60
Three	26	25	100	20
Four	8	13	0	8
Five	*	2	0	0
Number of Commuters In Household[1]				
One	15	74	50	0
Two	7	25	50	0
Three	0	0	0	0
None	78	2	0	100
Occupation				
Professional	23	42	0	20
Technical	6	15	0	4
Manager	8	13	0	8
Proprietor	6	0	0	8
Clerical	5	13	50	0
Sales	4	4	0	4
Craftsmen/Foremen	11	8	50	8
Service Worker	*	2	0	0
Non-Worker	31	0	0	40
Unemployed	3	0	0	4
Refused	3	2	0	4

[1] Commuters to Alexandria, Crystal City, the Pentagon or downtown Washington, D.C.

Exhibit II-22 (continued)
Demographic Characteristics
Leeland Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Occupation Category				
White collar	43	71	0	40
Gray collar	9	17	50	4
Blue collar	12	10	50	8

*less than one percent

Current Commuting Characteristics

One-third of the respondents (35 percent) from the Leeland Station area said they considered themselves regular commuters; most commuted for work-related reasons (91 percent), while the others commuted for different reasons.

Approximately one out of five respondents from the Leeland Station area worked near Alexandria, Crystal City, the Pentagon or downtown Washington D.C. (18 percent), while 41 percent did not work near any of those locations and 40 percent did not work outside the home.

Respondents who commuted to work most often drove alone, although 15 percent participated in carpools or vanpools. Non-Riders/Commuters were much more likely to drive alone than Potential Riders. Exhibit II-23 presents these responses.

Exhibit II-23
Current Method of Transportation to Work
Leeland Station Area

(Base: Total commuters)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Method			
Drive alone	83	50	100
Metro Rail	1	4	0
Bus	1	6	0
Shared ride	6	4	0
Carpool/Vanpool	9	37	0

Commuters from the Leeland Station area were most likely to travel directly to work from their homes; only 12 percent said they typically made stops on their way to work from home. Potential riders were more likely than Non-Riders/Commuters to make stops (17 percent versus 0 percent, respectively). The most typical reasons commuters from Leeland would stop on their way from home to work included banking (33 percent), child care or school (44 percent), shopping for incidentals such as cigarettes or gas (33 percent), eating (22 percent) and laundry/dry cleaning (22 percent). Some respondents stopped for more than one reason on their way to work.

Just over one-quarter of the respondents in the Leeland Station area set their own work schedules (28 percent), while the remainder have schedules that have been determined by their employers. Potential Riders had more flexibility in their work hours, as 40 percent set their own schedules, compared to no Non-Rider/Commuter. Almost half of the Leeland Station area respondents' work schedules have been adjusted because of traffic patterns, e.g., to avoid traffic congestion (45 percent).

Respondents in the Leeland Station area reported commute times ranging from 30 minutes to over two hours, but most often said the commute from home to work took about one to one and one-half hours. Potential riders generally reported longer commutes than Non-Riders/Commuters. Exhibit II-24 presents these results.

Exhibit II-24
Total Commute From Home to Work
Leeland Station Area

(Base: Total commuters)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Minutes			
30 minutes or less	3	4	0
31 to 49 minutes	16	2	50
50 to 60 minutes	24	34	0
61 to 89 minutes	29	21	50
90 minutes or more	29	40	0
Mode (minutes)	75	60	45/75
Mean (minutes)	74	76	60

Over half of the respondents from the Leeland Station area said they were expected to be at work by 7:00 AM or earlier (56 percent), and an additional 20 percent said they had to be at work between 7:00 AM and 8:00 AM. Non-Riders/Commuters were more likely than Potential Riders to report early work start times.

Potential Riders, on the other hand, were more likely than Non-Riders/ Commuters to stay late after work -- 24 percent said they stayed more than 15 minutes late at work four to five times a week, compared to no Non-Rider/Commuter. Over one-third of the respondents from the Leeland Station area, regardless of ridership category, said they never stayed more than 15 minutes late at work (37 percent).

Potential Riders who stay late after work were more likely than their Non-Rider/Commuter counterparts to stay later in the evening as well: 31 percent stay after 5:30 PM, compared to none of the Non-Rider/Commuters.

Respondents Who Drive to Work Alone

As stated earlier, 83 percent of the respondents in the Leeland Station area said they usually drove from home to work alone. Non-Rider/Commuters were more likely to drive alone than Potential Riders (100 percent versus 50 percent).

More than nine out of ten respondents who usually drove to work alone said they paid no parking fees (94 percent); none paid more than $3.25 per day for parking. They estimated their daily round-trip cost of driving a car to work (excluding parking, when applicable) at an average (mean) of $6.40. Non-Riders/Commuters typically estimated higher daily commuting costs than Potential Riders, as Exhibit II-25 shows.

Three-quarters of the respondents who drove alone to work said they are able to park within one or two minutes of their workplace (77 percent), while 11 percent reported parking 10 minutes or more from their workplace.

Exhibit II-25
Cost to Drive Car Round Trip - Excluding Parking
Leeland Station Area

(Base: Commuters driving alone)

	Total	Potential Riders	Non-Rider/ Commuter
	%	%	%
Drive alone	83	50	100
Cost			
$3.00 or less	9	15	0
$3.01 to $4.75	33	19	50
$4.76 to $5.00	15	27	0
More than $5.00	44	38	50
Mode	$10.00	$5.00	$4.00/$10.00
Mean	$6.40	$5.90	$7.00

Respondents Participating in Carpools/Vanpools

Fifteen percent of the respondents in the Leeland Station area said they participated in carpools, vanpools or ridesharing. Potential Riders were the only respondents to use these travel modes.

All of the Potential Riders who participated in carpools or vanpools said they were part of prearranged carpools/vanpools. One out of three were members of pools of seven or more riders, while 28 percent rode with only one other person.

No respondent who participated in any kind of carpool, vanpool or ridesharing system was dropped off at the door of his workplace. Carpoolers/ vanpoolers/ridersharers typically said they walk from their dropoff locations to

their workplace (95 percent), although some said they take Metrorail/bus (five percent).

Two out of three respondents who participated in carpools/vanpools/ridesharing said it took them less than five minutes to get from the dropoff location to their workplace (64 percent). One out of five said it took him more than 10 minutes.

All the respondents who participated in some type of pool or ridesharing system used the same mode of transportation to go from work to home.

Almost half of the respondents who participated in carpooling/vanpooling/ridesharing reported daily round-trip commuting costs of $3.00 or less (45 percent). The average (mean) cost of carpooling/vanpooling/ridesharing reported by respondents in the Leeland Station area was $3.60 per day.

Respondents Who Ride Metrorail/Bus

Approximately two percent of the respondents said they were most likely to commute to work using Metrorail or bus. Potential Riders were the only respondents to use these modes of transit. Of these, 75 percent said they only rode the bus, while 25 percent said they only rode Metrorail.

Most respondents in the Leeland Station area who rode the Metrorail or bus said they most often drove to the station or stop and then rode (75 percent). The rest said they walked to the stop (25 percent)).

One out of four respondents who took Metrorail or the bus said he had joined informal carpools while waiting for the bus or train (25 percent).

Three-quarters of the respondents who took the bus or Metrorail said it took five minutes or less to walk from the bus stop or station to their workplace (75 percent), while one-quarter said it took them more than fifteen minutes (25 percent).

The total round-trip transit fare reported by respondents from the Leeland Station area for their bus/Metrorail commute ranged from $5.50 to $10.00; $7.30 was the mean (average) price reported.

Respondents with Other Commuting Modes

No respondent in the Leeland Station area reported commuting to work by any mode other than driving alone, carpooling/vanpooling/ridesharing, or taking Metrorail or the bus.

REACTIONS TO VIRGINIA RAILWAY EXPRESS

Awareness of VRE

Almost nine out of ten respondents in the Leeland Station area had heard of VRE prior to being interviewed. Awareness was particularly high among commuters, as Exhibit II-26 shows.

Exhibit II-26
Awareness of VRE Commuter Train
Leeland Station Area
(Base: Total respondents)

	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commuter
	%	%	%	%
Awareness				
Yes	87	96	100	84
No	13	4	0	16

Likelihood of Riding VRE

One out of ten respondents from the Leeland Station area said he would be very likely to ride the new commuter train if the fare and schedule fit his needs (11 percent), and an additional five percent said they would be somewhat likely. Most said they would not be likely at all to ride the new train (84 percent), as Exhibit II-27 shows.

Exhibit II-27
Expected Usage of VRE Commuter Train
Leeland Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Not Rider/ Commuter %	Non-Rider/ Non-Commuter %
Usage				
Very likely	11	68	0	0
Somewhat likely	5	32	0	0
Not likely at all	84	0	100	100

Factors Influencing VRE Ridership

Respondents who commuted to targeted areas (Alexandria, Crystal City, the Pentagon or downtown Washington D.C.) were asked to use a four-point scale to say how important each of eleven factors would be to them in deciding whether or not to ride the new commuter train. Reliable service ("trains are on time") and safety ("safe trains and stations") received the highest average (mean) ratings -- virtually every respondent, regardless of ridership group, rated reliability and safety as very important. In fact, the respondents placed high importance on every factor, with the possible exception of "amenities at the station." Exhibit II-28 presents the results of these questions.

Exhibit II-28
Importance of Factors
in Deciding Whether or Not to Use the New Commuter Train
Leeland Station Area

(Base: Total commuters)
(Mean Ratings)

Factor	Total	Potential Riders	Non-Rider/ Commuter[1]
Safe trains/stations	3.96	3.94	4.00
Reliable service/ trains are on time	3.99	3.98	4.00
Clean trains/stations	3.91	3.87	4.00
The length of time it takes to get from home to work	3.80	3.72	4.00
Frequency of service (all day or only peak)	3.63	3.68	3.50
Adequate parking at stations	3.92	3.89	4.00
Late/ evening trains	3.40	3.36	3.50
Adequate public info./signs	3.61	3.45	4.00
Not having to drive	3.50	3.70	3.00
Reasonable cost	3.93	3.91	4.00
Amenities at the stations(food, etc.)	2.41	2.38	2.50

Scale: 4 = Very important
3 = Somewhat important
2 = Somewhat unimportant
1 = Very unimportant

[1] The Non-Rider/Commuter subsample for the Leeland Station area was extremely limited.

VRE Expectations, Potential Riders: Frequency of Use

When Potential Riders were asked how many days per week they would expect to ride the new commuter train, 76 percent said they would ride it five days a week. An additional 11 percent said they would ride the train three or four days a week, while thirteen percent said they would ride the new train once or twice a week.

VRE Expectations, Potential Riders: Station to Workplace Distance and Travel

Approximately half of the Potential Riders in the Leeland Station area said their workplace was more than five blocks from the VRE Station where they would detrain (49 percent), while 36 percent said the station would be two to five blocks from their workplace, and 15 percent said the station would be within two blocks.

Potential Riders in the Leeland Station area were most likely to say they would take the Metro (42 percent) or walk (38 percent) from the VRE station to work, but some respondents said they would transfer to the bus (15 percent) or catch a cab (six percent).

VRE Expectations, Potential Riders: Commute Time

When they were asked how long they would expect their overall one-way commute to take from the time they left home to the time they arrived at work, Potential Riders generally expected their VRE commute time to be about the same as their current commute times. Exhibit II-29 presents this comparison.

Exhibit II-29
Expected Length of One Way Commute From Respondent's House to Work and Total Commute From Home to Work
Leeland Station Area

(Base: Potential Riders)

	Current Commute	Anticipated Commute with VRE
	Potential Riders %	Potential Riders %
Minutes		
30 minutes or less	4	0
31 to 49 minutes	2	26
50 to 60 minutes	34	47
61 to 89 minutes	21	9
90 minutes or more	40	15
Don't Know	0	2
Mode (Minutes)	60	60
Mean (Minutes)	76	77

After the Potential Riders had said how long they expected their commute from their homes to the workplace on VRE to take, they were informed of the actual scheduled time of 78 minutes and asked how likely they would be to ride the new commuter train, given this additional information. There was significant softening in anticipated ridership, as Exhibit II-30 shows.

Exhibit II-30
Likelihood of Ridership
Leeland Station Area

(Base: Potential Riders)

	Initial Likelihood	Likelihood with Trip Length Info.
	%	%
Very likely	68	51
Somewhat likely	32	45
Not likely at all	0	4

VRE Expectations, Potential Riders: Cost/Payment

The respondents were then asked how much they would expect to have to pay to ride the new commuter train to and from work each day from the Leeland Station. After they had given their estimated costs, they were told of the choices of actual anticipated round-trip fares of $11.25 (based on a one-ride ticket), $9.50 (based on a 15% discount for a ten-ride ticket) and $8.00 (based on a 30% discount for a monthly pass), and asked how this additional information would affect their likelihood to ride the new train. Following this, they were asked the absolute maximum price they would pay to ride the train. Exhibit II-31 presents the responses regarding anticipated cost and maximum acceptable cost, while Exhibit II-32 presents the respondents' likelihood of riding the train given the various costs.

Exhibit II-31
Cost Expectations for Roundtrip Fare
Leeland Station Area
(Base: Potential Riders)

Amount	Before Pricing Suggested %	Maximum Willing to Pay %
Less than $5.00	15	8
$5.00 - $6.00	30	26
$6.01 - $7.00	15	2
$7.01- 8.00	8	17
$8.01 - $10.00	17	25
Over $10.00	10	21
Don't Know	6	2
Mode (Dollars)	$5.00	$5.00
Mean (Dollars)	$6.83	$8.41

Exhibit II-32
Likelihood of Ridership From Leeland Station to Downtown D.C.
At Three Different Prices

(Base: Potential Riders)

	Base Cost (One-way x two) %	15% Less (Ten-trip ticket) %	30% Less (Monthly pass) %
Very likely to ride	23	36	49
Somewhat likely to ride	32	32	34
Not at all likely to ride	45	32	17

Potential Riders were then given more information regarding the discounted fare structure for 10-ride tickets and monthly passes, and were asked which type of ticket they would be most likely to buy. Most respondents said they would buy monthly passes (85 percent), but some said they would buy 10-ride tickets (11 percent) or one-ride tickets (four percent).

Following this, the respondents were told that the cost of a monthly pass from the Leeland Station to downtown Washington D.C. would be $173.00, and asked how likely they would be to purchase a monthly pass at that price. One out of four respondents said he would be very likely to purchase a monthly pass at that price (26 percent), while one out of three said he would be somewhat likely (34 percent) and 40 percent said they would not be at all likely.

Respondents who said they would purchase monthly passes were then asked about their preferred payment method, and then all Potential Riders were asked about their likelihood of using credit cards in automatic ticketing machines and their preferences regarding where to purchase tickets. Exhibits II-33 through II-35 present the responses to these questions.

Exhibit II-33
Preferred Method of Payment for Monthly Pass
Leeland Station Area

(Base: Potential Riders likely to buy monthly pass)

	Potential Riders %
Very/Somewhat Likely To Buy Monthly Pass	60
Method	
Credit Card	19
Cash	16
Check	66

Exhibit II-34
Likelihood of Using a Credit Card in Automatic Ticketing Machine
Leeland Station Area

(Base: Potential Riders)

	Potential Riders %
Likelihood	
Very Likely	34
Somewhat Likely	28
Not Likely at All	38

Exhibit II-35
Preference of Buying Tickets at the Station or in Advance
Leeland Station Area

(Base: Potential Riders)

	Potential Riders %
Method	
Purchase at Station	34
Purchase in Advance, Other Location	66

VRE Expectations, Potential Riders: Travel To/From Station

Most Potential Riders said they would drive from their homes to the Leeland Station and park there (96 percent). Some, however, said they would walk or be dropped off at the station (two percent each).

Potential Riders who indicated they would drive to the train station from their homes were asked if they would be willing to pay for parking at the station. Just under one-half said they would pay a nominal parking fee (47 percent). Over half of these respondents said they would be willing to pay up to $1.00 per day (56 percent), while one out of three said they would pay between $1.00 and $2.00 (36 percent). Eight percent said they would pay more than $2.00.

Over half of the Potential Riders said they would be very likely or somewhat likely to use feeder bus service if it were available to the Leeland Station (42 percent very likely, 15 percent somewhat likely). Forty-three percent said they would not use the feeder bus service.

VRE Expectations, Potential Riders: Off-Hour Use

Approximately one-half of the respondents said they would frequently (11 percent) or sometimes (38 percent) use the commuter train on holidays and weekends, while 25 percent said they would never use it on non-work days.

Less than half of the Potential Respondents said they would frequently (nine percent) or sometimes (32 percent) use the commuter train midday if such service were available, while 17 percent said they would never ride the train during midday.

Two out of three respondents said they would frequently (23 percent) or sometimes (40 percent) ride a late train out of the city into the Leeland Station, while 13 percent said they would never ride a late train. Exhibit II-36 presents the suggested times the late train should run to meet the needs of Potential Riders.

Exhibit II-36
Time Late Train Should Run
Leeland Station Area

(Base: Potential Riders who would use late train)

Time	Potential Riders %
Before 5:00 PM	6
5:00 PM to 5:59 PM	3
6:00 PM to 6:29 PM	15
6:30 PM to 6:59 PM	6
7:00 PM to 7:59 PM	12
8:00 PM to 8:59 PM	15
9:00 PM or later	42
Mode	9:00 PM

Non-Rider/Non-Commuter Responses

As would be expected, the primary reason Non-Riders/Non-Commuters would not ride the train is that they did not commute to the areas it serves, either because they did not work near the route or because they did not commute at all. Other reasons for non-ridership centered around schedules and cost, as Exhibit II-37 shows.

Exhibit II-37
Reasons for Not Riding VRE Commuter Train
Leeland Station Area

(Base: Non-Riders, Non-Commuters)

Reason	Non-Riders, Non-Commuters %
Don't work/retired	60
Train doesn't run where I go	44
Inconvenient schedule	8
Too expensive	8

Almost three-quarters of the Non-Riders/Non-Commuters, however, would use the train for non-work related purposes (72 percent). Of these, most said they would take the train into Washington for entertainment (83 percent) or shopping (17 percent).

PUBLIC OPINION REGARDING VRE

In order to get a measure of public opinion regarding VRE, all respondents were asked to agree or disagree with a series of six statements about the new commuter train in terms of its social impact.

There is general agreement among all ridership groups that VRE will help conserve energy, reduce rush hour traffic congestion, reduce pollution and provide a convenient way to get to and from downtown Washington D.C. There is also general agreement among ridership groups that tax funds would be appropriately used to bear some of the cost of the train. Exhibit II-38 presents the results to this series of public opinion questions.

Exhibit II-38
Agreement/Disagreement with Statements
About the new Commuter Train

Leeland Station Area

(Means)

Statement	Total	Potential Riders	Non-Rider/ Commuter[1]	Non-Rider/ Non-Commute
The cost of the train should be borne entirely by those who ride it, through daily fares.	2.61	2.92	1.00	2.68
Using general tax funds to set up and operate the train is a good use of taxpayer dollars.	3.35	3.45	4.00	3.28
The train will be a convenient way to get to and from downtown Washington.	3.82	3.85	4.00	3.80
The train will help reduce rush hour traffic congestion in the region.	3.90	3.75	4.00	3.92
The train will help reduce pollution in the region.	3.65	3.74	4.00	3.64
The train will help conserve energy.	3.84	3.75	4.00	3.84

Scale: 4 = Strongly agree
3 = Somewhat agree
2 = Somewhat disagree
1 = Strongly disagree

[1] Non-Rider/Non-Commuter subsample is extremely limited.

VRE Expectations, Potential Riders: Cost/Payment

The respondents were then asked how much they would expect to have to pay to ride the new commuter train to and from work each day from the Manassas Airport Station. After they had given their estimated costs, they were told of the choices of actual anticipated round-trip fares of $10.00 (based on a one-ride ticket), $8.50 (based on a 15% discount for a ten-ride ticket) and $7.00 (based on a 30% discount for a monthly pass), and asked how this additional information would affect their likelihood to ride the new train. Following this, they were asked the absolute maximum price they would pay to ride the train. Exhibit II-48 presents the responses regarding anticipated cost and maximum acceptable cost, while Exhibit II-49 presents the respondents' likelihood of riding the train given the various costs.

Exhibit II-48
Cost Expectations for Roundtrip Fare
Manassas Airport Station Area
(Base: Potential Riders)

Amount	Before Pricing Suggested %	Maximum Willing to Pay %
Less than $5.00	24	24
$5.00 - $6.00	34	8
$6.01 - $7.00	14	16
$7.01 - 8.00	12	12
$8.01 to $10.00	12	24
Over $10.00	2	14
Don't Know	2	2
Mode (Dollars)	$5.00	$7.00/$10.00

Exhibit II-49
Likelihood of Ridership From Manassas Airport Station to Downtown D.C.
At Three Different Prices

(Base: Potential Riders)

	Base Cost (One-way x two) %	15% Less (Ten-trip ticket) %	30% Less (Monthly pass) %
Very likely to ride	18	36	50
Somewhat likely to ride	34	24	24
Not at all likely to ride	48	40	26

Potential Riders were then given more information regarding the discounted fare structure for 10-ride tickets and monthly passes, and were asked which type of ticket they would be most likely to buy. Most respondents said they would buy monthly passes (64 percent), but some said they would buy 10-ride tickets (30 percent) or one-ride tickets (four percent). Two percent were unsure of their preference.

Following this, the respondents were told that the cost of a monthly pass from the Manassas Airport Station to downtown Washington D.C. would be $151, and asked how likely they would be to purchase a monthly pass at that price. One out of five respondents said he would be very likely to purchase a monthly pass at that price (22 percent), while 32 percent said they would be somewhat likely and 46 percent said they would not be at all likely.

Respondents who said they would purchase monthly passes were then asked about their preferred payment method, and then all Potential Riders were asked about their likelihood of using credit cards in automatic ticketing machines and their preferences regarding where to purchase tickets. Exhibits II-50 through II-52 present the responses to these questions.

Exhibit II-50
Preferred Method of Payment for Monthly Pass
Manassas Airport Station Area

(Base: Potential Riders likely to buy monthly pass)

	Potential Riders %
Very/Somewhat Likely To Buy Monthly Pass	54
Method	
Credit Card	11
Cash	26
Check	63

Exhibit II-51
Likelihood of Using a Credit Card in Automatic Ticketing Machine
Manassas Airport Station Area

(Base: Potential Riders)

	Potential Riders %
Likelihood	
Very Likely	36
Somewhat Likely	32
Not Likely at All	32

Exhibit II-52
Preference of Buying Tickets at the Station or in Advance
Manassas Airport Station Area

(Base: Potential Riders)

	Potential Riders %
Method	
Purchase at Station	36
Purchase in Advance, Other Location	64

VRE Expectations, Potential Riders: Travel To/From Station

Most Potential Riders said they would drive from their homes to the Manassas Airport station and park there (78 percent). Some, however, said they would be dropped off (10 percent), walk (six percent), or take a bus (four percent) or bike (two percent).

Potential Riders who had indicated they would drive to the train station from their homes were asked if they would be willing to pay for parking at the station. Over half said they would pay a nominal parking fee (54 percent). Almost half of these respondents said they would be willing to pay $1.00 per day (48 percent), while another 48 percent said they would pay between $1.50 and $2.50 and five percent said they would pay $3.00.

Almost one-half of the Potential Riders said they would be very likely to use feeder bus service if it were available to the Manassas Airport Station (46 percent), and an additional 24 percent said they would be somewhat likely. Almost one-third of the respondents said they would not be likely to use the feeder bus service (30 percent).

VRE Expectations, Potential Riders: Off-Hour Use

Over one-half of the respondents said they would frequently (10 percent) or sometimes (42 percent) use the commuter train on holidays and weekends, while 18 percent said they would never ride it on non-workdays.

Four out of ten of the Potential Respondents said they would frequently (six percent) or sometimes (34 percent) use a midday commuter train if such service were available, while 20 percent said they would never ride the train during midday.

Two out of three respondents said they would frequently (26 percent) or sometimes (38 percent) ride a late train out of the city into the Manassas Airport Station, while 12 percent said they would never ride a late train. Exhibit II-53 presents the suggested times the late train should run to meet the needs of Potential Riders.

Exhibit II-53
Time Late Train Should Run
Manassas Airport Station Area

(Base: Potential Riders who would use late train)

	Potential Riders %
Time	
Before 5:00 pm	11
5:00 pm to 5:59 pm	3
6:00 pm to 6:59 pm	17
7:00 pm to 7:59 pm	26
8:00 pm to 8:59 pm	32
9:00 pm or later	11
Mode	8:00 pm

Non-Rider/Non-Commuter Responses

As would be expected, the primary reason Non-Riders/Non-Commuters would not ride the train is that they do not commute to the areas it serves, either because they do not work near the route or because they do not commute at all. Other reasons for non-ridership centered around convenience and scheduling, as Exhibit II-54 shows.

Exhibit II-54
Reasons for Not Riding VRE Commuter Train
Manassas Airport Station Area

(Base: Non-Riders, Non-Commuters)

	Non-Riders/ Non-Commuters %
Reason	
Train doesn't run where I go	64
Don't work/retired	20
Inconvenient station location	12
Inconvenient schedule	7
Live close to Metro/bus stop/work	9

Fewer than one out of three Non-Riders/Non-Commuters would use the train for non-work related purposes (29 percent). Of these, most said they would take the train into Washington for entertainment (52 percent), appointments (17 percent), shopping (28 percent), or if their normal transportation method were unavailable to them (10 percent).

PUBLIC OPINION REGARDING VRE

In order to get a measure of public opinion regarding VRE, all respondents were asked to agree or disagree with a series of six statements about the new commuter train in terms of its social impact.

There is general agreement among all ridership groups that VRE will help conserve energy, reduce rush hour traffic congestion, reduce pollution and provide a convenient way to get to and from downtown Washington D.C. There is less agreement among ridership groups over who should bear the cost of commuter train operations, with Potential Riders being more likely to support general tax funds for train setup and operations, and Non-Riders/Non-Commuters being more likely to say that the cost of the train should be borne by those who ride it through their daily fares. Exhibit II-55 presents the results to this series of public opinion questions.

Exhibit II-55
Agreement/Disagreement with Statements
About the New Commuter Train

Manassas Airport Station Area

(Means)

Statement	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commuter
The cost of the train should be borne entirely by those who ride it, through daily fares.	3.07	2.48	2.67	3.22
Using general tax funds to set up and operate the train is a good use of taxpayer dollars.	3.01	3.42	3.33	2.90
The train will be a convenient way to get to and from downtown Washington.	3.68	3.68	4.00	3.66
The train will help reduce rush hour traffic congestion in the region.	3.67	3.50	3.67	3.71
The train will help reduce pollution in the region.	3.43	3.40	3.33	3.44
The train will help conserve energy.	3.65	3.62	3.67	3.66

Scale: 4 = Strongly agree
3 = Somewhat agree
2 = Somewhat disagree
1 = Strongly disagree

WOODBRIDGE STATION

This section of the report describes the responses of those people residing within a five-mile radius of the Woodbridge station.

When they were initially asked how likely they would be to ride the new commuter train if the schedule and fare met their needs, 33 percent of the respondents in the Woodbridge Station area said they would be very likely, 16 percent said they would be somewhat likely and 52 percent said they would not be likely at all. Probable VRE ridership declined over the course of the survey, however, after respondents were given information relating to actual travel times and fares.

RESPONDENT DEMOGRAPHICS

Exhibit II-56 presents the demographic characteristics of respondents in the Woodbridge Station area. The first column of the Exhibit presents the distribution of the overall Woodbridge subsample among the response categories, while the second through fourth columns present the distribution of Potential Riders, Non-Riders/Commuters and Non-Riders/Non-Commuters, respectively.

Exhibit II-56
Demographic Characteristics
Woodbridge Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Age				
18 to 35	46	45	45	46
36 to 64	51	53	55	47
65 +	3	2	0	7
Household Income				
Less than $30,000	9	4	10	15
$30,000 to $60,000	58	57	63	56
$60,001 to $100,000	30	39	21	24
Over $100,000	3	0	5	5

Exhibit II-56 (continued)
Demographic Characteristics
Woodbridge Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Adults in Household				
One	11	14	15	7
Two	67	71	60	65
Three	18	14	20	21
Four	4	2	5	7
Number of Vehicles Available to Household				
One	15	12	25	14
Two	48	45	55	49
Three	29	35	20	26
Four	7	8	0	9
Number of Commuters in Household[1]				
One	47	71	75	7
Two	14	25	15	0
Three	2	2	5	0
None	37	2	5	93
Occupation				
Professional	17	23	20	7
Technical	13	8	25	14
Manager	9	16	0	7
Proprietor	6	10	5	2
Clerical	14	17	15	9
Sales	6	0	5	14
Craftsmen/Foremen	19	22	20	16
Service worker	5	4	10	5
Non-Worker	8	0	0	21
Refused	2	0	0	5
Occupation Category				
White collar	46	58	50	30
Gray collar	20	18	20	23
Blue collar	24	26	30	21

[1] Commuters to Alexandria, Crystal City, the Pentagon and downtown Washington, D.C.

CURRENT COMMUTING CHARACTERISTICS

Two out of three respondents (68 percent) from the Woodbridge Station area said they considered themselves regular commuters; all commuted for work-related reasons.

The majority of respondents from the Woodbridge Station area worked near Alexandria, Crystal City, the Pentagon or downtown Washington D.C. (62 percent), while over one-quarter did not work near any of those locations (28 percent) and 10 percent did not work outside the home.

Respondents who commuted to work most often drove alone, although more than one out of four participated in a carpool or vanpool. Non-Riders/Commuters were more likely to drive alone than Potential Riders. Exhibit II-57 presents these responses.

Exhibit II-57
Current Method of Transportation to Work
Woodbridge Station Area

(Base: Total commuters)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Method			
Drive alone	59	41	55
Metro Rail	3	6	0
Bus	5	6	5
Shared ride	7	6	15
Carpool/Vanpool	26	41	25

Commuters from the Woodbridge Station area were most likely to travel directly to work from their homes; only 14 percent said they typically made stops on their way to work from home. Potential riders appeared more likely than Non-Riders/Commuters to make stops (16 percent versus 10 percent, respectively). The most typical reasons commuters from Woodbridge said they stopped on their way from home to work included eating (57 percent of those who make stops), banking (42 percent), child care or school (43 percent), laundry or dry cleaning (29 percent) and social visits (29 percent). Some respondents stopped for more than one reason on their way to work.

Just under one-half of the respondents in the Woodbridge Station area set their own work schedules (45 percent), while the remainder have schedules that have been determined by their employers. Approximately one-half of the Woodbridge Station area respondents' work schedules have been adjusted because of traffic patterns, e.g., to avoid traffic congestion (51 percent).

Respondents in the Woodbridge Station area reported commute times ranging from under 30 minutes to over 90 minutes, but most often said the commute from home to work takes about one hour. Potential riders generally reported longer commutes than Non-Riders/Commuters. Exhibit II-58 presents these results.

Exhibit II-58
Total Commute From Home to Work
Woodbridge Station Area

(Base: Total commuters)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Minutes			
30 minutes or less	8	8	10
31 to 49 minutes	18	18	20
50 to 60 minutes	40	35	50
61 to 89 minutes	15	20	5
90 minutes or more	17	18	15
Mode (minutes)	60	60	50
Mean (minutes)	71	77	55

One-quarter of the respondents from the Woodbridge Station area said they were expected to be at work by 7:00 AM or earlier (26 percent), and an additional 50 percent said they had to be at work between 7:00 AM and 8:00 AM. Non-Riders/Commuters were more likely than Potential Riders to report early work start times.

Potential Riders, on the other hand, were more likely than Non-Riders/ Commuters to stay late after work -- 21 percent said they stayed more than 15 minutes late at work four to five times a week, compared to 10 percent of the Non-Rider/Commuters. Over one-half of the respondents from the Woodbridge Station area, regardless of ridership category, said they never stayed more than 15 minutes late at work.

Potential Riders who stayed late after work were more likely than their Non-Rider/Commuter counterparts to stay later in the evening as well: 74 percent stayed after 5:30 PM, compared to 40 percent of the Non-Rider/Commuters.

Respondents Who Drive to Work Alone

As stated earlier, over one-half of the respondents in the Woodbridge Station area said they usually drove from home to work alone. Non-Rider/Commuters were more likely to drive alone than Potential Riders (55 percent versus 41 percent, respectively).

Three out of four respondents who usually drove to work alone said they paid no parking fees (78 percent), and an additional 12 percent said they paid $3.00 or less per day. They estimated their daily round-trip cost of driving a car to work (excluding parking, when applicable) at an average (mean) of $4.80. Non-Riders/Commuters typically estimated lower daily commuting costs than Potential Riders, as Exhibit II-59 shows.

Three-quarters of the respondents who drove alone to work said they were able to park within one or two minutes of their workplace (75 percent). Only three percent reported parking more than five minutes from their workplace.

Exhibit II-59
Cost to Drive Car Round Trip - Excluding Parking
Woodbridge Station Area

(Base: Commuters driving alone)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Drive alone	59	41	55
Cost			
$3.00 or less	25	14	37
$3.01 to $4.75	31	34	20
$4.76 to $5.00	31	43	9
More than $5.00	13	9	34
Mode	$5.00	$5.00	$3.00
Mean	$4.80	$4.80	$4.80

Respondents Participating in Carpools/Vanpools

Approximately one-third of the respondents in the Woodbridge Station area said they participated in carpools, vanpools or ridesharing (33 percent). Potential Riders were more likely to give this response than were Non-Riders/Commuters (47 percent versus 40 percent).

Most of the respondents who participated in carpools or vanpools said they were part of prearranged carpools/vanpools (88 percent). Potential Riders were more likely to be members of prearranged pools than Non-Riders/Commuters (92 percent versus 75 percent). Potential Riders were also more likely than Non-Riders/Commuters to participate in pools of four or fewer riders (60 percent versus 50 percent).

Very few respondents in the Woodbridge Station area said they relied on "pickup carpools" (i.e., they went to central locations and looked for riders/drivers). Those who did were more likely to go to a parking lot and wait for a driver than they were to look for riders.

Very few respondents who participated in any kind of carpool, vanpool or ridesharing system said they were dropped off at the door at their workplace (three percent). In fact, no Potential Rider said he was dropped off at the door, while 12 percent of the Non-Riders/Commuters were dropped off at the door. Carpoolers/vanpoolers/ridersharers typically said they walked from their dropoff locations to their workplaces (91 percent), although some -- all of them Potential Riders -- said they took Metrorail/bus (six percent).

One half of the respondents who participated in carpools/vanpools/ridesharing said it took them less than five minutes to get from the dropoff location to their workplace (50 percent).

Respondents who participated in some type of pool or ridesharing system generally used the same mode of transportation to go from work to home (94 percent). Some, however, used Metrorail/bus (six percent). Non-Riders/Commuters were more likely than Potential Riders to say they took Metrorail/bus home from work (13 percent versus four percent, respectively).

Most respondents who participated in carpooling/vanpooling/ridesharing reported round-trip commuting costs of less than $4.00 per day (56 percent). Non-Riders/Commuters were particularly likely to spend less than $4.00 (88 percent versus 46 percent of Potential Riders). The average (mean) cost of

carpooling/vanpooling/ridesharing reported by respondents in the Woodbridge Station area was $3.80 per day overall ($4.00 for Potential Riders, $3.30 for Non-Riders/Commuters).

Respondents Who Ride Metrorail/Bus

Approximately eight percent of the respondents said they were most likely to commute to work using Metrorail or bus. Potential Riders were more likely to use these modes of transit than were Non-Riders/Commuters (12 percent versus five percent). Of these more than one half said they only rode the bus (57 percent), while 29 percent said they only rode Metrorail and 14 percent said they rode both the bus and Metrorail. Non-Riders/Commuters were more likely than Potential Riders to ride only the bus (100 percent versus 50 percent).

Most respondents in the Woodbridge Station area who rode the Metrorail or bus said they most often drove to the station or stop and then rode (57 percent). While every Non-Rider/Commuter parks and rides, one-half of the Potential Riders park and ride. The rest were evenly divided among walking to the stop, being dropped off at the station or stop, and taking a feeder bus or van (17 percent each of the Potential Riders).

Although no Non-Rider/Commuter said he ever joined informal carpools while waiting for the bus or train, one-third of the Potential Riders said they had done so (33 percent).

Every respondent who took the bus or Metrorail said it took five minutes or less to walk from the bus stop or station to his workplace; one-third said it took just one minute (33 percent).

The total round-trip transit fare reported by respondents from the Woodbridge Station area for their bus/Metrorail commute ranged from $3.50 to $6.00; $3.50 was the price reported most frequently.

Respondents with Other Commuting Modes

No respondent in the Woodbridge Station area reported commuting to work by any mode other than driving alone, carpooling/vanpooling/ridesharing, or taking Metrorail or the bus.

REACTIONS TO VIRGINIA RAILWAY EXPRESS

Awareness of VRE

Three out of four respondents in the Woodbridge Station area had heard of VRE prior to being interviewed. Awareness was particularly high among Potential Riders, as Exhibit II-60 shows.

Exhibit II-60
Awareness of VRE Commuter Train
Woodbridge Station Area
(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Awareness				
Yes	75	84	65	67
No	25	16	35	33

Likelihood of Riding VRE

One out of three respondents from the Woodbridge Station area said they would be very likely to ride the new commuter train if the fare and schedule fit their needs (33 percent), and an additional 16 percent said they would be somewhat likely. Just over one-half said they would not be likely at all to ride the new train (52 percent).

Respondents from the Woodbridge Station area were the most likely to say they would ride the train. In fact, this was the only station for which no potential respondents were terminated because they would be over the Non-Rider subquota.[1]

Looking just at Potential Riders, two out of three said they would be very likely to ride the new commuter train if the fare and schedule fit their needs, as Exhibit II-61 shows.

[1] The reader is cautioned that this initially positive response was given without consideration of the actual Woodbridge Station location. During the Woodbridge focus group, several respondents reacted very negatively to the station location, saying they would not ride the train because the station location was inconvenient. (See Part III for further information.)

Exhibit II-61
Expected Usage of VRE Commuter Train
Woodbridge Station Area

(Base: Total respondents)

	Total %	Potential Riders %	Not Rider/ Commuter %	Non-Rider/ Non-Commuter %
Usage				
Very likely	33	69	0	0
Somewhat likely	16	31	0	0
Not likely at all	52	0	100	100

Factors Influencing VRE Ridership

Respondents who commuted to targeted areas (Alexandria, Crystal City, the Pentagon or downtown Washington D.C.) were asked to use a four-point scale to say how important each of eleven factors would be to them in deciding whether or not to ride the new commuter train. Reliable service ("trains are on time") and safety ("safe trains and stations") received the highest average (mean) ratings regardless of ridership group, however, the degree to which the different factors were important varied somewhat. For example, with the exception of "reliability" and "adequate parking," Potential Riders were more likely than Non-Riders/Commuters to place a higher importance on each of the factors. Exhibit II-62 presents the results of these questions.

Exhibit II-62
Importance of Factors
in Deciding Whether or Not to Use the New Commuter Train
Woodbridge Station Area

(Base: Total commuters)
(Mean Ratings)

Factor	Total	Potential Riders	Non-Rider/ Commuter
Safe trains/stations	3.86	3.90	3.75
Reliable service/ trains are on time	3.90	3.91	3.80
Clean trains/stations	3.68	3.72	3.58
The length of time it takes to get from home to work	3.68	3.77	3.42
Frequency of service (all day or only peak)	3.53	3.58	3.37
Adequate parking at stations	3.76	3.76	3.75
Late/evening trains	3.23	3.31	3.00
Adequate public info./signs	3.41	3.43	3.35
Not having to drive	3.46	3.51	3.35
Reasonable cost	3.77	3.84	3.60
Amenities at the stations(food, etc.)	2.37	2.45	2.15

Scale: 4 = Very important
3 = Somewhat important
2 = Somewhat unimportant
1 = Very unimportant

VRE Expectations, Potential Riders: Frequency of Use

When Potential Riders were asked how many days per week they would expect to ride the new commuter train, 90 percent said they would ride it five days a week. An additional four percent said they would ride the train four days a week, while two percent each said they would ride the new train one, two, or three days a week.

VRE Expectations, Potential Riders: Station to Workplace Distance and Travel

More than half of the Potential Riders in the Woodbridge Station area said their workplace was more than five blocks from the VRE Station where they would detrain (53 percent), while 24 percent said the station would be two to five blocks from their workplace, and 22 percent said the station would be within two blocks. (Two percent were not able to estimate the distance.)

Potential Riders in the Woodbridge Station area were most likely to say they would walk from the VRE station to work (45 percent), but some respondents said they would transfer to Metrorail (29 percent) or the bus (24 percent). Two percent were unsure how they would travel from the VRE station to their workplace.

VRE Expectations, Potential Riders: Commute Time

When they were asked how long they would expect their overall one-way commute to take from the time they left home to the time they arrived at work, Potential Riders often expected their VRE commute time to be shorter than their current commute times: whereas eight percent said their current commutes took 30 minutes or less, 28 percent said the total commute would take half an hour or less if they were to ride the commuter train. Additionally, while 18 percent reported current commute times between 31 and 49 minutes, 37 percent expected their VRE commute to take this long. Exhibit II-63 presents this comparison.

Exhibit II-63
Expected Length of One Way Commute From Respondent's House to Work and Total Commute From Home to Work

Woodbridge Station Area
(Base: Claimed potential riders)

	Current Commute	Anticipated Commute with VRE
	Potential Riders %	Potential Riders %
Minutes		
30 minutes or less	8	28
31 to 49 minutes	18	37
50 to 60 minutes	40	31
61 to 89 minutes	15	0
90 minutes or more	17	4
Mode (Minutes)	60	60
Mean (Minutes)	71	45

After the Potential Riders had said how long they expected their commute from their homes to the workplace on VRE to take, they were informed of the actual scheduled time of 43 minutes and asked how likely they would be to ride the new commuter train, given this additional information. There was some softening in anticipated ridership, as Exhibit II-64 shows.

Exhibit II-64
Likelihood of Ridership
Woodbridge Station Area
(Base: Potential Riders)

	Initial Likelihood	Likelihood with Trip Length Info.
	%	%
Very likely	68	61
Somewhat likely	32	35
Not likely at all	0	4

VRE Expectations, Potential Riders: Cost/Payment

The respondents were then asked how much they would expect to have to pay to ride the new commuter train to and from work each day from the Woodbridge Station. After they had given their estimated costs, they were told of the choices of actual anticipated round-trip fares of $9.25 (based on a one-ride ticket), $7.75 (based on a 15% discount for a ten-ride ticket) and $6.50 (based on a 30% discount for a monthly pass), and asked how this additional information would affect their likelihood to ride the new train. Following this, they were asked the absolute maximum price they would pay to ride the train. Exhibit II-65 presents the responses regarding anticipated cost and maximum acceptable cost, while Exhibit II-66 presents the respondents' likelihood of riding the train given the various costs.

Exhibit II-65
Cost Expectations for Roundtrip Fare
Woodbridge Station Area
(Base: Potential Riders)

Amount	Before Pricing Suggested %	Maximum Willing to Pay %
Less than $5.00	34	22
$5.00 - $6.00	45	29
$6.01 - $7.00	8	22
$7.01 - 8.00	6	4
$8.01 - $10.00	6	18
Over $10.00	0	4
Mode (Dollars)	$5.00	$6.00

Exhibit II-66
Likelihood of Ridership From Woodbridge Station to Downtown D.C.
At Three Different Prices

(Base: Potential Riders)

	Base Cost (One-way x two) %	15% Less (Ten-trip ticket) %	30% Less (Monthly pass) %
Very likely to ride	13	30	42
Somewhat likely to ride	28	32	43
Not at all likely to ride	59	37	15

Potential Riders were then given more information regarding the discounted fare structure for 10-ride tickets and monthly passes, and were asked which type of ticket they would be most likely to buy. Most respondents said they would buy monthly passes (82 percent), but some said they would buy 10-ride tickets (14 percent) or one-ride tickets (four percent).

Following this, the respondents were told that the cost of a monthly pass from the Woodbridge Station to downtown Washington D.C. would be $140, and asked how likely they would be to purchase a monthly pass at that price. One out of three respondents said he would be very likely to purchase a monthly pass at that price (35 percent), while four out of ten said he would be somewhat likely (39 percent) and just over one-quarter said they would not be at all likely (26 percent).

Respondents who said they would purchase monthly passes were then asked about their preferred payment method, then all Potential Riders were asked about their likelihood of using credit cards in automatic ticketing machines and their preferences regarding where to purchase tickets. Exhibits II-67 through II-69 present the responses to these questions.

Exhibit II-67
Preferred Method of Payment for Monthly Pass
Woodbridge Station Area

(Base: Potential Riders likely to buy monthly pass)

	Potential Riders %
Very/Somewhat Likely To Buy Monthly Pass	74
Method	
Credit Card	18
Cash	24
Check	58

Exhibit II-68
Likelihood of Using a Credit Card in Automatic Ticketing Machine
Woodbridge Station Area

(Base: Potential Riders)

	Potential Riders %
Likelihood	
Very Likely	51
Somewhat Likely	18
Not Likely at All	29

Exhibit II-69
Preference of Buying Tickets at the Station or in Advance
Woodbridge Station Area

(Base: Potential Riders)

	Potential Riders %
Method	
Purchase at Station	53
Purchase in Advance, Other Location	45
Don't know	2

VRE Expectations, Potential Riders: Travel To/From Station

Most Potential Riders said they would drive from their homes to the Woodbridge Station (92 percent). Some, however, said they would walk to the station (six percent) or ride their bikes (two percent).

Potential Riders who indicated they would drive to the train station from their homes were asked if they would be willing to pay for parking at the station. Just over one-half said they would pay a nominal parking fee (53 percent). Two out of three of these respondents said they would be willing to pay $1.00 per day (64 percent), while one out of three said they would pay between $1.00 and $2.00 (32 percent). Four percent said they would pay more than $2.00.

Three out of four Potential Riders said they would be very likely or somewhat likely to use feeder bus service if it were available to the Woodbridge Station (43 percent very likely, 31 percent somewhat likely). One out of four said they would not use the service (26 percent).

VRE Expectations, Potential Riders: Off-Hour Use

Over one-half of the respondents said they would frequently (20 percent) or sometimes (33 percent) use the commuter train on holidays and weekends, while 16 percent said they would never use it on non-workdays.

Almost half of the Potential Respondents said they would frequently (16 percent) or sometimes (33 percent) use the commuter train midday if such service were available, while 20 percent said they would never ride the train during midday.

Two out of three respondents said they would frequently (28 percent) or sometimes (37 percent) ride a late train out of the city into the Woodbridge Station, while eight percent said they would never ride a late train. Exhibit II-70 presents the suggested times the late train should run to meet the needs of Potential Riders.

Exhibit II-70
Time Late Train Should Run
Woodbridge Station Area

(Base: Potential Riders who would use late train)

	Potential Riders %
Time	
Before 5:00 pm	8
5:00 pm to 5:59 pm	8
6:00 pm to 6:29 pm	18
6:30 pm to 6:59 pm	5
7:00 pm to 7:59 pm	23
8:00 pm to 8:59 pm	21
9:00 pm or later	18
Mode	7:00 pm

Non-Rider/Non-Commuter Responses

As would be expected, the primary reason Non-Riders/Non-Commuters would not ride the train is that they did not commute to the areas it served. Other reasons for non-ridership centered around schedules and cost, as Exhibit II-71 shows.

Exhibit II-71
Reasons for Not Riding VRE Commuter Train
Woodbridge Station Area

(Base: Non-Riders, Non-Commuters)

Reason	Non-Riders/ Non-Commuters %
Train doesn't run where I go	51
Don't work/retired	44
Inconvenient schedule	12
Work too close/live there	5
Inconvenient station location	5
Travel weekends/holidays	5
Too expensive	5
Need to work late	2
Make stops during commute	2

Almost six out of ten Non-Riders/Non/Commuters, however, would use the train for non-work related purposes (58 percent). Of these, most said they would take the train into Washington for entertainment (72 percent), shopping (32 percent) or specific appointments (12 percent).

PUBLIC OPINION REGARDING VRE

In order to get a measure of public opinion regarding VRE, all respondents were asked to agree or disagree with a series of six statements about the new commuter train in terms of its social impact.

There was general agreement among all ridership groups that VRE will help conserve energy, reduce rush hour traffic congestion, reduce pollution and provide a convenient way to get to and from downtown Washington D.C. There was less agreement among ridership groups, however, when the topic turned to the cost of the system and the group(s) that should bear the cost. For example, Non-Riders (both commuters and non-commuters) were more likely than Potential Riders to say riders should bear the cost of the train through daily fares.

Non-Riders/Non-Commuters were the least likely to agree that general tax funds should be used to pay for train operations. However, even the Non-Rider/Non-Commuter group had mixed opinions about using tax funds. Exhibit II-72 presents the results to this series of public opinion questions.

Exhibit II-72
Agreement/Disagreement with Statements
About the new Commuter Train

Woodbridge Station Area

(Means)

Statement	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commute
The cost of the train should be borne entirely by those who ride it, through daily fares.	2.81	2.33	3.20	3.19
Using general tax funds to set up and operate the train is a good use of taxpayer dollars.	3.18	3.51	3.35	2.70
The train will be a convenient way to get to and from downtown Washington.	3.55	3.78	3.15	3.47
The train will help reduce rush hour traffic congestion in the region.	3.55	3.78	3.35	3.37
The train will help reduce pollution in the region.	3.51	3.65	3.30	3.44
The train will help conserve energy.	3.58	3.73	3.30	3.53

Scale: 4 = Strongly agree
3 = Somewhat agree
2 = Somewhat disagree
1 = Strongly disagree

OUTLIER STATIONS

Respondents who lived in zip codes within a five-mile radius of any VRE station, but who did not live within a five-mile radius of the five selected stations (Burke Center/Rolling Road, Leeland, Manassas Airport or Woodbridge), were grouped in this "Outlier Stations" subsample. Therefore, this sample included residents of close-in areas as well as communities that are more distant from Washington D.C. This section of the report describes the responses of those people residing within the Outlier Stations area.

When they were initially asked how likely they would be to ride the new commuter train if the schedule and fare met their needs. nine percent of the respondents in the Outlier Stations area said they would be very likely, six percent said they would be somewhat likely and 85 percent said they would not be likely at all. Probable VRE ridership declined over the course of the survey, however, after respondents were given information relating to actual travel times and fares.

RESPONDENT DEMOGRAPHICS

Exhibit II-73 presents the demographic characteristics of respondents in the Outlier Stations area. The first column of the table presents the distribution of the overall Outlier subsample among the response categories, while the second through fourth columns present the distribution of Potential Riders, Non-Riders/Commuters and Non-Riders/Non-Commuters, respectively.

Exhibit II-73
Demographic Characteristics
Outlier Stations Area

(Base: Total respondents)

	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commuter
	%	%	%	%
Age				
18 to 35	43	46	38	46
36 to 64	51	52	63	44
65 +	6	2	0	10

Exhibit II-73 (continued)
Demographic Characteristics
Outlier Stations Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Household Income				
Less than $30,000	17	4	13	23
$30,000 to $60,000	42	38	48	40
$60,001 to $100,000	24	44	26	17
Over $100,000	17	14	13	20
Adults in Household				
One	15	4	20	15
Two	63	78	52	65
Three	14	16	16	13
Four	6	2	8	5
Five	1	0	0	3
Refused	1	0	4	0
Number of Vehicles Available to Household				
One	26	26	28	25
Two	51	36	44	60
Three	13	30	20	5
Four	4	6	0	5
Five	3	0	0	5
None	3	2	8	0
Number of Commuters In Household[1]				
One	36	66	64	10
Two	11	34	20	0
Three	3	0	8	0
None	50	0	8	90

[1] Commuters to Alexandria, Crystal City, the Pentagon or downtown Washington, D.C.

Exhibit II-73 (continued)
Demographic Characteristics
Outlier Stations Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Occupation				
Professional	22	22	24	20
Technical	19	34	28	10
Manager	3	10	0	3
Proprietor	*	2	0	0
Clerical	16	8	16	18
Sales	5	10	8	3
Craftsmen/Foremen	11	12	20	5
Service Worker	3	2	4	3
Non-Worker	17	0	0	32
Unemployed	4	0	0	7
Refused	0	0	0	0
Occupation Category				
White collar	45	68	52	33
Gray collar	21	18	24	21
Blue collar	14	14	24	49

* less than one percent

CURRENT COMMUTING CHARACTERISTICS

Most respondents from the Outlier Stations area said they considered themselves regular commuters (61 percent); all of these commuted for work-related reasons.

Just under one-half of the respondents from the Outlier Stations area worked near Alexandria, Crystal City, the Pentagon or downtown Washington D.C. (46 percent), while 33 percent did not work near any of those locations and 21 percent did not work outside the home.

The respondents most often drove alone, although some participated in carpools or vanpools or rode Metrorail or the bus. Potential Riders were less likely than Non-Riders/Commuters to drive alone, and more likely to take public transit such as Metro or the bus. Exhibit II-74 presents these responses.

Exhibit II-74
Current Method of Transportation to Work
Outlier Stations Area

(Base: Total commuters)

Method	Total %	Potential Riders %	Non-Rider/ Commuter %
Drive alone	62	44	56
Metro Rail	14	16	24
Bus	4	4	8
Shared ride	10	8	12
Carpool/Vanpool	8	28	0

Commuters from the Outlier Stations area were most likely to travel directly to work from their homes, although 27 percent said they typically made stops on their way to work from home. The most typical reasons commuters from Outlier area would stop on their way from home to work included child care or school (66 percent), shopping for incidentals such as cigarettes or gas (50 percent), laundry/dry cleaning (29 percent), and banking (15 percent). Some respondents stopped for more than one reason on their way to work.

Just over half of the respondents in the Outlier Stations area set their own work schedules (53 percent), while the remainder have schedules that have been determined by their employers. Potential Riders and Non-Riders/Non-Commuters had equal flexibility in their work hours. About one-third of the Outlier Stations area respondents' work schedules had been adjusted because of traffic patterns, e.g., to avoid traffic congestion (31 percent). Potential Riders were more likely to have adjusted their work schedules (46 percent versus 24 percent of the Non-Riders/Commuters).

Respondents in the Outlier Stations area reported commute times ranging from ten minutes to over two hours, but most often said the commute from home to work took about 45 minutes. Potential Riders generally reported longer commutes than Non-Riders/Commuters. Exhibit II-75 presents these results.

Exhibit II-75
Total Commute From Home to Work
Outlier Stations Area

(Base: Total commuters)

Minutes	Total %	Potential Riders %	Non-Rider/ Commuter %
30 minutes or less	25	10	32
31 to 49 minutes	35	34	36
50 to 60 minutes	24	24	24
61 to 89 minutes	9	10	8
90 minutes or more	7	22	0
Mode (minutes)	45	45	45
Mean (minutes)	48	62	42

Approximately one out of five respondents from the Outlier Stations area said they were expected to be at work by 7:00 AM or earlier (23 percent), and an additional 34 percent said they had to be at work between 7:00 AM and 8:00 AM. Potential Riders and Non-Riders/Commuters reported similar work start requirements. Approximately one out of ten respondents reported starting times after 9:00 AM.

Almost one-half of the respondents from the Outlier Stations area said they got off work in the afternoon before 5:00 PM (45 percent), particularly between 4:00 PM and 5:00 PM (31 percent). Almost one out of three had workdays ending between 5:00 PM and 5:30 PM, while 17 percent got off work between 6:00 PM and 7:00 PM. Under 10 percent reported late night or morning stopping times.

Approximately one-quarter of the commuters said they never worked more than 15 minutes after their normal work hours. Potential Riders were more likely than Non-Riders/Non-Commuters to say they did not stay late (32 percent versus 24 percent). However, 17 percent of the respondents said they stayed after hours at work four or five times a week, and 44 percent said they stayed more than 15 minutes late after work two or three times a week. Almost one out of five respondents who stayed late after work said they stayed until 10:00 PM or later (19 percent), while 27 percent left between 5:30 PM and 6:45 PM.

Respondents Who Drive to Work Alone

As stated earlier, 62 percent of the respondents in the Outlier Stations area said they usually drove from home to work alone. Non-Rider/Commuters were more likely to drive alone than Potential Riders (56 percent compared to 44 percent).

Eight out of ten respondents who usually drove to work alone said they paid no parking fees (81 percent); the highest daily parking fee reported was $10.00. The mean parking fee paid was $1.00.

When the respondents who commuted to the target area (Alexandria, Crystal City, the Pentagon or downtown Washington D.C.) were asked to estimate their daily round-trip cost of driving a car to work, excluding parking when applicable, one-half estimated the cost at $3.00 or less. The average (mean) cost among those giving estimates was $4.20, and the highest cost given was $20.00 (one respondent). Potential Riders typically estimated higher daily commuting costs than Non-Riders/Commuters, as Exhibit II-76 shows.

Exhibit II-76
Cost to Drive Car Round Trip- Excluding Parking
Outlier Stations Area

(Base: Commuters driving alone)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Drive alone	62	44	56
Cost			
$3.00 or less	50	27	57
$3.01 to $4.75	12	5	14
$4.76 to $5.00	20	14	21
More than $5.00	18	54	7

Four out of ten respondents who said they drove alone to work said they were able to park within one or two minutes of their workplace (39 percent), while 17 percent reported parking 10 minutes or more from their workplaces.

Respondents Participating in Carpools/Vanpools

Approximately one out of five respondents in the Outlier Stations area said they participated in carpools, vanpools or ridesharing (18 percent). Potential Riders were more likely than Non-Riders/Commuters to participate in pools or ridesharing (36 percent versus 12 percent). The primary difference between the ridership groups was that Non-Riders/Non-Commuters participated in ridesharing as opposed to carpooling/vanpooling, while Potential Riders were much more likely to participate in some type of pool.

More than nine out of 10 respondents who participated in carpools or vanpools said they were part of prearranged pools (94 percent). Most were in pools of two riders (61 percent), while 20 percent were in pools of three or four riders and 16 percent were in pools of six or more riders.

The few respondents who participated in informal, or "pickup" carpools were equally likely to go to a central location and look for riders as they were to go and look for a driver.

Every respondent who participated in a carpool, vanpool or ridesharing system walked to his workplace from a dropoff point.

Eight out of ten respondents who participated in carpools/vanpools/ ridesharing said it took them five minutes or less to get from the dropoff location to their workplaces (88 percent). Three percent said it took them more than 10 minutes.

All of the respondents who participated in some type of pool or ridesharing system used the same mode of transportation to go from work to home.

Almost half of the respondents who participated in carpooling/vanpooling/ ridesharing said they had daily round-trip commuting costs of $2.00 or less, while 15 percent said they had daily costs of more than $5.00. The average (mean) cost reported by the respondents was $3.40.

Respondents Who Ride Metrorail/Bus

Eighteen percent of the respondents said they were most likely to commute to work using Metrorail or bus. Non-Riders/Commuters were more likely than Potential Riders to use these modes of transit. The greatest number of these respondents, 52 percent, said they rode Metrorail only, while 14 percent rode the bus only and 34 percent rode both Metrorail and bus.

Most respondents in the Outlier Stations area who rode the Metrorail or bus said they most often drove to the station or stop and parked (40 percent) or walked to the stop (38 percent). The rest said they were dropped off at the station or stop (22 percent).

Sixteen percent of the respondents who took Metrorail or the bus said they had joined informal carpools while waiting for the bus or train; all of these were Potential Riders.

Eight out of ten respondents who took the bus or Metrorail said it took five minutes or less to walk from the bus stop or station to their workplace, while eight percent said it took them more than ten minutes.

The total round-trip transit fare reported by respondents from the Outlier Stations area for their bus/Metrorail commute ranged from $1.45 to $6.50; $3.40 was the mean (average) price reported. Potential Riders reported somewhat higher fares than did Non-Riders/Commuters.

Respondents with Other Commuting Modes

No respondent in the Outlier Stations area reported commuting to work by any mode other than driving alone, carpooling/vanpooling/ridesharing, or taking Metrorail or bus.

REACTIONS TO VIRGINIA RAILWAY EXPRESS

Awareness of VRE

Approximately six out of ten respondents in the Outlier Stations area had heard of VRE prior to being interviewed. Awareness was particularly high among Potential Riders, as Exhibit II-77 shows.

Exhibit II-77
Awareness of VRE Commuter Train
Outlier Stations Area

(Base: Total respondents)

	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commuter
	%	%	%	%
Awareness				
Yes	59	68	56	58
No	42	32	44	43

Likelihood of Riding VRE

Just under one out of ten respondents from the Outlier Stations area initially said he would be very likely to ride the new commuter train if the fare and schedule fit his needs (nine percent), and an additional six percent said they would be somewhat likely. Most said they would not be likely at all to ride the new train (85 percent), as Exhibit II-78 shows.

Exhibit II-78
Expected Usage of VRE Commuter Train
Outlier Stations Area

(Base: Total respondents)

	Total	Potential Riders	Not Rider/ Commuter	Non-Rider/ Non-Commuter
	%	%	%	%
Usage				
Very likely	9	66	0	0
Somewhat likely	6	34	0	0
Not likely at all	85	0	100	100

Factors Influencing VRE Ridership

Respondents who commuted to targeted areas (Alexandria, Crystal City, the Pentagon or downtown Washington D.C.) were asked to use a four-point scale to say how important each of eleven factors would be to them in deciding whether or not to ride the new commuter train. Outlier Stations area respondents rated

reliability, safety and reasonable cost as most important. Exhibit II-79 presents the results of these questions.

Exhibit II-79
Importance of Factors
in Deciding Whether or not to use the new Commuter Train
Outlier Stations Area

(Base: Total commuters)
(Mean Ratings)

Factor	Total	Potential Riders	Non-Rider/ Commuter
Safe trains/station	3.84	3.84	3.84
Reliable service/ trains are on time	3.88	3.98	3.84
Clean trains/station	3.68	3.68	3.68
The length of time it takes to get from home to work	3.71	3.70	3.72
Frequency of service (all day or only peak)	3.57	3.60	3.56
Adequate parking at station	3.66	3.70	3.64
Late/evening trains	3.46	3.32	3.52
Adequate public info./signs	3.42	3.38	3.44
Not having to drive	3.48	3.56	3.44
Reasonable cost	3.78	3.82	3.76
Amenities at the station(food, etc.)	2.13	2.64	1.92

Scale: 4 = Very important
3 = Somewhat important
2 = Somewhat unimportant
1 = Very unimportant

VRE Expectations, Potential Riders: Frequency of Use

When Potential Riders were asked how many days per week they would expect to ride the new commuter train, two out of three said they would ride it five

days a week (67 percent). An additional six percent said they would ride the train four days a week, while 16 percent said they would ride the new train three times a week, four percent said twice a week and six percent said once a week.

VRE Expectations, Potential Riders: Station to Workplace Distance and Travel

Over one-half of the Potential Riders in the Outlier Stations area said their workplace was more than five blocks from the VRE Station where they would detrain (52 percent), while 32 percent said the station would be two to five blocks from their workplace, and 16 percent said the station would be within two blocks.

Potential Riders in the Outlier Stations area were most likely to say they would walk (52 percent) from the VRE station to work, but some respondents said they would take the Metro (28 percent) or bus (16 percent) or take a taxi (four percent).

VRE Expectations, Potential Riders: Commute Time

When they were asked how long they would expect their overall one-way commute to take from the time they left home to the time they arrived at work, Potential Riders generally expected their VRE commute time to be shorter than their current commute times. Exhibit II-80 presents this comparison.

Exhibit II-80
Expected Length of One Way Commute From Respondent's House to Work and Total Commute From Home to Work

Outlier Stations Area
(Base: Claimed potential riders)

	Current Commute	Anticipated Commute with VRE
	Potential Riders %	Potential Riders %
Minutes		
30 minutes or less	10	24
31 to 49 minutes	34	36
50 to 60 minutes	24	22
61 to 89 minutes	10	12
90 minutes or more	22	6
Mode (Minutes)	45	45
Mean (Minutes)	62	49

After the Potential Riders had said how long they expected their commute from their homes to the workplace to take on VRE, they were informed of the actual scheduled time anticipated by VRE management[1] and asked how likely they would be to ride the new commuter train, given this additional information. There was some softening in anticipated ridership, as Exhibit II-81 shows.

Exhibit II-81
Likelihood of Ridership
Outlier Stations Area
(Base: Potential Riders)

	Initial Likelihood %	Likelihood with Trip Length Info. %
Very likely	66	50
Somewhat likely	34	42
Not likely at all	0	8

[1] The interviewer consulted a VRE chart of times based on respondent home zip code to determine the appropriate trip duration.

VRE Expectations, Potential Riders: Cost/Payment

The respondents were then asked how much they would expect to have to pay to ride the new commuter train to and from work each day from the Outlier Stations. After they had given their estimated costs, they were told of the choices of actual anticipated round-trip fares based on a one-ride ticket, a 15% discount for a ten-ride ticket, and a 30% discount for a monthly pass[1], and asked how this additional information would affect their likelihood to ride the new train. Following this, they were asked the absolute maximum price they would pay to ride the train. Exhibit II-82 presents the responses regarding anticipated cost and maximum acceptable cost, while Exhibit II-83 presents the respondents' likelihood of riding the train given the various costs.

Exhibit II-82
Cost Expectations for Roundtrip Fare
Outlier Stations Area
(Base: Potential Riders)

Amount	Before Pricing Suggested %	Maximum Willing to Pay %
Less than $5.00	56	38
$5.00 to $6.00	14	18
$6.01 to $7.00	4	12
$7.01 to 8.00	4	4
$8.01 to $10.00	8	12
Over $10.00	6	14
Don't Know	8	2
Mode (Dollars)	$3.00	$3.00/$7.00/$10.00

[1] The interviewer consulted a VRE chart of fares based on respondent home zip code to determine the round-trip daily cost at each level.

Exhibit II-83
Likelihood of Ridership From Outlier Stations to Downtown D.C.
At Three Different Prices

(Base: Potential Riders)

	Base Cost (One-way x two) %	15% Less (Ten-trip ticket) %	30% Less (Monthly pass) %
Very likely to ride	28	32	46
Somewhat likely to ride	24	24	32
Not at all likely to ride	48	44	22

Potential Riders were then given more information regarding the discounted fare structure for 10-ride tickets and monthly passes, and were asked which type of ticket they would be most likely to buy. Most respondents said they would buy monthly passes (82 percent), but some said they would buy 10-ride tickets (16 percent) or one-ride tickets (two percent).

Following this, the respondents were told what the cost of a monthly pass from the Outlier Stations to downtown Washington D.C. would be[1], and asked how likely they would be to purchase a monthly pass at that price. Almost one out of three respondents said he would be very likely to purchase a monthly pass at that price (28 percent), while 36 percent said they would be somewhat likely and 36 percent said they would not be at all likely.

Respondents who said they would purchase monthly passes were then asked about their preferred payment method, and then all Potential Riders were asked about their likelihood of using credit cards in automatic ticketing machines and their preferences regarding where to purchase tickets. Exhibit II-84 through II-86 present the responses to these questions.

[1] The interviewer consulted a VRE chart of monthly fares based on respondent home zip code to determine the actual cost for each respondent.

Exhibit II-84
Preferred Method of Payment for Monthly Pass
Outlier Stations Area

(Base: Potential Riders likely to buy monthly pass)

	Potential Riders %
Very/Somewhat Likely To Buy Monthly Pass	64
Method	
Credit Card	13
Cash	22
Check	66

Exhibit II-85
Likelihood of Using a Credit Card in Automatic Ticketing Machine
Outlier Stations Area

(Base: Potential Riders)

	Potential Riders %
Likelihood	
Very Likely	46
Somewhat Likely	20
Not Likely at All	34

Exhibit II-86
Preference of Buying Tickets at the Station or in Advance
Outlier Stations Area

(Base: Potential Riders)

	Potential Riders %
Method	
Purchase at Station	41
Purchase in Advance, Other Location	59

VRE Expectations, Potential Riders: Travel To/From Station

Most Potential Riders said they would drive from their homes to the Outlier Stations and park there (80 percent). Some, however, said they would be dropped off (10 percent), walk (six percent), or take a bus (four percent).

Potential Riders who had indicated they would drive to the train station from their homes were asked if they would be willing to pay for parking at the station. Two out of three said they would pay a nominal parking fee (65 percent). Two-thirds of these respondents said they would be willing to pay $1.00 to $2.00 per day.

Forty percent of the Potential Riders said they would be very likely to use feeder bus service if it were available to the Outlier Stations, and an additional 32 percent said they would be somewhat likely. Almost one-third of the respondents said they would not be likely to use the feeder bus service (28 percent).

VRE Expectations, Potential Riders: Off-Hour Use

Over one-half of the respondents said they would frequently (16 percent) or sometimes (36 percent) use the commuter train on holidays and weekends, while eight percent said they would never ride it on non-workdays.

One out of three of the Potential Respondents said they would frequently (32 percent) or sometimes (24 percent) use a midday commuter train if such service were available, while 20 percent said they would never ride the train during midday.

Two out of three respondents said they would frequently (32 percent) or sometimes (32 percent) ride a late train out of the city into the Outlier Stations, while 10 percent said they would never ride a late train. Exhibit II-87 presents the suggested times the late train should run to meet the needs of Potential Riders.

Exhibit II-87
Time Late Train Should Run
Outlier Stations Area

(Base: Potential Riders who would use late train)

Time	Potential Riders %
Before 5:00 PM	6
5:00 PM to 5:59 PM	0
6:00 PM to 6:59 PM	16
7:00 PM to 7:59 PM	9
8:00 PM to 8:59 PM	19
9:00 PM or later (through early AM)	47
Mode	8:00 pm

Non-Rider/Non-Commuter Responses

As would be expected, the primary reason Non-Riders/Non-Commuters would not ride the train is that they did not commute to the areas it serves, either because they did not work near the route or because they did not commute at all. Exhibit II-88 shows these results.

Exhibit II-88
Reasons for Not Riding VRE Commuter Train
Outlier Stations Area

(Base: Non-Riders, Non-Commuters)

Reason	Non-Riders/ Non-Commuters %
Train doesn't run where I go	65
Don't work/retired	40
Inconvenient schedule	8

Two out of three Non-Riders/Non-Commuters from the Outlier Stations area would use the train for non-work related purposes (63 percent). Of these, most said they would take the train into Washington for entertainment (60 percent), appointments (24 percent), or shopping (20 percent).

PUBLIC OPINION REGARDING VRE

In order to get a measure of public opinion regarding VRE, all respondents were asked to agree or disagree with a series of six statements about the new commuter train in terms of its social impact.

There was general agreement among all ridership groups that VRE will help conserve energy, reduce rush hour traffic congestion, reduce pollution and provide a convenient way to get to and from downtown Washington D.C. There was less agreement among ridership groups over who should bear the cost of commuter train operations, with Potential Riders being the most likely to support general tax funds for the train and Non-Riders/Non-Commuters being the most likely to say that the cost of the train should be borne by those who ride it through their daily fares. Non-Riders/Non-Commuters, however, displayed more willingness to support the train through general tax funds than Non-Riders/Non-Commuters. Exhibit II-89 presents the results to this series of public opinion questions.

Exhibit II-89
Agreement/Disagreement with Statements
About the new Commuter Train

Outlier Stations area

(Means)

Statement	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commuter
The cost of the train should be borne entirely by those who ride it, through daily fares.	2.99	2.86	2.80	3.15
Using general tax funds to set up and operate the train is a good use of taxpayer dollars.	3.25	3.56	2.96	3.35
The train will be a convenient way to get to and from downtown Washington.	3.62	3.86	3.44	3.67
The train will help reduce rush hour traffic congestion in the region.	3.82	3.72	3.68	3.93
The train will help reduce pollution in the region.	3.70	3.76	3.44	3.85
The train will help conserve energy.	3.67	3.78	3.48	3.76

Scale: 4 = Strongly agree
3 = Somewhat agree
2 = Somewhat disagree
1 = Strongly disagree

GENERAL SERVICE AREA POPULATION

This section of the report describes the results of the survey as administered to the overall area population. All percentages are based on data which was weighted by proportion of riders as well as proportion of the population (See Appendix II-B).

When they were initially asked how likely they would be to ride the new commuter train if the schedule and fare met their needs. 12 percent of the respondents in the General Service Area said they would be very likely, eight percent said they would be somewhat likely and 80 percent said they would not be likely at all. Probable VRE ridership declined over the course of the survey, however, after respondents were given information relating to actual travel times and fares.

RESPONDENT DEMOGRAPHICS

Exhibit II-90 presents the demographic characteristics of respondents in the General Service Area. The first column of the Exhibit presents the distribution of the overall subsample among the response categories, while the second through fourth columns present the distribution of Potential Riders, Non-Riders/Commuters and Non-Riders/Non-Commuters, respectively.

Exhibit II-90
Demographic Characteristics
General Service Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Age				
18 to 35	40	40	30	45
36 to 64	56	59	70	48
65 +	4	1	0	7

Exhibit II-90 (continued)
Demographic Characteristics
General Service Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Household Income				
Less than $30,000	10	3	8	14
$30,000 to $60,000	46	43	48	47
$60,001 to $100,000	32	46	31	26
Over $100,000	12	8	14	13
Adults in Household				
One	14	7	17	15
Two	64	74	58	63
Three	15	15	16	14
Four	6	3	8	5
Five or more	2	2	2	2
Number of Vehicles Available to Household				
One	21	15	25	20
Two	51	50	49	52
Three	19	26	17	17
Four	6	7	5	6
Five or more	3	1	2	4
None	1	0	2	*
Number of Commuters In Household[1]				
One	36	72	71	0
Two	10	25	20	0
Three	2	2	4	0
None	53	2	6	100

*less than 1 percent

[1] Commuters working in Alexandria, Crystal City, the Pentagon or downtown Washington D.C.

Exhibit II-90 (continued)
Demographic Characteristics
General Service Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Occupation				
Professional	225	27	31	21
Technical	14	20	21	8
Manager	7	13	2	7
Proprietor	3	3	3	3
Clerical	12	12	12	12
Sales	6	4	7	7
Craftsmen/Foremen	12	16	17	8
Service Worker	3	3	5	2
Farmers	*	0	0	*
Operatives	*	*	0	*
Non-Worker	14	1	0	26
Unemployed	3	*	*	5
Refused	1	1	1	1
Occupation Category				
White collar	49	63	57	39
Gray collar	18	16	19	19
Blue collar	16	20	23	11

*less than one percent

CURRENT COMMUNTING CHARACTERISTICS

Almost two out of three respondents (61 percent) from the General Service Area said they considered themselves regular commuters; most commuted for work-related reasons (98 percent), while the others commuted for different reasons.

Just under one-half of the respondents from the General Service Area worked near Alexandria, Crystal City, the Pentagon or downtown Washington D.C. (45 percent), while 39 percent did not work near any of those locations and 17 percent did not work outside the home. Virtually all Potential Riders said they worked near the targeted VRE destinations.

Two out of three respondents who commuted to work most often drove alone, although 20 percent participated in carpools or vanpools and 13 percent used public transportation such as Metrorail or bus. Non-Riders/Commuters were more likely to drive alone than Potential Riders. Exhibit II-91 presents these responses.

Exhibit II-91
Current Method of Transportation to Work
General Service Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Method			
Drive alone	65	45	54
Metro Rail	9	11	17
Bus	4	7	4
Shared ride	7	7	10
Carpool/Vanpool	13	29	13
Other	2	1	2

Four out of five commuters from the General Service Area said they usually travelled directly to work from their homes, whle 20 percent said they typically made stops on their way to work from home. Potential riders were slightly more likely than Non-Riders/Commuters to travel directly without making stops (82 percent versus 78 percent, respectively).

The most typical reasons commuters would stop on their way from home to work included child care or school (51 percent), shopping for incidentals such as cigarettes or gas (41 percent), banking (26 percent), laundry/dry cleaning (27 percent), and eating (18 percent). Many respondents made more than one stop on their way to work.

Just over half of the respondents in the General Service Area set their own work schedules (52 percent), while the remainder have schedules that have been determined by their employers. Non-Riders/Commuters had more flexibility in their work hours, as 51 percent set their own schedules, compared to 48 percent of the Potential Riders. Approximately one-third of the General Service Area respondents' work schedules have been adjusted because of traffic patterns, e.g., to avoid traffic congestion (35 percent). Potential Riders were more likely than

Non-Riders/Commuters to say they have had their worktimes adjusted because of traffic (48 percent versus 26 percent).

Respondents in the General Service Area reported commute times ranging from just a few minutes to over two hours, but most often said the commute from home to work took about 45 minutes. Potential riders generally reported longer commutes than Non-Riders/Commuters. For example, whereas 90 percent of the Non-Riders/Commuters said they spent less than an hour travelling from home to work, 75 percent of the Pontential Riders had commute times of under an hour. Conversely, 16 percent of the Potential Riders had commute times in excess of 90 minutes, compared to just two percent of the Non-Riders/Commuters. Exhibit II-92 presents these results.

Exhibit II-92
Total Commute From Home to Work
General Service Area

(Base: Total commuters)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Minutes			
30 minutes or less	27	15	37
31 to 49 minutes	32	31	33
50 to 60 minutes	23	27	20
61 to 89 minutes	10	11	8
90 minutes or more	7	16	2
Mode (minutes)	45	45	45
Mean (minutes)	49	60	41

One out of four respondents from the General Service Area said he was expected to be at work by 7:00 AM or earlier (25 percent), and an additional 38 percent said they had to be at work between 7:00 AM and 8:00 AM. Potential Riders were more likely than Non-Riders/Commuters to report early work start times.

Potential Riders were also slightly more likely than Non-Riders/ Commuters to stay late after work -- 16 percent said they stayed more than 15 minutes late at work five times a week, compared to nine percent of the Non-Rider/Commuters. Approximately one-third of the respondents from the General

Service Area, regardless of ridership category, said they never stayed more than 15 minutes late at work (31 percent).

Potential Riders who stayed late after work were somewhat more likely than their Non-Rider/Commuter counterparts to stay later in the evening as well: 74 percent stayed after 5:30 PM, compared to 55 percent of the Non-Rider/ Commuters.

Respondents Who Drive to Work Alone

As stated earlier, 65 percent of the respondents in the General Service Area said they usually drove from home to work alone. Non-Rider/Commuters were more likely to drive alone than Potential Riders (54 percent versus 45 percent).

Three out of four respondents who usually drove to work alone said they paid no parking fees (73 percent); only 14 percent said they paid more than $3.00 per day for parking. Almost half estimated their daily round-trip cost of driving a car to work (excluding parking, when applicable) at $3.00 or less. Non-Riders/Commuters typically estimated lower daily commuting costs than Potential Riders, as Exhibit II-93 shows.

Exhibit II-93
Cost to Drive Car Round Trip - Excluding Parking
General Service Area
(Base: Commuters driving alone)

	Total %	Potential Riders %	Non-Rider/ Commuter %
Drive alone	65	45	54
Cost			
$3.00 or less	48	33	58
$3.01 to $4.75	16	20	33
$4.76 to $5.00	16	18	15
More than $5.00	14	22	9
Don't Know	5	6	5
Mode	$5.00	$5.00	$2.00
Mean	$3.81	$4.57	$3.31

Over half of the respondents who drove alone to work said they were able to park within one or two minutes of their workplace (57 percent), while four percent reported parking more than 10 minutes from their workplace.

Respondents Participating in Carpools/Vanpools

One out of five respondents in the General Service Area said they participated in carpools, vanpools or ridesharing. Potential Riders were more likely than Non-Riders/Commuters to use these travel modes (36 percent versus 23 percent).

Virtually all of the respondents who participated in carpools or vanpools said they were part of prearranged carpools/vanpools (95 percent). Potential Riders were more likely than Non-Riders/Commuters to be members of larger pools of six or more people (27 percent versus 10 percent of the Non-Riders/Commuters), while Non-Riders/Commuters were more likely to participate in pools of one or two riders (40 percent versus 22 percent).

Few respondents participated in informal "pickup" carpools or ridesharing; those who did were about equally likely to go to a central place to look for riders as they were to look for drivers.

Only two percent of the respondents who participated in any kind of carpool, vanpool or ridesharing system were dropped off at the door of their workplace. Carpoolers/vanpoolers/ridesharers typically said they walked from their dropoff locations to their workplace (94 percent), although some said they take Metrorail/bus (three percent).

Ninety percent of the respondents who participated in carpools/vanpools/ridesharing said it took them five minutes or less to get from the dropoff location to their workplace, while five percent said it took them more than 10 minutes.

Virtually all the respondents who participated in some type of pool or ridesharing system used the same mode of transportation to go from work to home (97 percent); the others took the Metro or bus.

Over half of the respondents who participated in carpooling/vanpooling/ridesharing reported daily round-trip commuting costs of $3.00 or less (60 percent). One-third reported spending $5.00 or more per day (33 percent).

Respondents Who Ride Metrorail/Bus

Thirteen percent of the respondents said they were most likely to commute to work using Metrorail or bus. Potential Riders and Non-Riders/Commuters were about equally likely to use these modes of transit (18 percent and 21 percent, respectively). Of these, 44 percent said they only rode Metrorail, while 25 percent said they only rode the bus and 31 percent said they rode both.

Most respondents in the General Service Area who rode the Metrorail or bus said they most often drove to the station or stop, parked and then rode (42 percent) or that they walked to the stop (40 percent). The rest said they were dropped off (16 percent) or took a feeder bus to the station or stop (two percent).

One out of five respondents who took Metrorail or the bus said he had joined informal carpools while waiting for the bus or train (22 percent).

Three-quarters of the respondents who took the bus or Metrorail said it took five minutes or less to walk from the bus stop or station to their workplace (76 percent), while seven percent said it took them fifteen minutes or more.

The total round-trip transit fare reported by respondents from the General Service Area for their Metrorail or bus commute ranged from $1.45 to $10.00; $3.74 was the mean (average) price reported.

Respondents with Other Commuting Modes

Two percent of the respondents in the General Service Area said they commuted by some method other than driving alone, carpooling/vanpooling/ridesharing, or taking Metrorail or the bus. These respondents typically biked to work and reported no transportation costs.

REACTIONS TO VIRGINIA RAILWAY EXPRESS

Awareness of VRE

Almost two out of three respondents in the General Service Area had heard of VRE prior to being interviewed. Awareness was particularly high among commuters, as Exhibit II-94 shows.

Exhibit II-94
Awareness of VRE Commuter Train
General Service Area

(Base: Total respondents)

	Total %	Potential Riders %	Non-Rider/ Commuter %	Non-Rider/ Non-Commuter %
Awareness				
Yes	66	81	64	61
No	35	20	36	39

Likelihood of Riding VRE

Just over one out of ten respondents from the General Service Area said he would be very likely to ride the new commuter train if the fare and schedule fit his needs (12 percent), and an additional eight percent said they would be somewhat likely. Most said they would not be likely at all to ride the new train (80 percent), as Exhibit II-95 shows.

Exhibit II-95
Expected Usage of VRE Commuter Train
General Service Area

(Base: Total respondents)

	Total %	Potential Riders %	Not Rider/ Commuter %	Non-Rider/ Non-Commuter %
Usage				
Very likely	12	60	0	0
Somewhat likely	8	40	0	0
Not likely at all	80	0	100	100

Factors Influencing VRE Ridership

Respondents who commuted to targeted areas (Alexandria, Crystal City, the Pentagon or downtown Washington D.C.) were asked to use a four-point scale to say how important each of eleven factors would be to them in deciding whether or not to ride the new commuter train. Reliable service ("trains are on time"), reasonable cost and safety ("safe trains and stations") received the highest average

(mean) ratings -- each was rated approximately 3.7 or higher on a 4.0 scale, regardless of ridership group. In fact, the respondents placed fairly high importance on every factor, with the possible exception of "amenities at the station." Exhibit II-96 presents the results of these questions.

Exhibit II-96
Importance of Factors
In Deciding Whether or not to Use the New Commuter Train
General Service Area

(Base: Total commuters)
(Mean Ratings)

Factor	Total	Potential Riders	Non-Rider/ Commuter
Safe trains/stations	3.74	3.83	3.68
Reliable service/ trains are on time	3.84	3.91	3.79
Clean trains/stations	3.62	3.64	3.61
The length of time it takes to get from home to work	3.70	3.74	3.67
Frequency of service (all day or only peak)	3.52	3.54	3.51
Adequate parking at stations	3.64	3.68	3.60
Late/evening trains	3.30	3.25	3.33
Adequate public info./signs	3.39	3.43	3.36
Not having to drive	3.42	3.53	3.33
Reasonable cost	3.78	3.86	3.71
Amenities at the stations(food, etc.)	2.23	2.46	2.06

Scale: 4 = Very important
3 = Somewhat important
2 = Somewhat unimportant
1 = Very unimportant

VRE Expectations, Potential Riders: Frequency of Use

When Potential Riders were asked how many days per week they would expect to ride the new commuter train, 73 percent said they would ride it five days a week. An additional 15 percent said they would ride the train three or four days a week, while thirteen percent said they would ride the new train once or twice a week.

VRE Expectations, Potential Riders: Station to Workplace Distance and Travel

Over half of the Potential Riders in the General Service Area said their workplaces were more than five blocks from the VRE stations where they would detrain (55 percent), while 27 percent said the station would be two to five blocks from their workplace, and 18 percent said the station would be within two blocks.

Potential Riders in the General Service Area were most likely to say they would walk (49 percent) or take the Metro (30 percent) from the VRE station to work, but some respondents said they would transfer to the bus (18 percent) or catch a ride with a friend or cab (three percent).

VRE Expectations, Potential Riders: Commute Time

When they were asked how long they would expect their overall one-way commute to take from the time they left home to the time they arrived at work, Potential Riders generally expected their VRE commute time to be shorter than their current commute times -- their estimates averaged 48 minutes compared to their current 60 minute average commute. Exhibit II-97 presents this comparison.

Exhibit II-97
Expected Length of One Way Commute From Respondent's House to Work and Total Commute From Home to Work

General Service Area
(Base: Potential Riders)

	Current Commute	Anticipated Commute with VRE
	Potential Riders %	Potential Riders %
Minutes		
30 minutes or less	15	25
31 to 49 minutes	31	36
50 to 60 minutes	27	24
61 to 89 minutes	11	7
90 minutes or more	16	6
Don't Know	0	2
Mode (Minutes)	45	45
Mean (Minutes)	60	48

After the Potential Riders had said how long they expected their commute from their homes to their workplace to take on VRE, they were informed of the actual scheduled time[1] and asked how likely they would be to ride the new commuter train, given this additional information. There was some softening in anticipated ridership, as Exhibit II-98 shows.

Exhibit II-98
Likelihood of Ridership
General Service Area
(Base: Potential Riders)

	Initial Likelihood	Likelihood with Trip Length Info.
	%	%
Very likely	60	50
Somewhat likely	40	43
Not likely at all	0	6

[1] The interviewer consulted a table provided by VRE showing scheduled commute durations by zip code, reading the estimate for the respondent's home zip.

VRE Expectations, Potential Riders: Cost/Payment

The respondents were then asked how much they would expect to have to pay to ride the new commuter train to and from work each day from the VRE station near their homes. After they had given their estimated costs, they were told the actual anticipated round-trip fares based on a one-ride ticket, a 15% discount for a ten-ride ticket, and a 30% discount for a monthly pass, and asked how this additional information would affect their likelihood to ride the new train. Following this, they were asked the absolute maximum price they would pay to ride the train. Exhibit II-99 presents the responses regarding anticipated cost and maximum acceptable cost, while Exhibit II-100 presents the respondents' likelihood of riding the train given the various fares.

Exhibit II-99
Cost Expectations for Roundtrip Fare
General Service Area
(Base: Potential Riders)

	Before Pricing Suggested %	Maximum Willing to Pay %
Amount		
Less than $5.00	48	26
$5.00 to $6.00	28	31
$6.01 to $7.00	16	12
$7.01 to 8.00	6	7
$8.01 to $10.00	6	15
Over $10.00	2	17
Don't Know	5	1
Mode (Dollars)	$5.00	$5.00

Exhibit II-100
Likelihood of Ridership From General Service to Downtown D.C.
At Three Different Prices

(Base: Potential Riders)

	Base Cost (One-way x two) %	15% Less (Ten-trip ticket) %	30% Less (Monthly pass) %
Very likely to ride	17	26	41
Somewhat likely to ride	27	30	36
Not at all likely to ride	56	44	23

Potential Riders were then given more information regarding the discounted fare structure for 10-ride tickets and monthly passes, and were asked which type of ticket they would be most likely to buy. Most respondents said they would buy monthly passes (76 percent), but some said they would buy 10-ride tickets (20 percent) or one-ride tickets (four percent).

Following this, the respondents were told what the cost of a monthly pass from the VRE station near their home to downtown Washington D.C. would be, and asked how likely they would be to purchase a monthly pass at that price. One out of four respondents said he would be very likely to purchase a monthly pass at that price (24 percent), while four out of ten said they would be somewhat likely (39 percent) and 37 percent said they would not be at all likely.

Respondents who said they would purchase monthly passes were then asked about their preferred payment method, and then all Potential Riders were asked about their likelihood of using credit cards in automatic ticketing machines and their preferences regarding where to purchase tickets. Exhibits II-101 through II-103 present the responses to these questions.

Exhibit II-101
Preferred Method of Payment for Monthly Pass
General Service Area

(Base: Potential Riders likely to buy monthly pass)

	Potential Riders %
Very/Somewhat Likely To Buy Monthly Pass	63
Method	
Credit Card	20
Cash	24
Check	56

Exhibit II-102
Likelihood of Using a Credit Card in Automatic Ticketing Machine
General Service Area

(Base: Potential Riders)

	Potential Riders %
Likelihood	
Very Likely	46
Somewhat Likely	26
Not Likely at All	28

Exhibit II-103
Preference of Buying Tickets at the Station or in Advance
General Service Area

(Base: Potential Riders)

	Potential Riders %
Method	
Purchase at Station	45
Purchase in Advance, Other Location	54
Don't Know	1

VRE Expectations, Potential Riders: Travel To/From Station

Most Potential Riders said they would drive from their homes to the VRE station and park there (83 percent). Some, however, said they would walk or bike to the station (12 percent) or be dropped off (six percent).

Potential Riders who indicated they would drive to the train station from their homes were asked if they would be willing to pay for parking at the station. Almost two-thirds said they would pay a nominal parking fee (61 percent). Over half of these respondents said they would be willing to pay up to $1.00 per day (57 percent), while about three out of ten said they would pay between $1.00 and $2.00 (29 percent) and 14 percent said they would pay more than $2.00.

Almost three-quarters of the Potential Riders said they would be very likely or somewhat likely to use feeder bus service if it were available to the VRE station near their homes. Twenty-six percent said they would not use the feeder bus service.

VRE Expectations, Potential Riders: Off-Hour Use

Just under one-half of the respondents said they would frequently (14 percent) or sometimes (32 percent) use the commuter train on holidays and weekends, while 16 percent said they would never use it on non-workdays.

Just over one-third of the Potential Respondents said they would frequently (nine percent) or sometimes (28 percent) use the commuter train midday if such service were available, while 22 percent said they would never ride the train during midday.

Two out of three respondents said they would frequently (25 percent) or sometimes (38 percent) ride a late train out of the city into the VRE stations near their homes, while nine percent said they would never ride a late train. Exhibit II-104 presents the suggested times the late train should run to meet the needs of Potential Riders.

Exhibit II-104
Time Late Train Should Run
General Service Area

(Base: Potential Riders who would use late train)

Time	Potential Riders %
Before 5:00 PM	9
5:00 PM to 5:59 PM	3
6:00 PM to 6:29 PM	11
6:30 PM to 6:59 PM	5
7:00 PM to 7:59 PM	20
8:00 PM to 8:59 PM	21
9:00 PM or later	31
Mode	8:00 pm

Non-Rider/Non-Commuter Responses

As would be expected, the primary reason Non-Riders/Non-Commuters would not ride the train is that they did not commute to the areas it serves, either because they did not work near the route or because they did not commute at all. Other reasons for non-ridership centered around schedules and cost, as Exhibit II-105 shows.

Exhibit II-105
Reasons for Not Riding VRE Commuter Train
General Service Area

(Base: Non-Riders, Non-Commuters)

Reason	Non-Riders/ Non-Commuters %
Train doesn't run where I go	61
Don't work/retired	33
Inconvenient schedule	7
Inconvenient station location	6
Close to Metro/bus	2
Make stops during commute	1
Train safety (e.g., derailment)	1
Personal safety (e.g., violence)	1
Live near work	1
Too expensive	1

Two-thirds of the Non-Riders/Non-Commuters, however, would use the train for non-work related purposes (64 percent). Of these, most said they would take the train into Washington for entertainment (54 percent), appointments (24 percent) or shopping (20 percent).

Public Opinion Regarding VRE

In order to get a measure of public opinion regarding VRE, all respondents were asked to agree or disagree with a series of six statements about the new commuter train in terms of its social impact.

There was general agreement among all ridership groups that VRE will help conserve energy, reduce rush hour traffic congestion, reduce pollution and provide a convenient way to get to and from downtown Washington D.C. There was also general agreement, although it is somewhat weaker agreement, among ridership groups that tax funds would be appropriately used to bear some of the cost of the train. Exhibit II-106 presents the results to this series of public opinion questions.

Exhibit II-106
Agreement/Disagreement with Statements
About the new Commuter Train

(Means)

Statement	Total	Potential Riders	Non-Rider/ Commuter	Non-Rider/ Non-Commute
The cost of the train should be borne entirely by those who ride it, through daily fares.	2.86	2.62	2.72	3.03
Using general tax funds to set up and operate the train is a good use of taxpayer dollars.	3.19	3.48	3.11	3.13
The train will be a convenient way to get to and from downtown Washington.	3.60	3.77	3.38	3.64
The train will help reduce rush hour traffic congestion in the region.	3.70	3.67	3.64	3.73
The train will help reduce pollution in the region.	3.59	3.61	3.56	3.60
The train will help conserve energy.	3.63	3.70	3.53	3.65

Scale: 4 = Strongly agree
3 = Somewhat agree
2 = Somewhat disagree
1 = Strongly disagree

FINAL RIDERSHIP STATUS

Because respondents sometimes became less likely to ride when they learned the actual VRE trip duration and/or fare, they were re-categorized into four groups for additional analysis by final ridership status. The four groups and their definitions are presented in Exhibit II-107.

Exhibit II-107
Final Ridership Status

Probable Rider	Responded "very likely" to ride new train to all questions (initially as well as after being told actual VRE trip durations and fares from the pertinent train station to downtown Washington D.C.)
Possible Rider	Responded "very likely" or "somewhat likely" to ride new train to initial question as well as in response to schedule and fare questions
Unlikely Rider	Responded "very likely" or "somewhat likely" to ride new train initially, but responded "not likely at all" in response to schedule and/or fare questions
Non-Rider	Initially responded "not likely to ride" train (schedule and fare questions were not asked of Non-Riders)

Exhibit II-108 presents the distribution of the telephone survey sample across the four final ridership status groups. These figures, unlike others in this report, are based on *unweighted* data. The actual distribution of these ridership categories in the population would be different, i.e., the proportion of non-riders would be substantially higher.

Exhibit II-108
Final Ridership Status
(Base: Total Respondents)

Status	%
Probable Riders	12
Possible Riders	28
Unlikely Riders	13
Non-Riders	48

The distribution of potential riders (respondents who initially said they would be very likely or somewhat likely to ride the new commuter train) across these groups is presented in Exhibit II-109.

Exhibit II-109
Final Ridership Status
(Base: Potential Riders)

Status	%
Probable Riders	23
Possible Riders	53
Unlikely Riders	24
Non-Riders	0

There was some softening of expected ridership during the survey. For example, 45 percent of the possible riders and 55 percent of the unlikely riders had initially said they were very likely to take the new commuter train. Exhibit II-110 presents these results.

Exhibit II-110
Initial Ridership Likelihood vs. Final Rider Likelihood

	Final Ridership Status			
	Likely Riders	Possible Riders	Unlikely Riders	Non-Riders
Initial Likelihood				
Very Likely	100	45	55	0
Somewhat Likely	0	55	45	0
Not Likely at All	0	0	0	100

Respondents from more distant stations (Leeland and Manassas) were disproportionately likely to be categorized as Probable Riders. Exhibit II-111 presents the distribution of the sample among final ridership status classifications by station, while Exhibit II-112 presents the distribution within stations of the final ridership groups.

Exhibit II-111
Final Ridership Classification Distribution by Station
(unweighted responses)

	% of Sample	Probable Riders	Possible Riders	Unlikely Riders	Non-Riders
Burke Center/ Rolling Road	31	23	35	38	29
Leeland	14	21	17	14	10
Manassas	16	21	12	20	16
Woodbridge	20	14	21	11	23
Outlyers	20	20	14	18	23

Exhibit II-112
Final Ridership Classification Distribution within Stations
(unweighted responses)

	Burke Ctr/ Rolling Rd	Lee-land	Manassas Airport	Wood-bridge	Out-liers
Pct. of Sample	31	14	16	20	20
Probable Riders	9	19	16	9	12
Possible Riders	32	35	21	29	20
Unlikely Riders	16	13	16	7	11
Non-Riders	44	34	47	55	57

Probable Rider Profile

Although VRE will appeal to a variety of commuters, a very general profile based on responses to demographic and other questions is indicated. These predominant characteristics are presented in Exhibit II-113.

Exhibit II-113
Probable Rider Profile

- 36 to 64 years of age
- annual household income over $60,000
- regular commuter
- two adults in the household
- two or three vehicles available to household members
- white-collar occupation (professional, managerial, proprietor)
- aware of VRE prior to the interview
- expects to ride VRE on a daily basis

Importance of Commute Time and Cost in Influencing Ridership Status

The actual commute times and costs presented to the respondents for VRE generally did not meet their expectations, causing some decline in anticipated ridership. Exhibit II-114 presents the initial distribution by ridership status, while Exhibits II-115 through II-118 present anticipated ridership levels at various points during the interview.

Exhibit II-114
Initial Ridership Likelihood vs. Final Rider Likelihood

	Final Ridership Status			
	Likely Riders	Possible Riders	Unlikely Riders	Non-Riders
Very Likely	100	45	55	0
Somewhat Likely	0	55	45	0
Not Likely at All	0	0	0	100

Exhibit II-115
Likelihood of Ridership Given Actual Commute Time

	Final Ridership Status			
	Likely Riders	Possible Riders	Unlikely Riders	Non-Riders
Very Likely	100	35	35	0
Somewhat Likely	0	65	38	0
Not Likely at All	0	0	27	100

Exhibit II-116
Likelihood of Ridership Given Base Fare (One - Ride Ticket)

	Final Ridership Status			
	Likely Riders	Possible Riders	Unlikely Riders	Non-Riders
Very Likely	47	12	0	0
Somewhat Likely	41	33	5	0
Not Likely at All	11	55	95	100

Exhibit II-117
Likelihood of Ridership Given Ten - Trip Fare

	Final Ridership Status			
	Likely Riders	Possible Riders	Unlikely Riders	Non-Riders
Very Likely	49	9	0	0
Somewhat Likely	46	50	7	0
Not Likely at All	5	41	93	100

Exhibit II-118
Likelihood of Ridership Given Monthly Pass (Daily) Fare

	Final Ridership Status			
	Likely Riders	Possible Riders	Unlikely Riders	Non-Riders
Very Likely	100	20	1	0
Somewhat Likely	0	80	6	0
Not Likely at All	0	0	93	100

Probable Rider Anticipated VRE Behavior

Although 77 percent of the Probable Riders said they preferred the concept of a 30 percent discounted monthly pass to either a one-ride or 15 percent discounted 10-ride ticket, only 49 percent said they would be very likely to purchase a monthly pass when they were told the total cost. An additional 30 percent said they would be somewhat likely to purchase the monthly pass at the given price,

while 21 percent said they would not be likely at all to buy the monthly pass at that price.

Probable Riders who said they would be very likely or somewhat likely to buy the monthly pass most often said they would prefer to pay for the pass by check (51 percent), followed by cash (33 percent) and credit card (16 percent).

Approximately one-half of the Probable Riders said they would be very likely to buy their train tickets with their credit cards at an automatic ticketing machine at the station (49 percent), and an additional 20 percent said they would be somewhat likely to do so. Most preferred, however, to purchase their tickets in advance at some other location rather than using an ATM at the station (56 percent versus 44 percent).

Probable Riders are most likely to drive to the VRE station and park there (83 percent), although nine percent said they would be dropped off, six percent would walk and three percent would take a bus. Most of those who would park and ride said they would be willing to pay a nominal parking fee at the station (71 percent).

If feeder bus service were available to the VRE station, 57 percent of the Probable Riders said they would be very likely to use it and 14 percent said they would be somewhat likely.

Probable Riders were more likely than other respondents to say they would use VRE during off hours -- 53 percent said they would frequently or sometimes ride the train on holidays and weekends, 46 percent during midday, and 73 percent later in the evening.

Comparison of Public Opinion Responses by Final Ridership Status

Some differences in attitudes were apparent among final ridership status groups, as Exhibit II-119 shows.

Exhibit II-119
Agreement/Disagreement with Statements
About the New Commuter Train

(Means)

Statement	Probable Riders	Possible Riders	Unlikely Riders	Non-Riders
The cost of the train should be borne entirely by those who ride it, through daily fares.	2.66	2.68	2.54	2.96
Using general tax funds to set up and operate the train is a good use of taxpayer dollars.	3.59	3.45	3.39	3.07
The train will be a convenient way to get to and from downtown Washington.	3.86	3.76	3.69	3.54
The train will help reduce rush hour traffic congestion in the region.	3.76	3.66	3.57	3.65
The train will help reduce pollution in the region.	3.64	3.60	3.54	3.54
The train will help conserve energy.	3.81	3.64	3.70	3.60

Scale: 4 = Strongly agree
3 = Somewhat agree
2 = Somewhat disagree
1 = Strongly disagree

KEY FINDINGS

The majority of respondents were aware of VRE prior to being interviewed.

Two out of three respondents were aware of VRE prior to being interviewed for this study. Awareness was fairly widespread across the general VRE service area: awareness was the lowest in the Manassas Airport Station area, at 59 percent, and the highest in the Leeland Station area, at 87 percent. Exhibit 120 presents the results for the overall sample, while Exhibit 121 presents the results for the individual stations areas.

Exhibit 120
Awareness of VRE Prior to Interview
General Service Area

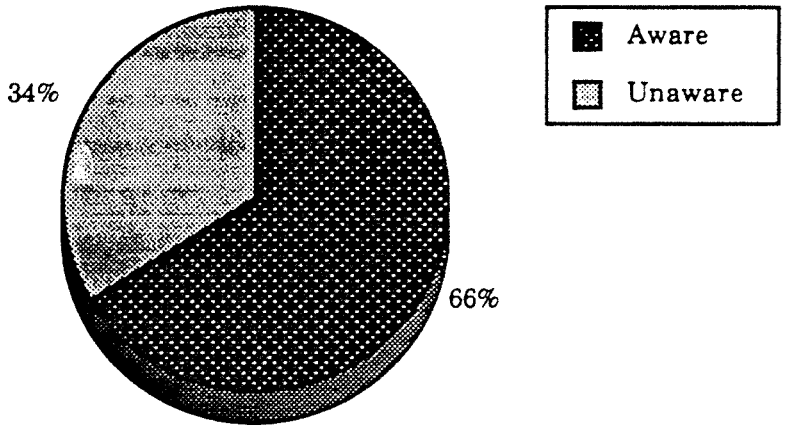
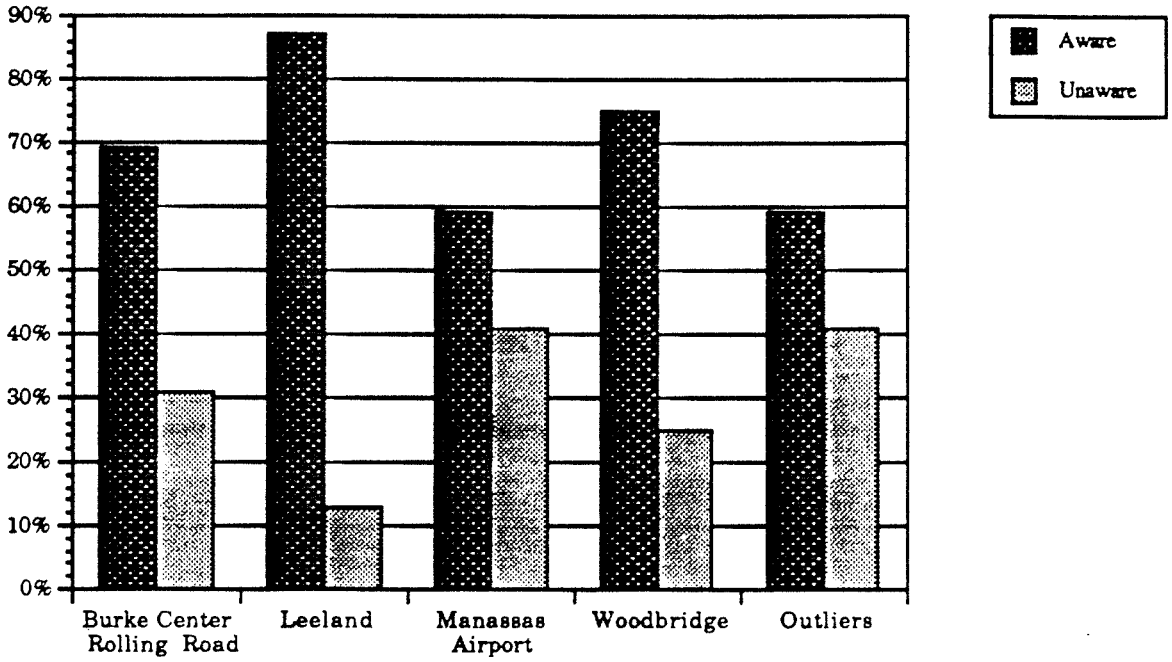


Exhibit 121
Awareness of VRE Prior to Interview
by Station Service Area



Public opinion regarding VRE is generally positive.

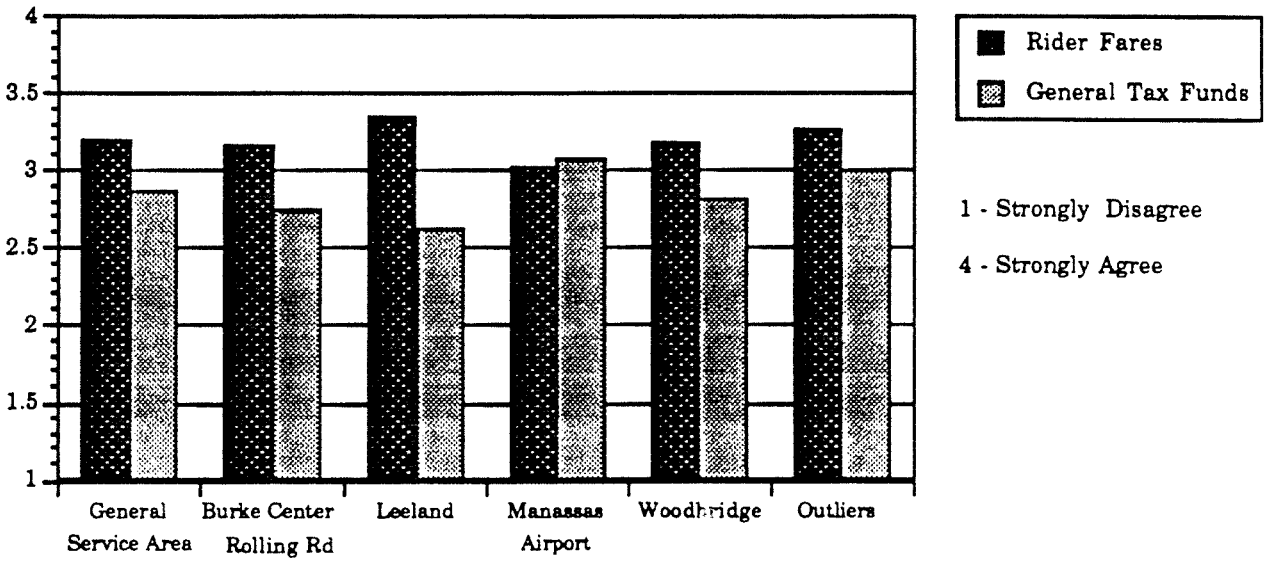
Virtually all the respondents, whether or not they considered VRE an acceptable commuting alternative for themselves, agreed that VRE offered a variety of public benefits, such as reducing rush hour traffic congestion in the region, conserving energy, and reducing pollution in the region.

Although non-riders are more likely than potential riders to believe riders should bear the cost of the train through daily fares, they are also likely to agree to at least some extent that using general tax funds for VRE is an acceptable use of taxpayer dollars.

There was no evidence of widespread resistance among either potential riders or non-riders to using tax funds to pay for train operations. It was outside the scope of this study to address the extent of the funding or the issue of potential tax increases. Exhibit 122 shows the level of agreement with the two statements regarding VRE funding.

Exhibit 122
Level of Agreement with VRE Funding Statements

"The cost of the train should be borne entirely by those who ride it, through daily fares."
"Using general tax funds to set up and operate the train is a good use of taxpayer dollars."



The concept of VRE as a commuting option was attractive to a substantial number of the residents of the service area.

Of the overall survey sample (which included respondents who did not commute to Alexandria, Crystal City, the Pentagon or downtown Washington, D.C. as well as commuters to these areas), one out of five initially said he would be very likely or somewhat likely to ride the new commuter train if the fare and schedule fit his needs. Exhibits 123 and 124 present the results for the overall sample and for each station area.

Exhibit 123
Initial Stated Likelihood of VRE Ridership
General Service Area

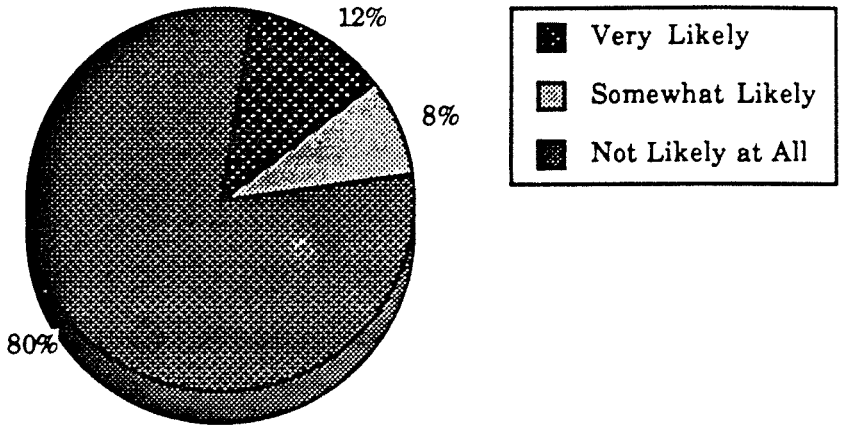
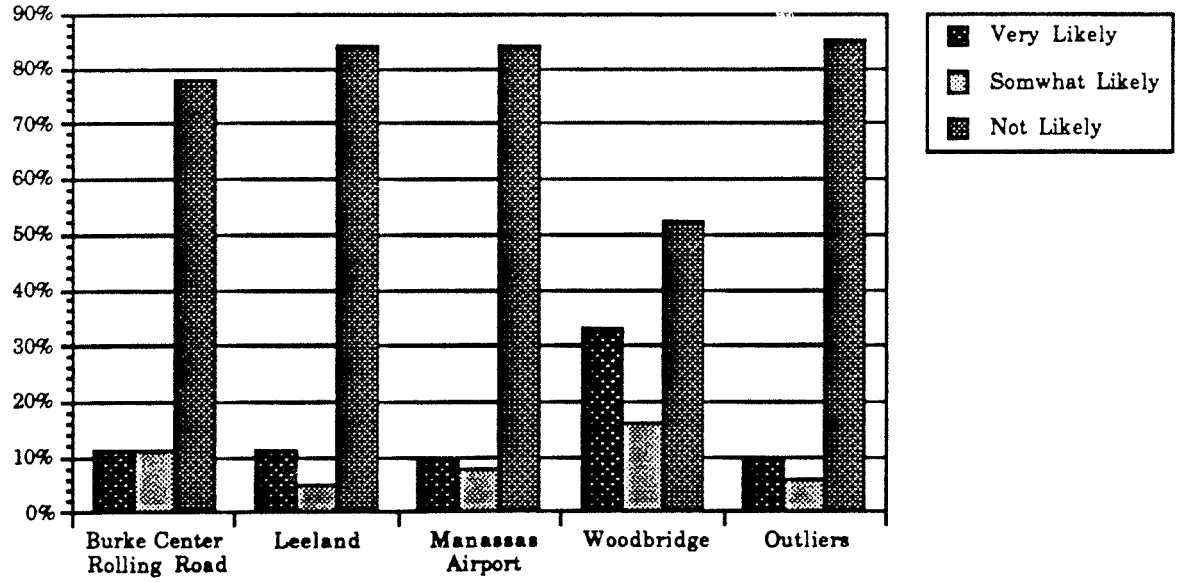


Exhibit 124
Initial Stated Likelihood of VRE Ridership
by Station Service Area

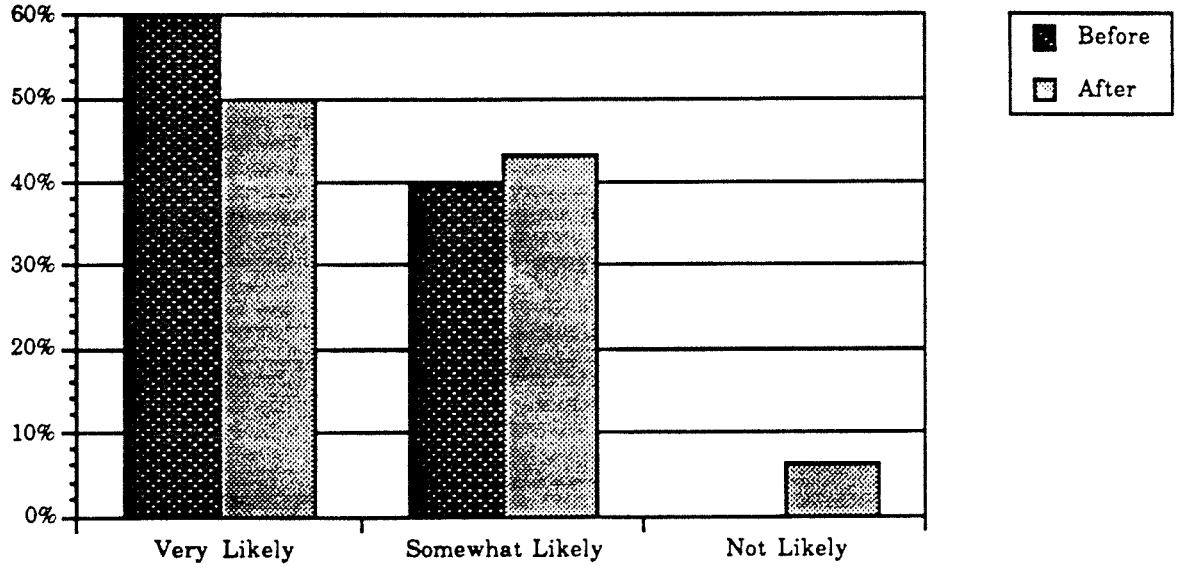


Currently planned commute durations did not meet the expectations of many potential riders; likelihood of ridership decreased when potential riders learned of the actual time their commutes would require by commuter train.

Many respondents who said they were very likely or somewhat likely to ride the new commuter train given acceptable schedules and fares underestimated the

time VRE ridership would entail, i.e., when they were asked how long they would expect the train ride to take from home to work, they anticipated shorter times than would actually be required. After they were told what the planned VRE commute times and fares were, some respondents became less likely to ride the train. Exhibit 125 presents these results.

Exhibit 125
Likelihood of VRE Ridership Before and After Commute Time Information
(Initial Potential Respondents)



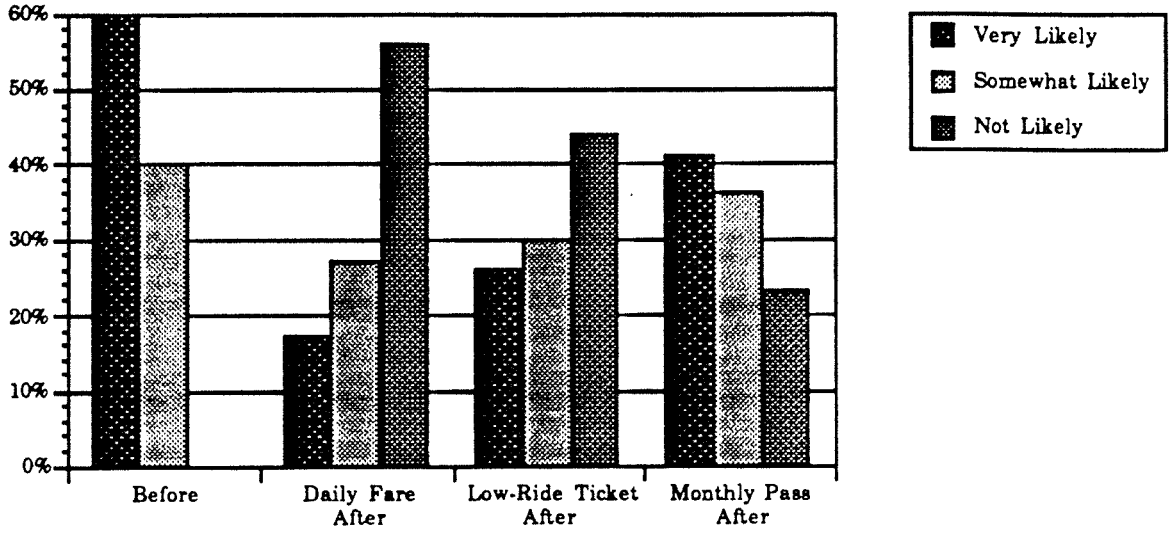
Currently planned fares are greater than many potential riders anticipated; likelihood of ridership decreased when commuters were told VRE ticket prices.

Price was a particularly important factor to commuters -- they said "reasonable price" was a very important factor when they were presented with a list of factors influencing their ridership decisions, and their ridership likelihood declined appreciably as suggested fares were presented.

There was particular resistance to the one-ride ticket fare, as few respondents -- even those who were very positive regarding the train in every other instance -- said they would be very likely to ride the train at the presented fare.

There was less resistance to the monthly fare *when it was presented as a daily figure*. However, when the lump sum price of the monthly pass was presented, likelihood of purchasing a monthly pass dropped.

Exhibit 126
Likelihood of VRE Ridership Before and After Daily Cost Information, based on Daily Fare, 10-Ride Ticket and Monthly Pass
(Initial Potential Respondents)



In addition to falling short of commuter expectations, actual VRE commute durations and costs often exceed those currently experienced by commuters.

Substantial numbers of respondents reported relatively short commutes and low commuting costs. Whether their responses were based on fact or on untested perceptions cannot be determined by this study. Regardless of this, if commuters believe they can have shorter trips and lower costs with their current commuting methods, they have little incentive to convert to VRE ridership.

Although primary VRE use would occur during regular commute hours, there appears to be some demand for off-hour trips, particularly late trains but also on weekends and holidays. There is less demand for midday trains.

There was limited commuting activity outside the 6:30 AM to 9:00 AM morning commute time or the 4:00 PM to 6:30 PM afternoon commute time. However, substantial numbers of potential riders and non-riders alike said they would use the train outside these normal commute windows.

Commuters who are most likely to use VRE are likely to drive to the station, park and then ride the train. Therefore, adequate parking facilities are necessary.

If commuters are unable to find acceptable parking at the VRE station, its attractiveness will dwindle.

Commuters are generally willing to pay a nominal daily fee -- probably $1.00 but possibly as much as $2.00 -- for parking at the station.

Commuters are most likely to prefer to pay for VRE monthly passes by check; using a credit card is their least preferred payment method. However, should they use a credit card, they are not adverse to using an automatic ticketing machine.

Well over half of the respondents said they would prefer to write a check to cover the lump-sum cost of a monthly pass. One-quarter would prefer to pay cash, while 20 percent said they would prefer to use their credit cards.

When they were asked if they would use their credit cards in an automatic ticketing machine to obtain a monthly pass, almost half said they would be very likely to do so. Exhibits 127 and 128 present these results.

Exhibit 127
Preferred Payment Method for Monthly Pass
General Service Area

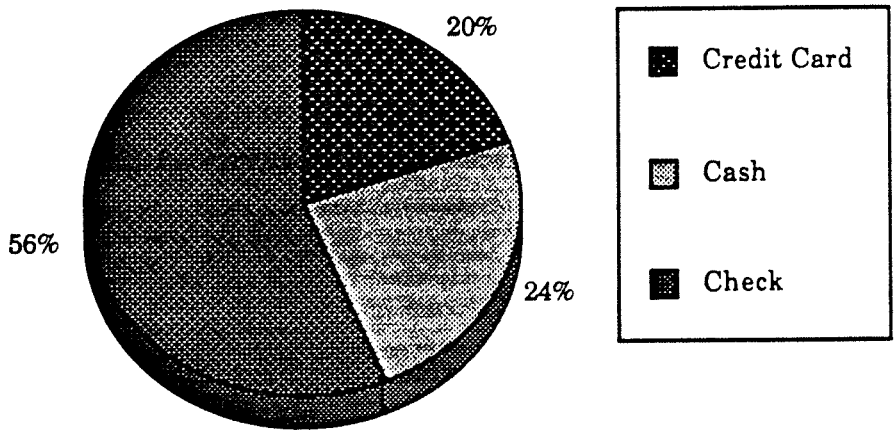
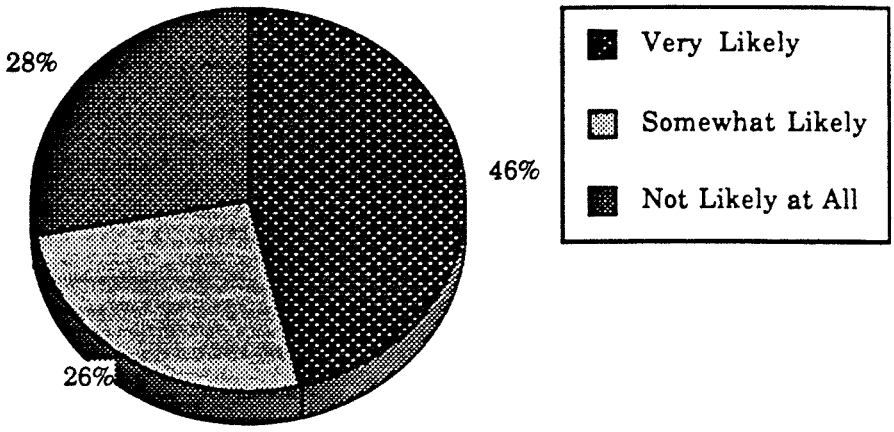


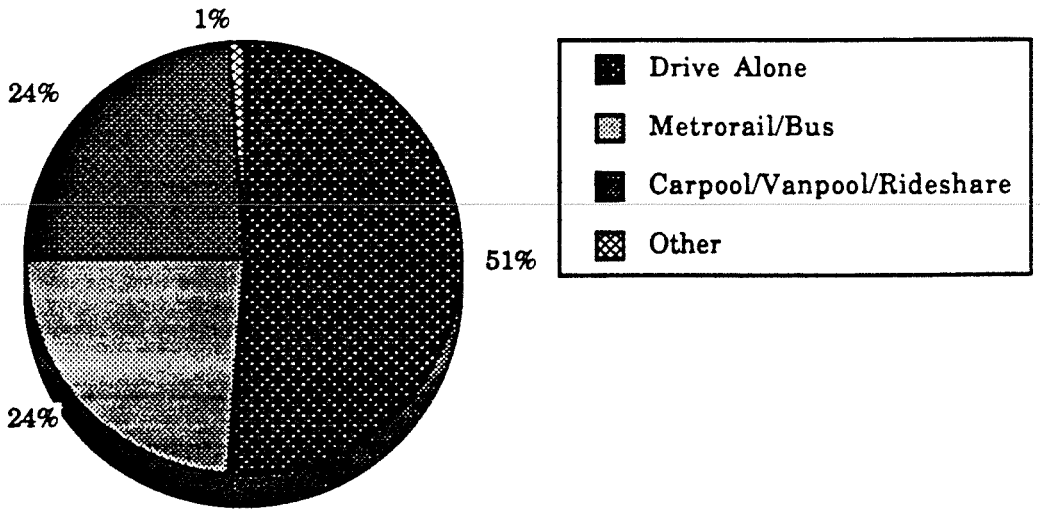
Exhibit 128
Likelihood of Using Automatic Ticketing Machine
General Service Area



Over half of the commuters who are most likely to use VRE currently drive alone to work. This segment represents approximately 12 percent of those who drive alone.

In terms of sheer numbers, the majority of VRE riders will consist of commuters who currently drive alone to work -- 51 percent of the "Probable Riders" as identified through screening questions to determine final ridership status. These commuters, however, make up a relatively minor segment of the drive-alone commuter base.

Exhibit 129
Current Commute Mode
Probable Riders (Final Ridership Status)



The large majority of respondents who are most likely to ride VRE have typical commute schedules, that is, they are expected at work between 7:00 AM and 9:00 AM, and get off work between 4:00 PM and 6:00 PM.

More than half of the probable riders (54 percent) are expected to begin work before 8:00 AM, and almost another one-third begin work between 8:00 AM and 9:00 AM (30 percent). Virtually no probable riders have work starting times later than 10:00 AM.

Two out of three probable riders get off work between 4:00 PM and 6:00 PM (67 percent), and another 14 percent are expected to stay as late as 7:00 PM. Five percent of the probable riders work later than 7:00 PM, while 12 percent get off between noon and 4:00 PM.

Exhibits 130 and 131 present information about the work starting and ending times or probable riders.

Exhibit 130
Expected Work Starting Time
Probable Riders (Final Ridership Status)

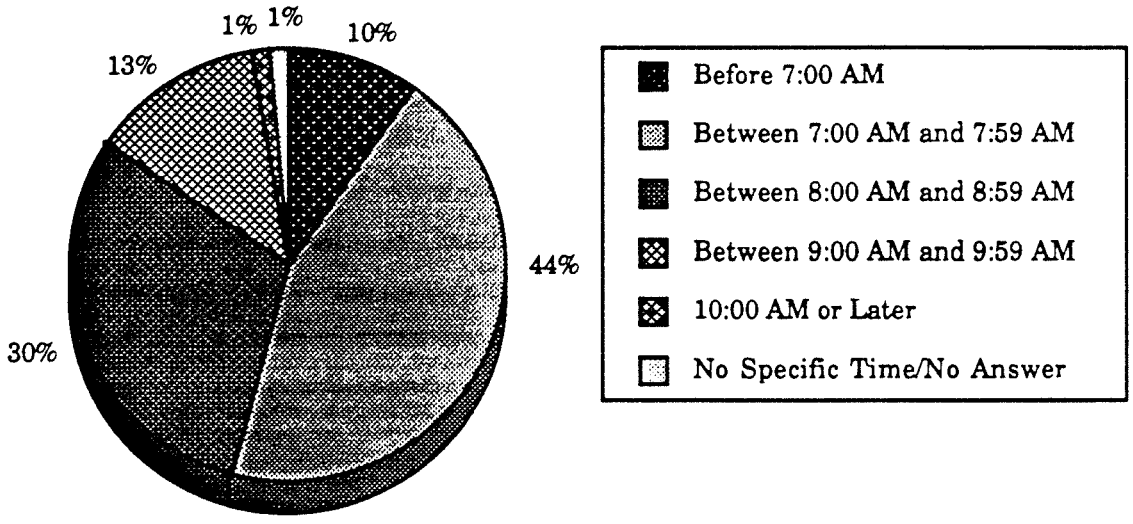
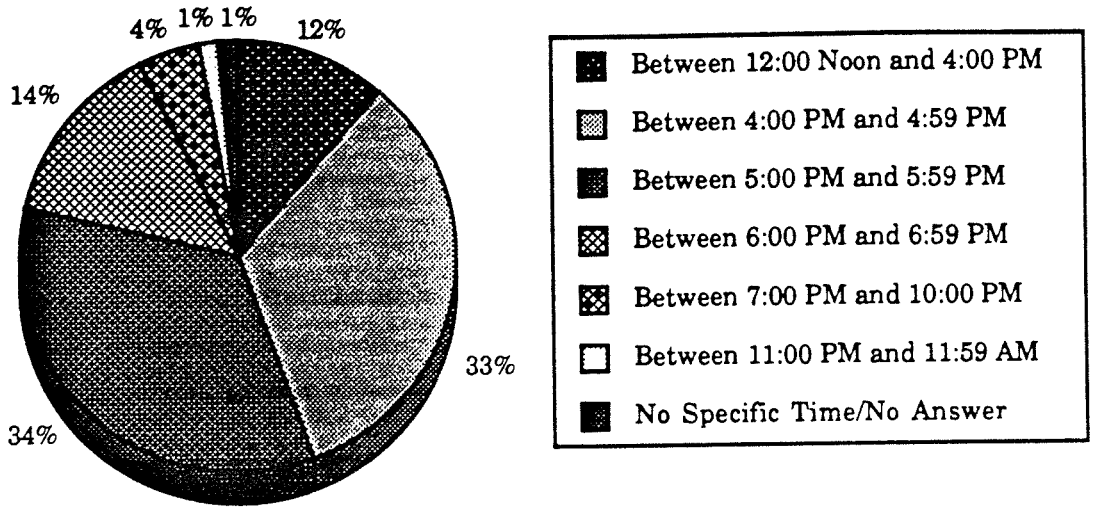


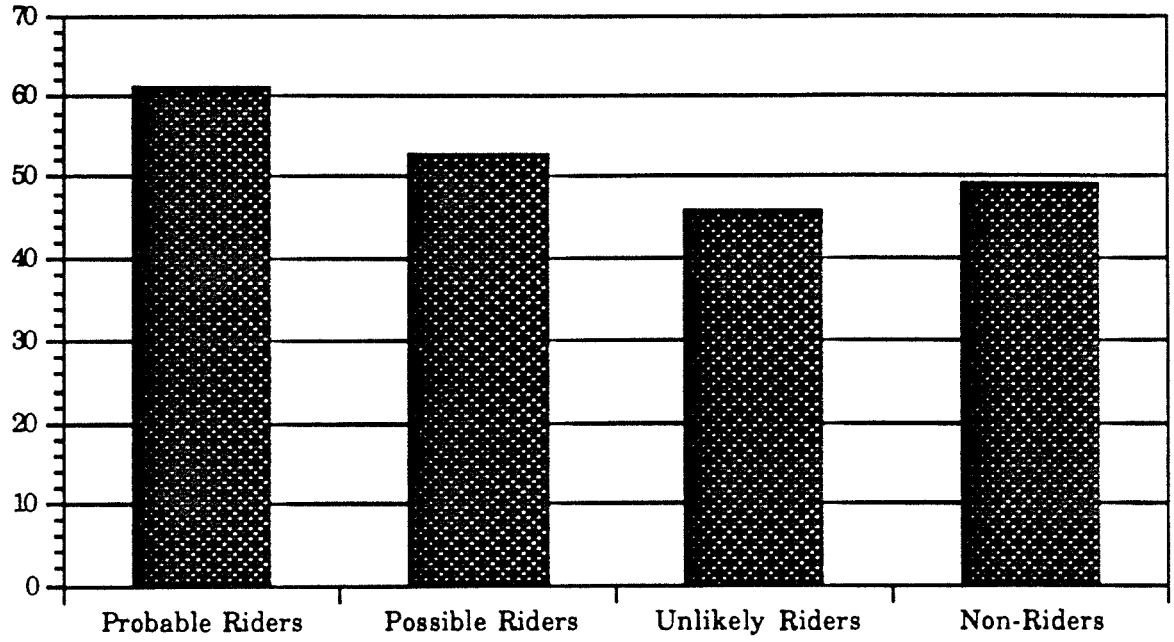
Exhibit 131
Expected Work Ending Time
Probable Riders (Final Ridership Status)



Respondents who are likely to ride VRE are also likely to have greater flexibility than other commuters in determining their own work hours.

Almost two out of three probable riders said they have been able to set their own work schedules (61 percent), compared to 53 percent of the possible riders and fewer than 50 percent of either unlikely riders or non-riders. Exhibit 132 presents the results to this question.

Exhibit 132
Work Schedule Control: Respondent Sets Own Work Schedule
(Final Ridership Status)



Focus Group Sessions
and
In-Depth Interviews

PART III

jhk & associates

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VIRGINIA RAILWAY EXPRESS

PART III:

FOCUS GROUP SESSIONS AND IN-DEPTH INTERVIEWS

Prepared for:

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

Prepared by:

John Gobis

Under Subcontract to:

JHK & Associates, Inc.

May 1991

Disclaimer

The findings and conclusions in this report are those of John Gobis and not necessarily those of the Virginia Railway Express, Northern Virginia Transportation Commission, or Potomac and Rappahannock Transportation Commission.

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INTRODUCTION

Part of the market research study for the Virginia Railway Express (VRE) involved qualitative research activities including:

- Focus group sessions with residents of areas near the Virginia Railway Express (VRE) stations and commuters of the I-66 and I-95 corridors; and
- In-depth interviews with key decision makers in the VRE service area.

This report presents the findings of the freely initiated focus group sessions and the in-depth interviews conducted by John Gobis, subcontractor to JHK & Associates (JHK). This qualitative research allowed JHK to obtain a broad range of insight into public opinion about the VRE, its products and services. These focus group sessions explored perceptions of single-occupant vehicle users, van and carpoolers, express and Metrobus users, and Amtrak users in the VRE service area. The primary objectives of the focus group and in-depth interview sessions were the following:

- To assess general public awareness and acceptance of VRE;
- To identify major barriers to VRE usage, especially vis a vis single-occupancy auto, car and van pooling and express bus commuting;
- To gauge public reaction towards VRE's proposed fare structure and payment methods;
- To segment market groups representing the best potential for ridership and to define them by demographic characteristics;
- To evaluate VRE's proposed schedules with preferred commute times;
- To gain perceptions of proposed VRE station design and amenities; and
- To identify promotional and joint development opportunities.

In addition to these primary objectives, the focus groups and in-depth interviews enabled JHK to explore topics in more detail than is feasible on the telephone.

In-depth interviews were conducted with decision makers in the VRE service area to gauge perceptions of the VRE among those who represented business, civic and social interests. Major service areas developers, major employers, as well as trade association, economic development and tourism officials were interviewed to determine the potential economic impact of the VRE project and possible linkage to business which would boost

ridership. Representatives of homeowners' associations were also interviewed to determine residential sensitivities to the VRE project.

Finally, in-depth interviews were conducted with two reporters from daily newspapers in the VRE service area to evaluate perceived public attitudes towards the project resulting from media coverage.

METHODOLOGY

Males and females between 18 and 65 years of age were participants in the focus group sessions. They represented a racial mix consistent with that projected in U.S. Census data for the VRE service area. The geographical mix was oriented to "catchment areas" around five key VRE stations: Burke Center, Leeland, Manassas Airport, Rolling Road, and Woodbridge.

The focus groups included single-occupant vehicle commuters along both the I-66 and I-95 corridors, single-occupant vehicle users who commute within the VRE service area but do not use either interstate highway, car poolers and vanpoolers using both roads, and express bus users. Focus group participants were randomly recruited using telephone prefix lists from the telephone survey. Specific commuters were recruited with the assistance of the various VRE-member municipal technical staffs. Each participant was paid a stipend which is a common practice for focus group sessions.

Focus group sessions were conducted in public facilities selected and scheduled by the Potomac and Rappahannock Transportation Commission. Sessions were held in Fredericksburg, Woodbridge and Manassas during the week of January 14th in the evenings. Sessions lasted from one to two hours in length and were audio taped.

In addition separate informal interviews were conducted with Amtrak commuters at the Manassas Station and Metrobus commuters at the Burke Center Park and Ride Lot.

The in-depth interviews were conducted with VRE service area decision makers. These decision makers included major service area employers, major developers, homeowner association directors, economic development and tourism directors of municipalities, public transit advocates and critics, merchant association executives and newspaper writers who cover the VRE as well as the Northern Virginia Transportation Commission and Potomac and Rappahannock Transportation Commission.

The names of those interviewed came primarily from members of the VRE Commuter Rail Task Force, comprised of the technical staffs of VRE-member municipalities. Additional interviews were generated by JHK researchers as a result of their discussions with other decision makers.

Interviews were primarily conducted at the interviewees' places of business, although some were conducted by telephone. Interviews ranged from 20 minutes in length to more than one hour.

In-depth contact interviews were conducted with the following individuals:

Leeland Road/Fredericksburg

Hunter Greenlaw, President, Greenlaw Properties
Jo Love Willis, Director of Tourism, City of Fredericksburg
Bill Beck, President, Downtown Merchants Association
Jim Toller, Reporter, Fredericksburg Star

Manassas/Manassas Park

Garron Stutzman, President, So-Deep Incorporated
Sam Waddle, Trade Association Executive, Independent Airport Operators
James Yowell, Van Pool Operator
Jerri Columbari, Public Affairs, IBM
Lawrence Doll, President, Doll Development Corporation

Burke Center/Rolling Road

Pat Moore, President, Burke Conservancy
Ed Rizzi, Vice President, Hazel Peterson Company
Kurt Doehnert, President, Van Pooling Group
Mrs. Rob Porter, Homeowners Association Rolling Road

Woodbridge/Dawson's Beach

John Gessaman, Director, Prince William County, Office of Economic Development
Brooke Masters, Reporter, Washington Post
Steve Dixon, Chairman, Mass Transit Committee of Prince William County

Copies of the focus group and in-depth interview topical outlines are included in Appendices III-A and III-B of this report.

FOCUS GROUP SESSIONS

SUMMARY OF FOCUS GROUP FINDINGS

Based on comments received during the sessions, there was unanimous agreement among focus group participants that traffic congestion in Northern Virginia will require many transportation solutions. There was less than unanimous consent as to whether VRE would be an effective solution although very few thought that VRE would not succeed.

Support for VRE and the strongest potential ridership are in those areas farther from the Washington metropolitan area, especially Manassas and Fredericksburg. While ridership in Prince William and Fairfax Counties will be substantial, according to participants, single-occupant vehicle commuters in these areas are sophisticated in their commute patterns as well as their knowledge of the cost of commuting and will be difficult to convert to VRE use.

Focus group participants believed VRE's primary market will be commuters who travel alone. Vanpoolers and carpoolers who use both the I-66 and I-95 corridors have almost "door to door" transit service at rates ($75 to $120 per month) that make their likelihood to use VRE service very low.

The transfer at the end of the VRE trip either at King Street, Crystal City, L'Enfant Plaza or Union Station is a concern of potential users as well. If the commuter is within walking distance of his final destination then the VRE service would surely be preferred over solo commuting, express bus or car/vanpooling. However, mode-transfers to Metrorail or Metrobuses are perceived as inconvenient and time-consuming.

The appeal of VRE is strong, in the area of what is called "lifestyle" considerations. Commuters using both corridors have a strong belief that commuting on I-66 or I-95 requires them to sacrifice time with their families in order to make the commute. Focus group participants described having to leave their homes as early as 5:10 AM in order to arrive in the Metropolitan Washington area for work by 8:00 AM, using existing commuter bus and rail services. Participants perceived that VRE trains could reduce commute time through faster, uninterrupted travel.

In regard to VRE meeting the work schedules of focus group participants, the proposed VRE schedules met most participants' work schedules and would allow them to arrive to work in a shorter period of time than they now experience. This perception gave rise to general belief that the VRE could improve the quality of life in the service

area by reducing the amount of time spent in traffic and allowing commuters to spend more time at home.

The proposed VRE fare structure was thought to be high by the majority of focus group participants, but not impractical. Many commuters are very conscious of their commuting cost. An issue raised by many commuters regarded the need to transfer or change modes to reach their final destination. If Metrorail or Metrobus fares were charged in addition to the VRE fare, the fare was considered too high. The concept of paying for fares via credit card was not well received. Participants said primary payment will come from cash, check and debit card.

Participants also expressed concerns regarding station security and design. Many people would pay a parking fee so that VRE could provide security for their autos and themselves. In regard to station design and amenities, most participants questioned whether the present design offered enough cover. Many suggested a windscreen bench on platforms to block wind, rain and snow. Participants also thought that telephones and newspaper racks were essential amenities. Only one or two cited the need for toilets at the station; none thought toilets were necessary on board trains.

Participants generally thought that VRE stations would add to congestion in their localities in that most users would drive to the station. Most participants thought that the stations could provide a catalyst for positive development. Some, although a minority, thought the stations were the object of land speculation right now and that would lead to more unnecessary development.

Finally, all participants expressed concern about VRE being able to deliver on its promises and especially on its timetable. One focus group participant brought Virginia Department of Transportation public information booklets on I-95 projects dating back from 1978, saying that few if any of the projects had actually been concluded. Despite this legacy, almost all participants, even those who were anti-rail, thought that VRE could be a success but time was of the essence.

These opinions represent the major perceptions and concerns of focus group participants. A more detailed discussion of specific issues is presented in the following sections.

PERCEPTIONS OF THE VIRGINIA RAILWAY EXPRESS ROLE AND IMAGE IN ITS SERVICE AREA

All focus group participants believe that traffic congestion is the most significant problem facing Northern Virginia. And mostly all focus group participants believe that

VRE is part of the solution, although their belief to what degree it would help solve the traffic problem varied. The view was held that VRE, and projects like extending HOV lanes, would help improve commuting.

The extent to which traffic congestion negatively impacts life in the VRE service area cannot be minimized. Focus group participants told of averaging 35 miles per hour on trips up I-95 from Fredericksburg to the District of Columbia, a trip from Woodbridge to D.C. averaged 20 minutes in 1985 today averages 45 minutes, and trips from Manassas to D.C. for an 8:00 AM start of work starting as early as 5:10 AM using existing transit services.

Focus group participants described traffic this way:

"Traffic owns you in Northern Virginia."

"It changes your life. . . . you get up earlier and earlier each year."

"Development now exceeds our ability to build roads."

Despite wide recognition of the problem, there exists many questions in the minds of Northern Virginians who participated in the groups as to whether VRE or any of the other promised transportation solutions would ever be completed. One Woodbridge/Dawson's Beach focus group participant brought to the session various Virginia Department of Transportation public information brochures dating back to 1978 which detailed transportation projects promised to Northern Virginia but which, the participant claimed, were never completed. A small number of participants also urged VRE to come forth with verifiable data to financially justify the project.

While there exists a disillusionment with the speed of transportation solutions most participants thought that VRE would succeed but may not be delivered on time and at the cost initially projected.

"Accountability is important . . . this can't be another B1 bomber with cost overruns."

"The government needs to encourage diverse solutions and this train is one, but we need to look at the cost effectiveness of each solution."

In regard to knowledge of the VRE, the Northern Virginia Transportation Commission and the Potomac and Rappahannock Transportation Commission, many participants knew who the VRE was but few knew the roles of the other two agencies. While there is a lingering doubt that VRE would succeed, the majority of focus group

participants should be classified as supporters of the project -- not necessarily riders but supporters. VRE still has before it a sizeable marketing job to convert these supporters to riders.

POTENTIAL TO RIDE THE SERVICE

The factor most crucial to the decision to ride VRE is convenience in the view of the focus group participants. Convenience as defined by the participants is:

- Travel time from 60 to 70 minutes from Fredericksburg to D.C., 45 to 60 minutes from Manassas and, obviously, shorter trip times from areas closer to the Metropolitan Washington area.
- No need to change modes at the terminus of the trip in D.C., unless it is a very convenient Metrorail transfer.
- Hassle-free and ample parking at all VRE stations.

Of these convenience elements, participants most often referred to "lifestyle" advantages of train travel:

> "If I could lay back, go to sleep or read a paper and just relax . . . I would use the train."
>
> "If the train can do the trip faster than a bus or van, I'd try it . . . that should be in their ads -- have the train going by the buses and cars stopped in traffic."

WORK AND TRAIN SCHEDULES

Participants raised issues about the frequency of service. Some thought that the current limit of four AM and PM trains was inadequate and did not provide the flexibility to make VRE truly a competitive product to bus and car pools. While the proposed VRE schedule did adequately serve the most frequent work start time of focus group participants (6:30 to 8:00 AM), many participants worked flexible schedules which allowed them to leave work earlier than a traditional 5:00 PM departure and many worked later into the evening. Some consistently worked as late as 8:00 PM.

VRE will have some converts from existing express buses because those commuters who participated in the groups perceived that the train would be faster and would not confront stopped traffic on I-66 or I-95. However, some express bus users

would not convert despite travel time advantage because of door-to-door service they now receive via express bus.

"The only way I'd convert if the trains fare to Metrorail was free."

In the sessions, these commuters were most aware of the convenience of their current mode against VRE's proposed routing and scheduling. Carpoolers and vanpoolers will be tough converts because of the perceived inconvenience of no easy transfer. Those participants who worked within five to six blocks of King Street, L'Enfant Plaza, Crystal City or Union Station would probably walk to their offices and use VRE. Carpoolers and vanpoolers in the groups offered the most resistance to VRE use:

"My vanpool offers me the luxury of an individual captain's chair and door-to-door service . . . the rail could never match that."

Fares and price are a factor which will be discussed in a succeeding section, but price was not the most referred to determinant of ridership. Convenience clearly is the key to capturing ridership for VRE.

The focus group participants who commuted along either corridor were sophisticated commuters in that they are very aware of their alternatives:

"Good mass transit improves the quality of life but I still want what is cheapest for me and that's the vanpool."

This level of sophistication should ensure VRE healthy ridership if the system can be as convenient as the focus group participants want the system to be. One trade-off from the session would appear to be more frequent service for a higher fare:

"The schedule I saw on the bus is not nearly enough (service) for the price."

Based upon the focus group participants' perceptions of VRE, the marketing program for VRE should promote the service as convenient, direct, fast and frequent.

REACTION TO PROPOSED FARES AND PRICE SENSITIVITY

Focus group participants were asked to place a value on a one-way VRE trip. Answers ranged from $8.00 to as low as $2.50, near or within the proposed VRE rate

structure. Most participants who rode express buses paid between $120 and $180 per month. Van and carpoolers typically pay between $75 and $85 per month, but some vanpoolers reported costs as high as $110 per month from Fredericksburg and $120 per month from Manassas.

As previously mentioned, commuter focus group participants were quite sophisticated in their commuting habits and in their knowledge of commuting costs.

"Amtrak charges $300 per month. That's too steep."

"The train price has to be practical . . . will it allow free transfers to Metro?"

"The train would be about $20 more than the bus but the bus leaves me at my door."

"If I can drive to work cheaper than the train, I'll continue to do it unless the train can prove it's faster."

In considering fares, participants thought the VRE should consider the cost of transferring to other modes at the end of the line in D.C. and the cost of parking at VRE lots (parking costs were thought to be justified if security was provided).

It must be noted that research typically indicates a resistance to any fare structure with the normal reaction to a proposed fare structure being that the fare structure is too high.

In regard to fare payment methods, most commuters who participated in the sessions, pay as they go. They pay for their buses or pools on a weekly basis although several paid monthly. One reason cited was flexible work schedules of some government agencies do not require employees to work normal five-day work weeks, so commuters pay only for what they use.

In regard to the ticket machines, most participants had used Metrorail ticket vending machines (TVM) at some time so the VRE TVM was not regarded as alien. The overwhelming majority of focus group participants would not use credit cards to buy their VRE fares. Most said they would purchase tickets daily or weekly because of flexible work schedules. Many cited high interest and transaction fee costs as reasons for not buying a VRE monthly pass using a credit card. More likely to be used for payment, according to participants, would be cash, debit cards and checks.

Focus group participants expressed concern about the continuing cost of operating VRE. Group participants thought the fares should not be so high as to make VRE unaffordable but that a balance must be achieved between the cost of service and its effectiveness (ridership).

ACCESS TO STATIONS AND STATION LOCATIONS

Most focus group participants who would use the VRE said they would drive their cars to the station although there was strong support in all sessions for some form of feeder bus service intra-county. Some participants thought they would walk to the stations, some would carpool. Some expressed reservations about access to the stations:

"The drive to the station will deter people from riding it."

"People will have to fight to get to the station at Woodbridge -- making the turn at the light will be impossible."

In regard to station locations, when participants viewed a VRE service map many thought there were too many stations. Those participants commuting today via bus, car or van pool were used to driving a considerable distance to a park and ride lot (some also drove out of their way to pick up commuters in order to gain access to the HOV lanes).

Many thought that VRE stations might bring additional traffic congestion especially at those stations closer to the Washington Metropolitan Area. Metrobus commuters at Burke Center thought the bus should be re-routed to provide more feeder service to the proposed rail station nearby.

In regard to station location, many focus group participants brought up security as a strong concern. Female participants expressed the strongest concern for personal safety:

"I'd pay for parking if they provided a security guard at the station."

Specific concerns were also expressed about the location of the station in Fredericksburg and to the lack of lighting at the Manassas Station. Some suggested that VRE should open stations well in advance of and after train service has ceased to provide security to those who would be dropped off or picked up by spouses.

ANTICIPATED STATION AMENITIES AND PARKING CONSIDERATIONS

Security, as previously mentioned, was a primary concern of participants in regard to VRE stations. Some suggested VRE charge a parking fee at each station as a way to provide for (pay) security, although most thought parking should be free at VRE

stations. A participant suggested that VRE allow the private sector to provide the parking concession at stations as a way to defray costs and to provide this perceived necessary security, who said, "Let the private sector do it and don't use public money to provide such amenities." The security issue was also addressed by present day express bus commuters who said that cars in park and ride lots had been vandalized and that there had been a "black market" developed by thieves who would steal license plate tags off of cars in these lots and sell them.

Focus group participants were shown schematic drawings of proposed VRE lots and were asked for comments on the designs. Most thought the proposed canopies did not provide enough coverage and that some form of windscreen should be put on the back of each platform to block the elements. A majority of participants wanted benches on platforms along with telephones and some limited vending such as newspapers and automated teller machines. Participants also wanted ticket sales at all stations. Some participants made unfavorable remarks about the proposed platform widths stating they looked too narrow to provide good circulation. Restrooms were thought to be unnecessary on board trains and better placed in stations by several participants' comments.

According to most focus group participants the preferred access to the station would be by car. The adequacy of parking was viewed by participants in number of spaces, access to those spaces (entry and egress to the lot), walking distance to the train and security. One participant viewing the station schematic offered this suggestion, "Eliminate that landscaping and put more parking in."

ANTICIPATED TRAIN AMENITIES

Focus group participants had a pre-disposed perception of train amenities, as described by one participant:

"You lay back, go to sleep and relax on a train."

Participants expected the same type of interior amenities as they would receive on an airline--reclining seats, luggage racks and lap tables. When shown a drawing of the proposed VRE coach interior participant comments ran from "spartan" to "comparable to the bus" to "too much luxury." This wide range of attitudes made the VRE scheme a neutral choice.

In regard to seating, most participants would prefer a high-back, reclining seat with armrests. Participants discussed accommodation for standees saying that the VRE drawing did not appear to accommodate standees although many thought ridership should be sufficient to warrant accommodation of standees.

Participants commented on the lack of individual reading lights in the interior car scheme, saying it looked as if the interior car lights would be on all the time, unlike buses or vans which have separate lighting for each seat.

Expanded luggage racks and garment bag closets were mentioned for business travelers. Again, as with other topics, the concept of cost came into consideration. When this issue was raised most participants opted for a comfortable yet practical amenities package on-board.

Toilets, as previously mentioned, were thought to be best placed in stations and not on-board trains.

INFORMATION SOURCES, KNOWLEDGE OF VRE SERVICE

Nearly all focus group participants had knowledge of VRE service. Only one focus group participant had not heard of VRE and did not know who was to operate this service.

While this knowledge level is favorable and displays general public interest in the project, it also artificially raises public expectations of VRE and creates a "thirst" for information. Some participants cited the need for VRE to provide more rationale for its budget and its ridership predictions.

> "These commissions (VRE, PRTC, NVTC) owe the public valid statistical proof."
>
> "The public is skeptical about these projects because they've been promised so much before."

The majority of focus group participants said they had first heard of VRE in local newspaper reports and that all their information had been gathered from these reports. Some expressed interest in hearing directly and frequently from the VRE in the future.

Focus group participants were asked to list the sources from which they receive information. This question was intended to elicit responses which could guide future VRE marketing/public information strategies. Local newspapers (Fredericksburg Star-Journal, Washington Post, Manassas Journal and the other Journal newspapers) were mentioned most frequently. Morning drive time radio was the second most

frequently named information source followed by cable television. Word-of-mouth information sources were not as strong according to participants, except those who participated in homeowners' associations.

CONCLUSIONS FROM FOCUS GROUP SESSIONS

At the moment there exists a high degree of expectations for the Virginia Railway Express, according to the focus groups. This high level of expectation is accompanied by a degree of skepticism from Northern Virginia residents who have evidently been promised transportation solutions previously but have not received them, according to participants. Surprisingly, it must also be noted that some car/vanpoolers, as well as express bus riders, are not advocates of VRE but consider it an adversary.

Given the unique consensus regarding traffic in the VRE service area, commuter rail service is given strong opportunity to succeed by those participating in the focus groups. One participant said, "VRE is just one of the diverse solutions we need." When all specific topical issues were reviewed and debated by the focus groups, one immediate course of action was recommended -- that VRE begin to open a dialogue with the public it is intended to serve. Communication would serve to improve ridership prospects as well as to respond to those who would criticize VRE's role as a transportation solution to Northern Virginia's congestion problems.

IN-DEPTH INTERVIEWS

SUMMARY OF IN-DEPTH INTERVIEW FINDINGS

The in-depth interviews yielded very favorable opinions about the potential positive impact on the VRE on its service area. These in-depth interviews also uncovered unique opportunities for linkage between the VRE and the private sector, among them:

- Potential for a 308-unit residential complex near to the Manassas Station.
- Willingness of major employers to shift work schedules to adhere to VRE schedules.
- A VRE station as the potential catalyst to economic development of an entire neighborhood.
- The VRE being a major competitive advantage for businesses to relocate to the municipalities within the VRE service area.
- VRE providing a boost to tourism opportunities to one of its member cities.

These opportunities are examples of the mostly unanimous support among those decision makers interviewed. The support of these leaders was evident in comments such as the following:

"The quality of life will be better off down the track."

"People drive to D.C. for more money with better paying jobs. They live here for the better lifestyle -- this [VRE] will help."

"There's pent-up demand for the VRE; they will fill up the trains in 30 days."

"This project will increase the value of housing in the area, especially those near the stations."

"People here are aware of the convenience of these trains."

"Stations can be the focus of growth in our community."

While decision makers tend to be positive generally towards civic ventures, the decision makers interviewed included interests that are sometimes in conflict with one another -- like homeowners and developers -- yet still all believed the VRE would be a

positive solution to the problem facing residents of the VRE service area -- traffic congestion.

The opinions and comments here represent the thoughts of those opinion leaders interviewed. A more detailed discussion of attitudes and comments on specific issues follows in the next sections.

PERCEPTIONS OF THE VIRGINIA RAILWAY EXPRESS

The fifteen key decision makers interviewed all had positive attitudes towards the VRE and its prospects to succeed.

"The quality of life will be better off down the track."

"VRE is a hot topic."

"People live here for the lifestyle and commute because of higher paying jobs -- VRE will help that equation."

While overall very supportive, those interviewed raised similar questions, like the focus group participants, regarding VRE being able to deliver on time and on budget.

"This region is 20 years behind the time in planning these transportation projects."

"You hear about these things but they never get done."

"We've had the plan for the Burke Center Station since 1972."

Those interviewed wanted more details about VRE's service plans, the benefits to be derived from the service and exactly how it was spending its money. In terms of potential solutions to the area's transportation dilemma one leader said, "The VRE is the best alternative to laying down more pavement." Most interviewed thought that if the VRE could succeed it would place itself ahead of other government agencies that had been unable to deliver transportation solutions in the past.

RIDERSHIP POTENTIAL

Most of those interviewed thought the VRE would exceed its ridership expectations.

"When one considers the lifestyle trade offs, VRE will be a better bet."

"There's enough pent-up demand for the VRE -- it will reach capacity within 30 days.

While there was positive belief that VRE would achieve its goals there were concerns raised about too many stops, fares that were impractical and the anxiety of just getting through local traffic to the stations.

FACTORS INFLUENCING RIDERSHIP

Convenience was thought of as the factor most influencing the decision to ride VRE. Most opinion leaders said price was not a strong issue because of the economic strength of the region:

"If the service is as direct as possible, people will ride it."

"People here are serious commuters but they won't ride VRE if they can't get a seat."

"There is almost a Long Island Railroad mentality people know about trains and people will use them."

"If they expand their service to all day, they'd even have more ridership. People want that added convenience."

Some interviewed thought that VRE should focus on businesses in the service area to provide initial ridership: "If they sell it to management, support would filter down to the rank and file." An overwhelming request of those interviewed was that the VRE expand its schedules and provide reverse commute opportunities.

"Bi-directional service is absolutely necessary."

"Our merchants are hopeful for weekend service for tourists."

THE INFLUENCE OF THE VRE ON BUSINESS DEVELOPMENT AND GROWTH

The potential linkage between the VRE and the Northern Virginia region's economic "well being" is very apparent to those decision makers interviewed.

"We've talked with FORTUNE 100 companies which would locate here if they had this type of transportation."

"Now we'll be able to attract the lobbying and trade associations from D.C. to relocate here because VRE will be their link to Capital Hill."

"More than 20 percent of our visitors come from areas which make it convenient for them to ride VRE."

Several of those interviewed had direct business plans which would impact VRE ridership involving development around the proposed stations. Major employers interviewed claimed that they would encourage ridership by their employees and perhaps adapt work schedules to VRE schedules (assuming availability of reverse commute service). In this regard all requested that the VRE do a better job of communicating to the private sector.

"This thing must be marketed on every level."

"The absence of public information makes people apprehensive like this will be another Springfield Bypass project."

It was the general belief of those interviewed that there would be development potential near to stations. One particular interest among at least two of those interviewed was to receive General Services Administration approval for the areas around VRE stations to be commuter accessible thereby opening up the potential for relocation of federal agencies to the VRE service area.

"Very few are betting on the VRE now but if it comes through it could change everything."

"The VRE will increase the retail value of housing in Northern Virginia."

These comments from two decision makers reflect the attitudes of most of those interviewed that the VRE stations would eventually become centers for focused work and residential activity.

THE FACTOR MOST CRUCIAL TO VRE'S SUCCESS

Those interviewed had a wide variety of opinions as to the most crucial factor, but they always mentioned convenient, quality service.

"On opening day they must have a quality service right out of the block."

"It can't be viewed as a trolley; it must be a high level of service with full amenities."

"On time performance is the key to getting these types of riders."

"Train service must be expanded, what we heard about is not sufficient."

"They should add a reverse commute trip."

"Project timing and delivery is important."

"Design of parking and safety is key to me. The stations must have easy access and security must be provided."

More cooperation between the agencies who had responsibility for transportation was also mentioned as a key to success. One person commented: "No one understands what these people are in business for -- VRE, NVTC and now PRTC."

CONCLUSIONS FROM INTERVIEWS

The 15 decision makers interviewed were strong in their belief that the VRE was necessary and that it would succeed. The motivation and optimism of those interviewed, as witnessed by solid plans to develop areas around stations, programs to lure new business to the region with VRE service as the incentive and interest in adjusting work schedules to match VRE schedules should be viewed as a solid vote of support for VRE. What is crucial now, in the opinion of those interviewed, is that VRE build this "linkage" though increased two-way communication and a commitment to quality and convenient service.

On-Board Commuter Bus Survey

jhk & associates

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VIRGINIA RAILWAY EXPRESS

PART IV:

ON-BOARD COMMUTER BUS SURVEY

Prepared for:

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

Prepared by:

JHK & Associates, Inc.

May 1991

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INTRODUCTION AND STATEMENT OF OBJECTIVES

Supplemental market research activities for the VRE study also included a survey of commuter bus passengers. Such a survey is called an on-board bus survey and typically involves a self-administered survey questionnaire. JHK & Associates, Inc. (JHK) conducted the on-board bus survey in coordination with the staff from PRTC, Prince William County, Fairfax County and two bus systems, the COMMUTERIDE and the Fairfax Connector. This part of the report presents the purpose, methodology, and findings of the on-board survey.

The objective of the on-board bus survey was to collect attitudinal information and travel-related characteristics and preferences of current transit users in the VRE service area. The focus of this survey was the users of Prince William County's COMMUTERIDE buses and Fairfax County's Fairfax Connector buses serving suburban residential areas located within the service area of the proposed VRE commuter train stations.

Another objective of the on-board survey was to obtain an indication of how many commuter bus riders would switch to VRE commuter rail.

At the request of Prince William County, several additional questions were included to provide the County with some attitudinal information regarding the current bus service. This information was tabulated but not analyzed by the JHK team.

METHODOLOGY

JHK designed the survey questionnaire with the help of staff from PRTC, Prince William County, VRE, and JHK's subcontractor, Catherine Bryant & Associates. The survey was designed to be filled out by commuters while riding on the bus. A copy of the survey questionnaire is provided in Appendix IV-A of the Technical Appendices to the report.

Commuter bus riders were asked a series of questions about their bus trip and attitudes toward commuter rail service. In particular they were requested to give the purpose of their trip, their origin and destination, current travel time and fare, and demographic information. Commuter bus riders were also asked if they had heard of the VRE commuter train and if they would ride it given the proposed station locations, travel time and fare structure.

All of the COMMUTERIDE routes were surveyed and two of the Fairfax Connector routes were surveyed (the routes serving Saratoga and Lorton). A random sample of bus trips to be surveyed was developed for each of the eleven COMMUTERIDE routes and two Fairfax Connector routes. For each sampled bus trip, every passenger boarding the bus was given a survey form which they were asked to complete on the bus and leave the completed form with the driver before getting off of the bus.

The survey was conducted on Tuesday, January 15, 1991. Survey forms were distributed during the afternoon when ridership is higher relative to morning ridership. Morning ridership is lower because some of the bus commuters have the opportunity to join carpools which form within the vicinity of the bus stop. However, in the afternoon they take the commuter bus because it is difficult to find carpools for the return trip.

The return rates were excellent for this type of survey. For the COMMUTERIDE, a total of 1,540 survey forms were distributed and 1,085 completed forms were returned for a response rate of 70%. For the Fairfax Connector, a total of 490 survey forms were handed out and 320 completed were returned for a response rate of 65%. For the purpose of this study, JHK used 689 of the 1,085 total completed survey forms for COMMUTERIDE, randomly selected from each route. The 689 surveys and 320 surveys from the Fairfax Connector provided a total sample of 1,009 commuter bus riders for analysis. Exhibit IV-1 (see page IV-5) summarizes the distribution and response rate for the on-board survey.

The survey responses were keypunched and tabulated by Catherine Bryant & Associates using the Survey System software. The tabulated results of each question are

given in Appendix IV-B of the Technical Appendices. Responses are tabulated according to total number of respondents, Commuteride, Fairfax Connector, and general location where riders boarded the PM outbound bus (Downtown D.C., Pentagon, and Vienna Metrorail Station).

To further examine commuter bus riders which could be potential VRE riders, JHK geocoded the respondent's trip origin and destination to MWCOG zones for approximately 730 of the 1,009 surveys. For each geocoded survey which had valid origin and destination points (563 surveys), JHK validated the percentage who would realistically be persuaded to switch to VRE, once in operation, based on factors affecting the trip. Specifically, JHK used a logit model by computing a VRE utile, based on the respondent's origin and destination. A similar utile was generated for respondents' bus trips based on their responses to the survey questions. The utiles were generated from cost, access time, and running time factors. From the logit model, the utiles were converted into probabilities of VRE use likelihood. While 44 percent of the 1,009 survey respondents stated on the questionnaire that they would likely switch to VRE (Question 21), JHK calculated that 33 percent would switch using the logit model screening approach (on the 563 valid geocoded questionnaires).

The following section presents the key findings from the on-board survey results. The tabulated responses for each question in the survey plus several cross-tabulations are provided in Appendix IV-B.

KEY FINDINGS FROM THE ON-BOARD COMMUTER BUS SURVEY

Exhibits IV-2 through IV-11 summarize the responses to questions regarding trip purpose, mode of access and egress to the bus stop, type of fare paid, frequency of use, tendency to ride/drive a car instead of taking the bus, awareness of the VRE, likelihood of using VRE, and age and income characteristics. Based on the responses from the sample of 1,009 commuter bus riders responding, the key findings are:

- 97% were riding the bus home from work.
- 58% of all respondents walked while 24% used Metrorail to get to the bus stop in the evening; COMMUTERIDE riders had a higher percentage (68%) of those walking.
- Almost 49% of all respondents walked from the bus stop to home or their evening destination while 39% drove alone in their car. The percentage of COMMUTERIDE riders driving alone is slightly higher (45%) and the percentage of Fairfax riders walking is higher (63%).
- 83% spent 15 minutes or less getting to the bus in the evening and 90% spent 15 minutes or less getting to their evening destination from the bus stop.
- 30% spent between 46 and 60 minutes riding on the commuter bus.
- 60% used a multiple ride ticket; 87% of the COMMUTERIDE riders used a multiple ride ticket while only 5% of the Fairfax riders used a multiple ride ticket.
- 88% rode the bus four or more times a week; this is about the same for both COMMUTERIDE and Fairfax Connector riders.
- 65% were between 35 and 64 years old.
- 44% reported household incomes between $30,000 and $60,000 while 28% have household incomes between $60,001 and $100,000.
- 83% had heard of the VRE before the survey; more COMMUTERIDE riders were aware of the VRE than the Fairfax Connector riders.
- Given information on proposed stations, fares and travel times, 17% of the bus riders said they were likely to ride VRE and 25% said they were somewhat likely to ride VRE. JHK used a logit model screening approach to identify the truly probable riders and estimated that 33% of the bus riders are likely or somewhat likely to use VRE (instead of the surveyed 44%).

Exhibit IV-1
On-Board Survey Distribution and Response

	Surveys Distributed		Surveys Returned		Surveys Analyzed	
	#	%	#	%	#	%
COMMUTERIDE	1,540	76	1,085	77	689	68
Fairfax Connector	490	24	320	23	320	32
Total	2,030	100	1,405	100	1,009	100

Note: Prince William County is keypunching the remaining 396 completed surveys which will be tabulated solely for Prince William County's use at a later date.

Exhibit IV-2
Passenger Response by Bus Trip Origin

	#	%
Downtown D.C.	348	34
Pentagon	594	59
Vienna Metrorail Station	67	7
Total	1,009	100

Exhibit IV-3
Passenger Trip Origin

(Where are you coming from?)

	COMMUTERIDE		Fairfax Connector		Total Combined	
	#	%	#	%	#	%
Workplace	666	96.7	317	99.1	983	97.4
Home	18	2.6	2	0.6	20	2.0
School	3	0.4	0	0.0	3	0.3
Other	2	0.3	1	0.3	3	0.3
Total	689	100.0	320	100.0	1,009	100.0

Exhibit IV-4
Mode of Access to Outbound PM Bus

(How did you get to the bus where you boarded?)

	COMMUTERIDE		Fairfax Connector		Total Combined	
	#	%	#	%	#	%
Walk	471	68.4	114	35.6	585	58.0
Metrorail	71	10.3	174	54.4	245	24.3
Auto Driver	118	17.3	18	5.6	136	13.5
Auto Passenger	13	1.9	2	0.6	15	1.5
Bus	6	0.9	8	2.5	14	1.4
Other	6	0.9	0	0.0	6	0.6
Refused	4	0.6	4	1.3	8	0.8
Total	689	100.0	320	100.0	1,009	100.0

Exhibit IV-5
Mode of Egress from Outbound PM Bus

(After getting off the bus, how will you get to your final destination?)

	COMMUTERIDE		Fairfax Connector		Total Combined	
	#	%	#	%	#	%
Walk	289	41.9	203	63.4	492	48.8
Auto Driver	311	45.1	79	24.7	390	38.7
Auto Passenger	45	6.5	12	3.8	57	5.6
Metrorail	28	4.1	17	5.3	45	4.5
Bus	6	0.9	1	0.3	7	0.7
Taxi	2	0.3	0	0.0	2	0.2
Other	2	0.3	5	1.6	7	0.7
Refused	6	0.9	3	0.9	9	0.9
Total	689	100.0	320	100.0	1,009	100.0

Exhibit IV-6
Type of Fare Paid

Fare Type	COMMUTERIDE #	COMMUTERIDE %	Fairfax Connector #	Fairfax Connector %	Total Combined #	Total Combined %
10-ride Ticket	589	85.5	15	4.7	604	59.9
One-Way with Rail Transfer	5	0.7	179	55.9	184	18.2
One-Way without Rail Transfer	65	9.4	102	31.9	167	16.6
Round Trip	14	2.0	6	1.9	20	2.0
Other	7	1.0	10	3.1	17	1.7
Elderly/Handicapped	1	0.1	2	0.6	3	0.3
No Response	8	1.2	6	1.9	14	1.4
Total Responding	689	100.0	320	100.0	1,009	100.0

Exhibit IV-7
Frequency of Commuter Bus Trip

Frequency Per Week	COMMUTERIDE #	COMMUTERIDE %	Fairfax Connector #	Fairfax Connector %	Total Combined #	Total Combined %
Four or More Days	608	88.2	284	88.8	892	88.4
One to Three Days	41	6.0	22	6.9	63	6.2
Less Than One Day	32	4.6	8	2.5	40	4.0
Refused	8	1.2	6	1.9	14	1.4
Total Responding	689	100.0	320	100.0	1,009	100.0

Exhibit IV-8
Tendency to Ride/Drive A Car Instead of Bus

Frequency Per Week	COMMUTERIDE #	COMMUTERIDE %	Fairfax Connector #	Fairfax Connector %	Total Combined #	Total Combined %
Four or More Days	61	8.9	22	6.9	83	8.2
One to Three Days	97	14.1	51	15.9	148	14.7
Less Than One Day	307	44.6	143	44.7	450	44.6
Never	214	31.1	99	30.9	313	31.0
Refused	10	1.5	5	1.6	15	1.5
Total Responding	689	100.0	320	100.0	1,009	100.0

Exhibit IV-9
Awareness of VRE Commuter Train

	COMMUTERIDE #	COMMUTERIDE %	Fairfax Connector #	Fairfax Connector %	Total Combined #	Total Combined %
Yes	609	88.4	226	70.6	835	82.8
No	70	10.2	89	27.8	159	15.8
Refused	10	1.5	5	1.6	15	1.5
Total	689	100.0	320	100.0	1,009	100.0

Exhibit IV-10
Future VRE Use Intent by Age Category

	VRE Ridership--Future Use Intent							
	Very Likely		Somewhat Likely		Not Likely		Total	
Age Category	#	%	#	%	#	%	#	%
18 to 34	65	38.0	92	35.9	154	28.2	322	31.9
35 to 64	100	58.5	160	62.5	383	70.0	654	64.8
65 or Older	3	1.8	1	0.4	2	0.4	6	0.6
Refused	3	1.8	3	1.2	8	1.5	27	2.7
Total Responding	171	100.0	256	100.0	547	100.0	1,009	100.0
% of Total Responses	17.0		25.4		54.2			

Exhibit IV-11
Future VRE Use Intent by Income Category

	VRE Ridership--Future Use Intent							
	Very Likely		Somewhat Likely		Not Likely		Total	
Income Category	#	%	#	%	#	%	#	%
Under $30,000	35	20.5	42	16.4	80	14.6	165	16.4
$30,001 to $60,000	71	41.5	121	47.3	242	44.2	440	43.6
$60,001 to 100,000	44	25.7	70	27.3	163	29.8	280	27.8
Over $100,000	7	4.1	11	4.3	25	4.6	45	4.5
Refused	14	8.2	12	4.7	37	6.8	79	7.8
Total Responding	171	100.0	256	100.0	547	100.0	1,009	100.0

VRE Ridership Estimation

PART V

jhk & associates

ATTITUDINAL SURVEYS AND MARKET RESEARCH FOR THE VIRGINIA RAILWAY EXPRESS

PART V:

RIDERSHIP ESTIMATION

Prepared for:

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

Prepared by:

JHK & Associates, Inc.

May 1991

Disclaimer

The findings and conclusions in this report are those of JHK & Associates and not necessarily those of the Virginia Railway Express, Northern Virginia Transportation Commission, or Potomac and Rappahannock Transportation Commission.

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INTRODUCTION

The objective of this part of the study was to estimate the magnitude of potential systemwide VRE ridership with particular focus on the service areas of five stations, namely:

- Burke Center
- Rolling Road
- Manassas Airport
- Leeland
- Woodbridge

This study is intended to produce ridership estimates directly from attitudinal and market-research field survey data. Hence, the general study approach consists of: (a) obtaining market research data from a representative sample of commuters from each of the five station service areas listed above; (b) assessing the relationship between the survey respondents' expressed intention to ride the VRE and their likely actual behavior when the VRE service becomes operational; (c) assigning a probability of using the VRE to each station in the system; and (d) applying the probability of using the VRE to the households in each of the station areas.

The key element that determines the resulting ridership estimate is the assessment of the relationship between a survey respondent's expressed intention to ride the VRE, and his or her likely actual behavior when the VRE service becomes operational. A recent paper by Sheskin[1] indicates that expressed intention to use transit overstates actual ridership by a factor that ranges between three and five. He also cites Couture and Dooley[2] who suggested that situational factors such as automobile and transit accessibility are important determinants of modal choice. In other words, the likelihood that a survey respondent would actually use the VRE given that he expressed the desire to do so will depend among other things on how accessible the VRE service is in relation to other competing modes of travel. Hence, the time and cost characteristics of the access and egress portions of the entire VRE commute option would

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[1] Sheskin, Ira M., The Relationship Between Surveyed Behavioral Intent and Actual Behavior in Transit Usage, Paper presented in the 70th Transportation Research Board Annual Meeting, Washington, D.C., January 13-17, 1991.

[2] Couture and Dooley, Analyzing Traveler Attitudes to Resolve Intended and Actual Use of a New Transit Service, Transportation Research Record 794, pp. 27-33, 1981.

play an important role in determining whether an individual would actually use the VRE service. In this regard, this study utilized a ridership estimation methodology that screens each survey respondent based on an evaluation of the attributes of his or her current commuting mode versus the attributes of the VRE commute option for his or her particular situation. This screening procedure is described in the next section.

METHODOLOGY

The ridership estimation methodology involved the following steps: (a) screening the survey respondents to determine the probability of using the VRE; and (b) applying the probability of using the VRE to directly estimate station and systemwide ridership. The estimates reflect matured ridership.

SCREENING OF THE SURVEY RESPONDENTS

The screening of the survey respondents involved the application of a logit mode choice model to calculate the probability that a respondent will use the VRE given his or her current commuting characteristics. The calculated probability may be interpreted as a measure of the competitiveness of the VRE commute option versus the individual's current commuting mode. A probability greater than 0.5 implies that the VRE option is more likely to be chosen than the current mode of commute, while a probability less than 0.5 implies that the VRE option is less likely to be chosen than the current mode of commute. A probability of 0.5 implies that the individual is indifferent between the two choices. The probability for each of the five station areas was estimated as the average probability of each respondent within the station area.

The Zone Structure and Network Model

One of the major inputs to the mode choice model was a measurement of the travel time and cost for the VRE commute option of each respondent. A zone structure and network model were developed specifically for the VRE commuter rail corridor. The home and work addresses for each respondent were geocoded onto the zone system. The network model was used to trace the most logical transit (VRE) path from the home zone to the work zone. The cummulative travel time and cost components for the path were used in the mode choice model.

The zone structure is shown in Exhibit V-1. The zone boundaries strictly follow the Metropolitan Washington Council of Governments (MWCOG) traffic analysis zone boundaries. Additional zones were defined to include the counties of Stafford, Spotsylvania, Caroline, King George, Westmoreland, Fauquier, Culpeper, Warren, Rappahannock, and the City of Fredericksburg. The study area has a total of 554 zones of which 388 are in Washington, D.C., Arlington County, and Alexandria City. This

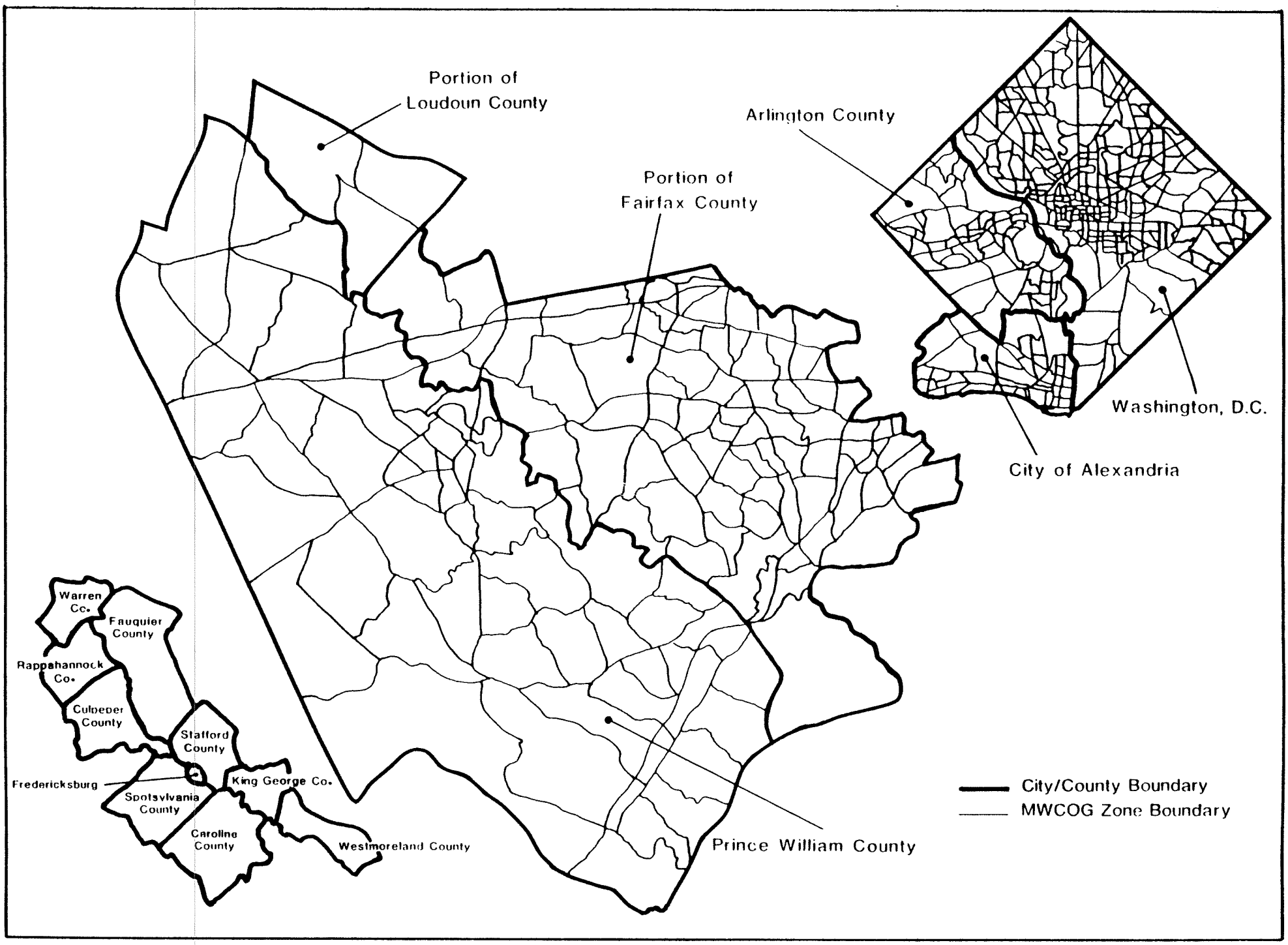


Exhibit V-1. Zone Structure

level of zone detail allowed the proper representation of the walk between the transit vehicle and the final destination.

The district structure is shown in Exhibit V-2. The grouping of the zones into districts is primarily intended to enable a summarized presentation of the data and findings. The district boundaries were defined so that zones within the vicinity of each VRE station constitute a district.

The highway network developed for the VRE service corridors is shown in Exhibit V-3. The level of network detail is compatible with the level of zone detail. This allows for an accurate measurement of the station access and egress travel times. The highway travel times were calculated using estimated congested speeds under AM peak period conditions.

The VRE commuter rail network, shown in Exhibit V-4, together with the highway network comprise the entire network model. The VRE travel time and cost components that are derived from the network model for any pair of origin and destination zones depend on a number of inputs. These inputs are related to the service and operating characteristics of the VRE and other connecting transit services such as the Metrorail and various bus services. For this study, the following inputs and assumptions were used (as discussed with and agreed to by PRTC, NVTC, and VRE senior staff):

(a) Walking speed was four feet per second.

(b) Maximum walk distance was half a mile.

(c) Bus delay factors were 1.5 for access feeder buses, and 2.0 for egress feeder buses. These delay factors represent the ratio between bus travel time and auto travel time.

(d) Feeder bus fare averages 50 cents for both access and egress.

(e) VRE line-haul time and fare, shown in Exhibit V-5, were estimated based on a rail network configuration which included only those stations that are expected to open in March of 1992 (as shown in Exhibit V-4). The fare schedule was derived by taking a weighted average of the three fare types. The weights were estimated based on the telephone survey data. Average wait time for the VRE was five minutes.

(f) Walk time to transfer from VRE to Metrorail was four minutes at Union Station, two minutes at L'Enfant Plaza, five minutes at Crystal City and two minutes at King Street Station.

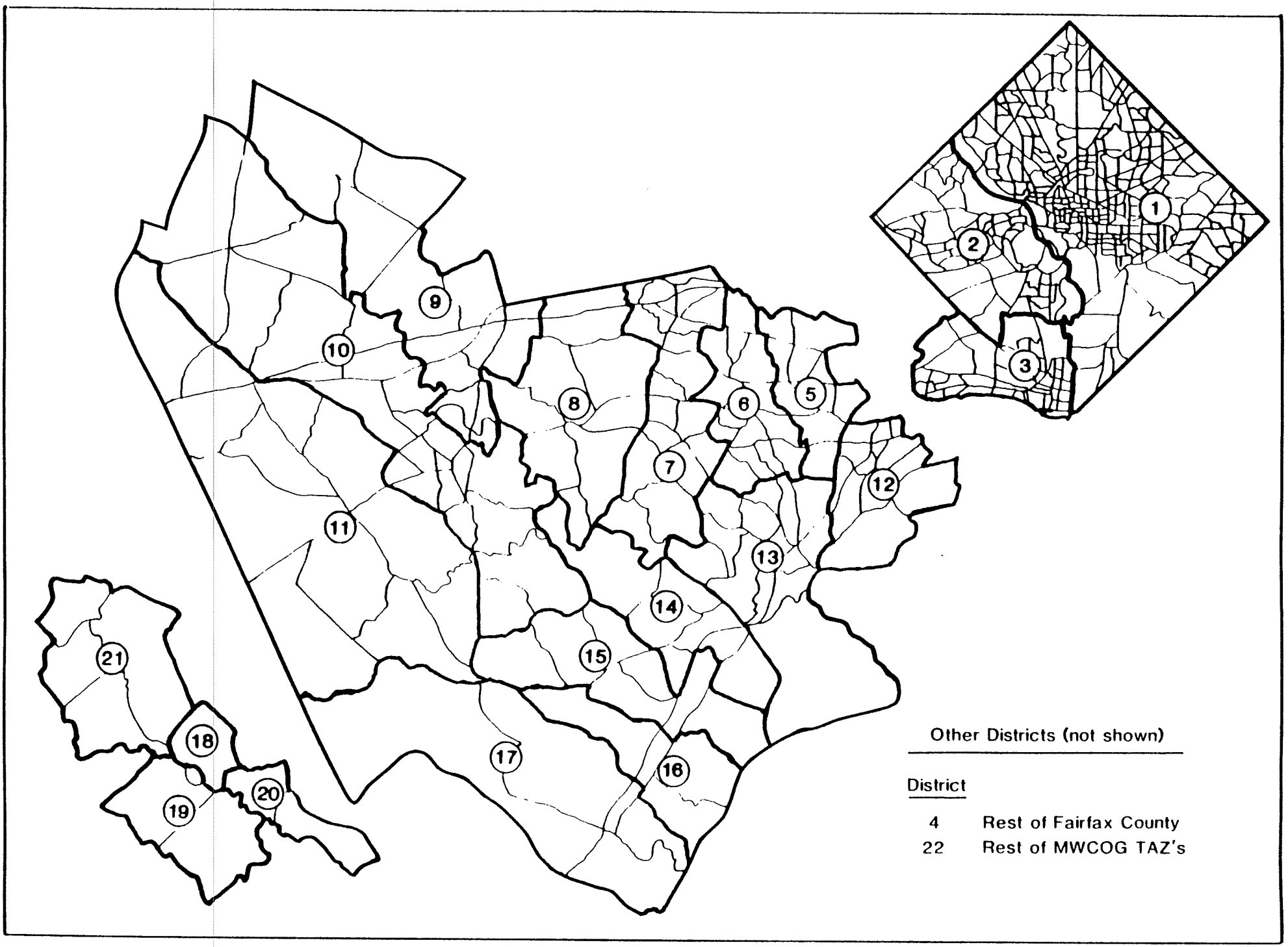


Exhibit V-2. District Structure

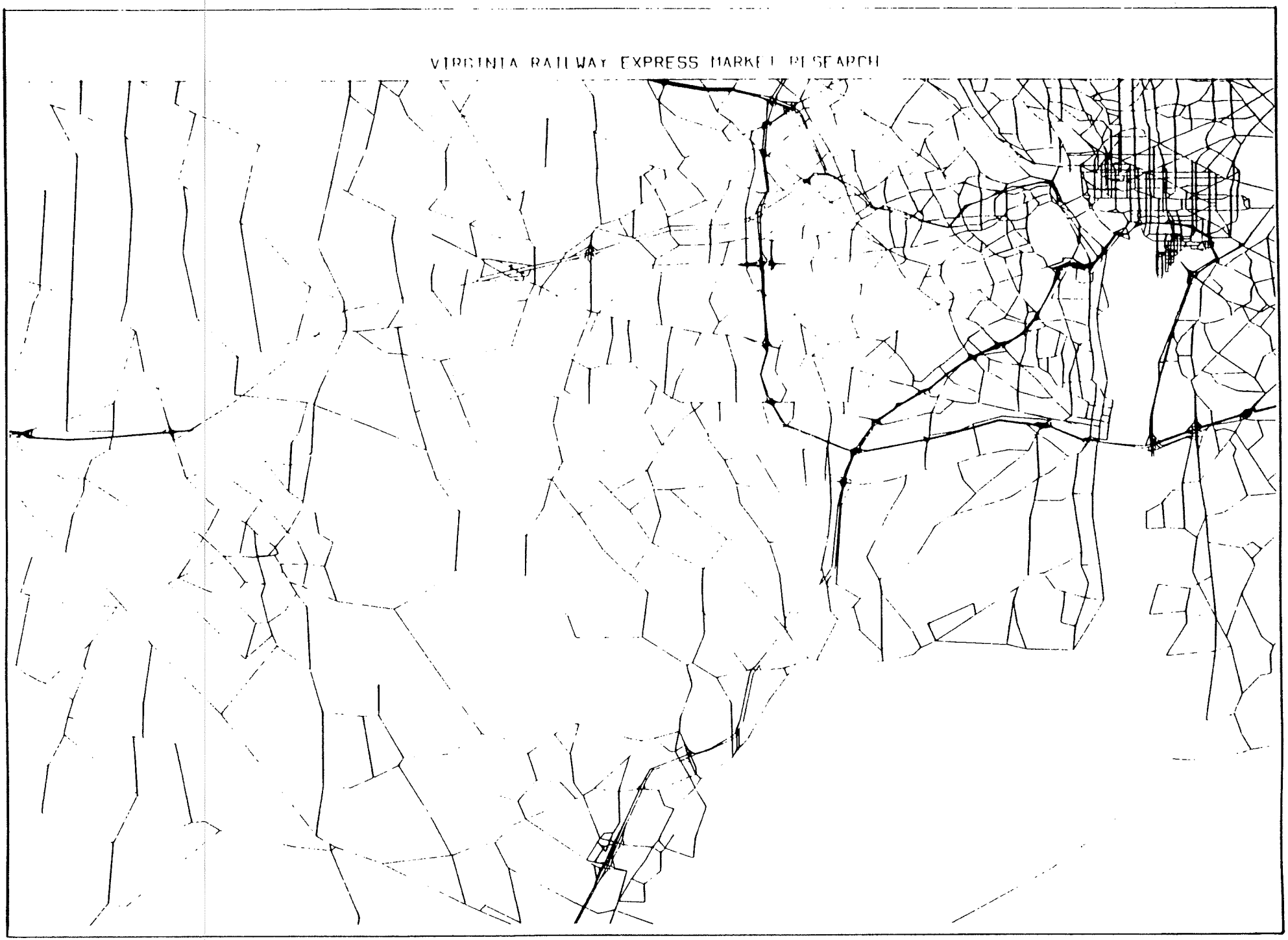


Exhibit V-3. Highway Network

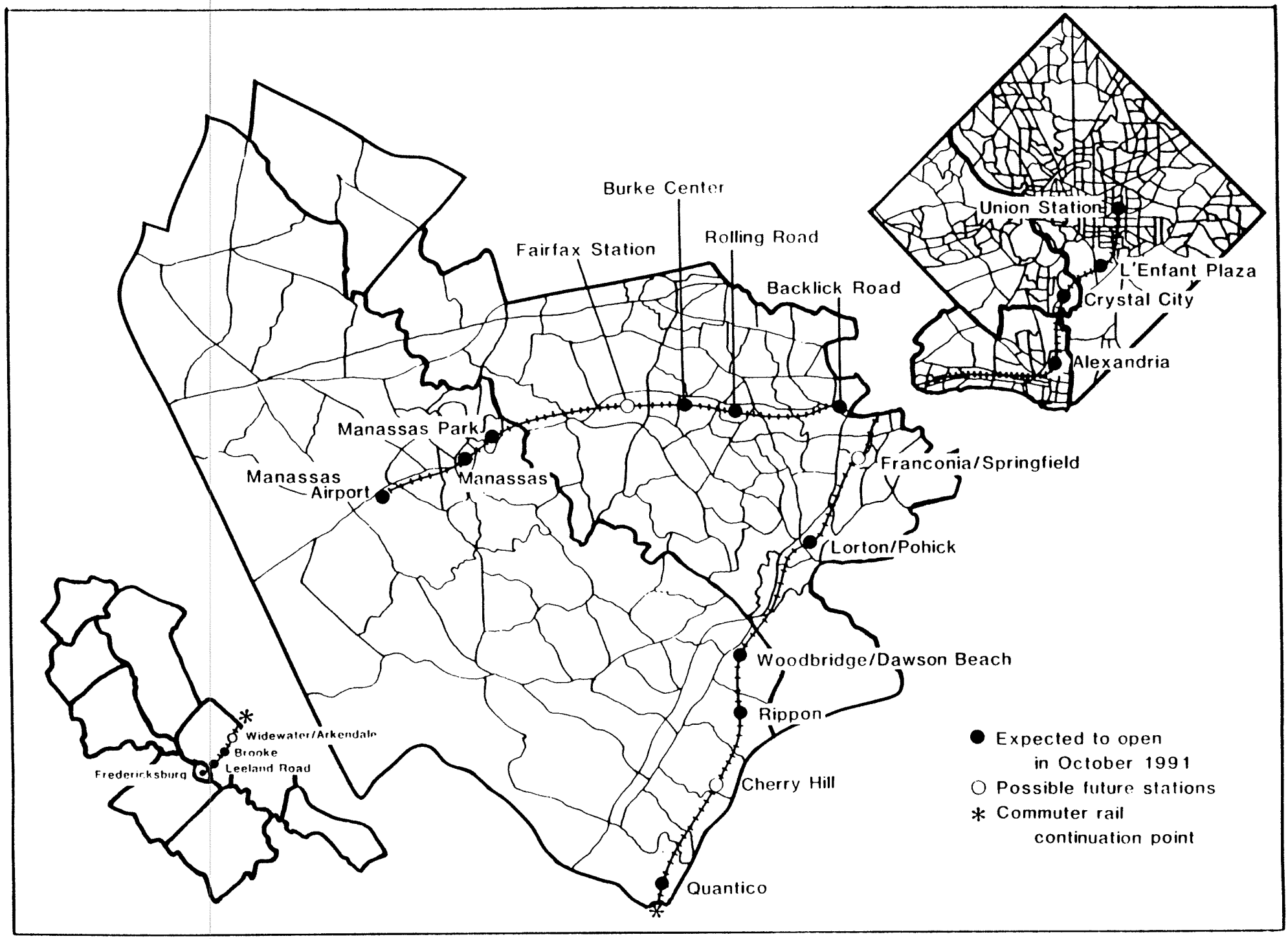


Exhibit V-4. Commuter Rail Network

Exhibit V-5. VRE Line-Haul Time and Fare

Origin Station	Destination Station: Union Station		L'Enfant Plaza		Crystal City		King Street	
	Time	Cost	Time	Cost	Time	Cost	Time	Cost
Backlick Road	30.0	2.89	25.5	2.89	17.5	2.64	9.5	2.64
Rolling Road	36.5	3.16	32.0	3.16	24.0	2.89	16.0	2.89
Burke Center	41.5	3.16	37.0	3.16	29.0	2.89	21.0	2.89
Manassas Park	53.0	3.69	48.5	3.69	40.5	3.42	32.5	3.42
Manassas City	57.5	3.69	53.0	3.69	45.0	3.42	37.0	3.42
Manassas Airport	63.5	3.69	59.0	3.69	51.0	3.42	43.0	3.42
Lorton/Pohick	37.0	3.16	32.5	3.16	24.5	2.89	16.5	2.89
Woodbridge	43.0	3.42	38.5	3.42	30.5	3.16	22.5	3.16
Rippon	49.0	3.42	44.5	3.42	36.5	3.16	28.5	3.16
Quantico	58.0	3.69	53.5	3.69	45.5	3.42	37.5	3.42
Brooke	70.0	4.21	65.5	4.21	57.5	3.95	49.5	3.95
Leeland Road	78.0	4.21	73.5	4.21	65.5	3.95	57.5	3.95
Fredericksburg	84.5	4.47	80.0	4.47	72.0	4.21	64.0	4.21

Notes: (1) Units: Time in minutes
Cost in dollars

(2) Cost is derived as a weighted average using the following weights:

Monthly Pass	0.70
10-Ride Pass	0.25
One-Way Fare	0.05

(g) Wait time to transfer from VRE to Metrorail was 1.5 minutes at Union Station, L'Enfant Plaza, or Crystal City, and 3 minutes at King Street Station.

(h) The transfer point between VRE and Metrorail was determined based on the trip origin and destination.

(i) The Metrorail line-haul time was obtained from the most recently published schedule of AM Peak Period interstation travel times.

(j) The Metrorail line-haul fare was obtained from the most recently published schedule of AM Peak Period interstation fares. However, for the purpose of this study, these published fares were adjusted to reflect a projected 15 cent increase in base fare.

(k) The Metrorail system assumed for the study include all the lines currently operating, plus the extension of the Blue Line to Van Dorn, and the opening of the Green Line between the Anacostia Station and U-Street Cardozo. With these new stations, more destinations could be reached that are within walking distance from a Metrorail station.

(l) Wait time for access feeder buses was three minutes.

(m) Wait time for egress feeder buses (i.e., Metrobus, and other bus services in Washington D.C., Arlington, and Alexandria) depended on the Metrorail or VRE station where an individual would board the bus. For this data, peak hour headway information from published schedules of Metrobuses serving each Metrorail station were collected. Wait time was assumed to be half the peak hour headway.

The Mode Choice Model

The mode choice analysis was structured to calculate the probability that a given respondent would use the VRE considering his or her current commuting mode. The preceding section described the procedure for measuring the VRE travel time and cost components relevant to each respondent if he or she were to use the VRE, instead of the current commuting mode. The travel time and cost components for a respondent under his or her current commuting mode were obtained from the telephone survey. For each respondent, these two sets of time-cost components were inputed to a logit mode choice model to determine the probability of using the VRE. The logit model specification is shown in Exhibit V-6. The individual probabilities calculated from each respondent were then used to get an average probability of using the VRE in each of

Exhibit V-6. Mode Choice Model Specification

A. VRE Commute Option

Segment	Component	Coefficient	Constant
Access	In-Vehicle Time	-0.020	
	Wait Time	-0.040	
	Fare	-0.005	
	Walk Time	-0.040	
	Parking Cost	-0.005	
	Mode-Specific Constant:		
	Walk		-1.000
	Kiss and Ride		-1.500
VRE	In-Vehicle Time	-0.020	
	Wait Time	-0.040	
	Fare	-0.005	
Transfer	Walk Time	-0.040	
Metro	In-Vehicle Time	-0.020	
	Wait Time	-0.040	
	Fare	-0.005	
Egress	In-Vehicle Time	-0.020	
	Wait Time	-0.040	
	Fare	-0.005	
	Walk Time	-0.040	
Constant			-1.000

Exhibit V-6. Mode Choice Model Specification
(Continued)

B. Current Commute Mode

Segment	Component	Coefficient	Constant
Auto	In-Vehicle Time	-0.020	
	1/Parking Cost	-2.000	
	1/Perceived Cost	-2.000	
	Walk Time	-0.040	
	Constant		0.500
Bus/Metro	In-Vehicle Time	-0.020	
	Park-and-Ride Parking Cost	-0.005	
	Wait Time	-0.040	
	Fare	-0.005	
	Walk Time	-0.040	
	Constant		-1.000
Carpool	In-Vehicle Time	-0.020	
	1/Perceived Cost	-2.000	
	Walk Time	-0.040	
	Constant		0.5000

the five target station areas namely: (a) Burke Center; (b) Rolling Road; (c) Manassas Airport; (d) Woodbridge; and (e) Leeland Road.

THE RIDERSHIP ESTIMATION PROCEDURE

The ridership estimate was derived by multiplying the probability of using the VRE by the number of households within the service area of each station. A destination distribution was derived from a home-based work trip table for the MWCOG region to estimate the number of alightings at King Street Station, Crystal City, L'Enfant, and Union Station.

For each of the five target station areas the average probability of using the VRE was calculated directly from the survey data using the method described in the preceding section. For each of the remaining VRE stations, the average probability assigned to it was the average probability of the nearest target station. Specifically, Backlick station was assigned the same average probability as that of the Rolling Road station. Manassas City and Manassas Park stations were assigned the same average probability as that of the Manassas Airport station. Lorton, Rippon and Quantico stations were assigned the same average probability as that of the Woodbridge station. Brooke and Fredericksburg were assigned the same average probability as that of the Leeland Road station.

Exhibit V-7 shows the 1990 household data used for this study. This data was obtained from the MWCOG's Round IV Forecast, and from the Rappahannock Area Development Commission (RADCO). RADCO also provided data on work trip distribution from the RADCO area to the Washington, D.C. Metropolitan Area. This distribution data was used as a basis for estimating the proportion of the households that are within the catchment areas of the VRE for those counties outside the MWCOG planning area.

The destination distribution was determined based on a Home-Based Work Person Trip Table calibrated for the MWCOG Region. For the Norfolk-Southern Line 14% alight at King Street Station, 21% alight at Crystal City, 42% alight at L'Enfant Plaza, and 23% alight at Union Station. For the RF&P Line, 23% alight at King Street Station, 24% alight at Crystal City, 34% alight at L'Enfant Plaza, and 19% alight at Union Station. These alightings include those riders who transfer to Metrorail in order to reach their destination.

Exhibit V-7. 1990 Households By District

District No.	District Name	Households
5	Backlick	20,614
6	Rolling Road	28,242
7	Burke Center	26,816
8	Fairfax Station	5,090
9	Manassas Park	13,906
10	Manassas City	24,780
11	Manassas Airport	7,344
12	Franconia/Springfield	10,461
13	Lorton/Pohick	11,264
14	Woodbridge	18,362
15	Rippon	19,415
16	Cherry Hill	8,301
17	Quantico	6,108
18	Stafford	20,529
19	Fredericksburg Spotsylvania Caroline	35,838
20	King George Westmoreland	10,069
21	Fauquier Culpepper Warren Rappahannock	37,992
	TOTAL	305,131

Source: MWCOG and RADCO

ESTIMATED RIDERSHIP

The result of the logit model based screening of the telephone survey responses yielded an estimated inbound commuter rail ridership of 4,587. This estimate assumes fully matured ridership. Exhibit V-8 shows the estimated inbound ridership by boarding and alighting stations.

Of the total inbound riders, the Norfolk Southern Line is expected to carry 1,823 riders with highest boardings at the Burke Center station. The number of boardings at the Burke Center station includes the expected demand from the Fairfax Station area (73 inbound riders).

The RF&P Line is expected to carry 2,764 riders with highest boardings at the Rippon station. The number of boardings at the Rippon station includes the expected demand from the Cherry Hill station area (283 inbound riders). If the expected demand from the Cherry Hill station area was excluded from the number of boardings at the Rippon station shown in Exhibit V-8, the number of boardings at the Rippon station (662 inbound riders) would almost be the same as the number of boardings at the Woodbridge station (626 inbound riders).

Exhibit V-8.
Estimated Inbound Ridership

	Matured Inbound Riders
BOARDINGS	
Rolling Road	407
Burke Center	459
Manassas Airport	192
Other Line Stations	765
Norfolk-Southern Line	1,823
Woodbridge	626
Leeland Road	153
Other Line Stations	1,985
RF&P Line	2,764
SYSTEMWIDE	4,587
ALIGHTINGS	
Union Station	981
L'Enfant Plaza	1,768
Crystal City	1,013
King Street Station	825
SYSTEMWIDE	4,587

Note: Estimated ridership includes work and non-work trips, but excludes trips to destinations other than King Street, Crystal City, L'Enfant, and Union Station.

area. But the ratio between the proportion of interested and expected riders is also close to four.

The Burke Center and Rolling Road station areas have the lowest proportion of interested riders. The ratio of the proportion between interested and expected riders is slightly less than 2.5. This seems to indicate that the Burke Center, Rolling Road, and Woodbridge station areas are the places where the VRE will find the least difficulty in reaching its market potential.

Exhibit V-9.
Potential Market for VRE Services
(Based on the expressed interest of survey respondents)

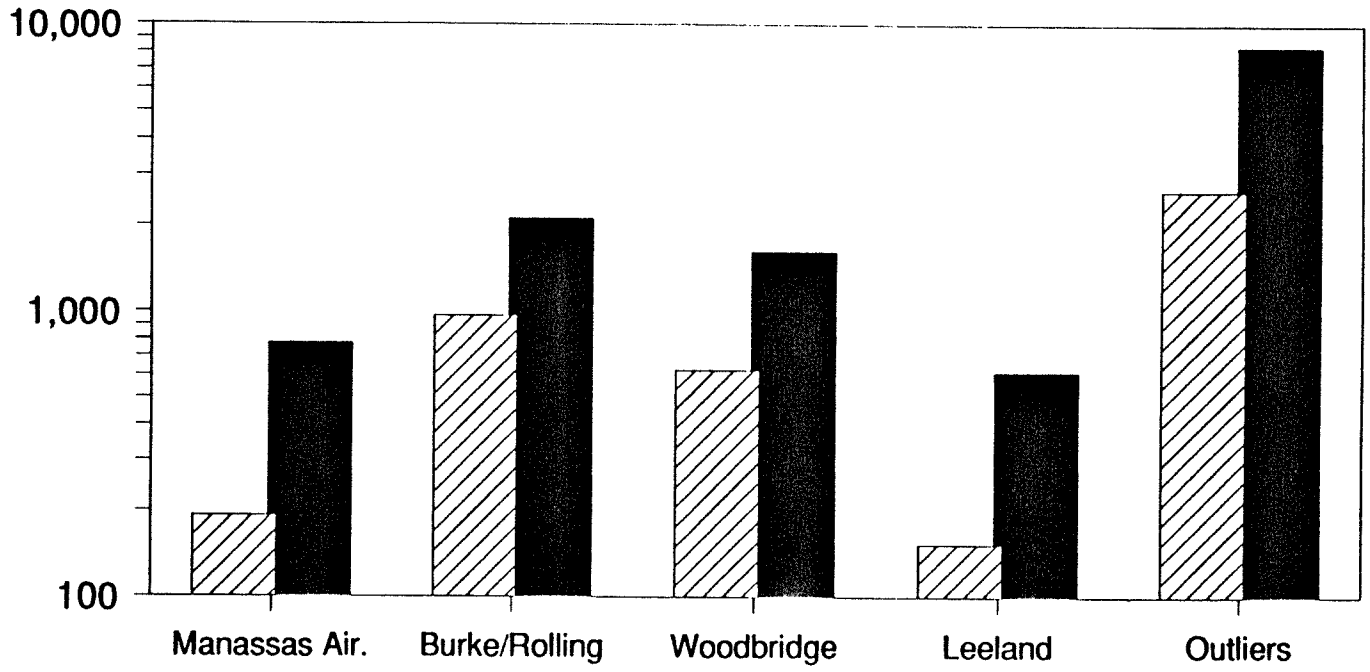
Station	Number of Persons
Rolling Road	988
Burke Center	1,117
Manassas Airport	773
Other Line Stations	2,617
Norfolk-Southern Line	5,495
Woodbridge	1,616
Leeland Road	616
Other Line Stations	5,765
RF&P Line	7,997
SYSTEMWIDE	13,492

V-10. Expressed Intent and Expected VRE Ridership Proportions by Station Area

Station Area	Expressed Intent	Expected Ridership
Burke Center	3.5%	1.44%
Rolling Road	3.5%	1.44%
Manassas Airport	4.9%	1.21%
Woodbridge	8.8%	3.41%
Leeland Road	4.5%	1.12%

VRE RIDERSHIP COMPARISON

ESTIMATED RIDERSHIP VS. POTENTIAL MARKET



	Manassas Air.	Burke/Rolling	Woodbridge	Leeland	Outliers
Pot. Market	773	2,105	1,616	616	8,382
Est. Riders	192	966	626	153	2,650

JHK & ASSOCIATES