

Executive Summary

The Chesapeake Bay Bridge Tunnel (CBBT) Commission recently began consideration of a toll discount for commuters on its facility connecting the Eastern Shore of Virginia with the Hampton Roads metropolitan area. This study, commissioned by the counties of Northampton and Accomack through the Bi-County CBBT Commuter Toll Impact Study Committee, investigated current social, economic, and environmental conditions on the Eastern Shore; the goals and concerns of Eastern Shore residents; the potential impacts of a range of toll discount scenarios; and mitigation strategies that may work to avoid and minimize those impacts. This report documents the methodologies, findings, and recommendations developed by the study team, and is intended to inform the decision-making process of Eastern Shore county supervisors, planners, residents, and the CBBT Commission with regard to CBBT commuter toll discount proposals.

The study included an assessment of current conditions, assets, needs, goals and potential impacts in several key areas of interest to Eastern Shore residents: transportation, tourism, economic development, agriculture/aquaculture, natural resources, and quality-of-life/livable communities. The impact assessment examined the potential for effects attributable to toll reduction scenarios in each of these six topic areas. The assessment techniques included interviews, comparative case research, analysis of present and potential future regional development and commuting patterns, and extensive public involvement in the form of public meetings and topic workshops.

The Bi-County Study Committee was assisted throughout the study process by a Citizens' Advisory Committee comprised of over thirty residents of Northampton and Accomack counties representing a cross-section of Eastern Shore citizens, businesses, and civic organizations. This committee met frequently and provided guidance on the conduct of the investigation and review of the findings.

After review and analysis of available information, the study team found that a CBBT commuter toll discount has the potential to make certain areas of southern Northampton County more attractive to residential development, confirming the findings of a previous study on this topic commissioned by the Virginia Department of Transportation (VDOT, 2000). The number of households locating in the southern portion of the Eastern Shore through 2025 is estimated to be significantly higher under scenarios where a toll discount is available. This increase in residential activity, in an area with many notable social and natural environmental resources, can be expected to lead to significant impacts in each of the six topic areas considered in the study. Through the input of the Citizens' Committee and the public involvement workshops, the study team determined that many Eastern Shore residents consider these impacts to be adverse. Strategies for avoidance or mitigation of adverse impacts were explored by the study team and are also contained in this report.

The CBBT Commuter Toll Impact Study was undertaken in two phases. During the first phase the study team conducted interviews and reviewed relevant, available information sources in order to prepare topic reports on the six major areas of interest to Eastern Shore residents. Each topic report included a review of general characteristics, recent trends, findings of previous studies, plans and goals for the future and issues of concern to the community. The topic reports were developed using data available from government agencies, local institutions, interviews with local officials, business and community leaders, experts in local real estate and environmental issues. These reports were presented to the public in the first public involvement workshops and

appear in Section 2 of this document. The topic area research was used as the basis for the impact analysis and in the development of strategies for the future.

Following the first round of public workshops and review of baseline conditions in each of the six topic areas, the study team created forecasts of future conditions for three growth and development scenarios representing the lower and upper bounds of possible toll rates on the CBBT:

- *No-Action* – Conditions in the future without a discount or change of any sort in the current toll structure are analyzed in this scenario. The No-Action Scenario serves as a baseline to which the other scenarios are compared, allowing for the incremental change of the toll discount scenarios to be identified. To promote consistency with other planning efforts, population and employment projections were based on the growth scenarios utilized in the ongoing U.S. Route 13 study.
- *Commuter Toll Discount (\$7 Each Way for One-Day Round Trips)* – Under this scenario, the one-way toll would be reduced to \$7 for travelers completing a round-trip within a 24-hour period (\$14 round-trip). This discount has been discussed at CBBT Commission meetings and provides a reasonable center point for evaluation.
- *Maintenance Toll* – This scenario would examine the impacts of a reduction in the toll to cover CBBT maintenance costs only, assuming that debt service and other capital obligations have been retired prior to the 2025 horizon year. For the purposes of this study a toll of \$3 one-way for Class 1 vehicles in current dollar terms was used.

Toll changes on the CBBT such as those described above will reduce travel costs to and from the Eastern Shore and have the potential to make the Shore more attractive to development. The potential for this development and the form it may take was estimated with through the following techniques:

- *Identify Magnitude of Potential Induced Activity* – To gauge the magnitude of induced residential development on the Eastern Shore, a review of commuting and housing market trends was coupled with an analysis of regional accessibility. Centers of population and employment were identified and a regional model incorporating Hampton Roads and Eastern Shore was constructed. Using changes in accessibility under each of the toll scenarios as a guide, regional population projections were reallocated to subareas so that the potential for growth on the Eastern Shore could be quantified.
- *Identify Potential Geographic Locations for Induced Activity* – Growth projections for each scenario were compared against the holding capacity of the subareas and smaller geographic areas were reviewed for their susceptibility to change. Maps and aerial photographs are presented to document the process and inform the impact assessment.
- *Identify and Describe Impact of Induced Activity* – Likely regional and local consequences of the induced development projections were assessed and quantified with order of magnitude estimates where possible. Impacts were organized and described by topic area.

These analysis techniques produced the following findings:

Induced Development Activity - The toll change scenarios examined reduce the overall cost of travel between the Eastern Shore and the Hampton Roads metro region, effectively bringing the Shore closer to the employment centers of the metropolitan area. Without a toll change the length of the CBBT, the toll cost, and the location of employment centers in Virginia Beach and Norfolk make commuting attractive to only very small number of people (less than 2 percent of all commute trips in 1990). A reduction in the cost of travel through a toll discount gives the southernmost portions of Northampton County a comparable commute cost profile to other outlying areas of the metropolitan region. This, combined with other features of the area may make it more attractive to residential development aimed at the commuter market.

Using a regional model of household and employment location and commute patterns the study team estimated the potential for household growth on the Eastern Shore. Under the No-Action Scenario, the Eastern Shore can expect a continuation in current trends of household growth seeing a 20 percent increase in households from the base year of 1990 through 2025. Implementation of a commuter toll discount is expected to produce household growth 30 percent to 60 percent higher than the No-Action Scenario (5,400 to 6,700 households), the Maintenance Toll Scenario produces 50 percent to 100 percent growth (6,400 households) when compared to the No-Action Scenario. Most of the growth attributable to the toll increase will be focused in Northampton County. Under the No-Action Scenario the county would see an annualized growth rate of 0.7 percent through 2025. This rises to 1.5 to 2.3 percent under the Commuter Toll Scenario and 2.1 to 3.3 percent under the Maintenance Toll Scenario.

Land is consumed wherever there is the development of new housing units. On the Eastern Shore, calculation of the amount of land that could be consumed by new development must consider existing development regulations and the significant number of vacant subdivided lots. An examination of county records revealed that there are approximately 5,450 vacant subdivided lots in Northampton County, excluding the new subdivision at Bay Creek, which could potentially accommodate over 2,000 dwelling units. Taking vacant lots and development regulations into consideration it is estimated that without a change in the CBBT toll structure (No-Action Scenario), it can be expected that 3,200 to 18,000 acres will be consumed by the development forecast. Under the Commuter Toll Scenario, an estimated 4,200 to 25,000 acres will be consumed. The Maintenance Toll Scenario may result in the consumption of 6,000 to 30,000 acres (an increase of 2,800 to 12,000 acres over the No-Action Scenario). Development is likely to occur in areas closest to the CBBT and U.S. 13. To provide an indication of the potential areas for growth, these factors were examined along with other indicators (vacant lots, property values, amenities) to illustrate the areas in Northampton County most attractive to residential household development (see Section 3.3.4).

Transportation - Separated from a major metropolitan region and the rest of Virginia by miles of water, Eastern Shore residents have always considered transportation an important topic of concern. The major transportation facilities serving the Shore are a vital link to the markets, services, amenities, and visitors that contribute to the local economy and quality of life. The distance and cost associated with travel to the Eastern Shore are also considered by many residents to be an important factor in the continued preservation of the Shore's rural atmosphere and significant natural resources.

The analysis conducted in this study suggests that traffic volumes can be expected to increase substantially on the Shore with or without a toll change. With a change in toll, however, volumes can be expected to increase beyond the levels anticipated in the ongoing U.S. 13 studies, which have not taken the potential for a toll change into account.

Overall, traffic on the Eastern Shore is expected to double by 2025, increasing from an average of 15,000 trips in 1995 to nearly 30,000 in 2025 under the No-Action Scenario. With an increase in the level of household and commercial activity anticipated for the southern portion of Northampton County, traffic growth will be the highest in this location. Also, through traffic can be expected to increase as more travelers are attracted to the bridge by its lower cost. Due to higher levels of local traffic, through-traffic, and tourism-oriented traffic, traffic flows under the Commuter Toll and Maintenance Toll Scenarios are substantially higher (10 percent to 30 percent) than No-Action conditions.

Tourism - The Eastern Shore offers a great number of natural amenities, making this area a tourist attraction. Types of tourism on the Eastern Shore include fishing, boating, hiking, bird watching, camping, water sports, and other recreational activities. This region can be considered a seasonal destination location—lodging facilities experience close to full occupancy in the summer and fall, the height of the busy season.

Tourism is a generator of jobs on the Eastern Shore where 20 percent of the total jobs is in the lodging and retail sectors. In addition, tourism generates a significant contribution to local tax revenues in the form of locally levied lodging and meal taxes. Based on these assumptions, state tourism data, and a review of data gathered in a recent CBBT travel survey (CBBT, 2000) it is estimated that tourism expenditures under the No-Action Scenario will increase by 50 percent through 2025, amounting to nearly \$220 million. The effect of a toll decrease under the Commuter and Maintenance Toll Scenarios is expected to be significant but modest, amounting to over \$3 million for the Commuter Toll Scenario and nearly \$8 million for the Maintenance Toll Scenario. Visitor effects of a toll change are expected to amount to 21,000 and 74,000 visitors in 2025 based on the level of the toll reduction.

While tourism and second home development are expected to grow throughout the study period, the action scenarios are expected to have limited influence on the timing and direction of these growing sectors, due to the nature of the discounts considered and the limited area of anticipated changes in accessibility.

Economic Development - The Eastern Shore of Virginia is one of the poorest areas of the state, but hosts a broad range of industries and retains competitive advantage in key traditional and emerging industries. Eastern Shore industries provide jobs for most of the residents in the labor force--few residents commute outside the region for employment. Unemployment on the Shore is currently at low levels, but given the mix of local industries, employment is highly seasonal and skewed toward professions with lower rates of pay.

The job growth induced by residential activity represents economic development for the Eastern Shore but is expected to be concentrated in the retail and service sectors. In Northampton County, the Commuter Toll scenario can be expected to produce the need for approximately 364 additional full and part time retail and service positions by 2025 and annual sales of approximately \$16.8 million in current dollar terms. Under the Maintenance Toll scenario this additional employment need can be expected to reach 583 employees with \$27 million in annual sales.

The analysis reveals that construction of the dwelling units expected under the Commuter Toll Scenario could produce sales of \$143 million, earnings of \$40 million, and full and part time jobs totaling 1,800 positions over the 25-year period of construction. For the Maintenance Toll Scenario sales could reach \$245 million for construction of over 2,000 units with employment of 3,300 and earnings of \$69 million. The action scenarios have the potential to improve levels of

business activity in all industries, but given the magnitude of the accessibility changes, it is anticipated that effects will be concentrated in the secondary impacts of residential development in Northampton County. A measurable effect on the potential for new cluster industries cannot be determined. There is significant potential for employment in the retail and service sectors at relatively low wages and the construction industry at higher wages. Concentration of business along the Route 13 corridor is likely—this may have impacts on the viability of traditional village commercial areas.

Environmental Resources - The Eastern Shore supports a diversity of habitats and species and is characterized by its unspoiled, fragile ecological resources. The undeveloped land of the Eastern Shore provides a significant economic resource to the area, offering opportunities for tourism, fishing and forestry, and agriculture and aquaculture. The attractive natural environment of the Eastern Shore makes it a desirable place to live, work and visit.

The Southern Tip of the Delmarva Peninsula, in particular, is regarded as a vital resource for its abundance of woodland (it has been designated as part of the International Biosphere Preserve) and its key role in the flow of migratory birds on the Eastern Seaboard. Although the precise location and form of future development cannot be determined it is likely that the consumption of land in this vital area will have adverse impacts on woodlands and habitat (see Sections 3.3.3 and 4.5).

Surface and groundwater are vulnerable to development impacts. With a toll reduction, the impacts to both water consumption and water quality are likely in the immediate areas where development is concentrated. Loss of vegetation and an increase in impervious surface can lead to increased erosion and runoff, which also has impacts on water quality. Wetlands are valuable productive ecosystems on the Shore, where about 90 percent of the commercial fish and shellfish are dependent on tidal wetlands. With increased development, localized impacts to involving non-point source pollution (e.g., run-off, nutrient loading) may occur.

With a commuter toll in place during 2025, additional water use can be anticipated to total about 1.3 million gallons for the region. This withdrawal will be concentrated in Northampton County about 687,000 gallons per day would be consumed and close to 674,000 gallons per day would be consumed in Accomack County. With a maintenance toll in place, during 2025, the number of gallons consumed per day for the region would increase by approximately 1.6 million gallons per day, with Northampton County consuming 914,000 gallons per day and Accomack County consuming 687,000 gallons per day. It appears that, in general, the potable water supply has the capacity to support the water withdrawals anticipated under the No Action, Commuter Toll, and Maintenance scenarios evaluated in this study. A review of recent reports indicates, however, that localized effects of water withdrawals (e.g., well interference, salt-water intrusion, nutrient loading) concentrated in specific areas can be significant.

Agriculture/Aquaculture - The Eastern Shore's agricultural sector contributes to its economic base and provides the inputs needed for food processing at manufacturing operations. According to the 1997 Census of Agriculture, there were over 400 farms on the Eastern Shore, with 279 in Accomack County and 162 in Northampton County. Total market value of agricultural products sold on the Eastern Shore is about \$100 million annually, with field crops accounting for about 75% of total sales and livestock accounting for the remaining 25%.

The fishing, clamming and aquaculture industries are traditional local industries for the Shore. They account for 15% of the total earnings in this sector and 31% of Virginia's total fishing and seafood industry earnings.

Some of the most productive soils are also the most suitable for septic systems for residential development. Farmlands may also be desirable locations for waterfront homes. Certain amounts of farmland are subdivided, causing residential development areas located on prime agricultural land. This may lead to conflicts between farm operators and homeowners, especially over issues such as odors, noise, dust, chemical usage and hours of operation. In addition, fragmentation of farmland affects its productivity and viability leaving tracts of land too small or segmented to be efficient.

Quality of Life/Livable Communities - The unique, rural lifestyle of the Eastern Shore makes the location an attractive place to live. Historic towns and villages are surrounded by farmlands and water, and large lots of land are characteristic of the traditional, low-density rural lifestyle on the Eastern Shore. This quiet lifestyle is highly valued by its residents as indicated in their comments during the public involvement efforts of this study.

The toll discount scenarios can be seen to have both positive and negative effects on local quality-of-life. Less expensive access to the amenities and services of the metro area and the prospect of greater retail services and employment on the Eastern Shore are viewed positively by some Eastern Shore residents. The loss of rural lifestyle in areas that would experience the highest growth, increase in the cost of living, the potential for residential displacement, and strain on community facilities were cited by others at the public hearings as significant adverse impacts at the levels described in the impact assessment.

A growth in households on the Eastern Shore will add to county and town tax bases but will also cause an increase in the demand for services. In many growing communities around the country, demand for services outstrips the rise in revenue that accompanies increases in property values and the tax base. A review of recent experience elsewhere in the Hampton Roads metro area and an analysis of the Northampton County fiscal position based on county data and a recent local study by the American Farmland Trust, suggests that the residential and commercial growth coupled with consumption of open and agricultural land anticipated under the action scenarios will result in budget shortfalls of approximately 25 percent annually by 2025, also indicating the potential for upward pressure on tax rates.

Public Involvement Responses - Several key issues and concerns were expressed by residents of the Eastern Shore attending the public involvement events in April and October of 2001. The following main points emerged:

- Many residents expressed concern over the negative impacts of growth to the environment and quality of life, particularly on the Southern Tip of Northampton County where environmental resources and the rural lifestyle would be most threatened. Residents also expressed the need for moderate economic and job growth.
- Participants in the workshops suggested that a commuter toll may not be the most important toll discount for residents of the Shore—discounts for travel for medical and educational purposes may be of greater benefit to current residents.

- Workshop participants had questions and concerns over the process of decision-making at the CBBT Commission and how residents of the Eastern Shore could be heard and represented.
- Preventing travel delays and safety problems on the CBBT and Route 13 were also a top priority. The issue of the need for a second set of tunnels is one example that was voiced.

Strategies for the Future - The impact study suggested that with or without a change in the CBBT, the Eastern Shore would experience growth in residential activity over the next 25 years. With a change in toll, growth pressures in the southern portion of the Shore could match or exceed that already anticipated for northern portions of Accomack County, potentially altering the rural character in several areas of the Shore.

To identify strategies that would work to avoid or minimize the adverse impacts of a toll change three methods were used:

- Comments from the public involvement sessions
- Case studies of comparable communities
- Recommendations developed by members of the Bi-County Study Committee

A review of the literature on growth management and economic development strategies suggests that there is no one combination of techniques used in practice around the nation. Strategies and techniques are assembled for each particular situation based on the goals, resources, growth pressures, and legal and regulatory constraints of the community. To illustrate the manner in which strategies have been matched to particular situations in locations around the nation, a group of ten communities were identified for further case study research. The case studies are presented in Section 5. This research suggested several strategies for managing and directing growth related to residential development, tourist activity, and economic development in rural and environmentally sensitive areas. Many of the strategies are directly applicable to the Eastern Shore, others are not appropriate or could not be implemented under the current land use planning enabling statutes for the Commonwealth of Virginia.

The strategies recommended in the report fall into two general categories (See Section 5): actions and policy positions taken by the county boards of supervisors, and local growth management initiatives. The potential actions are summarized below.

County Policy Positions:

- *Position on CBBT Infrastructure and Toll Reduction* – The counties would ask the CBBT Commission to postpone any decision on toll discounts until further study on the need for future capital improvements is undertaken. This would allow the Commission to make a full assessment of future toll revenue needs, would promote the stability of toll rates over time, and would work to avoid or minimize the adverse effects of a toll reduction identified in the study.
- *Request for Examination of CBBT Commission Structure* – In response to the concerns of residents voiced in the public comment process, the counties would recommend further study by the CBBT Commission and the General Assembly on the level of Eastern Shore representation on the Commission, the Commission’s policies on public comment for

major policy decisions, and the potential for the use of surplus toll revenue to fund off-site improvements.

- *Position on CBBT Medical and Educational Discount Programs* – Public comments indicated interest in improvements and greater awareness regarding current underutilized medical discount programs administered by the counties and the creation of a program to provide discounts for travel for educational purposes. The counties would work with the CBBT Commission to identify needs in these areas.

Growth Management Strategies:

- *Southern Tip Greenline/Resource Protection Overlay* – The study found that significant impacts and vital resources will come into greatest conflict in southern Northampton County. A greenline involves implementation of a resource protection district by the county in those vital areas to protect habitat, and agricultural resources. The overlay district would involve a combination of land use regulation techniques including changes in density and use regulations, lot sizes, and performance standards in key areas. Limits on the expansion of sewer and water infrastructure and the purchase of easements would also be effective components of a greenline.
- *Land Use Taxation for Northampton County* – The Commonwealth provides standards for the enactment of agricultural and forestal districts as well as methods to adjust real property tax assessments to reflect the value of agricultural and forestland as used. This voluntary program is in practice in Accomack County and other jurisdictions in Virginia and can be an effective method to relieve financial pressures and the incentive to subdivide working farms and open space.
- *Other Strategies* – In addition to specific strategies for Northampton County, there are several regulatory strategies that would help to channel growth and mitigate its effects that would be applicable throughout the Shore. These include: revision of performance standards for vegetation protection and site planning to minimize the impacts of development activity; and the establishment of detailed proffer guidelines to facilitate discussions between county officials and developers on exactions. These steps could also be augmented by planning studies for capital improvements, open space and recreation, economic development, and tourism, to identify future needs and community goals that would help shape future regulatory changes. Other strategies specific to the needs of the Eastern Shore (e.g., construction job training, affordable housing, transit alternatives, and access management initiatives) may also be appropriate. These strategies and others are discussed in more detail in Section 5.