

# Dorset Street West Reconstruction



# Dorset Street West Reconstruction



# Enhancing the Educational Paradigm to Strengthen Context-Sensitive Solutions

# Contents

**Official Entry Form**

**Entry Consent Form**

**Project Highlights**

**Full Project Description**

- **Complexity**
- **Meeting/exceeding owner's/client's needs**
- **Environmental impact**
- **New application of existing techniques/  
originality/innovation**
- **Social and economic impact**

## Dorset Street West Reconstruction

### 60 Word Summary

Reconstructing Dorset Street West was no ordinary reconstruction project – previous attempts to reconstruct it had left the Municipality and residents at odds. Rebuilding the road and relationship became a shared priority for the project management team, client and stakeholders and pushed team members to work at the farthest reaches of current consulting practise as they played the dual role of teacher and student.

### Project Highlights

From a technical standpoint, the Reconstruction of Dorset Street West began its life as an average project that required the reconstruction of the roadway from its original semi-urban design to a full urban design standard, complete with curbs, boulevards and an accompanying stormwater sewer system to replace the open ditch that previously existed. Reconstruction of the sanitary sewer and water supply were also required with a stipulation by the Municipality that water supply to a local standpipe serving a significant portion of Port Hope's population would not be interrupted for the duration of the project.

Preservation of the street's existing urban forest and its rural character proved to be of paramount importance to local residents and it is this aspect of the project that created some of the greatest and most interesting challenges. Sidewalks, streetscaping, effective traffic calming and accommodation of parking for varying residential uses all required incorporation into the new cross section. Consideration of the road's existing designation as part of Lake Ontario's Waterfront Trail System and accompanying requirements for accommodation of bicycle traffic became a tripping point with residents and, given the unprecedented grade, raised difficulties in terms of acceptable design guidelines. Reconciliation of these many disparate needs and desires into a comprehensive plan and a satisfying end-product for all who held a stake in the project's eventual success, required truly exceptional project management and participation by every member of the assembled team.

### Challenges

The most significant technical challenges included the need to replace a partially failed retaining wall that supported a significant portion of Dorset Street's roadbed, and the need to address a steep west to east down-slope gradient that runs over much of the street's length.

From a social and cultural perspective, however, this project proved to be anything but average. An initial attempt to reconstruct the street occurred in 2003 and was unsuccessful. Due to the road's historic presence, the project became a sensitive issue among Port Hope rate payers and as a result of public opposition the project was deferred at this time. The deferral transformed into something of a communications stalemate between the Municipality and local residents despite best efforts on both sides to address unresolved issues and budgetary concerns, and the project languished for several years as the road, the retaining wall and the underlying sanitary sewer and water supply systems continued to deteriorate. By 2008 road safety was becoming an issue for the Municipality, mostly due to slumping of the road bed over the retaining wall.

Between 2003 and 2008 ongoing communications between the Municipality and an informal Dorset Street Resident's committee had established that preservation of the street's existing urban forest, mature tree canopy and rural character were of paramount importance to local and area residents. Related concerns included the preservation of existing sidewalks and streetscaping, as well as the need for effective traffic calming and accommodation of parking for varying residential uses. Consideration of the Street's existing designation as part of Lake Ontario's Waterfront Trail System was also beginning to raise warning flags with residents and Municipal staff in terms of the road's steep grade and attendant Trail System guidelines regarding the accommodation of bicycle traffic under the designation.

## Dorset Street West Reconstruction

### Dorset Street West Liaison Committee

As the Municipality geared up for a second run at the project, it became clear that reconciliation of these many disparate needs and desires into a comprehensive plan and a satisfying end-product for all who held a stake in the project's eventual success would require truly exceptional participation by all stakeholders and every member of the assembled project management team. To this end, the true value of the project management process that was distilled out of the Dorset Street West project lies in its now proven ability to embrace and bring people of many backgrounds together to achieve a commonly desired goal. This process was anchored in the formation of the Dorset Street West Liaison Committee.

If protection of the existing social and cultural environment was the project's over-riding concern for residents and rate payers, then formalization of the Dorset Street West Liaison Committee (Committee) was the only logical solution. As such, the Committee served the project well and all but ensured its success. Comprised of local residents, members of the consultant team and Municipal staff, the committee began a schedule of meetings that involved a rigorous process of research, design, presentation, and feedback in which all were involved. This process quickly evolved into a relatively unique educational paradigm where residents provided input regarding their vision for the street, and where the consultants, in conjunction with Municipal staff, assessed the components of the vision to maximize opportunities in light of the physical and economic realities of road reconstruction. Ensuing dialogue revealed a truly heightened understanding of all issues by all parties and created an easy, workable synergy that succeeded in advancing the planning process with only minor snags and setbacks.

### Funding

The decision by Municipal staff to apply for available Federal and Provincial funding for this project was also well placed and provided the catalyst that allowed an amenable resolution of key issues and the development of an agreeable construction schedule. To adhere to the requirements of BCF funding, reconstruction of the street was rushed to commence late in the 2009 construction season. Without this funding, reconstruction of the street would not have proceeded to completion in such a timely manner. Acquisition of Build Canada Fund (BCF) funding was successfully secured through AECOM's application on behalf of the Municipality in the amount of \$1,635,000. With the project estimated by AECOM at just under \$2,560,000 (tax included), and an available Municipal budget of approximately \$1,000,000, the acquired funding was able to fill the gap. The tender bid for the winning contractor, Behan Construction Ltd., came in at just under \$2,230,000 for the project and was completed approximately \$8,000 under the approved Municipal budget.

## Dorset Street West Reconstruction

### Complexity

In the case of Dorset Street West, it is no surprise that the EA process moved very quickly to highlight and address the needs of the social environment as a lynchpin in moving the project forward. This, of course, did not negate the importance of the natural and economic environments and the complexity of issues related to physical reconstruction of a challenging section of roadway. Instead, it led the Municipality and the project management team to seek the best possible way to achieve an enhanced level of public input that would take advantage of local knowledge, all in an effort to bring good design together with the needs and desires of local residents and the street's unique historical presence. On its own, the physical reconstruction of Dorset Street West would have consisted of replacing the existing retaining wall; construction of a storm sewer system; rebuilding the associated sanitary sewer and water supply infrastructure; and reconstructing the road based on established Municipal standards and design guidelines.

Sensitivity to the street's social, cultural and historical context, however, significantly expanded these requirements, as follows:

- Maintain the best possible access for residents during construction, especially to mitigate the needs of elderly and infirm residents in light of the street's unusually steep grade;
- Maintain the existing tree canopy by removing diseased, dying or at-risk trees and replacing them with new plantings;
- Preserve the existing rural character of the street within the required urban road design parameters through the use of low profile rollover curbing, retention of existing sidewalk where possible and the use of decorative railings;
- Research and implement appropriate and effective traffic calming in light of the roadway's residential collector status and with regard to the unusually steep gradient;

- Identify appropriate locations to maximize available parking; and
- Safely reconcile Dorset Street West's designation as part of Lake Ontario's Waterfront Trail System and cycling route with the roadway's steep gradient and sloping right of way.



## Dorset Street West Reconstruction



The process that led to this expanded list was not a simple one. The original attempt to initiate this project met with unanticipated public resistance and led to a lengthy deferral. Ensuring success of the project on its second iteration was high on the minds of both the Municipality and AECOM. Therefore, all potential requests and desires were actively elicited from residents and seriously considered under the educational paradigm. This did much to turn what is traditionally a relatively one-sided negotiating process, primarily concerned with budget restrictions, into a fully informative discussion of associated merits and limitations for any particular idea.

### The project's long history included several attempts by the Municipality to reconstruct the street on other occasions

The process required an above-average investment in time and effort by both the project management team and the Municipality, and relied heavily on the foundations laid early on with formation of the Liaison Committee, but the benefits were significant.

Many ideas were shared amongst committee members. Some were adopted and some were not, but throughout the process, a heightened sense of good will and mutual respect remained intact. Both residents and resident members of the Committee were engaged and valued, and on a purely emotional level, that is how they felt. The experience for both the project management team and Municipal staff was also a remarkably positive one.

It is interesting to note, as well, that the additional project considerations identified by the Committee and listed above were largely community-oriented rather than personal, which is often not the case when public input is elicited through traditional venues such as a public information centre. Several personally-oriented issues, concerns and ideas did arise, but the final list of issues that the Committee decided to act upon were related almost exclusively to community safety and preservation of the natural environment

### Meeting and exceeding the owner's / client's needs

This project represents a special point of pride with the project management team, the client, and local residents whose lives were so positively affected by both the innovative approach to planning and construction, and the completed end product.

When AECOM became the engineering consultant for the job our project management team was aware of the prior planning history that had been undertaken as part of the project's initial iteration and deferral. Team members understood that a great deal more was at stake this second time around than the reconstruction of a challenging section of roadway.

They knew that the relationship between the Municipality and the residents of Dorset Street West also required repair. Rebuilding the road and the relationship became a shared priority for the project management team and pushed team members to work at the farthest reaches of current consulting practise as they played the dual role of both teacher and student in a remarkable educational forum that was founded on the formalization of the Dorset Street West Liaison Committee and a strengthened communication paradigm. The value of the work achieved within this committee structure surpassed the expectations of its resident members and of Municipal staff, and contributed to a completed road reconstruction project that has brought unsolicited praise from the Municipality and from the residents who contributed to and shared in the process



## Dorset Street West Reconstruction

The residents of Dorset Street West were compelled to write a letter of thanks to the AECOM team.

**DORSET STREET WEST**  
PORT HOPE  
ONTARIO CANADA L1A 1G2

AECOM  
513 Division St.  
Cobourg, Ont. K9A 5G6

### TO WHOM IT MAY CONCERN

We, the undersigned residents of *Dorset Street West, Port Hope* wish to thank **AECOM** of Cobourg, and in particular Mike Moore, the project inspector and Will McCrae, director & senior engineer, together with his congenial staff, for their professional and efficient execution of the infrastructure replacement and engineering plan of our street.

Moreover, their appreciation of the need to preserve the historic details and enhance the aesthetics of the street is much appreciated not just by the undersigned residents, but also by the citizens of Port Hope.

The thing that has set **AECOM** apart and above the engineering crowd however, is the fact that Mike, Will and many members of the staff (here we would like to include Lisa Cullen, Arborist) went out of their way not only to minimize the impact of a major reconstruction project on the residents, but the numerous little services that they cheerfully undertook to assist and accommodate the street residents.

For this, we most heartily recommend and thank you.

Signed, this 30<sup>th</sup>. Day of September, 2010 :

*David G. Leeson #84 (Street Liaison)*  
*Samuel #89*  
*Mike Judy #96*  
*Chris Montgomery*  
*Patricia Gibson #87*  
*David Gibson*  
*Barbara #90*  
*Neil #92*  
*Michael #89*  
*Verne #100*

CONTD ----

Dorset Street West Reconstruction

AECOM Contractors

Shannon + Randy Levasseur (120)

Bill Gorsline 138

We SHAN MISS YOU!

Paul + Helen Evans  
(#150)

Thanks John Belli #162

Brent Bayley + Jenny Wetherall #172

Craig Savat 188

Brian + Valarie Hopkins  
#83

David Berry 188

Alley 175

Jim + Judy  
43-45

Alexis Stone 115

Jan + Pansini Jervis  
80 Dorset

Jean + Bob Mass 110

Sam + Elizabeth  
Wetherall  
#69

Young Alice + Roger Daly #94

Michael Stone 115

Brigitte + Dennis Hayward #108

Ally + Bill 105

Lara Orloski #79

Maureen Bence

John Dawson #79

Daphney Jeremyson  
166

Chadley #76

Kate + Mark #76

## Dorset Street West Reconstruction

“The reconstruction of Dorset Street West proved to be both a challenging and a rewarding project for the Municipality of Port Hope that showcased the great talent, drive and dedication of all stakeholders who came together to turn this particular vision into reality. We consider the project to be a benchmark example of what good project management can achieve”

Peter Angelo, P.Eng., Director, Works and Engineering, the Municipality of Port Hope.

“Overall objectives of the project were met within the approved timeframe and budget, and the current status of the project is operational”

Peter Angelo, P.Eng., Director, Works and Engineering, the Municipality of Port Hope.

### Environmental impact

Concern for the environmental impact of reconstruction was evident throughout the planning, design and construction phases of the project and all concerns were fully mitigated. Due to a history of low level radioactive waste contamination within the Municipality, testing for and proper disposal of any contaminated soil was undertaken as part of the project.

Preservation and enhancement of the existing natural and social environments were identified as primary concerns for the project and all efforts were made to address these issues to the satisfaction of area residents and area stakeholders. The defining characteristic of the street’s natural environment is

closely tied with its social environment and lies in the existing urban forest that lines the street’s right of way. Residents value the mature tree canopy and have benefitted from the protection it offers for many years, but stability of the existing forest was potentially threatened by reconstruction of the roadway. As such, design and construction practices were modified to buffer the forest’s root system.

Diseased, dying or at-risk trees were identified for pruning, removal or protection during construction. Gaps in the existing canopy were identified and opportunities for new plantings were taken advantage of to ensure the future health of the forest. Appropriate species of trees and shrubs were added to the ecosystem to increase variety and provide enhanced environmental stability. The benefit to residents will be ongoing as the forest now has an improved ability to replenish itself.

Traffic calming measures were implemented to enhance the social environment. Potential to reduce the probability of future accidents, associated vehicle repair, medical rehabilitation costs, lost work and personal suffering are expected to be realized with this effort, but the greatest benefit to residents will be an increased sense of community well-being and a decrease in community stress related to the associated traffic environment.

Secondary environmental benefits of the reconstruction can be seen in a reduction of the future heat island effect through preservation and enhancement of the tree canopy and in efforts to reuse existing sidewalks and thereby reduce the amount of material heading to local landfills. The improved road surface now available on Dorset Street will reduce friction between vehicles and pavement, thereby reducing tire wear and vehicle emissions. While this benefit may have only small local effect, it has far-reaching implications as part of a national/global carbon reduction strategy.



## Dorset Street West Reconstruction



Care was taken to ensure the landscaping was in harmony with the existing urban forest

### New application of existing techniques/originality/innovation

The Dorset Street West Project required innovative approaches, as traditional approaches had been unsuccessful. An approach that was educational in nature and involved the synthesis of two related processes to provide a unique application of engineering and management technique was required.

These processes are context-sensitive design and formalized oversight of the Municipal Class Environmental Assessment (EA) outcomes for the project. Formal oversight of EA outcomes was achieved by asking the Liaison Committee to ensure that follow-through of all concerns identified in the EA would be continually addressed for all stakeholders throughout project planning and construction. These acts alone are not entirely unique; however, the project management team's focus on the educational paradigm discussed in the previous section created a uniquely powerful learning environment for committee members. This

environment was defined by positive open expression, active listening, mutual regard and honest communication that did much to elicit new educational perspectives. The net effect turned a potentially run-of-the-mill committee structure into an energized and meaningful classroom, to the benefit of all committee members, stakeholders and interested parties. It also provided the knowledge-base required for the management team to provide a final design for the project that could fully appreciate the context in which the design would function and the people for whom it would function.

**The project management team turned a potentially run-of-the-mill committee structure into an energized and meaningful classroom, to the benefit of all committee members, stakeholders and interested parties**

This educational paradigm was informally conceived in AECOM's previous work with the reconstruction of Beech Street, Bowmanville, in the neighbouring Municipality of Clarington. It is loosely documented in the Old Bowmanville Neighbourhood Streetscape and Infrastructure Implementation Plan (2001) and the Municipality of Port Hope in the Lakeshore and Ridout Street Streetscape and Infrastructure Implementation Plan (2003). Based on these previous experiences, AECOM project management staff had already come to see the added value that a formally supported, educational environment could achieve. With only a marginally higher investment in the planning process than average, a comprehensive, mutual and holistic understanding of the project was realized and stakeholder satisfaction with the final delivered end product all but ensured.

Implementing the educational paradigm in the Reconstruction of Dorset Street West required the active and ongoing involvement of local and area residents, which was not difficult to elicit. The reciprocal relationship between ownership and motivation is very nearly a law of nature, and past experience has shown that finding a spokesperson or persons to step forward on a volunteer basis would be difficult only in rare cases.

## Dorset Street West Reconstruction



The presence of resident spokespersons in this process cannot be undervalued. It is their efforts that will keep the surrounding community informed and assured that the entire process is working for them and that all community concerns are brought to the project management team. As such, all efforts to assist these spokespersons in extending the learning process to the stakeholder community and in contributing to the education of the project management team should be supported by all available means.

To this end, a full-day educational field trip was organized early on for the Dorset Street Liaison Committee so that resident members of the Committee could view, firsthand, elements from similar completed projects in other municipalities and so that they could share their vision for their street.

The discussion that grew from this field trip was invaluable and did much to bring all committee members into a common fold of understanding with regard to what was and wasn't possible.

An additional unforeseen benefit also came to light during the course of the field trip as professional and resident members learned to speak to each other in mutually familiar terms. Initially, there was a wide gap in the language used and a fair amount of confusion in understanding, but as the day

progressed committee members worked to explain concepts and ideas in terms they were comfortable using and all members became more and more comfortable with each other's preferred terminology. Subsequent to the field trip, it was noted by the project management team that reports from resident members of the committee to local and area residents incorporated new terminology with full explanations of each term's meaning. Conversely, project management team members and Municipal Staff found they were able to communicate effectively with resident members in terms that are not typically defined within the profession. In this way, a common language-base was developed to become a powerful communication tool.

### The right staff were chosen for this project

Regular meetings with resident members of the Liaison Committee were included in the final project construction schedule to offer a continued venue for mitigation of any issues that might arise during planning and construction. AECOM also made a conscious decision to assign a full-time site inspector during the construction phase of the project who possessed the qualities necessary to build a strong rapport with residents, attend to heightened public concern anticipated for the construction component of the project, and to deal with any construction and contractor concerns that are the more regular domain of this occupation.

## Dorset Street West Reconstruction

### Social and Economic Impact

Once construction began, residents were already well informed via communications from the resident members of the Liaison Committee regarding both the construction process and expected outcomes. In terms of the construction process, the project management team and Municipal staff made the decision, prior to tendering, that new watermain, sanitary and storm sewer would be constructed simultaneously to minimize disruption to residents. While this approach does lengthen the overall construction process, it also cuts the number of trenching passes from three to one and ensures that loss of vehicular access to any individual property is limited to as short a time frame as possible, and that the distance for pedestrian access from temporary parking locations to an individual property is limited to as short a distance as possible. On a street where pedestrian access entails navigating a near nine percent grade, and where there is an identified need to mitigate undue strain to both the infirm and to persons with disabilities, this consideration was important and much appreciated by residents.



Dorset Street West residents and residents of the Municipality of Port Hope are now the proud owners of a roadway that they actively helped to design. Through their efforts, the careful attention of the project management team, and the support of the Municipality, Dorset Street West has been transformed into a safe, well-appointed and functional part of the Municipality's local road network, as well as a safe, comfortable and environmentally sound streetscape and urban forest for the benefit of all residents and visitors. However, enhancements to the quality of life for residents are apparent not only in the described end product, but in the process that brought them to this end product.

The typical response from affected homeowners prior to and during a road reconstruction can be largely one of annoyance and inconvenience. Often the mind-set of affected residents after the reconstruction has been completed is one of indifference. Improvements to the quality of life in these cases can only truly be attributed to the physical improvements of the roadway and associated infrastructure. Alternatively, Dorset Street West's newly minted environment rose from a planning process that utilized the educational paradigm and provided enhancements to the quality of life for affected residents that can be defined quite differently, and in one word: ownership.

It is this heightened sense of ownership that adds another element to the economic, social and environmental quality of life that the reconstruction of Dorset Street West has provided to its residents. As previously noted, the relationship between ownership and motivation is a strong one, and now that the project is complete, this motivation has turned to reap far-reaching benefits in terms of the positive relationship that now exists between the residents of Dorset Street West and the Municipality. There is pride in the work that has been accomplished here. A new environment has been constructed, both in terms of the physical reconstruction that occurred and in the stronger community and municipal fabric that this reconstruction now supports.

## Dorset Street West Reconstruction

A heightened **sense of ownership** added another element to the economic, social and environmental **quality of life** that the reconstruction of **Dorset Street West** provided to its residents.



# Dorset Street West Reconstruction



Enhancing the Educational Paradigm to Strengthen Context-Sensitive Solutions

## Funding

Acquisition of project funding in the amount of \$1,635,000 was secured on behalf of the Municipality with AECOM's successful Build Canada Fund application.

## Education

To ensure that follow-through of concerns would be continually addressed for all parties throughout the project, an enhanced educational paradigm was developed to encourage positive open expression, active listening, mutual regard and honest communication.

The net effect turned a potentially run-of-the-mill committee structure into an energized and meaningful classroom, to the benefit of all committee members, stakeholders and interested parties.

## Outcomes

### The physical reconstruction of Dorset Street West required:

- Replacement of the existing retaining wall
- Construction of a storm sewer system
- Replacement of associated sanitary sewer and water supply infrastructure
- Reconstruction of the road according to established Municipal standards and design guidelines

### Sensitivity to the street's social, cultural and historical context required:

- Maintenance of the best possible access for residents during construction, especially in light of the street's steep grade and the needs of elderly and infirm residents
- Enhancement of the existing tree canopy by removing diseased, dying or at-risk trees and replacing them with new plantings

- Preservation of the street's existing semi-urban character within urban road design guidelines by making use of low profile rollover curbing, existing sidewalk and decorative railings
- Research and implementation of appropriate and effective traffic calming in light of the roadway's residential collector status and with regard to the steep gradient
- Identification of appropriate locations to maximize available parking
- Safe reconciliation of Dorset Street West's steep gradient with its designation as part of Lake Ontario's Waterfront Trail System and cycling route

## Challenges

Technical challenges involved the need to replace a partially failed retaining wall that supported a significant portion of Dorset Street's roadbed as well as the need to address a steep gradient that runs over much of the street's length.

Additional challenges surrounded the project's long history including several attempts by the municipality to reconstruct the street on other occasions. The most recent of these occurred in 2003 and was unsuccessful. Due to the road's historic presence, the project became a sensitive issue among Port Hope rate payers and was deferred as a result of public opposition. The deferral transformed into something of a communications stalemate between the Municipality and local residents and the project languished for several years as the road, the retaining wall and the underlying sanitary sewer and water supply systems continued to deteriorate. By 2008, road safety was becoming an issue for the Municipality, mostly due to slumping of the road bed over the retaining wall. Advancing the project to a timely completion had become an absolute priority.

To this end, the Municipality understood that protection of the street's existing social and cultural environment was the project's over-riding concern for residents and rate payers, and that formalization of the Dorset Street West Liaison Committee was the only logical solution.

Dorset Street West residents and residents of the Municipality of Port Hope are now the proud owners of a roadway that they actively helped to design.

