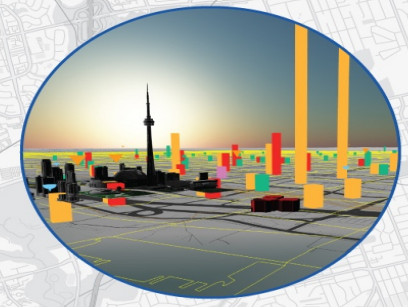
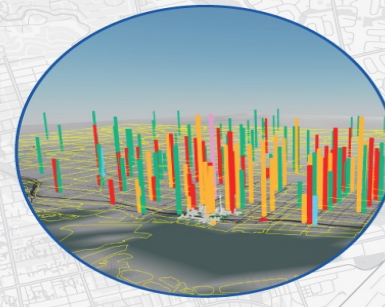
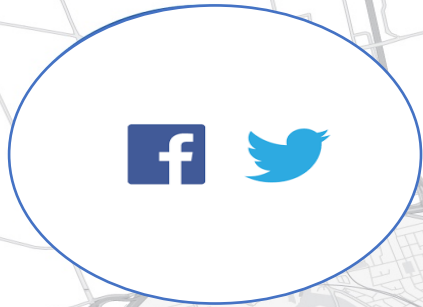
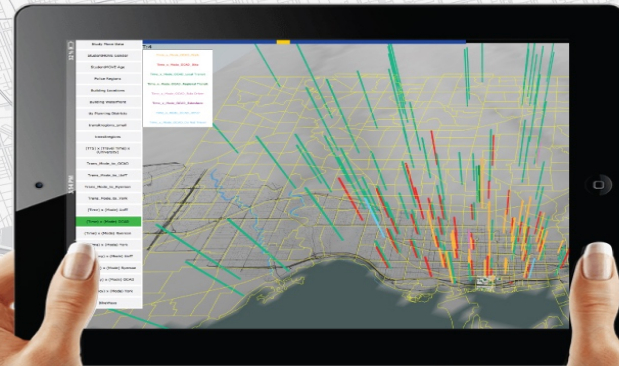


Visualizing Qualitative Analytics in Transportation Planning & Placemaking



The King Street Pilot Case Study



Professor Jeremy Bowes, Dr. Sara Diamond, Marcus Gordon, Ajaz Hussein, Orlando Bascunan, Lee Balakrishnan, Manpreet Juneja, Chieng Luphuyong, Mudit Ganguly, Riley McCullough, Igor Bueno Antunes, OCAD University, Toronto

At the Visual Analytics Lab for the iCity project we are developing decision support tools combining social media and mobile data with GIS, demographic, socio-economic and transit data

how can **qualitative and quantitative research methods** combine to analyze the success and failure of transit and transportation planning and change?

How did we **approach** the research?

Approach

- As part of an information gathering, decision - support strategy, our iCity group focused on a recent street and placemaking strategic intervention - “the King Street pilot”
- This intervention / prototype was a pilot to alleviate traffic congestion, improve transit services, and to enhance pedestrian experience through the introduction of pedestrian friendly art and street installations throughout a core downtown area of King Street.



Method

- After extensive discussions with the City of Toronto, Complete Streets division, and Waterfront Toronto, we implemented a survey designed to solicit and target qualitative responses to the KSP project, to delve into placemaking practices.
- We created categories of survey questions around the City of Toronto's Complete Streets guidelines..
 - Prioritizing accessibility and mobility
 - Encourage walking through a network of continuous sidewalks Design for Safe Crossings
 - Placemaking, Design for Comfort
 - Greening Infrastructure and Storm Water Management
 - Design for Efficient Maintenance, and Coordination with Utilities

Toronto Complete Street Guidelines, Making Places for People

Method

What are the **factors** that impact street experience?

Through our research key factors were identified...

Purpose of trip, mode of travel

Place - Street width, Sidewalk width, Building height, Street function & Usage

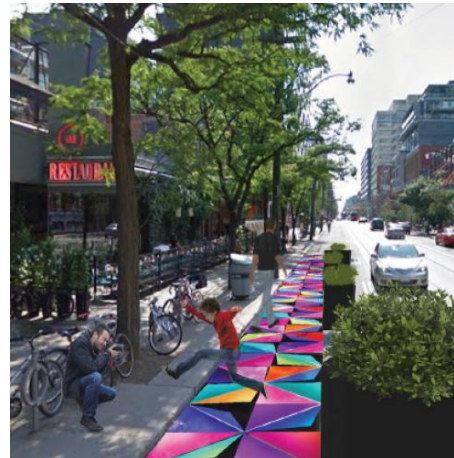
Place - qualities and amenities

Place-making - Public art

Place - Technology Support and WIFI

Place - safety and comfort

TCS Guidelines, Designing for Pedestrians, Ch4



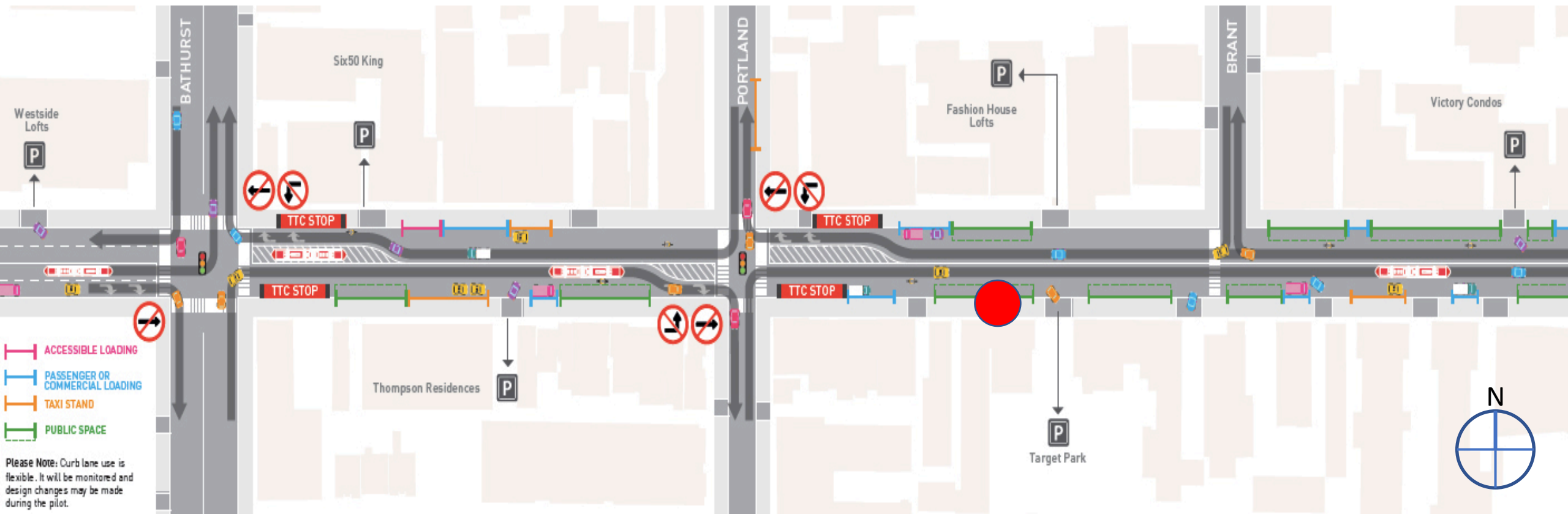
Method

We decided to take a multi - tactical approach to gathering information;

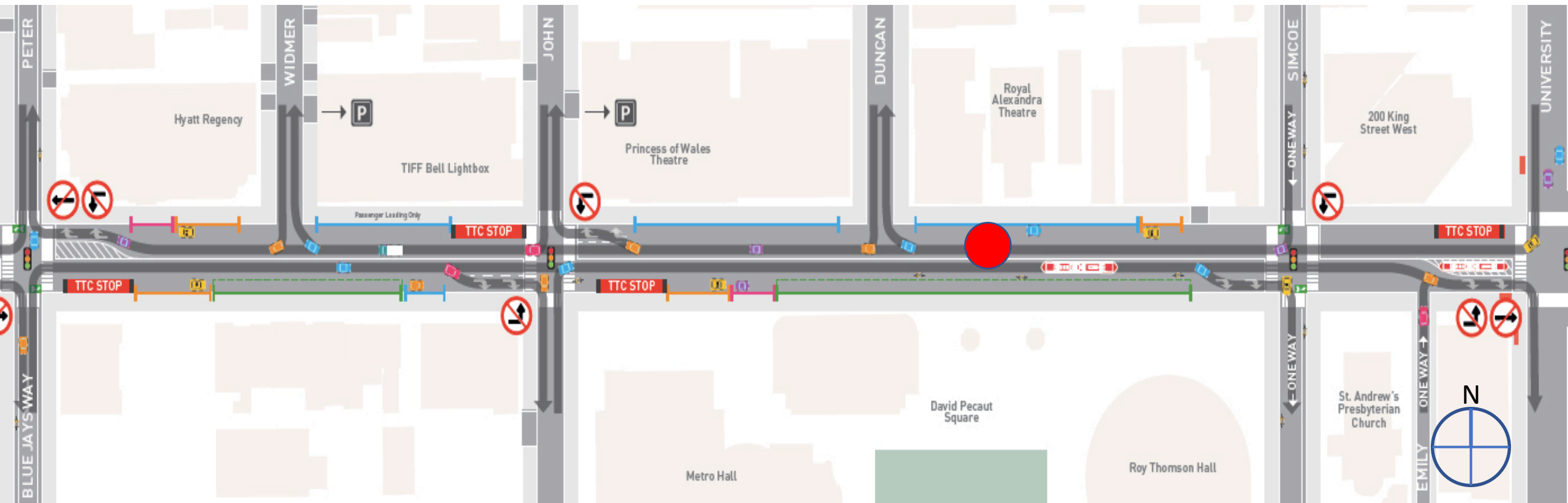
- **On-street surveys** using ipad tablets, loaded with questions and visual information prompts at 3 key locations
- More extensive **web-based survey** circulated through local BIA, and community residents associations through door to door canvassing
- All of this information could then be aggregated to provide a holistic picture of the King Street pilot issues and responses



On-Street Survey: Going to the Street: Street setup at David Pecaut Square, Ajaz Hussain, Orlando Bascunan, VAL researchers



Location 1: King Street West and Spadina Ave.



Location 2: King Street West between Peter Street and University at Pecaut Square



Location 3: King Street East between Yonge Street and Jarvis Street

Looking at the **qualitative and quantitative results**

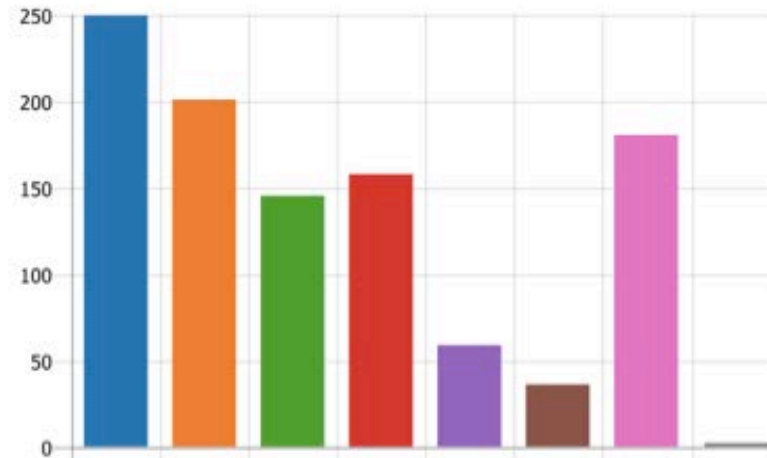
Who were the **users surveyed** on King street?

Purpose of Trip, mode of travel

2. I travel to the King street area because...

[More Details](#)

● It is on my way to work	250
● I am going to a specific destin...	201
● I am going to shop at local st...	146
● I am going to a club or restaur...	158
● I am going to a sports event	59
● I am going to a health club	36
● I live in the area	181
● Other	2



60%

on way to
or from
work

Qualitative survey: Image Chart of responses around purposes of trip, Microsoft Forms Analytics

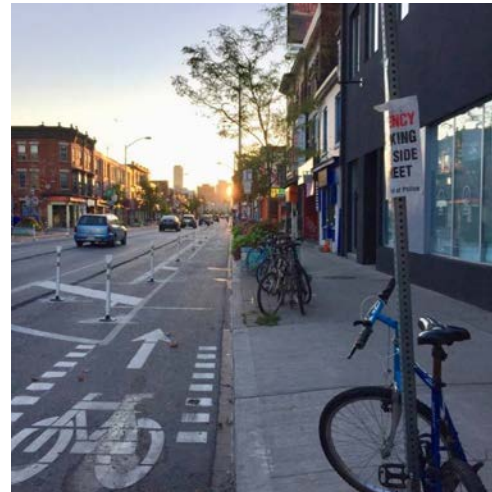


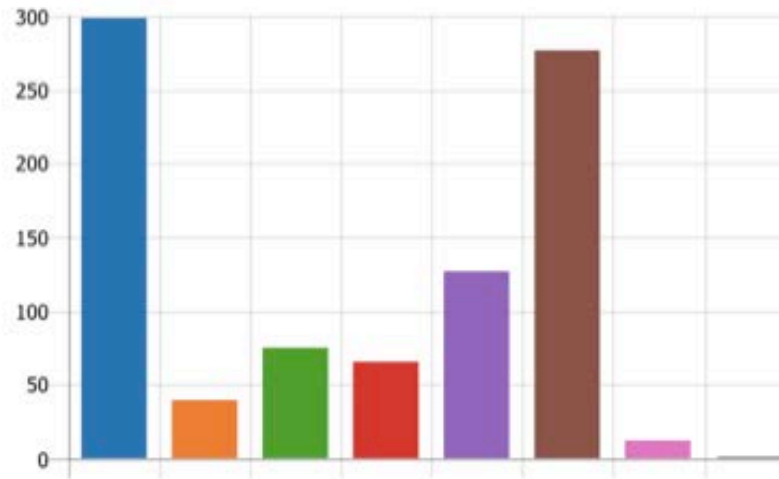
Image: iCity Images, King Street, iCity Team

Purpose of Trip, mode of travel

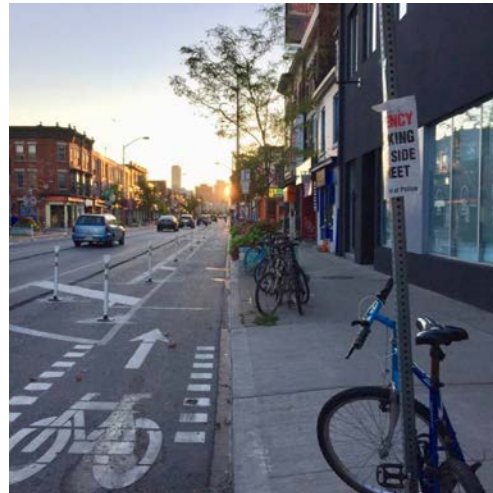
3. How do you travel there?

[More Details](#)

public transit	299
taxi	39
ride share	75
private vehicle	65
bicycle	127
walk	277
other	12
Other	2



Most of the survey group were on their way to work, mostly by **public transit or walking**, or specifically headed to King street destinations for restaurants or shopping, and over half of those surveyed would spend **more than 4 hours**.



Qualitative survey: Image Chart of responses around purposes of trip, mode of travel, Microsoft Forms Analytics

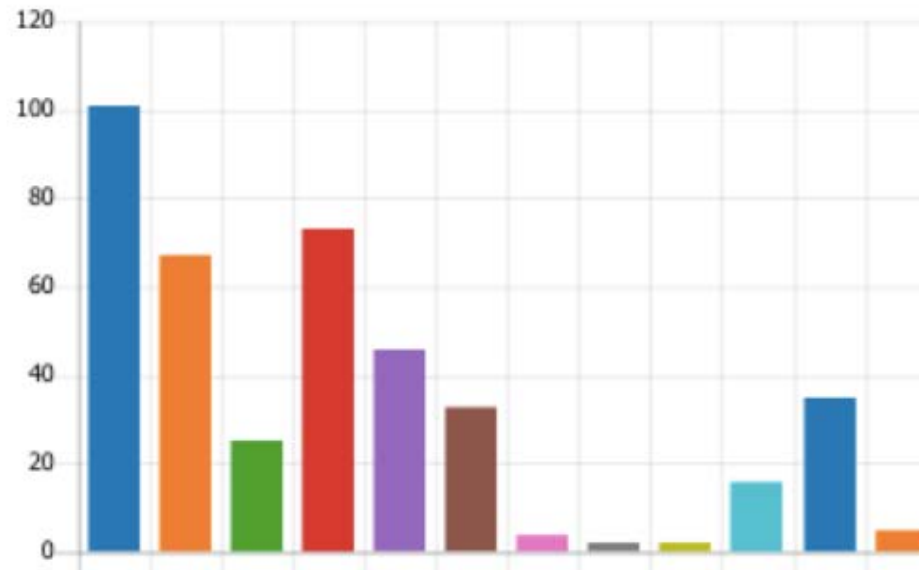
Image: iCity Images, King Street, iCity Team

Occupations and Age

25. To which category does your occupation belong? (if employed)

[More Details](#)

● Business, finance and administ...	101
● Applied sciences and technolo...	67
● Health and wellness	25
● Education, law and social, com...	73
● Art, culture, and heritage	46
● Sales and service	33
● Trades, transport and equipm...	4
● Natural resources, agriculture ...	2
● Manufacturing and utilities	2
● Recreation sport and tourism	16
● Prefer not to answer	35
● Other	5



58%

The dominant occupations that made up 58% were **business & finance, applied science & technology** and **education.**



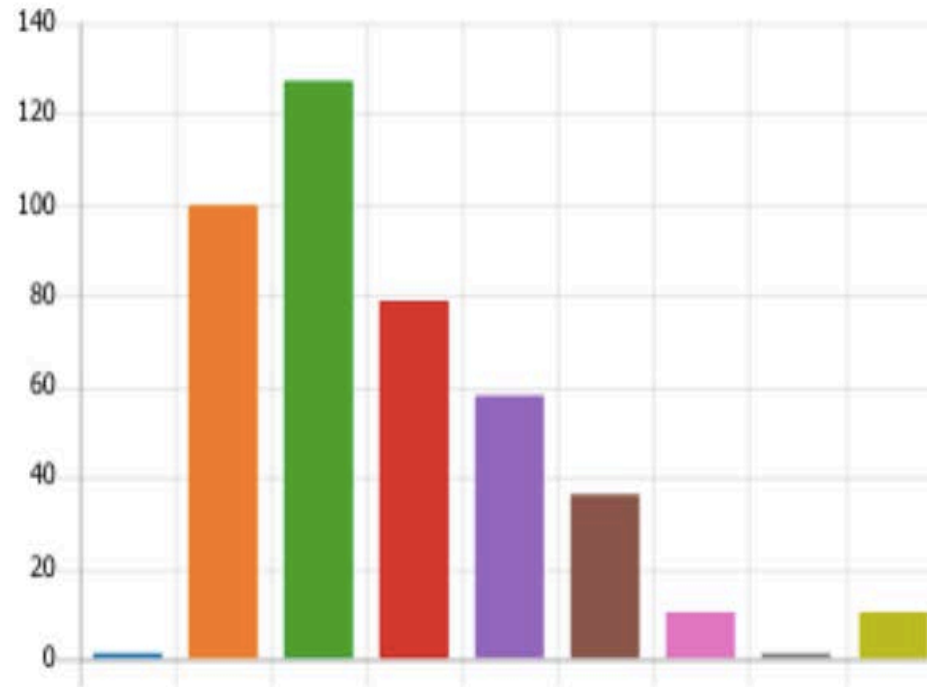
Qualitative survey: Image Chart of responses around occupations.
Microsoft Forms Analytics

Occupations and Age

36. How old are you?

[More Details](#)

15 to 19 years	1
20 to 29 years	100
30 to 39 years	127
40 to 49 years	79
50 to 59 years	58
60 to 69 years	36
70 to 79 years	10
80 years and over	1
Prefer not to answer	10



56%

Of these professionals, 56% were between the ages of 20 - 39 years old, and equally split between male and female respondents

Travel Mode vs Travel Reason & Time



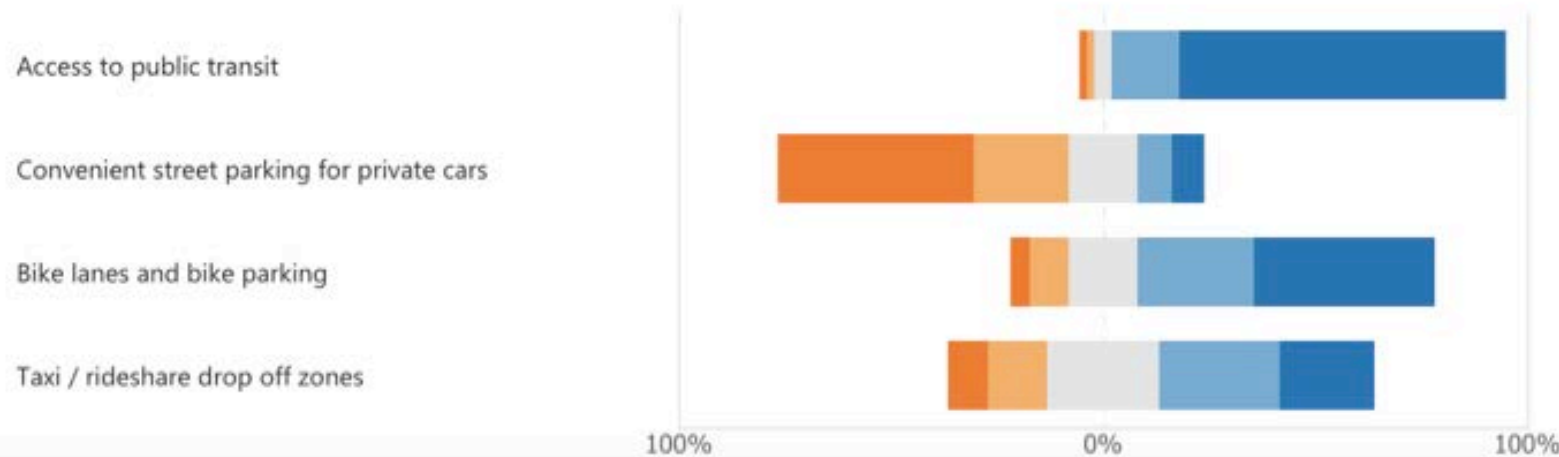
Qualitative survey: Image Chart of responses around occupations.
Tableau

Place - Contributions to pedestrian street

6. Rate how each of the following elements contribute to an accessible pedestrian street? (Please rate it from 1: Least to 5: Most)

[More Details](#)

1 2 3 4 5



Qualitative survey: Image Chart of responses around important elements contributing to a pedestrian street, Microsoft Forms Analytics

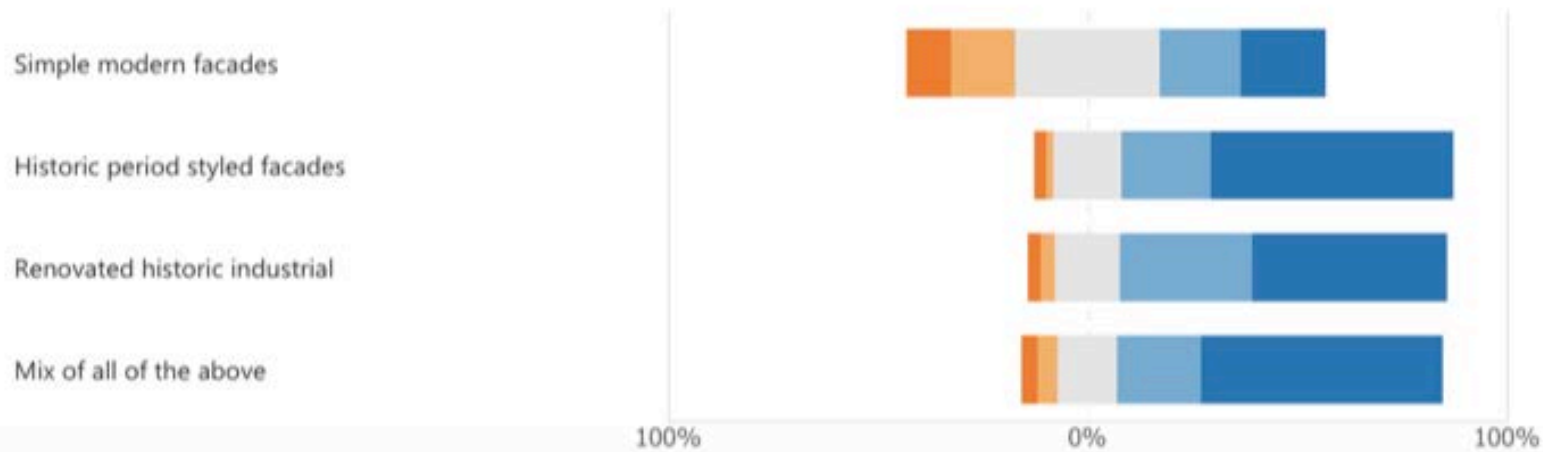
Access to transit, followed by bike lanes & bike parking were felt to be most important contributions to an accessible pedestrian street. Density of **pedestrian traffic** and **extended sidewalks** for café seating, bike parking etc. were identified as primary factors over speed and proximity to moving traffic.

Place - Street function & usage, Building height & character

9. Rate which types of building facades CONTRIBUTE MOST to a positive pedestrian street experience.
(Please rate it from 1: Least to 5: Most)

[More Details](#)

1 2 3 4 5



Qualitative survey: Image Chart of responses around place, building facades, Microsoft Forms Analytics

A **mix of architectural styles**, with historic facades being favoured contributed most to pedestrian street experience.,



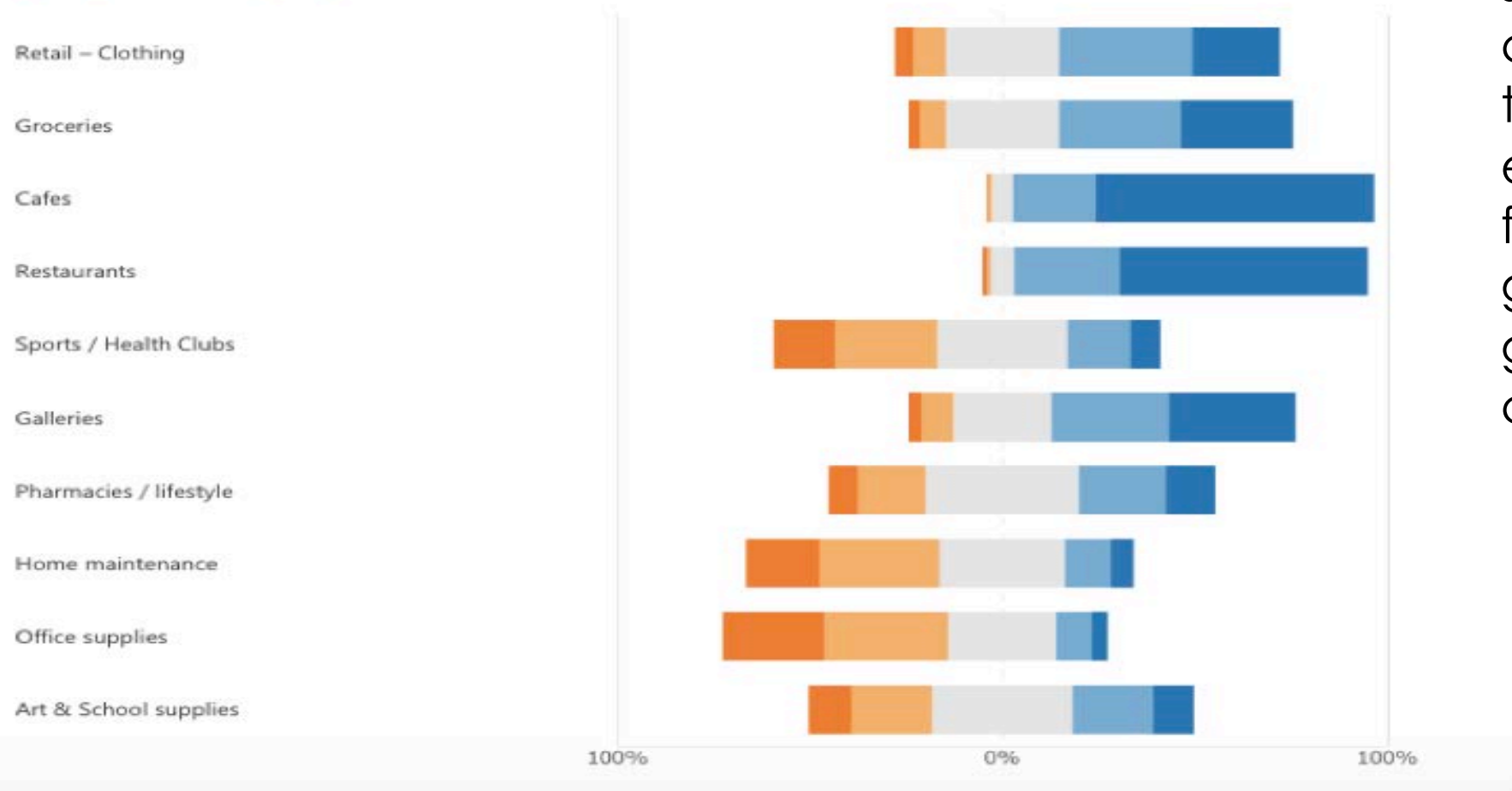
Image: iCity Images, King Street, iCity Team

Place – Types of Shops & Pedestrian Experience

10. Which types of shops do you feel CONTRIBUTE MOST to a pedestrian street experience?
(Please rate it from 1: Least to 5: Most)

[More Details](#)

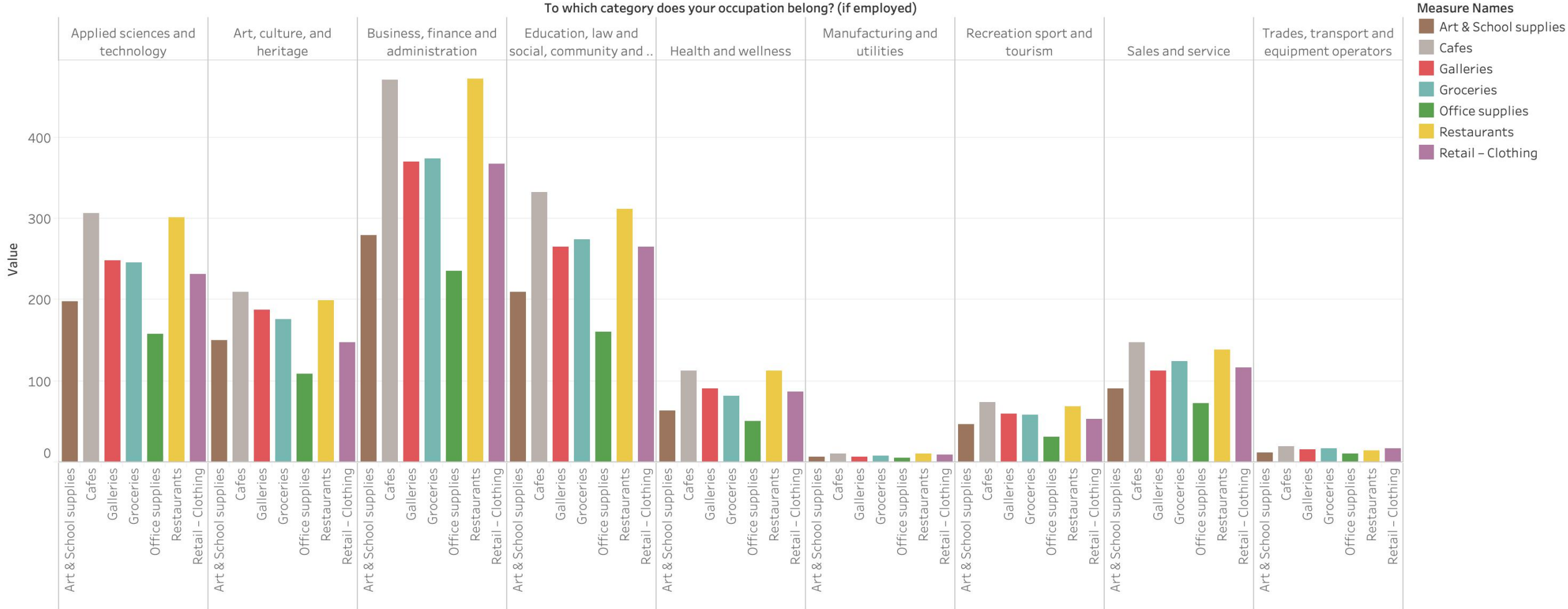
1 2 3 4 5



Cafes & restaurants were selected to be contribute most to a pedestrian experience, followed by groceries, galleries and clothing.

Place – Shop Choice by Occupation

ShopChoice by Occupation



Art & School supplies, Cafes, Galleries, Groceries, Office supplies, Restaurants and Retail - Clothing for each To which category does your occupation belong? (if employed). Color shows details about Art & School supplies, Cafes, Galleries, Groceries, Office supplies, Restaurants and Retail - Clothing. The view is filtered on To which category does your occupation belong? (if employed), which excludes Null, Natural resources, agriculture and related production and Prefer not to answer.

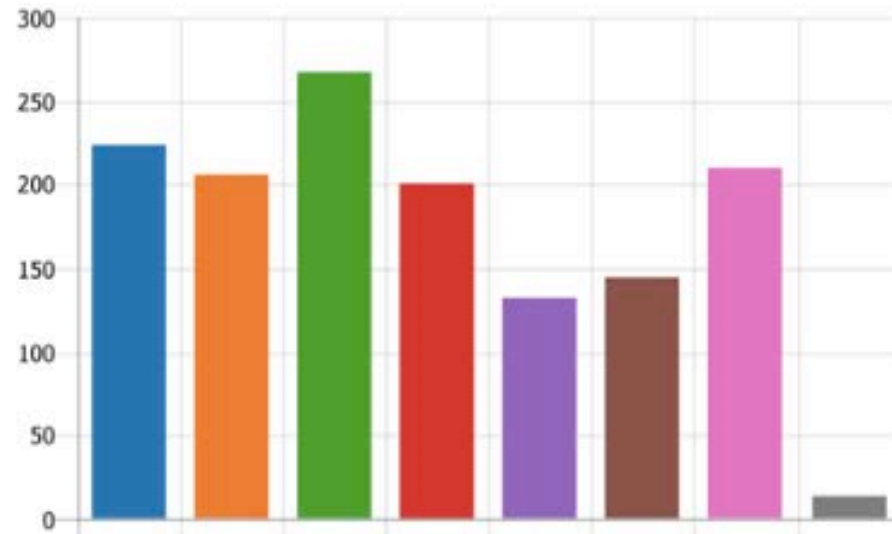
Qualitative survey: Image Chart of Shop Choice by Occupation, Tableau

Place - Street width, Sidewalk width, Street function & Usage

12. Which of the following elements would MOST create a successful and inviting social street / park place? (Please select most important factors)

[More Details](#)

- Sidewalk social gathering spac... 223
- Furniture / seating in different... 206
- Greenery, trees and landscape 267
- Public art, murals, interactive ... 200
- Water elements 132
- Warming spots 145
- All of the above. 210
- Other 14



Qualitative survey: Image Chart of responses around street elements, Microsoft Forms Analytics

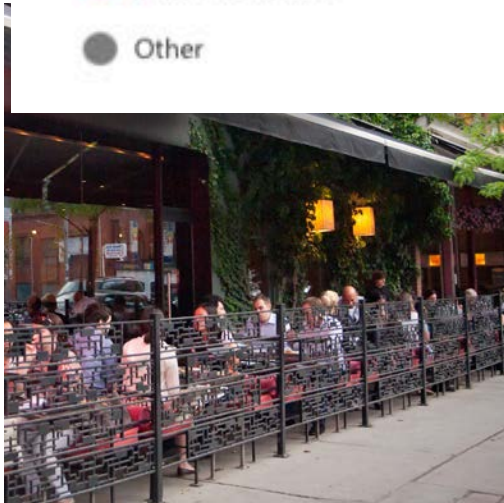


Image: iCity Images, King Street, iCity Team

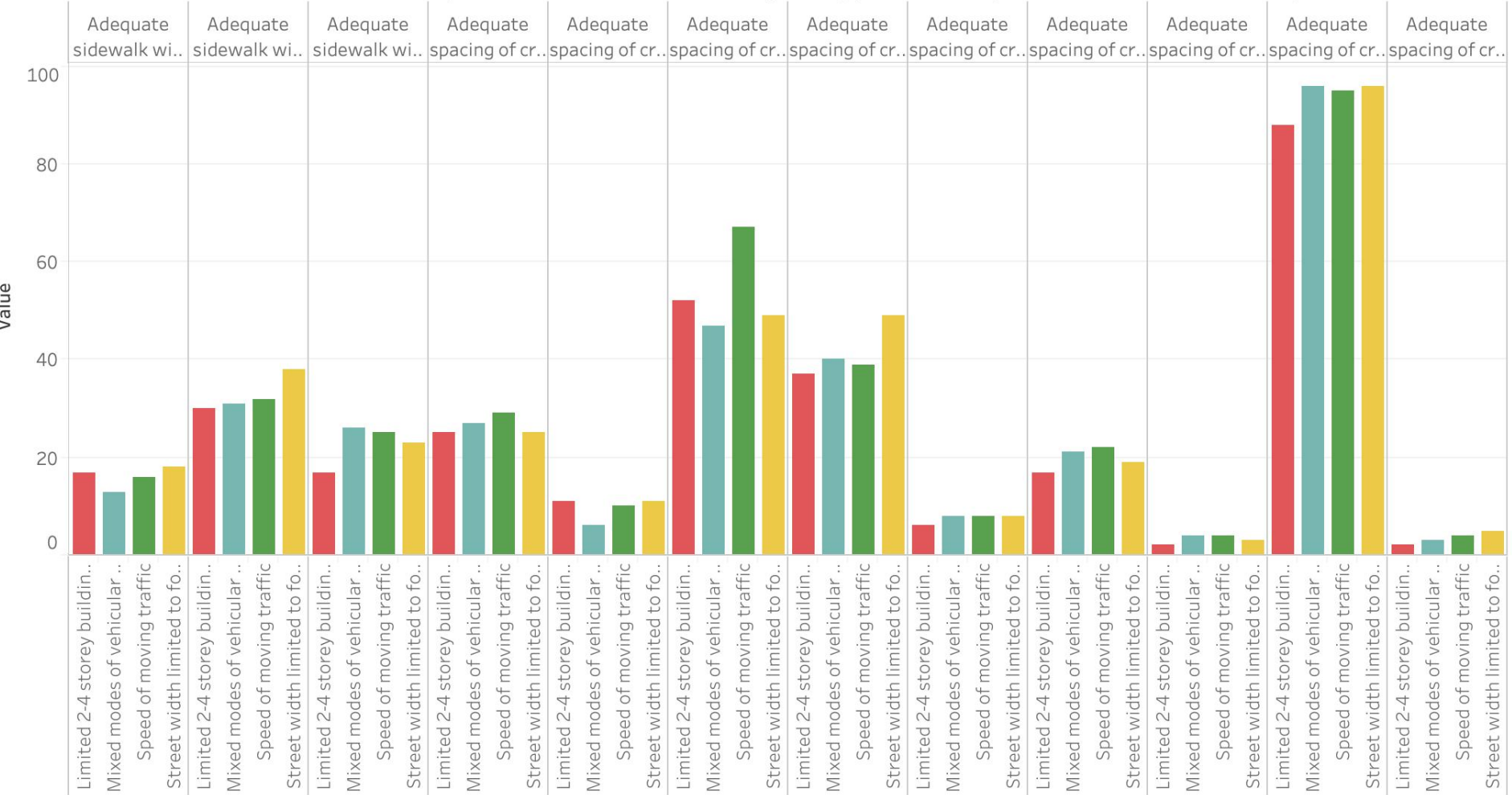
Place – Pedestrian Safety vs Sidewalk width et al

Pedestrian Safety & Streets

Which of the following elements would MOST contribute to providing pedestrian safety and comfort? Check all that are key.

Measure Names

- Limited 2-4 storey building heights adjacent to sidewalk
- Mixed modes of vehicular traffic on street
- Speed of moving traffic
- Street width limited to four lanes



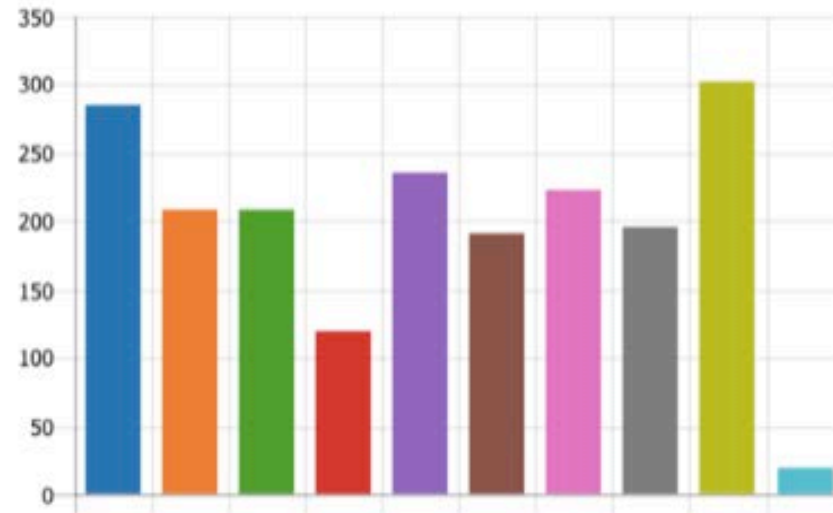
Qualitative survey: Image Chart of pedestrian safety, Sidewalk widths, Moving Traffic modes, etc. Tableau

Place – Public Art, Installations

17. What makes public art successful? Check all that are key.

[More Details](#)

● The ability to enhance a specif...	284
● The ability to add to our know...	208
● Cultural heritage	209
● Access to international artists	119
● Access to local artists	235
● Access to Canadian artists	191
● Offers a diversity of artists	223
● Interactive installations that all...	196
● Making infrastructure such as ...	302
● Other	19



Qualitative survey: Image Chart of responses around public art, Microsoft Forms Analytics

Generally **90%** of those surveyed identified the King street pilot as either extremely successful or somewhat successful, with almost **95%** wanting either more permanent installations, with a changing venue of artists, or live events. The majority of people felt that the KSP had increased their experience of the area.



Image: iCity Images, King Street, iCity Team

Summary - Street function, qualities, amenities, and technology support

- A mix of cafes & restaurants, followed by groceries, galleries, and retail were the favoured types of shops, with pharmacies and medical services being a dominant service shop type.
- While many elements were identified as contributing to a social street / park place, greenery, trees and landscape followed by sidewalk social gathering spaces were felt to be most important. Buskers, musicians and street performers contributed to the street experience.



Looking at the qualitative and
quantitative results
of the **King Street experience**

King Street Experience – Participation

19. Have the changes to King street (King Street pilot project) increased your participation and experience of this area?

[More Details](#)

● Yes	240
● Somewhat	111
● No	52
● Other	2



86%

Of those surveyed felt that the KSP pilot increased their participation and experience of the area.

how can **visualization tools help** in assessing participant responses?

Visualization tools help to facilitate an understanding of the qualitative factors that influence a complete street experience through combined social media, demographic, socio-economic and transit data.

ANNUAL HIGHLIGHTS

King Street
Transit Pilot



Nov. 2017-
Dec. 2018



TRANSIT RIDERSHIP



TRANSIT RELIABILITY



On average, streetcar travel times are now more predictable, making the service more attractive.

Wait time reliability remained mostly unchanged through the pilot even though headways were widened by 10% due to the conversion of the fleet to all low-floor high capacity streetcars.

TRANSIT TRAVEL TIMES

The reliability of streetcar travel times has continued to improve since before the pilot.



Approx. 5 minute

improvement (in each direction) during the PM commute for the slowest streetcar travel time.

Across the full year of the pilot, the **slowest travel times** during the afternoon commute were similar to the **average travel times** before the pilot.

CAR TRAVEL TIMES & VOLUMES



Average travel times, while showing some variability from month to month, have varied [+/-] less than a minute in both the AM and PM commute on most east-west streets parallel to King Street, compared to before the pilot.



Various construction projects impacted travel times on downtown streets throughout the pilot, including watermain replacement on Adelaide, Dundas, and major construction work on Jarvis among others.



Drivers on King St. continued to access local businesses or residences, conduct loading and deliveries, and pick-up/drop-off passengers. Traffic previously using King Street has generally shifted to alternative east and west routes.



Overall car volumes crossing Bay St. from Front St. north to Queen St. have decreased by 7% in both the AM and PM commutes during the Pilot. This is made up of reductions on King St. of about 80% and increases in volumes on streets parallel to King St. of about 5% in both the AM and PM commutes.

The downtown traffic network has been largely able to absorb and respond to the changes in routing that drivers have made.

PEDESTRIAN VOLUMES

Total pedestrian volumes have remained stable on King St. as a result of the pilot when accounting for the effects of seasonality, relative to most comparable east-west streets.



CYCLING VOLUMES

King has become the second most popular east-west cycling route in the downtown after the Richmond and Adelaide cycle tracks.

In October, cycling volumes at Spadina Avenue have increased by 380 riders in the afternoon peak compared to before the pilot in October 2017.



ECONOMIC POINT-OF-SALE DATA

Customer spending data suggests that year-over-year growth in total spending on King Street has decreased slightly (0.8%) after the pilot was installed, with reductions primarily to spending in the restaurant sector. This is a trend that existed during the year before the pilot was installed, indicating that these differences may not have resulted from the pilot itself. Spending in both retail and services sectors appears to have grown faster during the year after the pilot was installed compared to the rate of growth in the year before the pilot began.



PUBLIC SPACE



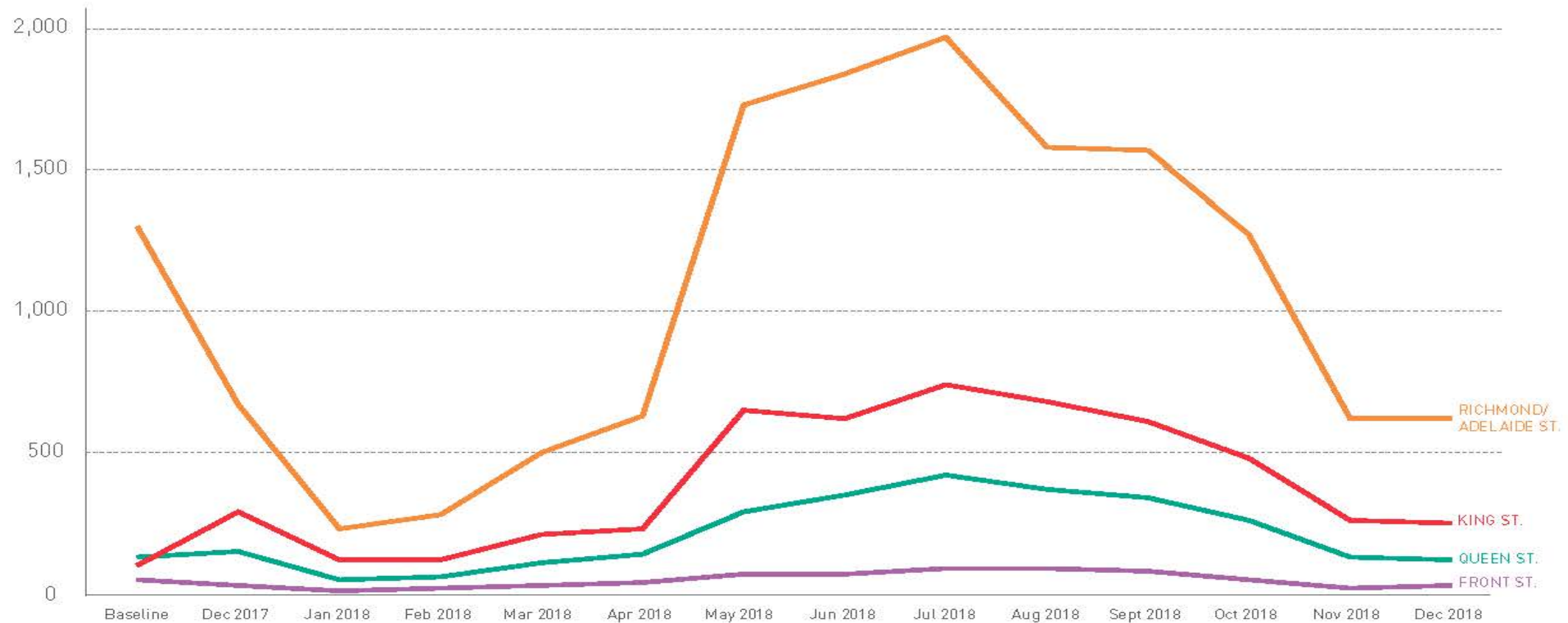
45 unique amenities were introduced into 18 new curb lane public spaces along the corridor, including cafes, art installations, public seating areas, bike share stations, and parklets. These spaces created opportunities for people to stay and linger, as well as provided extra space for pedestrians to walk on crowded sidewalks.

During Park People's Public Space Public Life Study, nearly one in five people spending time on King Street were found within the new public spaces.



THE EFFECT OF SEASONALITY ON CYCLING VOLUMES TOTAL WEEKDAY P.M. PEAK PERIOD (4-7P.M.) CYCLING VOLUMES AT SPADINA

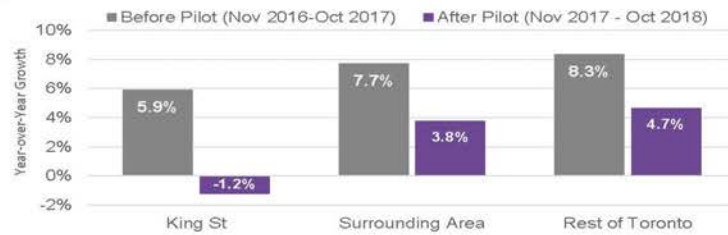
Monthly Trends





YoY Growth in **Restaurant** Spending

12 months before pilot vs. 12 months after



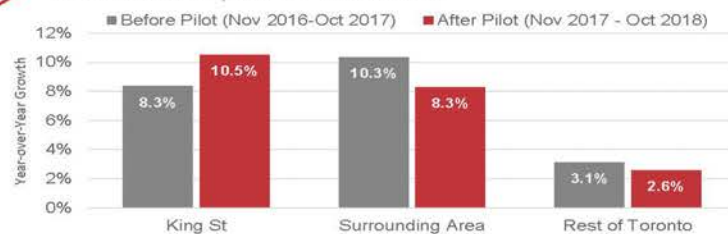
YoY Growth in **Retail** Spending

12 months before pilot vs. 12 months after



YoY Growth in **Service** Spending

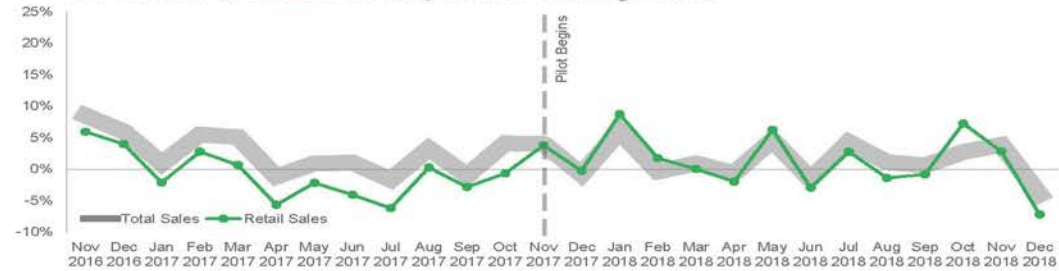
12 months before pilot vs. 12 months after



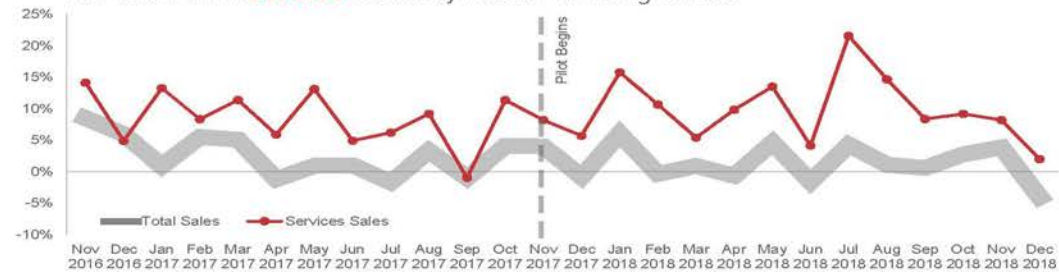
YoY Growth in **Restaurant** Sales by Month on King Street



YoY Growth in **Retail** Sales by Month on King Street



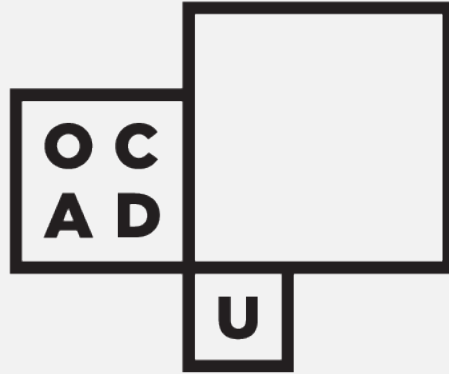
YoY Growth in **Service** Sales by Month on King Street



ANNUAL SUMMARY

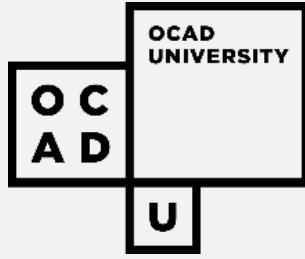
Comparing the year-over-year growth in the 12-month period before the pilot and the first 12 months of the pilot shows:

- **Restaurant** spending appears to have decreased on King St. year over year by 1.2%.
- This decrease in **restaurant** spending appears to have started in late 2017.
- **Restaurant** sales have also experienced lower growth in both the surrounding areas and city-wide after the pilot was installed, suggesting that the trend of lower growth cannot entirely be attributed to the pilot.
- Spending in both **retail** and **services** sectors appears to have grown faster during the year after the pilot was installed compared to the rate of growth in the year before the pilot began. The growth in these sectors seems to offset the reduction in customer spending in restaurants to result in overall year over year growth that is about the same in the year before and after the pilot was installed.



Thank you
Questions ?

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THANK **Y**OU!



Find out more about research at OCAD U at:

<http://www.ocadu.ca/research>

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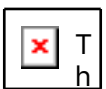
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