



## VIVAnext Transit

SienaStone | Case Study

### Learn What Drove SienaStone

Early design consultation & collaboration between parties can benefit all aspects of a project

This ambitious urban planning project combined an aesthetic contemporary design with challenging site requirements

How SienaStone's design flexibility met with the tight space constraints & stringent structural conditions





## Collaboration on major transportation initiative in York Region

### Wall Engineer

Risi Stone Inc.

Newmarket ON

### Project Designer

VIVA Consortium

York Region ON

### Manufacturer

Unilock Ltd.

Georgetown ON

The Regional Municipality of York is a vibrant and rapidly growing collection of 9 municipalities located just north of Toronto, Canada. No longer seen as Toronto's "bedroom communities", York Region has become one of Ontario's premier locations for living, working, and playing. With over 1 million residents today, and expectations to grow to almost double that by 2041, the York Region Transit Authority has embarked on an ambitious multi-year master plan to create a smooth, efficient and seamless transportation network that will keep people moving and growth sustainable.

A cornerstone of the new vision for York Region transit is the bus rapid transit service, also known as VIVA. As part of the YRT Master Plan, the "VIVAnext" Project was launched in 2008 with the goal of transforming the main service corridors using a concept known as "Rapidways". Rapidways are dedicated bus lanes running down the center of the road that feature "realtime" information displays, state of the art shelters, and most importantly, fast and reliable service. However, the transformation of these corridors was much more than a simple road widening. The bold VIVAnext vision included pedestrian friendly, tree lined boulevards, open spaces, and green landscapes – a true model of urban design for the future.

In many cases, to accommodate the construction of these dedicated center bus lanes and pedestrian boulevards, the existing roadways

needed to be widened substantially, often creating grade differentials requiring retaining walls. Based on our long and proven track record in the industry, Risi Stone Systems and Unilock were invited to participate in the initial Design discussions to evaluate the structural requirements of the various sites, assess the visual and aesthetic goals of the Designers and help facilitate a solution.

The first phase of the VIVAnext Project was the transformation of Davis Drive in Newmarket. Home to the world renowned Southlake Healthcare center, this high profile corridor was designed with serious consideration given to modern, urban aesthetics, attention to detail, and overall harmony of all Design elements.

Unilock's industry leading, Umbriano® paving stone system was chosen for the pedestrian boulevards, standing aprons for the glass and steel bus shelters, and the many sidewalks and walkways throughout. With clean edges and cut granite appearance, Umbriano provided the contemporary look the VIVA Designers were after, with the durability required for high traffic, public areas. As part of the overall site drainage plan, Unilock's Eco-Priora permeable paving system was also used in specially designed locations to collect and store surface water and create a more environmentally sustainable landscape (*check out these paving stone systems at [www.unilock.com](http://www.unilock.com)*).

For the Retaining Walls, a number of strict structural requirements and limitations led to the selection of the SienaStone® system. Given the complexity of utilities, other structures, and property line/ROW constraints in and around the retaining walls, the use of tie-backs or geogrid reinforcements was not an option. With SienaStone being a multi-depth system, the Risi Stone designers were able to devise site specific "gravity wall" solutions using the larger SienaStone 925 units (925mm in depth) to avoid the use of additional tie-backs (Siena Stone gravity walls can be designed to exceed 3.0m in height depending on conditions). To economize, a mixture of 925 units (closer to the bottom of the wall), and standard 500 units were utilized optimally. Finally, the pedestrian handrail was required to be mounted directly into the Wall, which the mass of the SienaStone system can accommodate. As an MTO (Ministry of Transportation Ontario) approved Wall System, SienaStone provided the level of confidence needed by the Structural team at VIVA.

From an aesthetic point of view, given the popularity of the "linear" look in Architecture and Landscape Design today, the large scale (1200mm in length x 185mm in height) rectilinear SienaStone units blended well with the overall design concept.

Another key component to the Wall Design was the inclusion of a custom "VIVA" Coping Unit (Top Course). In keeping with other Design elements on the Project, the VIVA team wanted a more

architectural looking, smooth faced Coping. Working in collaboration with VIVA, Risi Stone developed a new Coping unit that included modern, clean lines, a smooth (two-sided face) and subtle chamfers on the front and back of the block. After reviewing full scale prototypes, the VIVA team approved the new Design and a custom mold was ordered for the Project. To enhance the look of the Coping, and provide greater contrast with the SienaStone wall, a custom mix design was created by Unilock that used white cement and a finer aggregate. This level of attention to detail and scrutiny was typical of the VIVA design approach. From the new Architectural Siena Coping to the custom handrail with distinctive IPE wood top rail, great consideration was taken to ensure the structural, aesthetic and functionality of all elements worked together - and the results speak for themselves.

With the Hwy 7 corridor in Richmond Hill/Markham completed, VIVA reports that tremendous commuter time savings have already been realized and ridership has increased substantially, not to mention the profound change in the appearance and functionality of these areas.

The collaboration with the VIVA Design Team is an example of how early consultation with Risi Stone and its partner manufacturers such as Unilock can lead to a smooth, well informed and ideal design process.