

Table of Contents, Acronym List and Glossary

Table of Contents

1. Introduction	1		
1.1 Project Background	1		
1.1.1 An Updated Transit Plan for Scarborough.....	1		
1.2 Study Purpose.....	2		
1.3 Study Area.....	2		
1.4 Study Process – The Transit Project Assessment Process.....	2		
1.4.1 Environmental Project Report	3		
1.4.2 TPAP Approval Process.....	3		
1.5 Study Team Organization	3		
1.6 Relevant Policies to the Scarborough Subway Extension	4		
1.6.1 City of Toronto Planning Policies	4		
1.6.1.1 Toronto Official Plan	4		
1.6.1.2 Scarborough Centre Secondary Plan.....	4		
1.6.2 Growth Plan for the Greater Golden Horseshoe, 2017	5		
1.6.3 Provincial Policy Statement, 2014.....	5		
1.7 Transit Interface Considerations	5		
1.7.1 Eglinton Crosstown LRT	5		
1.7.2 Eglinton East LRT	6		
1.7.3 SmartTrack	6		
1.7.4 Regional Express Rail (RER).....	6		
1.8 Organisation of the Environmental Project Report	6		
2. Existing and Future Conditions	7		
2.1 Natural Environment.....	7		
2.1.1 Physiography, Geology, Soil Conditions	7		
2.1.1.1 Physiography	7		
2.1.1.2 Geology	7		
2.1.1.3 Soil Conditions.....	7		
2.1.1.4 Future Conditions	8		
2.1.2 Groundwater	8		
2.1.2.1 Groundwater Flow	8		
2.1.2.2 Groundwater Conditions	8		
2.1.2.3 Drinking Water Supply Wells.....	8		
2.1.2.4 Future Conditions	9		
2.1.3 Drainage and Hydrology	9		
2.1.3.1 Macro Drainage System	9		
2.1.3.2 Micro Drainage System.....	9		
2.1.3.3 Water Quality	9		
2.1.3.4 Future Conditions	9		
2.1.4 Fish and Fish Habitat	9		
2.1.4.1 Future Conditions	9		
2.1.5 Terrestrial Ecosystems.....	10		
2.1.5.1 Vegetation Communities.....	10		
2.1.5.2 Wildlife and Wildlife Habitat.....	12		
2.1.5.3 Species at Risk.....	12		
2.1.5.4 Designated Natural Areas	13		
2.1.5.5 Future Conditions	13		
2.2 Emissions	13		
2.2.1 Air Quality.....	13		
2.2.1.1 Ambient Air Quality Conditions	13		
2.2.1.2 Existing Conditions.....	14		
2.2.1.3 Future Conditions	14		
2.2.2 Noise and Vibration	14		
2.2.2.1 Existing Conditions.....	15		
2.2.2.2 Future Conditions	15		
2.3 Socio-Economic Environment	15		
2.3.1 Utilities.....	15		
2.3.2 Existing Land Use.....	15		
2.3.2.1 Centre	15		
2.3.2.2 North	17		
2.3.2.3 Southwest & Southeast	17		
2.3.2.4 Eglinton Avenue	18		
2.3.3 Community Services and Facilities	18		
2.3.4 Future Planned Land Use and Development Plans	19		
2.3.4.1 Scarborough Centre Future Development Conditions.....	19		
2.3.4.2 Scarborough Centre Planning Objectives	19		
2.3.5 Lands with Transit Oriented Development Potential	20		
2.3.6 Contamination	20		
2.3.6.1 Unplottables	21		
2.3.7 Future Conditions: Socio-Economic Environment.....	21		
2.4 Cultural Environment.....	21		
2.4.1 Archaeological Resources	21		
2.4.2 Built Heritage Resources and Cultural Heritage Landscapes.....	21		
2.4.3 Future Conditions	22		
2.5 Transportation.....	22		
2.5.1 TTC Service	22		
2.5.2 Scarborough Centre Station	23		
2.5.3 McCowan Station	23		
2.5.4 Midland Station.....	23		
2.5.5 Ellesmere Station	24		
2.5.6 Lawrence East Station.....	24		
2.5.7 Kennedy Station	24		
2.5.8 Other Routes in the Study Area	24		
2.5.9 Road Network, Pedestrians and Cyclists	25		
2.5.10 Navigable Waterways.....	25		
2.5.11 Future Transportation and Infrastructure Plans.....	25		
2.5.11.1 Scarborough Centre Transportation Master Plan.....	25		
2.5.11.2 Regional Express Rail	25		
2.5.11.3 SmartTrack.....	25		
2.5.11.4 Eglinton East LRT	25		
2.5.11.5 Highway 2 Bus Rapid Transit	25		

3. Choosing the Preferred Alignment and Station / Bus Terminal Location ..26

3.1 Planning Objectives26
 3.1.1 Setting the Stage27
 3.1.2 Choosing the Corridor27
 3.1.3 Recommending the Alignment and Station Location27
 3.1.4 Final Project Review – Transit Project Assessment Process27
 3.2 Evaluation of Alternatives27
 3.2.1 Evaluation Approach27
 3.2.2 Evaluation Results – McCowan as the Preferred Corridor28
 3.2.3 Exploration of Additional Alternatives29
 3.2.4 Station Location30
 3.2.5 Conceptual Connecting Bus Network30
 3.2.6 Bus Terminal Concept32
 3.2.6.1 Bus Bay Requirements at Scarborough Centre Station32
 3.2.6.2 Bus Terminal Concept32
 3.2.7 Projected Ridership32

4. Project Description35

4.1 Subway Vehicle35
 4.2 Alignment35
 4.2.1 Horizontal Alignment35
 4.2.2 Vertical Alignment36
 4.2.2.1 Tunnel Diameter36
 4.3 Scarborough Centre Station36
 4.3.1 Subway Platform36
 4.3.2 Concourse37
 4.3.3 Ventilation Shafts37
 4.3.4 Bus Terminal37
 4.3.4.1 Station Entrances40
 4.3.4.2 Barrier Free Access40
 4.3.4.3 Bicycle Facilities40
 4.3.4.4 Associated Road Improvements40
 4.4 Ancillary Features – Supporting Components of Subway Operation41
 4.4.1 Special Trackwork41
 4.4.2 Station Tunnel Ventilation41
 4.4.3 Emergency Exit Buildings41
 4.4.4 Traction Power Substations42
 4.4.5 Connection with Existing Subway at Kennedy Station43
 4.4.5.1 System Integration43
 4.5 Construction Methods43
 4.5.1 Tunneler Sections43
 4.5.1.1 Tunnel Boring Machine Operations and Maintenance44
 4.5.1.2 Installation of Tunnel Liners and Grouting44
 4.5.2 Single Large Diameter Tunnel44
 4.5.3 Tunnel Boring Machine Launch / Extraction Shafts and Tunnel Construction Sites45
 4.5.4 Cut-and-Cover Construction46
 4.6 Preliminary Construction Plan47

4.6.1 Staged Construction of the Bus Terminal 48

5. Impacts, Mitigation Measures and Monitoring..... 69

5.1 Introduction 69
 5.1.1 Interactions between Project Activities / Facilities and the Environment 69
 5.2 Permanent Displacement of Existing Features 71
 5.2.1 Natural Environment 71
 5.2.1.1 Terrain and Soils 71
 5.2.1.2 Groundwater 71
 5.2.1.3 Drainage and Hydrology 71
 5.2.1.4 Fish and Fish Habitat 72
 5.2.1.5 Terrestrial Ecosystems 72
 5.2.2 Emissions 73
 5.2.2.1 Air Quality 73
 5.2.2.2 Noise and Vibration 73
 5.2.2.3 Electromagnetic Interference 73
 5.2.3 Socio-Economic Environment 73
 5.2.3.1 Utilities 73
 5.2.3.2 Building and Property 73
 5.2.3.3 Business and Recreational Disruption 75
 5.2.3.4 Urban Design 75
 5.2.3.5 Waste Management 75
 5.2.4 Cultural Environment 75
 5.2.4.1 Archaeology 75
 5.2.4.2 Built Heritage Resources and Cultural Heritage Landscapes 75
 5.2.5 Transportation 76
 5.2.5.1 Automobile Traffic and Transit Service 76
 5.2.5.2 Pedestrians and Cyclists 76
 5.2.5.3 Rail 76
 5.3 Construction Impacts 76
 5.3.1 Natural Environment 76
 5.3.1.1 Terrain and Soils 76
 5.3.1.2 Groundwater 77
 5.3.1.3 Drainage and Hydrology 78
 5.3.1.4 Fish and Fish Habitat 79
 5.3.1.5 Terrestrial Ecosystems 79
 5.3.2 Emissions 79
 5.3.2.1 Air Quality 79
 5.3.2.2 Noise and Vibration 80
 5.3.2.3 Electromagnetic Interference 81
 5.3.2.4 Climate Change 81
 5.3.3 Socio-Economic Environment 81
 5.3.3.1 Utilities 81
 5.3.3.2 Buildings and Property 82
 5.3.3.3 Business and Recreational Disruption 83
 5.3.3.4 Urban Design 83
 5.3.3.5 Waste Management 83
 5.3.4 Cultural Environment 84
 5.3.4.1 Archaeology 84
 5.3.4.2 Built Heritage Resources and Cultural Heritage Landscapes 84

5.3.5	Transportation.....	84
5.3.5.1	Automobile Traffic and Transit Service.....	84
5.3.5.2	Pedestrians and Cyclists.....	85
5.3.5.3	Rail	86
5.4	Operations and Maintenance Impacts	86
5.4.1	Natural Environment	86
5.4.1.1	Terrain and Soils.....	86
5.4.1.2	Groundwater.....	86
5.4.1.3	Drainage and Hydrology	86
5.4.1.4	Fish and Fish Habitat.....	86
5.4.1.5	Terrestrial Ecosystems	86
5.4.2	Emissions	86
5.4.2.1	Air Quality	86
5.4.2.2	Noise and Vibration.....	86
5.4.2.3	Electromagnetic Interference	88
5.4.2.4	Climate Change	88
5.4.3	Socio-Economic Environment	89
5.4.3.1	Utilities.....	89
5.4.3.2	Buildings and Property.....	89
5.4.3.3	Business and Recreational Disruption	89
5.4.3.4	Urban Design.....	89
5.4.3.5	Waste Management.....	89
5.4.4	Cultural Environment.....	89
5.4.4.1	Archaeology.....	89
5.4.4.2	Built Heritage Resources and Cultural Heritage Landscapes	89
5.4.5	Transportation.....	89
5.4.5.1	Automobile Traffic and Transit Service.....	89
5.4.5.2	Pedestrians and Cyclists.....	90
5.4.5.3	Rail	91
5.5	Summary of Impacts, Mitigation Measures and Monitoring	91
6.	Future Commitments	100
6.1	Impact Monitoring.....	103
6.2	Construction Compliance / Impact Monitoring.....	103
6.3	Operational Compliance / Impact Monitoring	104
6.4	Environmental Project Report Addendum Process	104
6.5	Infrastructure Ontario Class Environmental Assessment Process	104
7.	Communication and Consultation Process.....	105
7.1	Approach to Communication and Consultation	105
7.2	Types of Stakeholders Consulted	106
7.3	Consultation During Preliminary Planning.....	106
7.3.1	General Public	106
7.3.1.1	Public Meetings	106
7.3.1.2	Online Consultation and Social Media	107
7.3.1.3	Phone and Email	107
7.3.1.4	Summary of Feedback Received from the General Public	108
7.3.2	Directly Affected Property Owners	108
7.3.2.1	Residential Property Owners	108

7.3.2.2	Commercial Property Owners.....	109
7.3.2.3	Municipal, Provincial and Federal Property Owners	109
7.3.3	Technical Advisory Committee	109
7.3.4	Government Review Team	110
7.3.5	Engagement with Indigenous Communities	111
7.3.6	Stakeholder Advisory Group.....	112
7.3.6.1	Stakeholder Advisory Group Meetings	112
7.3.6.2	Ratepayer Interest Groups	114
7.4	Communication and Consultation during the TPAP.....	114
7.4.1	General Public.....	114
7.4.1.1	Notice of Commencement and Draft Executive Summary of the Environmental Project Report.....	114
7.4.1.2	Public Meeting.....	114
7.4.1.3	Phone and Email.....	115
7.4.1.4	Summary of Feedback Received from the General Public.....	115
7.4.2	Directly Affected Property Owners.....	115
7.4.3	Technical Advisory Committee	115
7.4.3.1	Notice of Commencement and Draft Environmental Project Report.....	115
7.4.4	Government Review Team	116
7.4.4.1	Notice of Commencement and Draft Environmental Project Report.....	116
7.4.4.2	Meetings.....	139
7.4.5	Engagement with Indigenous Communities.....	139
7.4.5.1	Notice of Commencement and Draft Environmental Project Report.....	139
7.4.6	Stakeholder Advisory Group.....	139
7.5	Notice of Completion and 30-Day Review of the Environmental Project Report	143
7.6	Summary of Project Alterations in Response to Comments Received.....	143
7.7	Ongoing Engagement	144

8. References **145**

List of Tables

Table 1-1:	Transit Studies Related to SSE.....	5
Table 2-1:	EcoLog ERIS Sites with High Environmental Risk	20
Table 2-2:	Environmental Significant EcoLog Unplottable Sites.....	21
Table 2-3:	Inventory of Known Heritage Resources in the Study Area	21
Table 2-4:	TTC Typical Weekday Ridership at Scarborough Centre Station ^{1,2}	23
Table 3-1:	Summary of Corridor Evaluation	28
Table 5-1:	Interactions Matrix	70
Table 5-2:	Imperviousness Impact of the Proposed Station and Bus Terminal.....	71
Table 5-3:	Recommended Stormwater Management Strategy.....	71
Table 5-4:	Permanent Property Requirements.....	74
Table 5-5:	Impacts, Mitigation and Monitoring Related to the Displacement of Existing Features	92
Table 5-6:	Impacts, Mitigation and Monitoring related to Construction	94
Table 5-7:	Impacts, Mitigation and Monitoring Related to Operations and Maintenance	98
Table 6-1:	Future Commitments / Permits and Approvals	100

Table 7-1:	Summary of Public Meetings.....	106
Table 7-2:	Online Consultation and Social Media.....	107
Table 7-3:	Phone and Email Responses.....	107
Table 7-4:	Summary of Feedback Received from the General Public.....	108
Table 7-5:	One-on-One and Residential Property Owner Meetings.....	108
Table 7-6:	Summary of TAC Meetings.....	110
Table 7-7:	Summary of Government Review Team Meetings.....	111
Table 7-8:	Summary of Contact with Indigenous Communities.....	111
Table 7-9:	Summary of Comments Received from Indigenous Communities.....	112
Table 7-10:	Summary of SAG Meeting Discussions.....	113
Table 7-11:	Summary of Meetings with Interest Groups.....	114
Table 7-12:	Notice of Commencement Distribution.....	114
Table 7-13:	Phone and Email Responses.....	115
Table 7-14:	TAC Comments on the Draft Environmental Project Report and the Study Team's Responses.....	117
Table 7-15:	Government Review Team Comments on the Draft Environmental Project Report and the Study Team's Responses.....	120
Table 7-16:	Summary of Feedback Received from Review Agencies on the Draft EPR.....	139
Table 7-17:	Comments from Indigenous Communities on the Draft Environmental Project Report and the Study Team's Responses.....	140

Exhibit 4-3:	Subway Station – Concourse Level.....	37
Exhibit 4-4:	Scarborough Centre Station and Bus Terminal at Borough Level.....	38
Exhibit 4-5:	Scarborough Centre Station and Bus Terminal at Bus Terminal Level.....	39
Exhibit 4-6:	Typical TTC Emergency Exit Building.....	41
Exhibit 4-7:	EEBs and Other Cut-and-Cover Sections.....	42
Exhibit 4-8:	Emergency Exit Structure – Below Grade.....	42
Exhibit 4-9A:	Traction Power Substation.....	43
Exhibit 4-10:	Tunnel Boring Machine Tunnelling.....	44
Exhibit 4-11:	Single Large Diameter Tunnel.....	44
Exhibit 4-12:	Tunnelling Work Site, Eglinton Crosstown LRT.....	45
Exhibit 4-13:	Tunnel Boring Machine Entering Extraction Shaft.....	46
Exhibit 4-14:	Cut-and-Cover Excavation.....	46
Exhibit 4-15:	Cut-and-Cover Excavation at Roadways.....	47
Exhibit 4-16:	Proposed Construction Sites.....	47
Exhibit 4-17:	Tunnel Launch Shaft.....	48
Exhibit 4-18a-t:	Proposed Vertical and Horizontal Alignment and Surface Structures Relative to the Alignment.....	49

List of Exhibits

Exhibit 1-1:	Study Area.....	2
Exhibit 1-2:	Illustration of Transit Project Assessment Process.....	3
Exhibit 2-1:	Fish Communities within the Study Area.....	10
Exhibit 2-2a:	Terrestrial Features within the Study Area.....	11
Exhibit 2-3:	Designated Natural Areas within the Study Area.....	14
Exhibit 2-4:	Sub-Study Areas.....	16
Exhibit 2-5:	Scarborough Centre Precincts.....	16
Exhibit 2-6:	Existing Land Use.....	17
Exhibit 2-7:	Community Services and Facilities.....	18
Exhibit 2-8:	Scarborough Centre Future Development Potential.....	19
Exhibit 2-9:	Existing TTC Transit Services.....	22
Exhibit 2-10:	Existing Scarborough Centre Station, looking south.....	23
Exhibit 3-1:	The Planning Process.....	26
Exhibit 3-2:	Alternative Corridor Options.....	27
Exhibit 3-3:	Scarborough Subway Extension - City Decision Making Criteria.....	28
Exhibit 3-4:	Express Subway Alignment Options.....	29
Exhibit 3-5:	Connecting TTC Bus Routes.....	31
Exhibit 3-6:	Scarborough Centre Station and Bus Terminal at Borough Level.....	33
Exhibit 4-1:	Preferred Alignment.....	35
Exhibit 4-2:	Subway Station – Platform Level.....	36

List of Appendices

Appendix A-1	October 8, 2013 City Council Resolution
Appendix A-2	January 28, 2016 City Executive Committee Decision
Appendix A-3	July 12, 2016 City Council Resolution
Appendix B-1	Natural Heritage Report
Appendix B-2	Stormwater Management Report
Appendix B-3	Local Air Quality Assessment
Appendix B-4	Noise and Vibration Impact Study
Appendix B-5	Potential Utility Impacts
Appendix B-6	Background Report Planning & Urban Design
Appendix B-7	Stage 1 Archaeology Assessment and Cultural Heritage Memorandum
Appendix C-1	Summary of Public Comments Received During Phase 1
Appendix C-2	Summary of Public Comments Received During Phase 2
Appendix C-3	Summary of Public Comments Received During Phase 3
Appendix C-4	TPAP Public Consultation Report
Appendix C-5	Technical Advisory Committee Consultation Documents
Appendix C-6	Government Review Team Consultation Documents
Appendix C-7	Indigenous Communities Consultation Documents
Appendix C-8	Notice of Completion

Acronym List

AAQC..... Ambient Air Quality Criteria
ANSI..... Area of Natural and Scientific Interest
AODA..... *Accessibility for Ontarians with Disabilities Act*
AREMA American Rail Engineering Maintenance-of-way Association
ATC..... Automatic Train Control
BART Bay Area Rapid Transit
BIA Business Improvement Association
BRT Bus Rapid Transit
CEAA *Canadian Environmental Assessment Act*
CHBCD Canadian Highway Bridge Design Code
CMP Compliance Monitoring Program
CN Canadian National (Railway)
CO₂..... Carbon Dioxide
COSEWIC Committee on the Status of Endangered Wildlife in Canada
CS&F Community Services and Facilities
CUM101 cultural meadow
CUT1 cultural thicket
CUW1..... cultural woodland
dBA..... A-weighted decibels
DM..... Design Manual
DRT Durham Region Transit
EA Environmental Assessment
ECLRT Eglinton Crosstown Light Rail Transit
EEB..... Emergency Exit Building
EELRT..... Eglinton East Light Rail Transit
ELC Ecological Land Classification
EMF..... Electromagnetic Frequency
EMI..... Electromagnetic Interference
EMP Environmental Management Plan
EMS Emergency Medical Service
EPA..... *Environmental Protection Act*
EPB..... Earth Pressure Balance
EPR..... Environmental Project Report
ERIS..... Environmental Risk Information Service

Acronym List

ESA *Endangered Species Act (Ontario)*
ESA Environmentally Sensitive Area
ESC Erosion and Sediment Control
FAQ Frequently Asked Question
FOD5 dominant woodlot
FOD7 deciduous forest
FSI Floor Space Index
FVU..... Fire Ventilation Upgrade
GHG..... Green House Gas
GO GO Transit
GTA Greater Toronto Area
GTHA..... Greater Toronto and Hamilton Area
HONI Hydro One Networks Incorporated
HVAC..... Heating, Ventilation and Air Conditioning equipment
IBC..... Initial Business Case
ISO..... International Organization for Standardization
IO Infrastructure Ontario
LEED Leadership in Energy and Environmental Design
Leq Energy equivalent sound level
LID Low Impact Development
LIO Lands Information Ontario
Lmax Maximum instantaneous sound (or vibration) level
LOS Level of Service
LRT..... Light Rail Transit
µT Microtesla
MACC Mississauga Airport Corporate Centre
MBCA *Migratory Birds Convention Act*
MCC..... Motor Control Centre
mG Milligauss
MNRF Ministry of Natural Resources and Forestry
MOECC Ministry of Environment and Climate Change
MTO Ministry of Transportation
MTSA..... Major Transit Station Areas
NAPS..... National Air Pollution Surveillance

Acronym List

NFPA	National Fire Protection Association
NHIC	Natural Heritage Information Centre
NIA	Neighbourhood Improvement Areas
NOx	Nitrogen Oxides
NPC	Noise Pollution Control
OBC	Ontario Building Code
OGS	Oil / Grit Separators
Ontario EA	
Act	<i>Ontario Environmental Assessment Act</i>
OP	Official Plan
OPA	Official Plan Amendment
OPSS	Ontario Provincial Standard Specification
ORC	Ontario Realty Corporation
PHF	Peak Hour Factor
PIC	Public Information Centre
ppb	parts per billion
PM	Particulate matter
PPS	Provincial Policy Statement
PPUDO	Passenger Pick Up / Drop Off
PPV	Peak Particle Velocity
PSW	Provincially Significant Wetland
Q&A	Question and answer
RER	Regional Express Rail
RGS	Ridership Growth Strategy (2003)
ROW	Right-of-way
SAG	Stakeholder Advisory Group
SARA	<i>Species at Risk Act</i> (Canada)
SMLRT	Scarborough-Malvern Light Rail Transit
SPA	Site Plan Approval
SRT	Scarborough Rapid Transit
SSE	Scarborough Subway Extension
SSEPA	Scarborough Subway Extension Project Assessment
SUE	Subsurface Utility Engineering
TAC	Technical Advisory Committee

Acronym List

TBM	Tunnel Boring Machine
TC	Transit City
TGS	Toronto Green Standard
TMP	Transportation Master Plan
TOD	Transit Oriented Development
TPAP	Transit Project Assessment Process
TPSS	Traction Power Substation
TPZ	Tree Protection Zone
TRCA	Toronto and Region Conservation Authority
TSP	Total Suspended Particles
TTC	Toronto Transit Commission
UGC	Urban Growth Centre
UOIT	University of Ontario Institute of Technology
UTSC	University of Toronto Scarborough Campus
VOC	Volatile Organic Compounds
WWIS	Water Well Information System
YMCA	Young Men's Christian Association

Glossary

Above-grade	A transit corridor that is above a road or structure.
Alignment	Refers to the specific horizontal and vertical geometric configuration of the Scarborough Subway Extension (SSE) running structure.
Alluvium deposit	Sand, silt, clay, gravel or other matter deposited by flowing water, as in a riverbed, floodplain, delta, or alluvial fan. Alluvium is generally considered a young deposit in terms of geologic time.
Aquifer	A body of permeable rock that can contain or transmit groundwater.
Areas of Natural and Scientific Interest	Refers to areas of land and water containing natural landscapes or features that have been identified by the Province of Ontario as having life science, or earth science values related to protection, scientific study, or education.
Artesian conditions	A confined aquifer containing groundwater under positive pressure. This causes the water level in a well to rise to a point where hydrostatic equilibrium has been reached.
At-grade	A transit corridor that is on the same level as travelling vehicles and pedestrians.
Bedrock	Solid rock underlying loose deposits such as soil or alluvium.
Below-grade	A transit corridor that allows vehicles to travel below traffic through either tunnelling or open trench.
Borehole	A deep, narrow hole made in the ground, typically used to locate water or oil.
Bus bays	Off-street areas for loading and unloading passengers within the bus circulation portion of a transit station.
Bus terminals	Off-street structures for loading and unloading bus passengers.
Caisson wall	Composed of a series of vertically drilled holes which are interlocked. This method provides a more rigid system of excavation support than a soldier pile and lagging wall and is therefore a more suitable choice adjacent to existing buildings or structures sensitive to movement.
Carbon footprint	The amount of carbon dioxide and other carbon compounds emitted due to the consumption of fossil fuels by a particular person, group, etc.
Catchment area	The area within 800 metres to 6 kilometres of the station.
Check dam	A small, sometimes temporary, dam constructed across a swale, drainage ditch, or a waterway to counteract erosion by reducing water flow velocity.
City Council	Toronto City Council consisting of the Mayor and 44 members of Council, one representing each of the City's wards.

Glossary

Corridor	Refers to the general pathway that would be recommended for the subway connection to the Scarborough Centre.
dBA	A-weighted decibels, an expression of the relative loudness of sounds in the air as perceived by the human ear.
Dewatering	The action of removing water from construction site. Typically the process is done by pumping or evaporation and is usually done for excavation footings or to lower the water table that might be causing flooding during excavations.
Easements	Right to enter or use privately owned property for project related construction or operations.
Elevation	The vertical distance of a point above mean sea level or above another datum.
Environment	Under the <i>Ontario Environmental Assessment Act</i> "Environment" means: <ul style="list-style-type: none"> a) Air land or water; b) Plant and animal life, including human life; c) The social, economic and cultural conditions that influence the life of humans or a community; d) Any building, structure, machine or other device or thing made by humans; e) Any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or f) Any part or combination of the foregoing and the interrelationships between any two or more of them, in or of Ontario. <p>For more information about environmental assessments and the process, visit the Ontario Ministry of the Environment web site at: http://www.ene.gov.on.ca</p>
Environmentally Sensitive Area	Refers to natural areas within the Province that contain significant natural features that have been identified as exhibiting rare and/or endangered species, unique landforms, vital ecological functions, unusual wildlife, diversity or habitat for wildlife movement corridors.
Erosion	A type of weathering in which surface soil and rock are worn away through the action of ice, water, and wind.
Erosion control blanket	A blanket of synthetic or natural fibers to protect soil from the erosive impact of precipitation and overland flow, typically on slopes and channels. They also retain moisture and facilitate establishment of vegetation.
Evaluation criteria	Standard measures established to evaluate the degree to which alternative solutions are able to meet project expectations or objectives.

Glossary

Excavation	The act or process of taking or removing material from the ground.
Exclusive right-of-way	An alignment that is not affected by transit signals or traffic, generally by means of grade separation.
Executive Committee	The City of Toronto’s Executive Committee is an advisory body chaired by the Mayor. It is composed of the Mayor, the Deputy Mayor, the chairs of seven standing committees who are appointed by the Mayor and four “at-large” members appointed by City Council.
Expropriation	The acquisition or taking of property from its owner for public use or benefit in accordance with the Expropriations Act of Ontario.
Floodplain	Normally dry land areas that are adjacent to a natural stream or watercourse and that are temporarily inundated during floods.
Floor Space Index	An expression of building density. A Floor Space Index (FSI) of 2.0 would indicate a gross (building) floor area of two times the site area.
Footing	Portions of the foundation of a structure that transmits loads directly to the soil.
Geotechnical engineering	The application of scientific methods of engineering principles to the acquisition, interpretation and evaluation of subsurface data to predict the behaviour of the materials of the Earth’s crust. It encompasses the fields of soil mechanics, rock mechanics, geological engineering, geophysics and related fields, such as pavement design.
Grassed swale	A graded and engineered landscape feature appearing as a linear, shallow, open channel with trapezoidal or parabolic shape. The swale is vegetated with flood tolerant, erosion resistant plants.
Greater Golden Horseshoe	The area to which the Growth Plan applies. It is located in southern Ontario and is centred on the City of Toronto. It covers almost 32,000 square kilometres and includes large cities, rapidly growing suburban municipalities, mid-sized centres, small towns and villages and rural areas.
Greater Toronto Area	Refers to the City of Toronto and the four regional municipalities that surround it: Durham, Halton, Peel and York.
Groundwater	Water held underground in the soil or in the pores and crevices in rock.
Leq	The energy equivalent sound level (an energy average) of the noise received at a particular point during a specified period of time such as one hour, 16 hrs during the day or 8 hours during the night. It is reported in decibel (dBA for traffic or rail noise).
Lmax	The maximum instantaneous sound (or vibration) level during a specified period of time for a noise event (example the pass by of a train or the pass by of a vehicle). It is measured in decibel (dBA for traffic or rail noise).

Glossary

Level of service	A letter scale assigned as a quantitative measure of traffic flow on a roadway. It is dependent upon the vehicle delay and vehicle queue lengths. The scale ranges from "A", where no delay is experienced, to "F", where saturation has occurred, with vehicle demand exceeding the available capacity of the roadway.
Light Rail Transit	Transit which uses electrically powered steel-wheel vehicles operated in various degrees of right-of-way (ROW) protection including semi-exclusive ROW to full exclusive ROW. In the context of this study, Light Rail Transit (LRT) excludes streetcars (i.e., transit vehicles operating in mixed traffic).
Metrolinx	Is a Crown agency that manages and integrates road and public transport in the Greater Golden Horseshoe region.
Microtesla (µT)	Magnetic fields arise from the motion of electric charges (i.e., a current), are expressed in tesla (T), or more commonly in millitesla (mT) or microtesla (µT). A microtesla is equal to 10 ⁻⁶ teslas.
MilliGauss (mG)	The Gauss is the unit of measurement of magnetic flux density or “magnetic induction”. A milliGauss (mG) is 1000 th of a Gauss.
Oak Ridges Moraine	An ecologically important geological landform in the Mixedwood Plains of south-central Ontario, Canada. The moraine covers a geographic area of 1,900 square kilometres between Caledon and Rice Lake, near Peterborough.
Official Plan	A long-term policy document, which governs the development and land use activities of a municipality that has been implemented in accordance with the <i>Planning Act</i> (Ontario).
Ontario Building Code	Governs the construction of new buildings and the renovation and maintenance of existing buildings.
Ontario Municipal Board	The Ontario Municipal Board (OMB) is an independent, quasi-judicial, administrative tribunal responsible for appeals of land-use disputes and municipal matters.
Ontario Realty Corporation ..	A corporation under the province’s Ministry of Energy and Infrastructure.
Overburden	The mass of soil that overlies a source of rock, gravel or other road material. This material is removed before the materials are quarried to avoid contamination.
Overhead catenary system	The overhead power lines that provide electrical power to Light Rail Transit vehicles.
Paid Fare Zone	The area within a subway station where only those passengers that have paid the appropriate transit fare are allowed.

Glossary

Particulate matter (PM)	The sum of all solid and liquid particles suspended in air. This complex mixture includes both organic and inorganic particles, such as dust, pollen, soot, smoke, and liquid droplets. PM _{2.5} and PM ₁₀ are particulate matter 2.5 micrometres or less and 10 micrometres or less in diameter, respectively.
Peak hour	Maximum hour of travel demand during a weekday.
Peak hour factor	The ratio of peak hour (ridership) volume to 3-hour peak period volume (e.g., 0.60 for subway trips in the downtown, or 0.55 for other subway trips, 0.40 for auto trips).
Peak particle velocity	A measure of the significance of a ground borne vibration signal using the velocity metric and expressed in mm/sec.
Perched water	An accumulation of groundwater located above a water table in an unsaturated zone. The groundwater is usually trapped above a soil layer that is impermeable and forms a lens of saturated material in the unsaturated zone.
Placemaking	A participatory approach to the planning, design and management of public spaces and facilities. The intention is to create public spaces that promote people's health, happiness and well-being.
Platform	The area of the station which passengers use to enter and exit subway vehicles.
Points of reception	Any location on a noise sensitive land use where noise from a stationary source is received. Noise sensitive land uses may have one or more points of reception.
Primary zone	The area within 250 metres of the station.
Primary zone of interest	Defined under the planning guidelines, a 250 metres zone where the intensification occurs.
Profile	A longitudinal section of a subway (or road).
Quaternary	Deposits in the Toronto area that generally consist of glacial till, glaciolacustrine and glaciofluvial deposits of gravels, sands, silts and clays with beach deposits of sand and gravel. These soils were deposited by the glaciers and the associated glacial lakes and rivers during the Wisconsinian Glaciation period.
Receptor	Locations or areas where dwelling units or other fixed, developed sites of frequent human use occur, such as residential dwellings, churches, schools or hospitals.
Ridership Growth Strategy (2003)	Refers to a Toronto Transit Commission (TTC) study that contains results of TTC's transportation research and data, and provides a comprehensive approach to transit service improvements.

Glossary

Right-of-way	Land generally publicly owned, acquired for and devoted to transportation purposes, predominantly roads.
Riparian habitat/vegetation ...	The interface between land and a river or a stream. Riparian is also the proper nomenclature for one of the fifteen terrestrial biomes of the earth. Planet habitats and communities along the river margins and banks are called riparian vegetation, characterized by hydrophilic plants.
Running structure	Includes the underground tunnel, tracks, and associated infrastructure.
Scarborough Town Centre	A two level regional shopping mall located at the corner of Highway 401 and McCowan Road in Scarborough, Ontario.
Secondary zone	The area within 500 metres of the station.
Site Plan Control	<i>Section 41 of the Planning Act</i> grants the City the authority to include in its Official Plan areas to be designated as " <i>areas of Site Plan Control</i> ". This authority provides a process that examines the design and technical aspects of a proposed development to ensure it is attractive and compatible with the surrounding area and contributes to the economic, social and environmental vitality of the City. Features such as building designs, site access and servicing, waste storage, parking, loading and landscaping are reviewed. Although the entire City of Toronto is designated as a Site Plan Control area, certain types of development are exempt from this process and there are site specific exemptions.
Slope	Any ground whose surface makes an angle with the plane of the horizon.
Slurry wall	A technique used to build reinforced concrete walls in areas of soft earth close to open water or with a high ground water table. This technique is typically used to build diaphragm (water-blocking) walls surrounding tunnels and open cuts, and to lay foundation.
Station	A passenger facility which provides access to trains. It always includes pedestrian entrances and may include other commuter facilities, such as parking and bus terminals.
Station facilities	Includes bus terminals, passenger pick-up / drop-off, commuter parking, pedestrian entrances, taxi stands and bicycle racks.
Tertiary zone	The area within 800 metres of the station.
Till	Unsorted material deposited directly by glacial ice and showing no stratification.
Traffic control devices	Signs, signals, markings and devices placed or erected for the purpose of regulating, warning or guiding traffic.
Traffic lane	The portion of the traveled way for the movement of a single line of vehicles.

Glossary

- Traffic volume** The number of vehicles passing a given point during a specific period of time.
- Total suspended particles** A regulatory measure of the mass concentration of particulate matter in community air.
- Tunnelling** Using large machinery, usually built for the specific project, to excavate a tunnel for project related infrastructure.
- Urban Growth Centre** Designated in *Places to Grow* to be mixed-use, high-density, and public-transit oriented developments which are meant to become focal points within the Greater Golden Horseshoe region.
- Unpaid fare zone** Area in a subway station between the entrance and the fare collection locations.
- Watershed** An area or ridge of land that separates waters flowing to different rivers, basins, or seas.
- Weir** A low dam built across a river to raise the level of water upstream or regulate its flow.
- Wisconsinan Glaciation** Also known as the Wisconsin Glacial Episode, it is the most recent major advance of the North American ice sheet complex.