Corktown Common Methods Document

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This Methods Document was produced in 2016 to accompany a Landscape Performance Series Case Study Brief through the Landscape Architecture Foundation’s Case Study Investigation program, a unique research collaboration that matches LAF-funded faculty-student research teams with leading practitioners to document the benefits of exemplary high-performing landscapes.

The full Case Study Brief for this project can be found at https://landscapeperformance.org/case-study-briefs/corktown-common
**Environmental Benefits**

**Environmental Benefit 1**

Retains 100% of annual rainfall on site, equivalent to 1.15 million gallons per year.

This water is retained through the site-specific water harvesting underdrainage system that collects, filters, and reuses the stormwater and potable water from the water play area throughout the site. This prevents the water from burdening the city’s systems and from entering the floodplain.

**Calculations**

Conducted by MVVA Inc. design team, using Statistics Canada’s *Weather Conditions in Capital and Major Cities*.

**Limitations**

Researchers did not independently verify calculations.

**Sources**

For total annual precipitation, please see Statistics Canada’s *Weather Conditions in Capital and Major Cities*, [http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/phys08a-eng.htm](http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/phys08a-eng.htm)

ARUP, Correspondence: Don River Park Arup #96125, 3/19/2007.

**Environmental Benefit 2: Water conservation**

Saves approximately 1,246,400 gallons of potable water annually through the capture and reuse of stormwater and waterplay runoff for irrigation.

**Calculations**

<table>
<thead>
<tr>
<th></th>
<th>Water used (in gallons)</th>
<th>Water captured (in gallons)</th>
<th>Difference (in gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly irrigation</td>
<td>41,095</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly harvested rainwater</td>
<td>32,678</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly waterplay drainage</td>
<td>80,640</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly totals</td>
<td>41,095</td>
<td>113,318</td>
<td>72,223</td>
</tr>
</tbody>
</table>

Water used for irrigation of the landscape:
Weekly: 41,095 gallons per week for 7 months
7 months = .5833 of a year = 30.33 weeks
41,095 x 30.33 = 1,246,411.35 gallons annually for irrigation

Water captured for same portion of a year:
113,318 x 30.33 = 3,436,934.94 gallons captured annually

Recycled Water Sources: UV-filtered recycled potable water from splash pad; Sediment-filtered recycled stormwater underdrainage system

**Limitations**
Conducted by MVVA Inc. design team. Estimates not independently verified by researchers. Water testing results not available. This benefit was calculated to reflect the 7 months of the year that the park is in highest usage.

**Sources**

Michael Van Valkenburgh Associates, Inc.

For total annual precipitation, please see Statistics Canada’s *Weather Conditions in Capital and Major Cities*, [http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/phys08a-eng.htm](http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/phys08a-eng.htm)

**Environmental Benefit 3: Water quality**

Eliminates more than 99% of *E.coli* potentially present in 4 million gallons annually of captured water play wastewater.

This is achieved by using UV filters before it is piped and daylighted in the marsh, allowing for flushing and aeration.

**Limitations**
Conducted by MVVA Inc. design team. Results not independently verified by researchers. Water testing results not available.

**Sources**
Michael Van Valkenburgh Associates, Inc.

For total annual precipitation, please see Statistics Canada’s *Weather Conditions in Capital and Major Cities*, [http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/phys08a-eng.htm](http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/phys08a-eng.htm)
Environmental Benefit 4: Carbon sequestration and avoidance

Sequesters approximately 8,400 lbs of atmospheric carbon annually through the planting of 766 trees (see Appendix D).

To support the rich diversity of plant life, 11 soil profiles were used in the 1.7 million cubic feet of soil installed on top of the flood protection landform. Varying by number of layers, gradation and organic content, the layering systems used are:

- 3-layer profiles, consisting of sandy loam for nutrients, loamy sand for root development, sand for drainage, in all plant beds and trees.
- 2-layer profiles, consisting of sandy loam for nutrients and root development and coarse sand for drainage, in the lawns and prairie west of the FPL.
- 1-layer profile, consisting of loam was used for nutrients and root development, used in the marsh and urban prairie east of the FPL.

Calculations
Tree count by site visits conducted by Michael Van Valkenburgh Associates, Inc.

Utilized Toronto’s Live Green assumptions that an average tree size of 6.4 inches in diameter sequesters approximately 11 pounds of carbon annually. GHGs reduced from planting trees (pounds) = 766 trees planted x 11 pounds/year = 8,426 pounds of carbon per year

Limitations
Calculations dependent on tree count from MVVA, Inc. Results not independently verified by researchers. Does not take into account tree size or species, which would provide a more accurate estimate of atmospheric carbon sequestered.

Sources
Michael Van Valkenburgh documents; ‘Planting Plan’

Toronto’s “LiveGreen Toronto Quantification Guide”
https://www1.toronto.ca/City%20Of%20Toronto/Environment%20and%20Energy/Programs%20for%20Residents/PDFs/Live%20Green%20 Grants/Project%20Quantification%20Guidelines%202011.pdf


For Planting Soil profiles, please refer to 20-21 of the Organic Landscape Maintenance Guidelines.
For a comprehensive Maintenance Calendar, please refer to page 22-23 of the Organic Landscape Maintenance Guidelines.


**Social Benefit 1: Recreational and social value**

Serves as a neighborhood anchor, with 55% of 22 users coming from within 0.5 miles of the park.

**Calculations**

Please see Appendix C for detailed survey results including dates, times, weather, number of individuals approached, number of individuals who completed survey, and their responses.

**Limitations**

For University of Toronto conducted surveys, please see the methodology outlined below and in Appendix B and C as approved by the University of Toronto on May 31, 2016.

Our method was to interview visitors to three relatively new public parks along the Toronto waterfront, inquiring about their experience and perception of the parks and their context. We anticipate surveying a sample of 25 people per site over the course of a three-month period including June, July, and August 2016. Interviews were conducted on each site during a weekday afternoon and evening and during a weekend afternoon and evening. Our graduate research assistant approached individual subjects, identified herself as a researcher and asked subjects to participate in a voluntary interview designed to gauge the parks’ social benefits. The interviews were anonymous and no personal data was collected.

**Sources**

Please see Appendix C-CSI survey results.

**Economic Benefit 1: Construction cost savings**

Saved an estimated $1.1 million in construction costs by reusing excess construction overburden rather than hauling it off-site.

**Calculations**

Calculations completed by Michael Van Valkenburgh Associates, Inc. All dollar values are in 2010 unit prices, when project was tendered.

**Actual Cost Avoided**

Cost to ship excess FPL overburden fill offsite: $30/m³ x 73,500 m³ = $2,205,000

: Converted to Imperial Measurements

\[ 1 \text{ m}^3 = 35.31 \text{ ft}^3 \]

\[ 73,500 \text{ m}^3 = 2,595,630 \text{ ft}^3 \]

\[ $30/\text{m}^3 = $30/35.31 = $.85/\text{ft}^3 \]

\[ $.85 \times 2,595,630 = $2,205,293 \]
Actual Cost Incurred
Cost to sculpt excess FPL overburden into park subgrade: $14.50/m$^3$ x 73,500 m$^3$ = $1,065,750
: Converted to Imperial Measurements 1 m$^3$ = $.41/ft^3$ @2,595,630 = $1,065,892

Traditional Alternative
Cost to import new park subgrade fill onsite = $45/m$^3$ x 73,500 m$^3$ = $3,307,500
: Converted to Imperial Measurements 1 m$^3$ = $1.27/ft^3$ @2,595,630 = $3,296,450

Savings
Actual: $2,205,000 - $1,065,750 = $1,139,250
Comparative: $3,307,500 - $1,065,750 = $2,168,250

Limitations
Does not take into consideration all costs incurred or avoided for all options for subgrade material. Estimates not independently verified by researchers.

Sources
Calculations and estimates provided by Michael Van Valkenburgh design team.
Appendix A - Resources

http://gbdmagazine.com/2015/ground-swell/

http://www.mvvainc.com/project.php?id=8

http://www.on-sitemag.com/construction/corktown-common-toronto-waterfront/1003161501/

http://www.waterfronttoronto.ca/explore_projects2/west_don_lands/corktown_common


https://www1.toronto.ca/City%20of%20Toronto/Environment%20and%20Energy/Programs%20for%20Residents/PDFs/Live%20Green%20Grants/Project%20Quantification%20Guidelines%202011.pdf


https://landscapearchitecturemagazine.org/2013/03/14/landscapes-over-time/
Appendix B - Social Benefits - Oral interview guide

1. Methodology:
Our method is to interview visitors to three relatively new public parks along the Toronto waterfront about their experience and perception of the park and its context. We anticipate surveying a sample of twenty-five people per site over the course of a two-week period in June 2016. Interviews will be conducted on each site during a weekday afternoon and evening and during a weekend afternoon and evening. Our graduate research assistant will approach individual subjects, identify herself as a researcher and ask subjects to participate in a voluntary interview designed to gauge the park’s social benefits. The interviews will be anonymous and no personal data will be collected.

The interviews will address the following subjects:
• frequency of visits to the park
• distance from the interview subject’s home
• whether the subject typically visits alone or as part of a group
• when the subject’s visits to the park began
• the typical duration of the subject’s visits
• the subject’s activities at the park
• the subject’s perception of the neighbourhood and waterfront and whether those perceptions changed since the opening of the park

Our study will also include a visual assessment of the numbers, ages and genders of people in the park. Our goal is to mirror this distribution in our interview sample.

2. Participants
The study aims to include a cross-sectional sample of people present in the park at any given moment. It is not intended to identify or study a particular group of park users. Participation is voluntary.

3. Potential harms
We are not aware of potential harms as the research method consists of a voluntary short interview (approximately five minutes) carried out in a public place.

4. Privacy and confidentiality
The interview will be anonymous and no personal information will be requested. We will inform potential subjects of these conditions when we ask them to participate.

5. Informed consent
We will ask for oral consent after we have explained the purpose and general outline of the interview. We will record consent in our notes before beginning the interview.

Oral consent record and interview guide
Date: 
Site: 
Weather condition: 
Time of day: 
Number of people in the park: 
Approximate age distribution: 
Approximate gender distribution:

Obtaining oral consent:
My name is --, and I am a graduate student in landscape architecture at the University of Toronto. May I talk with you about your experience of this park as part of a research study about its social benefits to the community? The study is anonymous and I will not ask for any personal information. You may stop the interview at any time.

Record of consent: 
(indicated by researcher)

Interview questions: 
How often do you visit the park? 
How far is the park from where you live? 
Do you usually come to the park by yourself or in a group? 
When did you begin visiting the park? 
How long do you usually stay? 
What do you usually do here? 
How do you perceive the neighbourhood and the waterfront?

Contact information regarding Case Study Investigation in Landscape Performance (to be given on 8.5” x 5” card to participants):

Thank you for your participation in our study about the social benefits of this park. If you have any questions about this anonymous research study you may contact the researchers at: landscapeperformance.utoronto@gmail.com. You can also contact the University of Toronto Office of Research Ethics (ethics.review@utoronto.ca, 416-946-3273), for confirmation that participant protection procedures have been followed consistent with:


This questionnaire was approved for use by the University of Toronto LAF Case Study Team by the University of Toronto on May 31, 2016.
# Appendix C

## Social Benefits - Oral interview results

<table>
<thead>
<tr>
<th>Date:</th>
<th>June 12 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site:</td>
<td>Corktown Common</td>
</tr>
<tr>
<td>Weather condition:</td>
<td>57 - 67 F, partially sunny &amp; windy</td>
</tr>
<tr>
<td>Time of day:</td>
<td>9:30am to 10:30am</td>
</tr>
<tr>
<td>Number of people in the park:</td>
<td>unknown</td>
</tr>
<tr>
<td>Approximate age distribution:</td>
<td>unknown</td>
</tr>
<tr>
<td>Approximate gender distribution:</td>
<td>F:M</td>
</tr>
</tbody>
</table>

### Record of consent

<table>
<thead>
<tr>
<th>How often do you visit the park?</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>How far is the park from where you live?</td>
<td>7 times a week</td>
</tr>
<tr>
<td>Do you usually come to the park by yourself or in a group?</td>
<td>within 2 km</td>
</tr>
<tr>
<td>When did you begin visiting the park?</td>
<td>on their own</td>
</tr>
<tr>
<td>How long do you usually stay? (minutes)</td>
<td>2014</td>
</tr>
<tr>
<td>What does your usual here?</td>
<td>30-45</td>
</tr>
<tr>
<td>How do you perceive the neighbourhood and the waterfront?</td>
<td>dog walking clean, quiet</td>
</tr>
</tbody>
</table>

| Time of day: | 9:30am to 10:30am |
| Number of people in the park: | unknown |
| Approximate age distribution: | unknown |
| Approximate gender distribution: | F:M |

### Oral interview results

<table>
<thead>
<tr>
<th>Date:</th>
<th>July 10 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site:</td>
<td>Corktown Common</td>
</tr>
<tr>
<td>Weather condition:</td>
<td>63 - 84 F, sunny</td>
</tr>
<tr>
<td>Time of day:</td>
<td>9:30am to 10:30am</td>
</tr>
<tr>
<td>Number of people in the park:</td>
<td>unknown</td>
</tr>
<tr>
<td>Approximate age distribution:</td>
<td>unknown</td>
</tr>
<tr>
<td>Approximate gender distribution:</td>
<td>F:M</td>
</tr>
</tbody>
</table>

### Record of consent

<table>
<thead>
<tr>
<th>How often do you visit the park?</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>How far is the park from where you live?</td>
<td>7 times a week</td>
</tr>
<tr>
<td>Do you usually come to the park by yourself or in a group?</td>
<td>within 2 km</td>
</tr>
<tr>
<td>When did you begin visiting the park?</td>
<td>both</td>
</tr>
<tr>
<td>How long do you usually stay? (minutes)</td>
<td>2014</td>
</tr>
<tr>
<td>What does your usual here?</td>
<td>30-60</td>
</tr>
<tr>
<td>How do you perceive the neighbourhood and the waterfront?</td>
<td>bringing kids to play &amp; dog walking</td>
</tr>
</tbody>
</table>

| Time of day: | 9:30am to 10:30am |
| Number of people in the park: | unknown |
| Approximate age distribution: | unknown |
| Approximate gender distribution: | F:M |

### Oral interview results

<table>
<thead>
<tr>
<th>Date:</th>
<th>August 07 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site:</td>
<td>Corktown Common</td>
</tr>
<tr>
<td>Weather condition:</td>
<td>63 - 84 F, sunny</td>
</tr>
<tr>
<td>Time of day:</td>
<td>9:30am to 10:30am</td>
</tr>
<tr>
<td>Number of people in the park:</td>
<td>unknown</td>
</tr>
<tr>
<td>Approximate age distribution:</td>
<td>unknown</td>
</tr>
<tr>
<td>Approximate gender distribution:</td>
<td>F:M</td>
</tr>
</tbody>
</table>

### Record of consent

<table>
<thead>
<tr>
<th>How often do you visit the park?</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>How far is the park from where you live?</td>
<td>once a week</td>
</tr>
<tr>
<td>Do you usually come to the park by yourself or in a group?</td>
<td>within 2 km</td>
</tr>
<tr>
<td>When did you begin visiting the park?</td>
<td>both</td>
</tr>
<tr>
<td>How long do you usually stay? (minutes)</td>
<td>2014</td>
</tr>
<tr>
<td>What does your usual here?</td>
<td>60-120</td>
</tr>
<tr>
<td>How do you perceive the neighbourhood and the waterfront?</td>
<td>bike</td>
</tr>
</tbody>
</table>

| Time of day: | 9:30am to 10:30am |
| Number of people in the park: | unknown |
| Approximate age distribution: | unknown |
| Approximate gender distribution: | F:M |

### Oral interview results
Appendix D
Tree Species List

*Acer rubrum* (Red Maple)
*Acer sacharinum* (Silver Maple)
*Acer saccharum* (Sugar Maple)
*Amelanchier laevis* (Serviceberry)
*Betula nigra* (River Birch)
*Carpinus caroliniana* (American Hornbeam)
*Carya ovata* (Shagbark Hickory)
*Celtis occidentalis* (Common Hackberry)
*Cercis canadensis* (Eastern Redbud)
*Cladrastis kentukea* (Yellowwood)
*Cornus racemos* (Gray Dogwood)
*Fagus grandifolia* (American Beech)
*Gleditsia triacanthos var. Inermis* (Thornless Honeylocust)
*Gymnocladus dioicus* (Kentucky Coffeetree)
*Juniperus virginiana* (Eastern Red Cedar)
*Larix laricina* (Tamarack)
*Liriodendron tulipifera* (Tulip Poplar)
*Ostrya virginiana* (American Hophornbeam)
*Pinus strobus* (White Pine)
*Platanus occidentalis* (Sycamore)
*Populus deltoides* (Eastern Cottonwood)
*Populus tremuloides* (Quaking Aspen)
*Quercus macrocarpa* (Bur Oak)
*Quercus muehlenbergii* (Chinkapin Oak)
*Quercus rubra* (Red Oak)
*Quercus robur x. Q. alba* (Crimson Spire Oak)
*Quercus velutina* (Black Oak)
*Sassafras albidum* (Sassafras)
*Tilia americana ‘Redbud’* (Redmond Basswood)