Washington, D.C./Richmond Rail corridor: community development strategies

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Abstract

This project proposes improved passenger rail service between Washington, D.C., and Richmond, Virginia, extending the existing high-speed rail route from Boston further south along the eastern seaboard of the US. Within the 110-mile-long corridor in Virginia, existing land uses range from metropolitan centres and suburbs to rural communities, agricultural areas, and wetlands. For this corridor, the project analyzed access patterns, population densities, recreation resources, cultural assets, visual qualities, and environmentally sensitive areas. It identified those areas that should be protected and those that could accommodate development. Based on these analyses, the report recommended fourteen station sites that could best serve commuters and become district focal points, illustrating representative examples of these proposed station communities.

Keywords: integrated transport and land use, transport sustainability, urban accessibility and mobility, transit, passenger rail, community development.

1 Introduction

The Washington, D.C. / Richmond, Virginia corridor is critical to the economic development of the Commonwealth of Virginia and to an appreciation of its cultural heritage and natural beauty. Lying along an existing rail line and Interstate 95, this corridor is also of strategic national importance.

The land use component of the project, the subject of this paper, promotes growth in efficient and liveable patterns and supports developments that would encourage ridership and provide benefits to the cities and counties affected. The Commonwealth of Virginia has the opportunity to encourage economically
viable, environmentally sustainable, and more pleasurable communities. If on a regional basis, travellers can move conveniently between their places of work and those of living, both of which are clustered around stations, rail transit could more effectively compete with auto travel. The alternatives to this approach, which rely on greater automobile use and highway construction, will, if current practices continue, produce more highway congestion, suburban sprawl, and energy waste.

1.1 Project area

The project area encompasses two major circulation routes—the rail line, currently owned by the CSX Corporation, and Interstate 95, the primary auto and truck route along the eastern seaboard. The parameters of the project area adjust to accommodate spheres of influence and special circumstances. Within the corridor, there are opportunities to preserve and strengthen existing cities, towns, and villages and to develop new communities while protecting the area’s natural resources.

Figure 1: Project Area. The Washington, D.C. / Richmond Rail Corridor.

1.2 Methodology

This report evaluates the area at two different scales: the overall corridor scale and the smaller scale of individual station communities. The former is unified by geography, cultural history, economic associations, growth pressures, and threats of environmental degradation. Because the corridor operates as a system, it is viewed as a set of complementary relationships that include those services, amenities, and assets that are linked through the ease of convenient circulation to form networks of associations.
At the scale of the station communities, this report identifies station sites to accommodate improved rail passenger service. It evaluates the suitability of these sites and, for representative ones, proposes plans and designs to illustrate how these communities might develop to utilize and serve rail transit. Thus, the intent is to view these developments as district focal points that can benefit from transportation and land use interactions. Important to these interactions are the inter-modal connections that link outlying areas to these stations and to the larger corridor system.

2 Achieving transit-oriented communities

The widespread use of automobiles has predominantly influenced land uses in the Washington, D.C. / Richmond corridor, since most major development occurred here in the last half century when automobiles and highways came of age. The continuation of these land use patterns, however, is not preordained. Indeed, this report argues that these patterns must be challenged. Current patterns should evolve and new ones should be developed, both of which should support rail service and the benefits that follow from this form of transportation.

Improved rail service and the proper location of stations along the corridor can improve regional mobility and thus stimulate growth. This growth should, in turn, encourage the development of compact, transit-oriented communities and not perpetuate the conventional patterns evident in low-density subdivisions, shopping centres, and commercial strips that have proven to be increasingly wasteful of time, energy, and the environment.

The availability of high-speed trains should offer frequent and comfortable service along the corridor, particularly meeting the needs of business and tourist travellers. With faster speeds, widely-spaced stops, and rapid accelerations, these trains should yield shorter travel times and greater convenience. Both Amtrak and the Virginia Railway Express (VRE) currently offer limited service along the same corridor. They should expand their offerings for a fuller range of passenger train service. The presence and activity of the rail stations should significantly affect the designated station-communities.

2.1 Advantages of transit-oriented communities

1. Reduction in Auto Use: decrease in auto-dependent business and tourist travel, reduction in the number, distance, and travel time of commuter trips, and less need for auto ownership.
2. Improved Accessibility: increased transit ridership, reduced traffic congestion, increased walking and bicycling with possible health benefits, and greater accessibility for those with special needs.
3. More Efficient Land Use and Development Patterns: potential for mixed uses and higher residential densities, more efficient utilization of infrastructure and public services, and less land required for parking.
4. Economic Development: increased business and tourist travel; greater market accessibility, and more efficient public facilities and services.
5. Environmental Protection: reduced pressures on natural systems and resources, improved air quality, and greater landscape conservation.

6. “Sense of Place” and Community Life: enhanced community identity and human scale, incorporation of distinctive community features, enriched opportunities for community social and cultural life.

Figure 2: Regional Analyses—left to right (a.) Economic Centres and Zones, (b.) Environmental Sensitivity, (c.) Historic and Cultural Resources.

2.2 Benefits to participants

Residents:
- Opportunities to live and work in comfortable proximity
- Savings through reduced auto ownership and operation
- Time gained through trip consolidation and reduced auto usage
- Increased mobility for the aged, young, and disabled
- Lower housing costs through more intense land utilization

Business:
- Broader markets from increased accessibility
- Lower costs through shared facilities and land utilization
- Reduced parking through use of public transit and walking
- Fewer absences due to congestion and inclement weather
- Reduced employee stress by decreasing long commutes
Government:
- More consolidated and thus less costly infrastructure
- More efficient provision of public services
- Reduced expenditures for road construction and maintenance
- Higher potential for tax revenues than low density suburbs

Community:
- Encouragement of civic identity through community design
- Retention of landscape through preservation of open spaces
- Increased public safety because of active public spaces
- Potential for purposeful social interactions
- Opportunities for participation in community affairs

3 Selection of candidate communities

In considering potential candidate communities, this report recommends, wherever possible, the strengthening of existing urban centres and underutilized facilities to minimize the use of public resources before new infrastructure investments are made in undeveloped areas. By connecting existing areas of compact development, these areas will be better served and a base for rail ridership will be initially established. Later, as state policies clarify development strategies and as passenger rail service improves, other areas, including presently rural sites, may rise in priority. Thus, this report favours existing communities while it considers potential new sites that may gain validity in the future.

3.1 Selection considerations

Analyses of population characteristics, development densities, land uses, commuting patterns, and economic activities for each of the counties and cities in the rail corridor produced three significant zones of influence (see Figure 2a). The stations were evaluated based on the following criteria which were considered at the regional scale, a five-mile radius from the station, and at the community scale, a one-half-mile radius from the station.

3.2 Community evaluation criteria

3.2.1 Accessibility: How well is the area served by existing rail systems, regional and local buses, interstate and arterial highways, secondary roads and streets, airports, and bike trails; and do pedestrians have convenient and safe routes to the station?

3.2.2 Land use and development patterns: Is the current population density and land use intensity supportive of transit-oriented development; and is there a range of uses proximate to proposed station?

3.2.3 Demographics: Do those living and working in the area support public transit, including reverse commuting?
3.2.4 Economic development: How near are competitive regional centres; what are current economic strengths and patterns of economic growth, the capacity of existing infrastructure, and the nature of land ownership, particularly of large parcels?

3.2.5 Environment: To what extent do development trends affect ecological concerns (flood plains, wetlands, soils, steep slopes, landscape character); and to what degree could environmental assets (water, air, natural systems) be endangered by the impacts of significant development?

3.2.6 Culture, history and recreation: What are the influences of regional parks, educational facilities, government centres, museums, libraries, and medical complexes; how important are scenic rivers and wildlife refuges; and how significant are historic landmarks and cultural landscapes?

3.2.7 Visual quality: Does development impact the intrinsic visual characteristics of the natural and man-made landscapes; and to what degree are scenic views affected by change?

3.2.8 Government and community support: What is the level of support by state, regional, and county governments, and by citizen groups; and do the jurisdictions have innovative tools for implementation such as public-private partnerships, service districts, and transit authorities?

3.2.9 Urban design considerations: Are there strong local identities (hillsides, rivers, unusual landscapes) that establish a “sense of place”; and are there public open spaces, historic resources, architectural qualities, and mixed-uses, as well as potentials for appropriate infill and development?

3.3 Summary evaluations of candidate communities

From the analyses, fourteen station sites were chosen and ranked in order of development priority. Representative examples of these station communities were developed in greater detail to illustrate the range of sites and opportunities that exist in the corridor. The following are three examples of these illustrative designs.

4 Candidate community descriptions

4.1 Fredericksburg, Virginia

Fredericksburg, the major population centre between Richmond and Washington, D.C., has an existing station in an historic district two blocks from the Rappahannock River. The city should encourage regional bus services and park-ride facilities as well as pedestrian improvements to reduce parking impacts in the historic core. Around the station, densities should increase, existing structures should adapt, and new buildings carefully added to gain mixed-uses
and internal block parking. New and adapted structures should harmonize in scale and character to the historic district.

Figure 3: Fredericksburg, Virginia, proposed plan for the existing town centre.

4.2 Carmel Church, Virginia

At the conjunction of the rail line and two highways to Washington, D.C., and another highway to Baltimore, this area has excellent regional access. The site should be a major mixed-use centre. A rail station sited to the east on flat ground should anchor one end, while the Interstate highway interchange to the west
should dominate the other side of the community. The plan proposes three major commercial zones—highway related uses, a shopping centre, and a village-like station area. Lying beyond but accessible to these, are residential villages. Carmel Church should combine urban advantages with the traditional rural qualities of Caroline County.

Figure 4: Carmel Church, Virginia, proposed plan for a new community.
4.3 Glen Allen, Virginia

Located in the Richmond suburbs at the intersection of I-295 and the rail line, this area should, with improved site access, become a centre of activity. A rail station is proposed north of the I-295 interchange to utilize a 500 acre of tract of land. Improved site connections should allow for secondary access from the existing interchanges or a new one from the highway to this site. The plan proposes parking lots east of the rail tracks, allowing commuters to walk to the station through a retail centre. In the two sections to the west, corporate offices are along I-295. North of these are mixed-use buildings. Running east/west is “Main Street”, which terminates in public buildings and a village park with paths to adjacent neighbourhoods.
Figure 6: Glen Allen, Virginia, perspective looking from the east. Interstate 295 extends along the left edge while the rail line between Richmond and Washington, D.C., passes along the nearest side of the site (see Figure 5).

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References

This report was based on information from a variety of sources including the U.S. Census, comprehensive plans of the relevant jurisdictions, interviews with local planning officials and major property owners, field surveys, and analyses of transit-oriented developments in other regions of this country and abroad.