TORONTO

Memorandum

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TO: Elyse Parker, Director, Public Realm, Transportation Services &
Andy McGhie, Director, Geospatial Competency Centre (GCC)
FROM: Fiona Chapman, Manager - Pedestrian Projects &
Ryan Garnett, Manager, Geospatial Data Integration Access, GCC
DATE: July 10, 2018
SUBJECT: Funding for Pedestrian Plan & Network Development to Geospatial Competency Centre

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The purpose of this memo is to confirm capital funding of $100,000 that will be made available from Transportation Services' Pedestrian Projects Unit to the Geospatial Competency Centre to provide resources, expertise and Geographic Information Systems (GIS) and technological solutions to develop mapping products for the city's update to the Walking Strategy and new 10-year Pedestrian Plan and Network development.

The terms of reference are below for the project that will be delivered between August 1, 2018 and July 31, 2019. While some of the deliverables can be slightly modified and adapted as the work is in progress, the background analysis, desired outputs and work plan represent the programme to be provided in return for the $100,000 of funding from Pedestrian Projects to the GCC.

Toronto Walking Strategy & New 10-yr Pedestrian Plan – GIS Analysis & Network Maps
Big Data & Open Data

Terms of Reference – May 16, 2018

- Purpose is to support the update to Toronto's Walking Strategy (a 10-year action plan) to improve walking conditions in the city.
- Objectives include providing the geographic information systems (GIS) data, methodology, advice, analysis, and products to inform, shape and communicate the new Strategy and Network Plans; and to publish new initiatives, research and findings (e.g., journals, conferences)
- Funding in the amount of $100,000 will be provided by Transportation Services' Pedestrian Projects to the Geospatial Competency Centre (GCC) to obtain the resources and expertise in Q3 and Q4 in 2018 and Q1 & 2 in 2019 to help achieve the following deliverables and workplan.
- The GCC will lead the whole project and management of the funds to address staff resources/outsourcing/contract staff, data collection/acquisition, software/development, and expertise and advice to help provide the following GIS data, analysis, online/web products and deliverables to support the city's new 10-year Pedestrian Plan and network development.

Base Maps for Background Analysis (to be considered/adapted/modified)

- **Mode share for walking by ward or by File Sortation Area** (postal code)
  - For Commuting; For Shopping (retail link); For Recreation (e.g., to parks, trails, community centres)

- **Pedestrian volumes**
  - Where are the pedestrians & how many of them; e.g., turning movement count data is available for intersections; need to supplement the mid-block pedestrian flow data on sidewalk segments (between intersections)

- **Accessibility (gradient score of high accessibility and low accessibility)**
  - Criteria & weight? E.g., Melbourne – fine grain network & land use pattern/urban form or coarse; sidewalk and crosswalk deficiency analysis (e.g., gaps in infrastructure)
  - Pedestrian clearway map - pinch points (e.g., number of obstacles affecting clear width)

- **Economic impact of walkability**
  - Melbourne – Effective Job Density (EJD) map shows connectivity across the walking network and its contribution to the economy of the City of Melbourne; areas with darker colours represent both a richer walking network and a higher concentration of employment and economic activity. This measure of EJD is based on number of jobs (working people) that can be reached within 30 minutes by walking on the pedestrian network (scaled by time it takes to reach them).

- **Growth in the City of Toronto**
  - Crowding is a vulnerability for safety & economic competitiveness
  - Map of growth in the city – need to establish over what period of time; including overlay of existing and proposed transit will show relationship of transit-oriented development & areas of priority for improving walkability to support growth and to link to transit

- **Vulnerable / Social Equity Lens**
  - Seniors, children (safe routes to schools), low income/strong neighbourhoods – demographic analysis of groups reliant on walking and walkability

- **Streetscape quality**
  - Mix of retail/uses; streetscape features/elements, trees/landscaping, art

Desired Outputs for Toronto Walking Strategy & Network Plans

- **Identify areas / locations for prioritizing pedestrian improvements**
  - Use overlays to identify where crowding needs to be relieved (e.g., high growth, low quality and comfort for infrastructure or services)
  - Use overlays to identify where vulnerable groups existing and low accessibility
  - Use overlays to look at economic impact areas & high growth – to continue to improve the quality of infrastructure to attract people & jobs

- **Develop new tools for prioritization for city infrastructure investments & service improvements**

- **Develop a tool to support and inform decisions by developers or BIAs when implementing new projects for minimum sidewalk design standards**

Work Plan – Proposed Next Steps

July 2018:

- **Project initiation, plan development & refinement** –
  - **Literature review – start.**
  - Discuss scope, roles, resources and exchange of information regarding goals of the projects

Aug-Sept 2018:

- **Data gaps & collection needs/solutions/partnerships –**
  - Identify specific data issues, gaps and plans for collection;
  - initiate solutions/partnerships to obtain data (e.g., Esri/Universities, etc.)
  - Consider hiring additional resources (i.e., RFR, web-developer) for additional capability/dissemination.
  - Sidewalk inventory accuracy assessment
- Determine quality, structure and usability of existing data, OSM data, and needed augmentation/additional resources
- Determine resources for data cleaning/structure. Likely "students" to do cleanup and assessment
- Convert into useable Network Model.
- Establish "attractors" – i.e., variables used to asses walkability and accessibility
- Series of variables to weight accessibility/opportunity per socio-demographic/geographic neighborhood.

September – December 2018:

- **Data Collection** and Model Development
  - **Goal** – publish article on new data collection methods
  - **Literature review of existing methods and approaches should be finished.**
  - **Iterative development of methodology**
- **AGILE build of open-source code/data for evaluation**
- **GIS analysis, methodology refinement, network development & maps** – including early products for November consultations.

January- July 2019:

- **Goal** – publish new methodologies/network mapping tools or approaches (models)
- **Have working web-app** for public engagement and analytical capabilities in Q1.
- **Completion of 2019 Walking Strategy & Network Maps** – end of 2019/Q1-Q2 2020
- **Goal** – publish report on Toronto's work / seek award submissions for work

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The above background analysis and workplan deliverables are expected to be provided by the Geospatial Competency Centre by July 31, 2019 in return for the capital funding of $100,000 by Transportation Services' Pedestrian Projects Unit.

Yours Truly,

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