


Maryland Department of Transportation

Response to Request for Information

I-495/I-95 (Capital Beltway) Congestion relief improvements from the American Legion Bridge to the Woodrow Wilson Bridge

I-270 Congestion Relief Improvement from I-495 to I-70

Submitted by Transurban
December 20, 2017

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1. Introduction to Transurban and our team

Transurban welcomes the opportunity to participate in the process to help the Maryland Department of Transportation (MDOT) deliver the proposed I-495/I-270 Express Lanes (the Project). Having proven the benefits of the express lanes concept on the Virginia side of the Beltway, we would be keen to extend those benefits to Maryland in partnership with MDOT and help alleviate major congestion issues in the Washington, DC – Baltimore region. We believe that a properly structured public-private partnership (P3) approach can successfully address the scale and complexity challenges of Maryland's program by leveraging innovative approaches to design, operations and financing. We further believe that there will be significant market interest in a demand risk P3 approach and, assuming the Project delivery approach and commercial arrangements align with Transurban's corporate investment criteria, we look forward to active engagement with MDOT to advance the Project.

About Transurban

Transurban is a global leader in toll road development, financing, delivery, operations and technology with a total network encompassing more than 900 lane miles of all-electronic toll roads, tunnels and bridges. Transurban is listed on the Australian Securities Exchange, with a market capitalization of over \$20 billion (AUD26 billion) as of December 18, 2017. We have built a track record of partnering with governments to successfully deliver key infrastructure, and are recognized for developing innovative and effective transportation solutions that meet the long-term transportation needs of growing cities. The company vision is "to strengthen communities through transport". That means working collaboratively with all stakeholders to develop strategic transportation projects that meet the policy objectives of our government partners, as well as having the expertise and experience to execute projects successfully.

To achieve our aim of providing smarter, safer and more sustainable ways for people to travel, we understand we must take an integrated perspective of the transportation networks in which we operate. Our long-term concessions with governments create a strong incentive for us to be proactive in how we manage our roads and customers, and to ensure the public private partnerships meet the needs of the community both today and in the future.

We recognize the major role infrastructure plays in local communities in our regions. This is why, in each of our markets, we work closely with our government partners, stakeholders and the local community to ensure our networks deliver safe, efficient and reliable travel for customers. This focus on working towards shared goals contributes to our joint successes with our partners.

Transurban has delivered approximately \$19 billion in infrastructure projects to upgrade capacity, ease road congestion and provide travel-time savings in cities in which we operate. We are currently working to deliver more than \$8 billion in projects, which we expect to create nearly 20,000 jobs. Our partnerships with governments (in conjunction with private investment) on both sides of the world have helped Transurban deliver greater transportation and economic outcomes with tax dollars.

Transurban was among the first to use a number of innovative financing and technology strategies in the development of major toll road projects. Our other capabilities include:

- Network planning and forecasting
- Operations and maintenance
- Customer relationship management
- Project development and delivery
- Technology application

We employ more than 2,000 people across the U.S. and Australia, and we foster an engaged and diverse workforce that can make a significant and lasting contribution to the cities and communities in which we operate.

In Northern Virginia, Transurban partnered with the Commonwealth of Virginia to deliver and manage a network of express lanes to unlock gridlock in one of the nation's most congested corridors. Without the ability to build its way out of congestion, Virginia looked to a solution that would get I-95 and I-495 moving again while also advancing key policy and community objectives.

Delivered on-time and on-budget, the 495 and 95 Express Lanes projects provided \$3 billion in transportation improvements to the region and delivered real time savings to travelers, but the benefits go beyond the Express Lanes. The projects met key objectives that protected taxpayers, bolstered high-occupancy vehicle (HOV) and transit use in this critical corridor, enhanced the infrastructure and throughput surrounding the Express Lanes and benefited the Northern Virginia community.

To further enhance the network and help customers, Transurban and Virginia delivered a 2-mile extension to the 95 Express Lanes in October 2017 that helps all travelers better navigate the end of the Express Lanes.

To the north, Transurban and Virginia are extending the 95 Express Lanes eight miles to the D.C. line. The nearly \$500 million 395 Express Lanes project will reduce congestion in the I-395 corridor, increase capacity by adding an additional lane to create three reversible express lanes on I-395 and extend the benefits and travel options of the 95 Express Lanes to Washington, DC. In addition, Transurban will make a \$15 million annual investment in transit over the life of the concession providing a sustainable funding source for transit.

About Soltesz Engineering

We have entered into an exclusive teaming arrangement with Soltesz Engineering, whose local technical knowledge and familiarity with the I-495 and I-270 corridors complement our expertise in developing managed lanes projects.

Soltesz Engineering is a multi-disciplinary engineering firm experienced in navigating clients through each phase of a project to deliver innovative, effective solutions. Clients include developers, property owners, public agencies, corporations, institutions, and energy companies.

With a nearly 40-year history in the state of Maryland, Soltesz is knowledgeable and proficient in the design of transportation corridors with limited right-of-way expansion options. Soltesz has in-house capabilities related to environmental evaluation and design for wetlands and streams. Through numerous engagements including road widening, new roadway construction, transit lines, Soltesz has played a pivotal role while working with other team member design firms to ensure adequate consideration and protection is achieved. Importantly, Soltesz brings a deep understanding of federal, state and local environmental and permitting processes to our team.

Soltesz has extensive survey plats, land records, and associated disciplines to correctly identify building and lot constraints within existing public right-of-way, and has performed right-of-way work for MDOT and the State Highway Administration (SHA) review and approvals. Further, Soltesz, in coordination with public utility companies and their associated easements and rights-of-way, has been able to carefully analyze proposed existing infrastructure and determined to a high degree of accuracy the impacts of proposed infrastructure improvements.

Soltesz's has extensive experience working on a large number of major projects in the State of Maryland, including:

- Maryland Purple Line
- Maryland 200 (Intercounty Connector)
- Montgomery County Bus Rapid Transit
- National Harbor State Highway Surveying and Roads

Additionally, Soltesz has offices in Montgomery County, Prince George's County, and Frederick County. All three of these jurisdictions fall within the proposed traffic congestion mitigation area along the I-270 and I-495 corridors. Soltesz has worked extensively with local jurisdictions and local utility suppliers including the Washington Suburban Sanitary Commission (WSSC), Washington Gas, PEPCO, Verizon, and other utility companies.

2. Maximizing P3 benefits

Benefits of public-private partnerships

Entering a P3 agreement to deliver large infrastructure projects can provide the public partner the ability to share risks through the project and delivers the following benefits:

- A long-term partner, whose expertise in project delivery, operations and maintenance is backed by a substantial commitment of capital;
- A private partner that issues all debt and is responsible for all debt payments, and therefore does not require its public partner to carry any debt on its balance sheet or risk its credit rating;
- Access to different sources of capital (e.g., equity, shareholder loans) and innovative financial solutions that enhance project viability;
- Accelerated delivery of major transportation improvements ;
- Transfer of traffic and revenue risk from the public sector to the private sector, and away from taxpayers;
- Budget certainty for the state through a firm, fixed, design-build (DB) price;
- Transfers key construction and delivery risks, as well as operational risks, to the private sector;
- Opportunities for the public sector to share in the financial success of the project through upfront payments, transit subsidies and/or revenue sharing.

These benefits can most fully be realized when public and private interests are aligned. Transurban has built its success on understanding the needs and objectives of our public partners. We are long-term investors and understand that maintaining long term P3 project viability means that we cannot sacrifice these partnership goals for short-term gains.

Starting the partnership early: pre-development agreements

Transurban's approach to partnerships is to be involved early in the project lifecycle. We work with our public partners on network planning and feasibility across multiple segments to ensure we provide a seamless customer experience and address the important public policy objectives of our clients. Pre-development agreements (PDA) allow the private partner to participate in preliminary project design activities while project scope, economics and delivery are still being refined. This can lower the overall cost of the selected preferred alternative and accelerate the overall project delivery timeframe. A PDA approach can be used to advance key project activities in parallel with environmental reviews and permitting activity, enabling the overall program to maintain momentum. It can align the developer as government partner in addressing feasibility gaps across the network and drive greater competition for DB contracts. Furthermore, under a PDA, activities and risks in the development phase that would otherwise lie solely with the State under a traditional Design-Build, Finance, Operate, and Maintain, are shared with the private partner. Some of these risks include planning and environmental planning, permitting and procurement. Virginia successfully used an approach similar to PDAs for the delivery of the 495, 95 and 395 Express Lanes. Transurban also used this approach extensively in Australia.

Case Study: 95 Express Lanes partnership

The I-95 corridor in Northern Virginia has varying traffic characteristics and environmental impacts and spans multiple political jurisdictions. Virginia developed a partnership agreement with Transurban that served as a framework for the development of a corridor-wide solution that could be implemented in phases. The initial stage opened in 2014 and was extended south in 2017. Construction on a new phase to deliver Express Lanes service to Washington DC is expected to be complete in late 2019, and a third phase south to Fredericksburg is currently under development.

This approach enabled Virginia and Transurban to:

- Deliver initial improvements to the 95 corridor more quickly, providing meaningful time savings and congestion relief to travelers while development on the subsequent sections was still underway;
- Prioritize sections that were the most politically and financially feasible, and with fewer environmental impacts;
- Ensure consistency in the approach to tolling, traffic management and pricing by providing a single operator, which leads to a seamless customer experience across the network;
- Minimize integration complexity, cost and safety challenges;
- Drive competitive pricing, as Transurban and the Virginia Department of Transportation (VDOT) competitively bid each phase as separate DB projects;
- Reduce long-term contract management and coordination costs and complexity for government.

Leveraging private sector responsibilities

In order to maximize the benefits of a P3 arrangement, the private sector assumes a large share of project responsibilities in its partnerships with local governments:

Private sector responsibility	Advantage	Mitigation for risks
Traffic and revenue	<ul style="list-style-type: none"> • Highest risk of toll road projects • Protects taxpayers from shortfalls on revenue • Private sector responsible for debt payments 	<ul style="list-style-type: none"> • Create revenue sharing regime • Align interests on tolling policies
Operations	<ul style="list-style-type: none"> • Duties can all be transferred or shared reducing state funds required to maintain the road • Private partner incentivized to ensure high customer satisfaction • Leverage private sector innovations 	<ul style="list-style-type: none"> • Set short- and long-term operations standards in place • Require specific hand back requirements at the end of concession
Maintenance lifecycle	<ul style="list-style-type: none"> • Duties can be shared and will reduce state funds required to maintain road • Use of economies of scale 	<ul style="list-style-type: none"> • Performance and maintenance standards can be set in place

Revenue and pricing strategies

Transurban believes the Project is well-suited for a demand risk P3, which would provide the best value to Maryland taxpayers. The demand risk P3 model presents several major advantages for the public partner:

- Shifts traffic and revenue risk to the private sector, and away from taxpayers, with potential for state to share in upside revenue benefits;
- Risk of construction cost overruns is borne by the private partner, not the state
- Allows for upfront private equity investment, which allows the state to direct its limited funding resources to other critical transportation improvements, most of which cannot be financed with toll revenue;
- Project debt does not add to the state's balance sheet, which allows the state to use its limited debt capacity towards transportation improvements that cannot be financed without toll revenue;
- Private partner faces significant penalties if completion is late; and

Traffic and revenue is one the largest risks for toll road projects, which can effectively be passed to the private partner under a P3 agreement. Transurban has been successful in implementing revenue sharing regimes that allow the public partner to share in upside scenarios while still protecting taxpayers from financial downside. Revenue sharing regimes can supplement or replace an upfront payment, providing funds for local governments when the revenue from a project exceeds expectations, and addressing public concerns that the private sector is retaining all revenue upside.

Transurban has demonstrated that a successful toll road project does not mean charging the highest toll prices. High toll prices can dissuade drivers from using a toll road and incentivize them to use a free alternative, which simply shifts congestion to adjacent corridors and also reduces revenue. Customers' understanding of value of time and willingness to pay need to be considered to find optimal pricing, and create an incentive for the private operator to educate customers in the efficient use of the toll facility, including available transit options within the local transit corridor. Transurban's industry-leading experience with dynamic tolling ensures that competing objectives are met.

Transurban's pricing strategy delivers a predictable, reliable travel option that customers and the region can count on when they choose to use the express lanes. Our approach includes:

- Short-, medium- and long-term principles aligned to the objectives of the public sector and the community;
- A sophisticated operating model that balances rigor with the agility to respond to changing traffic patterns, demand and customer requirements;
- Experience in using multiple levers to achieve our joint free-flow objective, including multiple elements and inputs to pricing, on-road communication, such as signage to notify of conditions ahead, and customer outreach and digital tools such as social media and the mobile app and website;
- Unparalleled experience in optimizing a pricing algorithm for the specific road configuration, traffic patterns and demand as it changes over time, through seasons and in varying traffic conditions.

Case study: Dynamic tolling on 495 and 95 Express Lanes – Understanding our customers and their behaviors

Our current partnership with Virginia for Express Lanes on the Capital Beltway and Interstate 95 showcases the benefits for states when partnering with Transurban. The 495 and 95 Express Lanes projects are 43 miles of dynamically-priced high occupancy toll (HOT) lanes. The Express Lanes, which run parallel to the existing regular lanes, provide an option for travelers to pay a toll to avoid the region's infamous congestion. The 495 and 95 Express Lanes have also strengthened HOV and transit in the corridor by providing a faster, toll-free travel option to carpoolers and buses during all times of the day. We serve more than 100,000 carpoolers and approximately 940 bus trips every week day across the network.

Pricing is designed to create a dependable experience and maintain free-flow traffic speeds under normal conditions in the Express Lanes. Dynamic message signs (DMS) provide up-to date pricing data for customers, including the current toll prices for up to three destinations. Toll prices are also provided to travelers through multiple mediums, including web pages and mobile applications, which provide camera views and DMS.

Under the current 495 and 95 Express Lanes concessions, toll pricing is not capped but designed to ensure compliance with minimum traffic speed requirements and to provide predictable travel times and maintain free-flow traffic speeds. This is accomplished via demand-based traffic management and variable (dynamic) pricing, updated at defined intervals (currently 10 minutes).

During the 2017 September quarter, the Express Lanes provided an average time savings during a daily peak period round-trip commute of 23 minutes on the 495 Express Lanes and 58 minutes on the 95 Express Lanes. Aside from a faster and more reliable experience on the Express Lanes, travel times have improved on general purpose lanes on both the Capital Beltway and I-95 during rush hour since the Express Lanes opened.

Express Lanes have shown to be an option for all commuters. The vast majority of customers spend more on a single tank of gas than they do on tolls through an entire month, as 82% of customers on the 495 Express Lanes and 74% of customers on the and spend less than \$20 a month.

Improving operating, maintenance and lifecycle standards

Benefits of private sector operator

Successful P3s deliver demonstrable long-term value. In Transurban's Virginia P3 projects, we are responsible for both upfront construction costs as well as long-term operations and maintenance (O&M). Weighed against the Commonwealth's capital investment on these projects, Virginia's direct return on investment is twenty-nine times for the 495 Express Lanes and 110 times for the 95 Express Lanes.

Transferring O&M and revenue risk helps align the incentives of a long-term investor with those of the public partner. Optimizing revenue requires attracting customers by offering a high quality travel option that is dependable, safe and well maintained. As a long-term operator, Transurban helps balance high operational standards while minimizing costs to achieve performance objectives. We are incentivized to maintain our facilities to a high standard in order to attract and retain our customers.

Passing O&M and lifecycle costs to the private sector through a P3 agreement alleviates the state's financial burden required for maintenance, allowing limited state dollars to be used for other priorities. To ensure roads are properly maintained, Transurban collaborates with its public partners to set long-term operational and asset condition standards throughout the life of its concessions.

From active traffic management to enforcement, Transurban designs and delivers tolling and traffic management systems that utilize the latest technologies to enhance the customer experience, improve road performance, minimize long-term operating costs and reduce revenue leakage. Beyond the initial system delivery, Transurban looks for innovative ways to test and deploy new technologies to prepare for the future of transportation. Transurban received several awards related to project innovation for I-95 and I-495, from organizations including the International Bridge, Tunnel and Turnpike Association (IBTTA), the National Council for Public-Private Partnerships (NCP3P), WTS and ITS-America.

Ability to divide O&M responsibilities efficiently between general and express lanes

States have used different approaches to allocating O&M obligations in P3 transactions, including covering only the express lanes or covering entire corridors including general purpose lanes. In Virginia, VDOT retains the maintenance of the general purpose lanes, and Transurban is only responsible for the maintenance of the Express Lanes. Through effective collaboration, Transurban was able to leverage VDOT's extensive capabilities in operating and maintaining the general purpose lanes, and in providing snow removal for both the general purpose lanes and Express Lanes. This apportionment of responsibilities has worked well on the 495 and 95 Express Lanes and helps align interests by not allowing preferential treatment of the Express Lanes network during snow events.

3. Delivering projects on time and under budget

Transurban has a proven record of delivering projects on time and under budget. Both the 495 Express Lanes and 95 Express Lanes were delivered on time, under budget and with industry-leading safety records, and had a substantial economic impact in Virginia – creating more than 28,000 jobs during construction and generating \$6.3 billion in economic activity.

Experience with project phasing

Phasing the Project would provide the following benefits in the context of the procurement process:

- Increased bidder participation (and better bidding terms) due to the lower uncertainty on permitting and development risks, particularly if National Environmental Policy Act (NEPA) documents are in place for each phase;
- Ability to accelerate delivery of those phases that have completed approvals;
- Ability to refine processes and apply lessons learned from the first phase(s);
- Ability to employ multiple contractors, thereby sustaining competitive tension across all elements of the program and allowing more regional and mid-size contractors to participate;
- Fewer issues with a single contractor's constraints, such as bonding capacity, and workforce availability.

In addition, structuring the Project in multiple phases but as a single project would give MDOT greater flexibility to address the differences in project economics associated with different segments. Project sections will differ in demographics, right-of-way constraints and capacity and congestion levels. These variations affect overall project costs, timelines and revenues, and may diminish the economic viability of some segments. Less profitable sections may not attract sufficient competitive interest from the industry. However, a single concessionaire, coordinating delivery of all segments, could help mitigate this risk by balancing the more economically viable segments against the less viable portions. In addition, a single concessionaire will be able to generate economies of scale, which increases the likelihood that the Project can be fully completed without any public subsidies, and may even provide an upfront payment.

Proven track record with proposal processes

Transurban's experience with complex projects provides the ability to complete a number of critical steps before finalizing a committed proposal, including:

- Forecasting traffic projections, evaluating proposed roadway configurations including new entry and exit points, and validating the overall financial feasibility of the project;
- Evaluating potential financing options with financial institutions;
- Developing preliminary phasing concepts and maintenance of traffic strategies;
- Performing preliminary survey and engineering design, including the evaluation of intersections and entry and exit points;
- Revising and enhancing the preliminary design to develop a final concept that addresses the major constructability issues; and
- Preparing detailed cost estimates.

It is important to ensure that the proposal process does not detract bidders from submitting committed proposals. Providing a stipend for unsuccessful bidders would help attract further interest to the project and can allow the state to retain intellectual capital rights to innovative concepts presented in unsuccessful proposals.

Transurban's long-term partnership approach

Transurban focuses on an integrated network approach to support our government clients, customers and in the communities where we operate. Stakeholder engagement is critical in the development phase when setting the project scope and defining key commercial terms, such as tolling policy. Transurban works collaboratively with stakeholders to identify areas of concern early and agree on a solution that will save on time and costs. Once permits are obtained and the scope of work defined, modifications are limited to constraints established by existing permits. Changes in project scope outside of this limitation require further analysis.

Getting the most value for the life of the concession requires a partner whose incentives align with the state. Transurban's business model as a long-term investor and operator best aligns private sector needs with public policy goals. We are able to avoid the challenges that can arise when firms are seeking only upfront construction profits or short-term financial gains, underwriting, or advisory fees. When the private partner's focus is primarily on short-term gain, they will push for a risk allocation that is often not in the best interest of all stakeholders over the long term and can position the public-private partnership poorly for long-term success. In contrast, Transurban understands that long-term success is impossible if community and customer needs are not at the center of the process.

Long-term investors have aligned incentives with the public sector to maintain a high operational standard while minimizing costs. To attract and retain customers, Transurban ensures its projects are properly designed for optimum lifecycle, operability, mobility, and public benefit. This is even more critical when using managed lanes that have a free option adjacent to the Express Lanes. In this scenario, we are motivated to provide a travel option that provides a premium level of service.

As a long-term operator, Transurban is focused from day one on designing projects that will meet customer needs now and over time. We want our customers to be happy and continue to travel on our networks. Throughout the concession life, Transurban

works to minimize disruptions and address incidents to restore service as quickly as possible. Transurban also strives to be a good community partner through local grant programs and active participation in the community through investments, involvement in local organizations and employee volunteering.

Case study: 95 Express Lanes

A shared focus on driver safety and close coordination between VDOT and Transurban resulted in quick action toward the repair of a sinkhole on the 95 Express Lanes in May 2016. Initial discovery, coordinating plan of action, repairs and re-opening were completed in a span of about 72 hours thanks to the strong foundation of cooperation between the partners.

4. Solving technical challenges

Minimizing right-of-way impacts

Transurban works to minimize negative impacts and maximize the value of our projects. In particular, we seek to minimize right-of-way acquisition and impacts by using innovative design approaches. This results in lower project costs (due to the high land values in the greater Washington, DC region) and also contributes to better community relations.

Transurban is committed to working with local companies who provide further knowledge of local communities' needs and concerns. Transurban has partnered with Soltesz Engineering, based in Lanham, MD. Among other projects, Soltesz provided a county-wide Bus Rapid Transit routes study through Montgomery County with the goal of utilizing existing right-of-way with minimal disturbance to adjacent properties and existing lane configurations. On the Purple Line light rail project, Soltesz worked on issues of right-of-way, NEPA, water quality compliance, and utility relocations to minimize impact to existing infrastructure and property owners. Soltesz handled the significant portion of the project's local government compliance needs for storm water, utilities, and right-of-way analysis.

Case study on 495: Minimizing right-of-way acquisition

In the early 2000's, VDOT began advancing plans for a traditional highway expansion to help address growing congestion on the Capital Beltway in Virginia. The plan faced significant opposition from the community. It was unaffordable, required the destruction of more than 350 homes and businesses, and did not provide the transit options needed to support a growing Tysons business district.

In 2002, the private sector proposed an alternative under the Public Private Transportation Act – build four new high occupancy toll (HOT) lanes that would expand capacity and deliver new travel choices, including a network for buses and carpools. VDOT embraced the plan. A partnership with the private sector and tolling would help VDOT deliver improvements more quickly and with fewer tax dollars, provide new travel choices, and reduce impacts on the community and the environment. In fact, the new approach would reduce home impacts from 350 to just eight.

VDOT advanced a competitive procurement, series of environmental reviews, and public engagement process for the new project. In 2005, local leaders voted to include HOT lanes as part of the region's long-range transportation plan.

In 2007, VDOT finalized a long-term partnership agreement with Capital Beltway Express, LLC – a consortium led by Transurban that would design, build, operate, finance and maintain the \$2 billion HOT lanes project. Transurban and its partners provided a substantial upfront equity commitment to help fund construction and financed the rest of the project through private activity bonds and a TIFIA loan. The partnership enabled Virginia to leverage private capital to translate every one state tax dollar into four dollars of transportation improvements.

Construction, managed by Fluor-Lane, began in 2008 and the new lanes opened for business in 2012.

In 2014, Transurban invested an additional \$280 million of equity to put the project on solid financial footing following impacts of the global financial crisis. The private sector has assumed the long-term financial risk for the project, including full responsibility to pay back all project debt.

Transurban's design helped address growing congestion in the Tysons area. Transurban worked with stakeholders to add two new entry points in the area. It was the first time the Federal Highway Administration granted approval for an exit from the interstate system onto a private road. This provided a better design for customers, a better solution to meet the booming employment center's needs and a more financially viable project. The public-private partnership created a collaborative process that resulted in this innovative solution.

Encouraging innovation and enhancing competitive interest

Another advantage of the PDA approach is that it provides flexibility to optimize project scoping and concept development before procuring DB services. Under a PDA, the private developer works with the public sponsor in the early stages of project development to explore opportunities for enhanced congestion relief, innovative delivery concepts and constructability. The output of this process would then be reflected in competitive DB procurements for the various project segments, in which further innovation is solicited through alternative technical concepts. Not only does this approach allow for early innovation, but it also involves the perspective of a long term operator in the planning process. The resulting DB competitive procurements would involve more clearly defined scope packages, reducing ambiguity for DB bidders and enhancing competitive interest in the DB procurement phase.

Benefits of an integrated system

Planning for a fully operational express lanes system is an integral part of the project development process, particularly for complex and large-scale projects such as the one MDOT is undertaking. Regardless of how the construction is phased or segmented, the system's customer interface needs to be seamless and fully integrated. Customers will travel the network in varying ways and will benefit from a consistent approach. Key considerations in this regard include:

- Uniform, coordinated approach to toll pricing and communications of toll prices to ensure equity and clear understanding for travelers;
- Seamless network for travelers with a single invoice and point of contact for inquiries and customer issues across all elements of the express lanes network;
- Consolidated back office systems that offer lower operating costs and consistent charging of tolls, invoicing customer service and enforcement protocols;
- Integrated emergency response capabilities;
- Well-coordinated planning for major maintenance and capital rehabilitation to minimize network disruption over the life of the project.

With a PDA, the private partner is engaged early on, which allows the planning for an integrated system to be introduced at the earliest stages of development.

Case study: Managing the Express Lanes network

Transurban uses an integrated approach to managing its network of express lanes in Virginia, using a single brand to facilitate communication with customers. Our extensive experience has enabled us to put in place several processes to ensure good customer service and robust toll collection:

- State of the art mobile and website platforms supporting customers with travel planning, toll price transparency and payment functions;
- Quality control program for customer billing to minimize the risk of incorrect billings, and customer-facing issues;
- First Time Forgiveness program to ensure an equitable treatment of travelers with unpaid trips;

- Strong focus on adequate and effective messaging around E-ZPass and HOV rules of the road;
- HOV enforcement.

Focus on safety

Transurban is vigilant when it comes to safety. As a top priority, we focus on safety during the full life-cycle of the Project for both customers and workers. By embedding a “safety first” approach into our culture, Transurban supports a healthy and safe environment for local communities, road users, employees and contractors. Both the 495 and 95 Express Lanes have benefited from our integrated safety culture, which includes:

- Contractor requirement to undergo a health, safety and environment prequalification if performing moderate to high-risk work
- Regular HSE training completed by all Transurban staff
- Safety campaigns aims at education and awareness
- Leading practice and compliance framework and full adherence to regulatory frameworks
- Comprehensive permit-to-work process for work conducted on the roadway
- Regular consumer safety campaigns
- Alignment between safety goals and employee compensation
- Continuous on-road safety evaluation and improvement

Case study: 95 Express Lanes – Safety first

Our comprehensive safety programs encompass stakeholders throughout the region. Although the number of trips along the I-95 corridor has increased, recent statistics indicate that accidents per 100 million miles traveled were actually reduced from 2015 (56) to 2016 (42). For completed Express Lanes work, the Department and Transurban have finished two projects with more than 13 million combined work hours and only two hours lost to injury. Transurban ran an award-winning *Orange Cones. No Phones.* safety program aimed at eliminating distracted driving in construction zones on our 495 and 95 Express Lanes.