



*Improving Infrastructure Planning &
Project Management Practices To Incorporate
Sustainability Objectives for Engineering*

By
Rajesh Sachidanandan
Master of Engineering in Civil
The University of British Columbia



*GREENEST CITY & UBC SUSTAINABILITY
SCHOLAR PROGRAM*

OUTLINE

- **Study select City of Vancouver's Engineering Projects**
- **Development of framework to identify lessons learned that are transferable to future projects**
- **Improve project management practices of City of Vancouver**
- **Development of contract language to improve social sustainability on projects carried out by private contractors.**

ENGINEERING PROJECTS

Two multi-utility upgrade projects executed by the Engineering services department of the City of Vancouver (CoV) were studied. Multi-utility upgrade project means upgrading various civic & electrical utilities such as sewer lines, water lines, roads and sidewalks, power & communication lines etc.

1) West 4th Avenue Project

- **Main focus** : Sewer line
- **Project participants** : CoV – Sewers, Waterworks and Streets
- **Location** : Granville Street to Balsam Street and a western portion between Macdonald Street and Collingwood Street along West 4th Ave

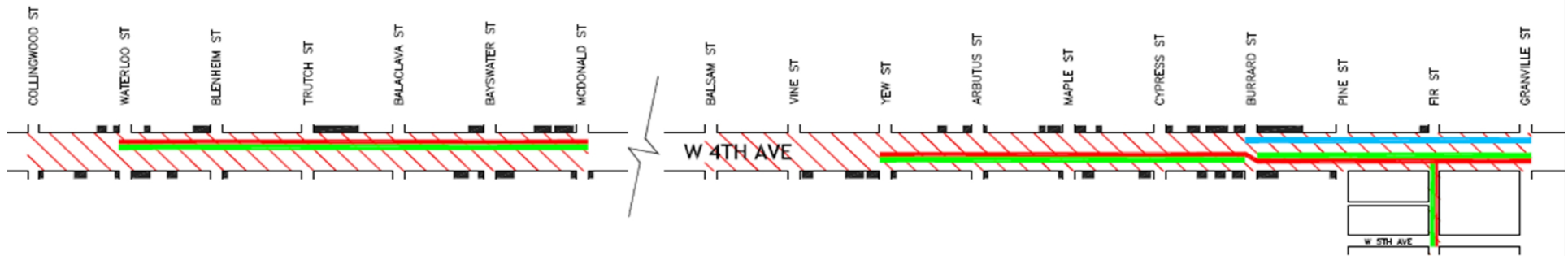
2) Cambie Street Project

- **Main focus** : Water line
- **Project Participants** : CoV – Sewers, Waterworks and Streets, BC-Hydro, Fortis, Shaw Optic Zoo
- **Location** : 100 - 800 block along Cambie Street

ENGINEERING PROJECTS

West 4th Avenue Project

OVERALL SCOPE OF CONSTRUCTION



ESTIMATED SCHEDULE FOR SEWER/WATER CONSTRUCTION



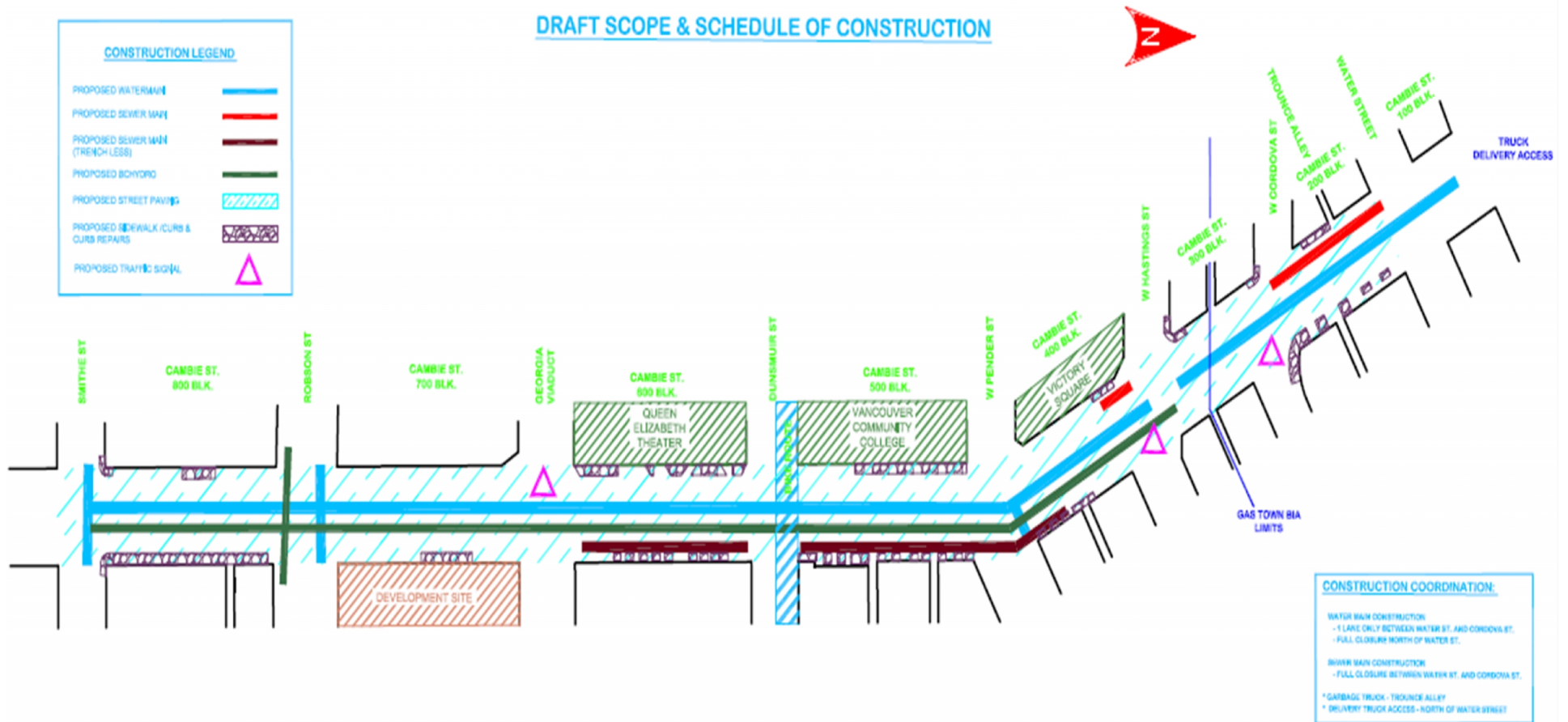
LEGEND

- | | | | |
|-------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|------------------------------------|
|  | SEWER CREW #1 |  | SANITARY SEWER |
|  | SEWER CREW #2 |  | STORM SEWER |
|  | SEWER CREW #3 |  | WATER |
|  | SEWER CREW #4 |  | STREET PAVING |
|  | WATERWORKS |  | SIDEWALK REPAIRS, RAMPS & BUS PADS |



ENGINEERING PROJECTS

Cambie Street Project



FRAMEWORK

Purpose of the framework

- To obtain an overview of the projects
- To understand how they were carried out
- Identify lessons learned pertaining to specific project management process control categories.
 - Stakeholder management
 - Project integration
 - Risk management
- Focus on social sustainability
- Focus on commitment to Community

DELIVERABLES

- **Framework for analyzing and evaluating the projects.**
- **Case study(s) – one for each project was drafted to use for project management training of professionals within the City of Vancouver and students.**
- **Development of contract language to minimizing impact on community & environment and increase public participation.**
- **Recommendations in project management practices that the City can adopt in future projects.**

RECOMMENDATIONS

Stakeholder management

A systematic framework consisting of logical sequence and information flow is proposed that the City can adopt to strengthen its stakeholder management.

Organization Structure

A project specific organization structure is proposed for better project integration and efficient communication

Contract management

Contract clauses to improve social sustainability and to develop a systematic framework for stakeholder management in private contractors is proposed.

THANK YOU 😊