

## Loosening the belt

### *A closer look at how I-495 officials sold the HOT lane concept*

*For close to three decades, the roadway has not kept up with prescribed standards to alleviate safety and operational concerns. The proposed HOT lanes will in most cases bring the roadway up to present highway standards.*

- Gary Groat, Contributing Author

Northern Virginia has the most traveled roadway in the Commonwealth of Virginia—14 miles of the Capital Beltway (I-495). As its primary use has shifted from serving through traffic bypassing Washington, D.C., to a major local commuter road, the Beltway is traveled by up to 240,000 vehicles daily. This amount of travel demand on the Beltway routinely exceeds capacity resulting in long traffic tie-ups and unsafe driving conditions. Fluor Daniel is proposing adding high-occupancy toll (HOT) lanes, which are financed primarily by tolls, on the Beltway to alleviate the severe traffic congestion and meet projected transportation volume of 320,000 vehicles per day by 2020.

The last major improvement to the Beltway, which was constructed in 1964, occurred in 1977 when it was widened to eight lanes. For close to three decades, the roadway has not kept up with prescribed standards to alleviate safety and operational concerns. The proposed HOT lanes will in most cases bring the roadway up to present highway standards.

## The HOT look

Fluor Daniel submitted its conceptual proposal to develop, finance and design-build the Capital Beltway HOT lanes to the Virginia Department of Transportation (VDOT) under the Public-Private Transportation Act (PPTA) of 1995. The year was 2002 and VDOT had recently completed a draft Environmental Impact Statement (EIS) and the pursuant public comment period on proposed improvement alternatives. Along with more than 900 citizens, Fluor Daniel attended the three VDOT public hearings and heard numerous comments supporting or opposing the three widening alternatives. These citizen comments gave Fluor Daniel the ideas that ultimately became the HOT lane concept.

The proposed four HOT lanes, two in each direction, will be added in the center of I-495 extending 12 miles from west of the Springfield interchange to south of the Georgetown Pike (Rte. 193). Separating these lanes from the adjacent general-purpose lanes will be a 4-ft yellow-striped buffer and orange plastic pylons. Eight general-purpose roadways, four in each direction, will complete the continuous 4-2-2-4 lane configuration. The HOT lanes could operate at 65 mph with the general-purpose lanes continuing to operate at the current 55 mph. To ensure reliable and free-flowing traffic conditions, the HOT lanes would be actively managed by VDOT.

Two of the seven entry/exit HOT lane points will have direct ramp-to-ramp access at I-66 and the Dulles Airport Access and Toll Road. Intermediate entry/exit points near Rte. 123, U.S. Rte. 50 and Braddock Road will provide access from all other intermediate Beltway interchanges. The general-purpose lanes will connect to all interchanges to and from the right.

As proposed, the concept stays substantially within the existing right-of-way with minimal displacement of only six residential structures. Some narrow strips of land adjacent to the Beltway along the existing right-of-way will be required to allow for the additional lanes, retaining walls, sound walls and utility easements. In comparison, earlier EIS alternatives considered by VDOT indicated more than 300 homes and businesses would be taken and some 103 to 168 acres of land acquired. Placing the HOT lanes within the existing Beltway reinforces rather than damages residential and business development patterns in a corridor key to Fairfax County's economic vitality.

Air quality joins displacement as a prominent quality-of-life issue surrounding any road capacity increase. A qualitative analysis of the potential regional air quality impacts of HOT lanes on the

Capital Beltway prepared by the Metropolitan Washington Council of Governments (COG) for Fluor Daniel indicates such lanes perform much better than conventional widening solutions. The preliminary COG study found that adding HOT lanes to the Beltway will result in a slight increase in volatile organic compounds (VOC) and a moderate increase in oxides of nitrogen (NOx) emissions. COG also concluded that its estimates "are conservative, i.e., likely to overestimate emissions" because the study did not account for emission reductions associated with a decrease in cut-through traffic on adjacent streets and the projected reduction in traffic on the general-purpose lanes of the Beltway.

Electronic toll collection (ETC) facilities will be located at each HOT lane access point. A Smart Tag/E-ZPass will be required to use the HOT lanes. Patrons must establish and maintain a valid Smart Tag/E-ZPass account. The ETC system will capture the data necessary to process the transaction and store it for processing. Tolls are assessed electronically, recorded in transaction records and posted to customer prepaid toll accounts maintained in the Smart Tag/E-ZPass Customer Service Center. For a vehicle using the HOT lanes without a valid Smart Tag/E-ZPass, the ETC system will digitally photograph the offending vehicle and retain its rear image for violation processing.

Toll revenues from non-HOV vehicles are the primary funding source for the \$694 million capacity increase. Depending on time of day, HOT lane fees for one- and two-passenger vehicles will vary from \$1 in off-peak hours to \$4.80 at peak demand. Tolls collected will repay the toll revenue bonds and Transportation Infrastructure Finance and Innovation Act (TIFIA) loan financing for 87% of construction costs. Virginia and Fairfax County will have no general or moral obligation for these bonds and loan. The public share of the cost is estimated to be 13%.

< a>

Fluor Daniel's HOT lane concept represents a major new multimodal facility for the Washington, D.C., region. It will offer beneficial enhancements affecting the existing HOV facilities, express bus rapid transit (BRT), the slug system and Metrorail station access.

Introducing HOT lanes on the Capital Beltway will create 12 miles of new HOV facilities and provide the missing link to connect existing HOV facilities on I-95/395, I-66 and the Dulles Toll Road. In addition, the HOT lanes provide a BRT guideway at no cost to area transit agencies on which these vehicles could operate at higher and more reliable speeds as compared with the existing, congested general-purpose lanes. The informal car-pooling of the current slug system would be supported and ride-sharing opportunities expanded in the Dulles corridor, linking western Fairfax County with the I-395 corridor by way of the Capital Beltway.

The HOT lanes have the potential to improve connectivity between future express bus service and existing and future Metrorail stations linking many neighborhoods to the regional Metrorail system. Both the Capital Beltway EIS and Capital Beltway Rail Transit Feasibility Study envisioned a connection between the Dunn Loring Metrorail Stations and bus transit service on the Capital Beltway. Such a connection would link many neighborhoods to the regional Metrorail system and be much improved over the present situation.

After reviewing Fluor Daniel's unsolicited conceptual proposal, VDOT in accordance with the PPTA process advertised for competing proposals for 120 days and received no responses. Next, the Commonwealth Transportation Board (CTB) advanced Fluor Daniel's concept to the detailed proposal phase. Following receipt of the detailed proposal in October 2003, the PPTA advisory panel will hold one or more meetings to solicit public comment. Independent of the PPTA process, VDOT is conducting the required National Environmental Policy Act (NEPA)/EIS analysis and will hold public workshops in spring 2004. Written comments will be solicited by VDOT for both the PPTA proposal and the final EIS.

Under NEPA, will evaluate the various comments on Beltway build alternatives against a no-build alternative and issue a NEPA-build or no-build decision this spring as well. VDOT's decision will be documented in the final EIS and record of decision (ROD), both scheduled for completion

December 2004. If all environmental and contractual negotiations and clearances are completed by 2004, construction can begin in early 2005, with the HOT lanes fully operational on the Beltway in 2009.

## **Support group**

The proposed Beltway HOT lanes have a wide base of support that cuts across both the public and private sectors. State and county public officials are on record supporting HOT lanes, major print and television media have commented favorably, businesses are proponents of them and the general public is finding the HOT lane plan appealing. HOT lanes on the Beltway are included in Fairfax Board of Supervisors Chairman Gerry Connelly's 4-Year Transportation Plan that the full board endorsed Feb. 9, 2004.

Fluor Daniel funded an independent public opinion survey of 600 citizens that indicates 62% support for adding HOT lanes to improve the Beltway capacity. In the September 2003 survey, support for HOT lanes increased even more if improved travel time is consistently reliable, trucks are restricted, BRT option is included and variable toll is used while a free option also is maintained.

Evaluation of the HOT lane concept continues as part of the ongoing Capital Beltway EIS and PPTA processes. As the public becomes more informed about the specifics of Fluor Daniel's concept, indications are that most—not some—like HOT lanes for the Capital Beltway in northern Virginia.