

FINDINGS, IMPLICATIONS AND ISSUES FOR COMPARISON IN PHASE II

XIII

A. Findings and Implications

Major findings should not be expected from a "base line" study. The purpose of this base line study was to establish criteria against which to evaluate future conditions. Analysis of the point data, trend information and the "soft" or qualitative data obtained from survey results during the base study did, however, enable certain implications to be drawn regarding the potential for land use changes from introduction of commuter rail in Northern Virginia:

- The size of ridership catchment areas is smaller in more densely developed suburban areas and increases in diameter toward the terminus points in the more exurban areas, creating a "tear-drop" shape. In this study area, a radius of five miles contained 80 percent of VRE ridership in more densely developed suburban areas. In less densely developed exurban areas, a radius of 10 miles was necessary to contain 80 percent of VRE ridership.
- In surveys of persons familiar with the VRE, 34 percent indicated that two miles or less *in distance* was "near" a VRE station; an additional 36 percent felt up to five miles was "near." Among the same persons, 84 percent defined 15 minutes or less *in travel time* from a commuter station as "near." These

distances and travel time, then, have major implications for residential planning and development and their perceived accessibility to commuter rail services.

- Home purchasers began to make housing location choices based on *potential* access to future commuter rail service the same year—1984—that the actions to begin system development were initiated.
- The influence of potential commuter service access on housing location choices increased as opening of the system approached. The percentage of surveyed home purchasers who stated that access to commuter rail had been either a “major” or “some” consideration in their housing location choice increased from six percent of surveyed purchasers from 1984 to 43 percent among surveyed home purchasers in 1992.
- The percentage of surveyed home purchasers whose locational choices were influenced by future access to commuter rail and who used the VRE was significantly higher—at 17 percent—than the six percent for all home purchasers surveyed.
- Surveys of developers of new residential projects which used commuter rail access in their marketing programs showed their products were designed primarily for two-wage earner households with combined incomes of \$75,000+ per year. This targeted purchaser profile showed that the private sector linked commuter rail usage more with above-average-income households than with commuter service for low- and moderate-income households. This is consistent with the fare structure of the VRE.
- There was agreement by 77 percent of surveyed persons of various informed sectors that shuttle or feeder services to commuter stations would increase the attractiveness of nearby land for development purposes.
- The land use plans of cities with downtown commuter rail stations saw them as stimuli for attracting more customers to the downtowns and for generating new service businesses in the long term. The communities had first to provide the zoning, parking, and connecting infrastructure (sidewalks, signage, lighting, landscaping) between the stations and existing businesses which would encourage commuters to stay and visit the downtowns.
- Development in Northern Virginia has tended to follow major highway corridors. Commuter rail has now been added in two of the major

commuting corridors—the I-95/Route 1 corridor and parallel to the I-66 corridor. It will be difficult to clearly separate access corridor-induced development from the impacts of commuter rail-associated land use changes.

- Preliminary air quality emission reductions were calculated from changes shown in commuter travel modes from VRE Ridership Survey data of September 22, 1992. Based on those ridership levels, converting from single occupancy vehicle usage to use of the VRE showed preliminary reductions in carbon monoxide (CO) emissions of nine tons, in volatile organic compound (VOC) emissions of 0.4 tons and an increase in nitrogen oxide (NO_x) emissions of 0.6 tons for the day of the survey. (VOCs are the controlling pollutant in smog formation in the Washington metropolitan area.) Automotive reductions achieved in nitrogen oxide emissions were offset by higher levels of the same emission from the VRE locomotives; however, the locomotive emissions would remain static with increased ridership until new trains are added.
- By the third month of VRE operations, approximately 63 percent of the 2,348 surveyed VRE riders were persons who had used single occupancy vehicles (SOVs) for much or all of their previous commutes; even more significantly,

those shifts by previous SOV commuters were responsible for almost 92 percent of the above-cited reductions in automotive emissions.

The time period covered in establishing the study's base line conditions—1984 to mid-1992—began during a very active growth period in Northern Virginia and concluded as the study area was emerging (hopefully) from a five year recession. The recession years coincided with final development of the VRE commuter rail system. The influence that commuter rail may have had on land use changes—acquisition, development and building construction—in a non-recessionary period were not experienced in Northern Virginia. Whether the minimal land use change activity in Station Nodes was due to: 1) the significant reduction in development caused by the recession, 2) to lack of developer/builder belief that the commuter rail alone would provide a sufficient marketing incentive, or 3) to non-availability of two-way rail service throughout the day, could not be determined from the data. Potential residential buyers were expressing interest in commuter rail in discussions with sales agents, but builder/developer survey responses did not show convincing interest in the attractiveness of sites near commuter rail stations versus sites away from convenient VRE access.

Surveys of knowledgeable public and private sector individuals consistently indicated that station areas should be developed to include more mixed use

projects, higher densities, more office/business and more commercial uses.

B. Issues for the Phase II Study

1) Real Estate Value Trend Assessment - Examination of residential real estate tax assessment values from 1984 to the Phase II study period would be very useful in determining the influence of commuter rail on nearby real estate values. This analysis was not undertaken in the base study after examination of local tax assessment data formats. A large number of individual properties would have had to be identified and monitored in subareas near and away from commuter stations in several jurisdictions. This could have been accomplished with computerized tax assessment data maintained on a subarea basis. However, at the time of the study, not enough tax records of the study area jurisdictions were maintained in subarea formats which would have made this analysis possible within the constraints of the study.

Analysis of real estate value trends by subareas within various study jurisdictions may be possible in the future as older tax records are computerized, programs developed which allow defined subarea data to be withdrawn, and programs or interfaces developed which allow analysis of local tax data bases on personal computers. This capability may be available when the Phase II study is undertaken. The purpose of such an analysis

would be to determine if property values close to VRE stations *increased at a faster rate* than did those for similar types of properties and neighborhoods located away from commuter rail stations. If the findings are affirmative, they could indicate a real estate value increment attributable to commuter rail access.

2) Relocations versus New Locations Influenced by the VRE - The Phase I surveys indicated a positive relationship in the study area between a growing annual percentage of new home purchases and access to the VRE. It would provide useful information if the Phase II study included surveys which determined whether new home purchases influenced by VRE access were the result of relocations by persons already residing in the study area or the metropolitan area, or whether they primarily represented new arrivals into the metropolitan area. A corollary item of useful information would be to ask the same survey sample if the new home purchase was occasioned by a change of jobs which required commuting to the metropolitan core.

3) ISTEA and CAAA - Northern Virginia jurisdictions are just beginning to understand the land use and transportation linkage implications of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the air quality linkages with the Clean Air Act Amendments of 1990 (CAAA). The ISTEA law stresses, for the first time, the crucial linkage between

land use and traffic generation. The law changes the process by which transportation projects are planned, approved and scheduled for funding. The law emphasizes the movement of people rather than the movement of vehicles as a priority. The CAAA requirements were described previously in Chapter XII. The two federal laws have the potential for causing major changes in the way Northern Virginia localities have traditionally made land use and transportation decisions. These laws say, in effect, that "...business as usual will not work."⁸⁹ There will have to be far greater emphasis on reducing the use of SOVs for commuting and non-business travel, especially from new development. Transit systems will have to play greater roles in moving people throughout the metropolitan region and seeing that convenience and area coverage respond to demand in the most cost effective ways.

The Phase II study should identify the local regulations, regional agreements, and metropolitan wide actions adopted in efforts to meet the mandates of the two laws, especially as they include the VRE, and to improve regional travel movement and quality of life standards. Many of the actions taken to achieve the goals of the two regulations will probably have major land use and transportation-linkage elements. The land use planning and development policy changes will be reflected in local Comprehensive Plans, subdivision and zoning regulations, and in regional transportation and land use planning cooperation. The long-term

implications of these two laws could force major changes in the way local governments regard land use and development, especially around VRE transit stations. New Special Area Management Plans may be prepared for these locations and should be analyzed during Phase II as indicators of public sector-initiated land use changes.

4) Do Definitions of "Near" Change - The surveys showed that people tended to define "near" based on their local travel experiences. There are definite planning implications for land use and encouragement of transit use based on these findings. Based on the survey results, in more developed areas, residential development should be encouraged within a two mile radius and a 15 minute drive to create the strongest linkages with VRE access and use. Also, as shown by the survey results, a five mile radius and a maximum 30 minute drive from rail stations will provide the great majority of rail system ridership. This radius expands to 10 miles in the more exurban locations, but still maintains a 30 minute driving time.

What happens as development fills in near stations in exurban areas? The travel time to stations will increase. Instead of 15-20 minutes, the same trip may take 30-40 minutes as more local traffic, traffic lights and intersections are added to the street network. Will the definitions of "near" begin constricting? The survey results tend to so indicate. Will commuters who are now in the

20 percent traveling the longer distances and times then become discouraged and again revert to SOV use?

The less densely developed jurisdictions—Stafford, Spotsylvania and western Prince William Counties—should be aware of this potentiality. Providing preemptive feeder service to station areas might keep commuters from reverting to SOV use as local travel times slow with increased development. Encouraging attractive and functional new neighborhoods within five miles of rural stations might also encourage rail users to locate closer to stations for ease of access. The new neighborhoods would have to be designed to maintain the suburban feel that the people seek in locating to these jurisdictions.

The Phase II study should investigate if these actions have begun to occur in the Northern Virginia study area and the reactions of local jurisdictions, planners and commuters to increasing highway congestion between the commuters' homes and the VRE stations.

5. Impacts on low- and moderate-income commuters if lower cost alternative choices are reduced as a result of the VRE - The Phase II study should compare the number of alternative modes, service routes and prices offered by public and private commuting mode alternatives in 1992 with those available in the Phase II base year. The comparison should determine whether the VRE system led to a long-term reduction or an increase in available commuting alternatives and costs for intra- and

inter-jurisdictional travel. In a related context, the study should examine new employment creation, especially in Station Nodes or areas served by future feeder services around VRE stations that provided new job opportunities—especially for low- and moderate-income workers—and which offered the opportunity of eliminating some need for long-distance commuting.

6. Development of new land uses around proposed VRE commuter rail stations - Additional commuter rail stations were planned which were not constructed as part of the initial service on the VRE. These station locations were: Fairfax Station (Clifton), Franconia/Springfield and Lorton in Fairfax County; Cherry Hill in Prince William County; Widewater/Arkendale in Stafford County and Spotsylvania Station in Spotsylvania County.

Examination of these sites during the Phase II study will indicate whether the VRE system expanded the number of its stations; whether adjacent land use activity occurred since 1992 which could be considered rail-influenced; what types of land uses and employment may have followed as a result of the new rail stations, and whether local public planning and zoning policies were used to encourage or restrict development at these proposed station sites. Aerial photography, taken on two year cycles by Fairfax and Prince William Counties and periodically by Stafford County, could provide information on the timing and amount of land use changes which occurred at the sites since 1992. Quar-

terly VEC employment data can provide information on new employment by categories and changes in existing employment over the same time frame for the proposed station sites.

C. Conclusion

If the basic study hypothesis is true that a new commuter rail service may affect future land use changes, the challenge becomes that of understanding the potential changes in advance. Once the changes are understood, local governments can update land use management plans and policies and become proactive in directing when and where associated changes occur. The objectives should be four fold:

- maximize the benefits offered by a publicly financed rail system to remove existing SOV traffic from local highways;
- provide the infrastructure and land use plans which will allow more concentrated, pedestrian- or transit-oriented, mixed use developments near rail stations. These patterns will reduce the typical suburban reliance upon SOV use for most travel and commuting requirements;
- encourage or mandate ride-sharing or non-vehicular alternatives (shuttle services, public buses, bike or pedestrian paths) to commuter rail stations and commercial nodes from new developments "near" commuter rail stations as part

of a suburban transportation demand management program; and

- provide the plans, policies and infrastructure necessary to allow the types of land uses near rail stations which provide increased tax base and employment opportunities to help offset local commuter rail subsidy costs and to reduce the need for long commuting trips to employment centers.

A new public or commuter rail system offers many positive transportation and environmental benefits for suburban areas. The focus on new commuter system planning should be to incorporate land use planning into the process of system planning to maximize the potential changes and benefits for the community.