

## CURRICULUM VITAE George Carvajal, P.Eng.

### EDUCATION

- University of Toronto, Toronto, Ontario. Bachelor of Applied Science and Engineering - Civil Engineering, 1986.
- Honorary Ontario Scholar, 1982

### PROFESSIONAL ASSOCIATIONS

- Member - Professional Engineers, Nova Scotia.
- Temp. Member - Prof. Engineers, Quebec.
- Member - Professional Engineers, Ontario.
- Member - Professional Engineers, Manitoba.
- Member - Professional Engineers, Alberta.
- Member - Professional Engineers, BC.

### CAREER HISTORY

- **June 2004 to Current**  
Carvajal Structural Engineers Inc. - CEO,  
Structural Forensic & Rehabilitation Specialist.
- **2000-May 2004**  
Toronto Transit Commission - Senior Structural  
Engineer, Engineering & Construction  
Department - Structural Department.
- **1998-1999**  
Toronto Transit Commission - Construction  
Engineer, Engineering & Construction  
Department - Structural Department.
- **1994-1997**  
Revay -Trow Venture – Engineering/  
Management Consultant, Toronto Transit  
Commission.
- **1992-1994**  
KST Hydroelectric Engineers (Trow Venture) -  
Structural Rehabilitation Design Lead -Structural  
Department.
- **1989-1992**  
Trow Consulting Engineers Ltd. - Design &  
Rehabilitation Engineer, Structural  
Rehabilitation Division.
- **1986-1988**  
Construction Control Limited - Junior Engineer –  
Soils/Concrete Engineer. & Laboratory Testing.

Mr. Carvajal established 'Carvajal Structural Engineer Inc.' (CSE) in 2004 to provide specialized expertise in the field of structural design, structural forensic and structural rehabilitation. CSE is a dedicated firm to the investigation, design and restoration to normal and post-tensioned structures.

CSE expertise extends into all types of work to include; emergency structural reviews, pre-construction reviews, scaffolding design, shoring design, visual surveys, detailed condition surveys, pre-designs, detailed structural designs, contract preparation, construction reviews, structural collapse investigations, serviceability investigations and structural demolition designs.

Typical facilities include; residential buildings, commercial buildings, parking structures, building balconies, roof structures, hospitals, power generation stations, historic buildings, subway tunnels, subway stations, bus garages, carhouse facilities, underground facilities, retaining walls, bridges and all types of post-tensioned & pre-stressed concrete structures.

Mr. Carvajal's formal education is complimented by the varied career opportunities held during his past 25 years of work, briefly detailed in the following paragraphs.

Mr. Carvajal commenced his career as a field engineer performing all types of municipal related inspections/investigations and laboratory testing. He has an in depth understanding and knowledge of soils, concrete and asphalt materials. Field inspection expertise included bridge structures, residential and commercial building construction, suspended and slab-on-grade parking structures, roadways and highways construction, sanitary and storm sewer installations, shallow and deep foundation installations, contaminated/remediation of soil and soil bearing investigations.

Mr. Carvajal progressed in his career in the field of retaining walls, electrical substations and buildings.

structural rehabilitation. He has performed extensive detailed condition surveys, structural analysis and

their associated rehabilitation design for large and small civil structures such as bridges, dams, retaining walls, balconies, suspended parking structures, post-tensioned residential and commercial buildings, wastewater treatment plants, hydro vaults/duct banks, tunnel structures, culverts, retaining walls and piers.

As Project Manager at Trow Consulting Engineers, he was responsible for a team of staff and was assigned high profile projects. His responsibilities included the preparation of contract documents, technical proposal, repair cost estimations, budget costs, scheduling, preparation of a variety of reports, correspondence, monitoring of construction progress, and structural rehabilitation analysis.

Mr. Carvajal's was commissioned to lead a structural rehabilitation team for the reconstruction of 2 hydroelectric dams for Ontario Hydro. Following this project he was appointed as an Engineering/Management Consultant to the Toronto Transit Commission (TTC).

As Engineering/Management Consultant to the TTC he acted as an unbiased third party analyst on various construction projects. He was responsible for constructability reviews, evaluating, analyzing and resolving many claims and disputes. Mr. Carvajal has performed life cycle costs, detailed schedule analysis and cost estimations on many consultant design projects and TTC designed projects.

Acting as an Engineering/Management Consultant to the TTC opened an opportunity to join the Commission in 1999 briefly as a Construction Engineer followed as a Senior Structural Engineer in 2000 for the Engineering and Construction Department. Mr. Carvajal was responsible for all the structural division's capital state of good repairs programs, which include all types of TTC structures.

TTC operates hundreds of facilities to include bus roadways, sewers, hydro vaults, vent shafts, bus terminals, underground tunnel systems, bus garages, repair facilities, carhouses, bridges,

As TTC's Senior Structural Rehabilitation Engineer, Mr. Carvajal was responsible for all structural designs related to structural rehabilitation.

Mr. Carvajal was responsible for the engineering design of many complex structural rehabilitation projects. In addition to his structural design responsibilities in many of the assignments he also acted as design lead for many projects which required his expertise in project management.

Mr. Carvajal was also responsible for performing and preparing reports for detailed condition surveys, pre-designs and structural design. Pre-designs included the preparation of various options/alternatives, cost estimates, schedule analysis, time value of money analysis, life cycle cost analysis and life safety risk analysis.

Mr. Carvajal also was involved during the construction stage with all field related activities associated with many construction projects.

Mr. Carvajal also has an above average understanding of other engineering disciplines such as mechanical and geotechnical and general building science concepts.

Other abilities include an excellent analytical, verbal and written communication skills. He is a problem solver not a problem maker and has a positive and pro-active character.

Mr. Carvajal's ability to deal with many different types of persons at many levels can be considered one of his most valued assets. Mr. Carvajal is very creative and energetic individual who takes pride in his work and takes full accountability for the work performed by himself and his team.

Mr. Carvajal's interests also extend into software development. He is an avid computer programmer and has developed various in stand-alone software programs. Mr. Carvajal has intimate knowledge of high end software programs such STAAD PRO, P3 (Primavera) and other business related Microsoft programs.