



**DILLON**  
CONSULTING

VIRTUAL REALITY

# THE NEXT GENERATION OF DIGITAL TECHNOLOGY FOR CITY BUILDING

introductions

# TEAM



## MORGAN BOYCO

Associate + Planner and  
Community Engagement  
Specialist

GUELPH + KITCHENER



## MONICA BELLIVEAU

Policy Planner +  
Urban Designer

OTTAWA



## PAOLO MAZZA

Associate +  
GIS Specialist

LONDON



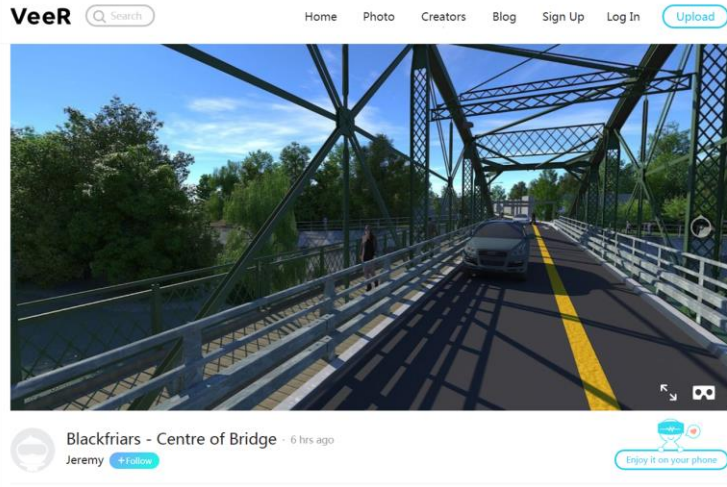
## KIRAN CHHIBA

Associate + Planner +  
Urban Designer

TORONTO + OAKVILLE

introductions

# AGENDA



**BLACKFRIARS BRIDGE** | LONDON ONTARIO



VR - THE NEXT GENERATION OF CITY BUILDING

- 9.00**      **INTRODUCTION**
- 9.25**      **VR TECHNOLOGY OVERVIEW**
- 9.35**      **CHARRETTE INTRODUCTION**
- 9.45**      **COMPLETE STREETS DESIGN CHARRETTE BREAKOUTS**
- 10.15**     **BREAK**
- 10.30**     **CASE STUDIES + LIVE DEMO**  
case studies (Q+A)  
{translation of charrette concepts to  
CityEngine}
- CityEngine live demo
- 11.00**     **EXPLORATION**
- 11.30**     **DEBRIEF**
- 12.00+** **INFORMAL DISCUSSION**

introductions

# OBJECTIVES

Introduce workflow **bringing a tactile output to 3D to VR**, through design charrette process + CityEngine

Introduce the technology, **ease apprehensions**, address reservations, help you take the first steps

**VR “lab” - In-room experimentation**, learning together, answering questions but raising new ones, exploring opportunities and concerns



introductions

# MEETING YOU...



VR - THE NEXT GENERATION OF CITY BUILDING

# THE POTENTIALS OF VR

For planning, design and public engagement



VR technology overview

# 3 LEVELS OF VR TECHNOLOGY



charrette introduction

# CHARRETTE

*"is a term describing a period of intense design activity, often immediately preceding a deadline."*



UNIQUE ENGAGEMENT OPPORTUNITY

COMMUNAL EXCHANGE

TANGIBLE OUTPUT

INTEGRATION OF 3D AND VR

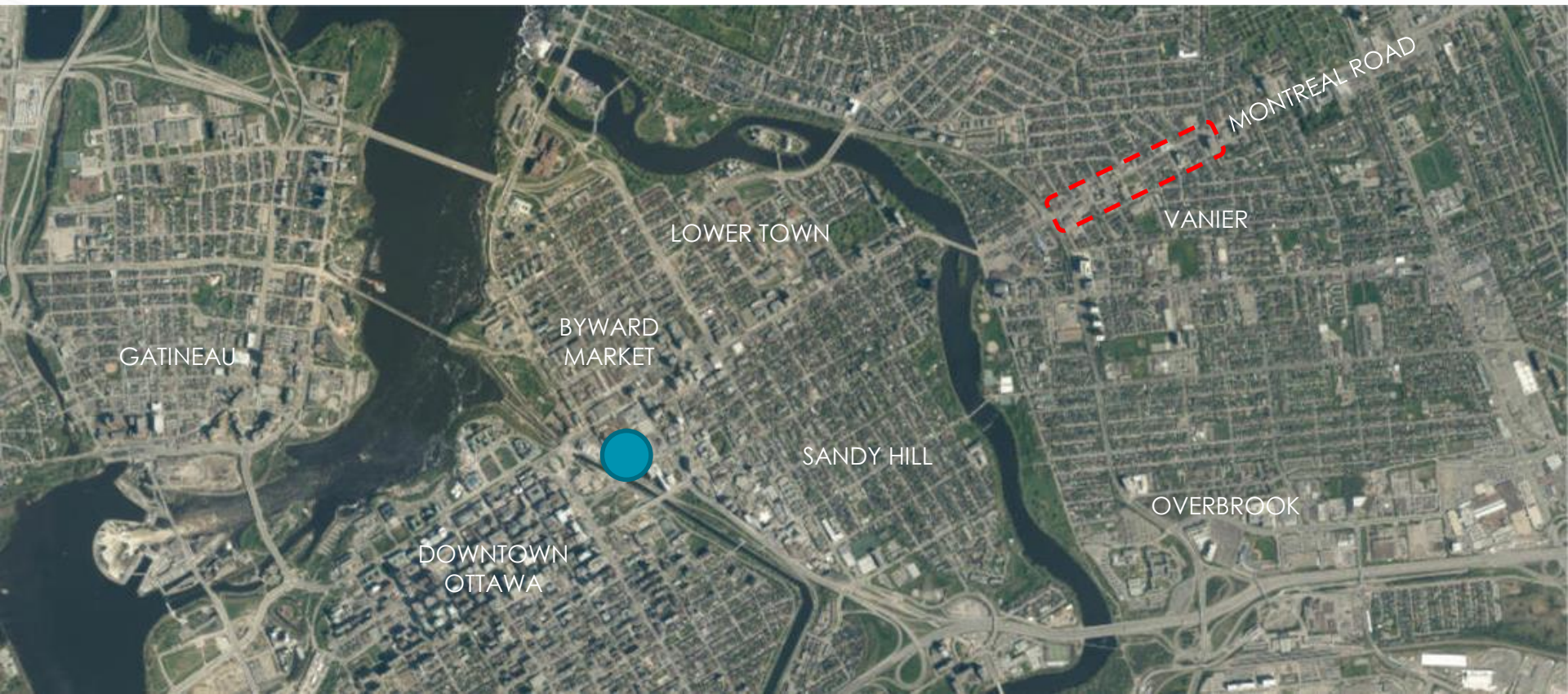


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charrette introduction

# STUDY AREA



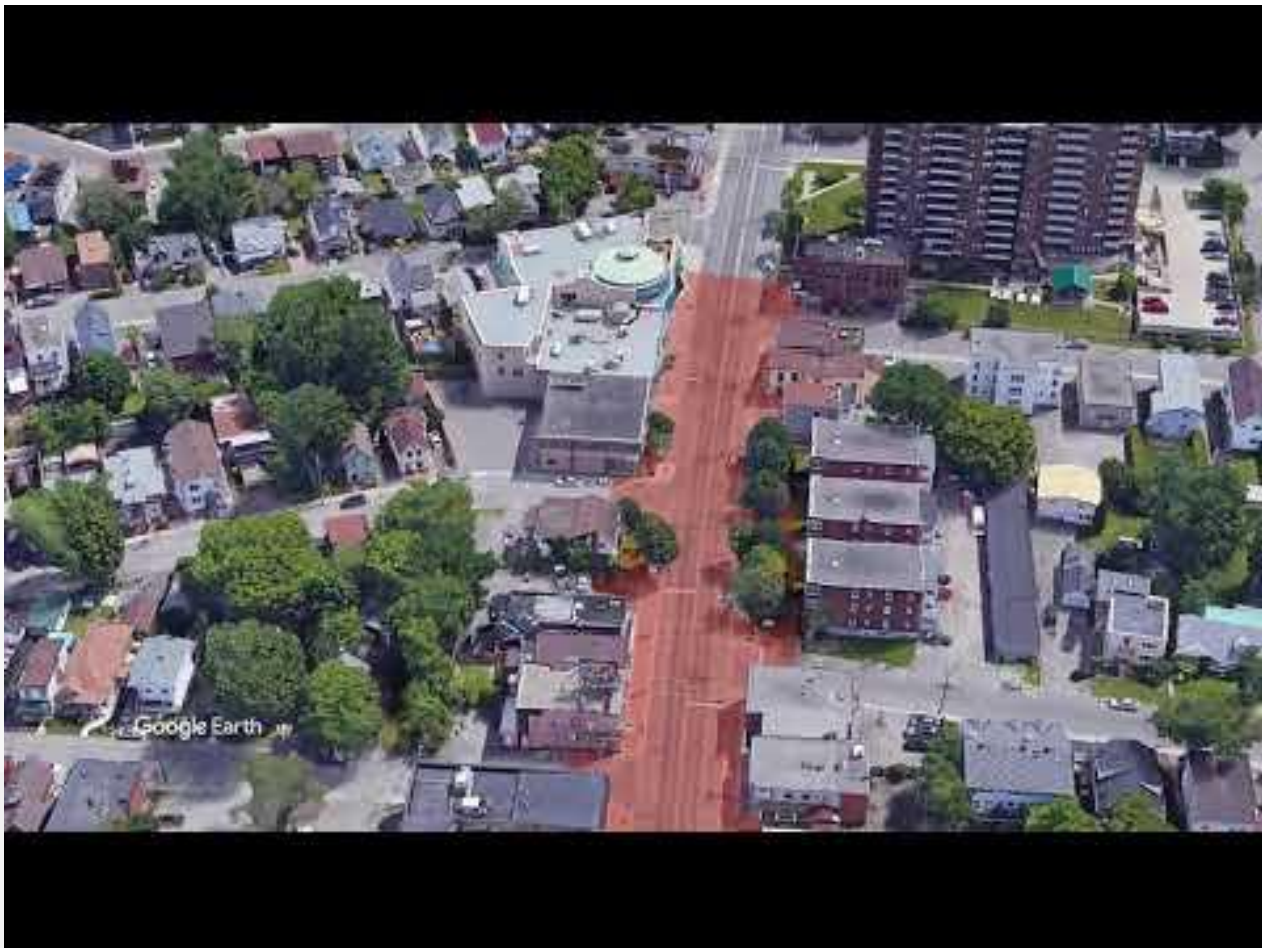
charrette introduction

# THE CHALLENGES



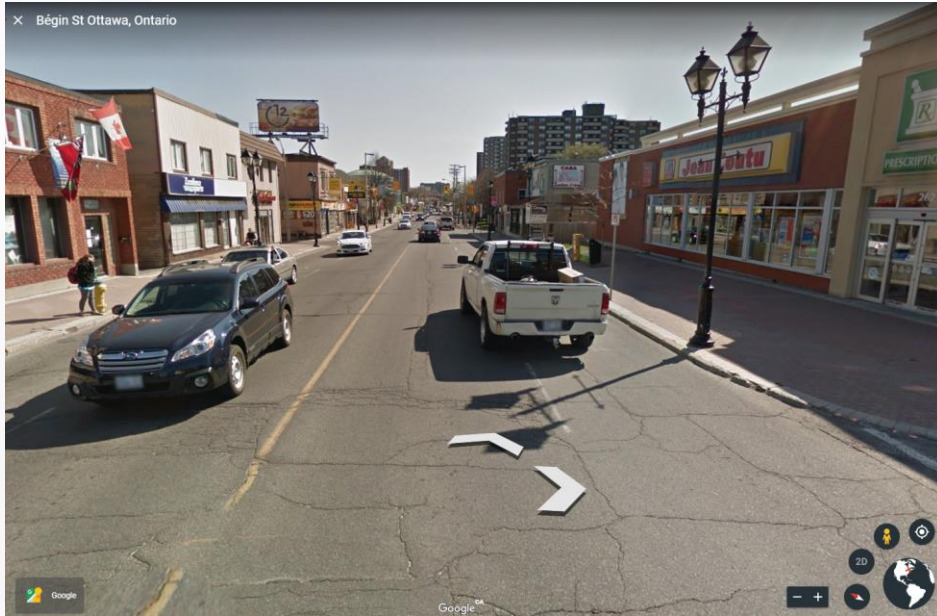
MAJOR CORRIDOR FOR EASTERN AREAS  
DIRECT LINKAGE TO DOWNTOWN





charrette introduction

# THE CHALLENGES



18m CROSS SECTION MAINLY DEDICATED TO CARS

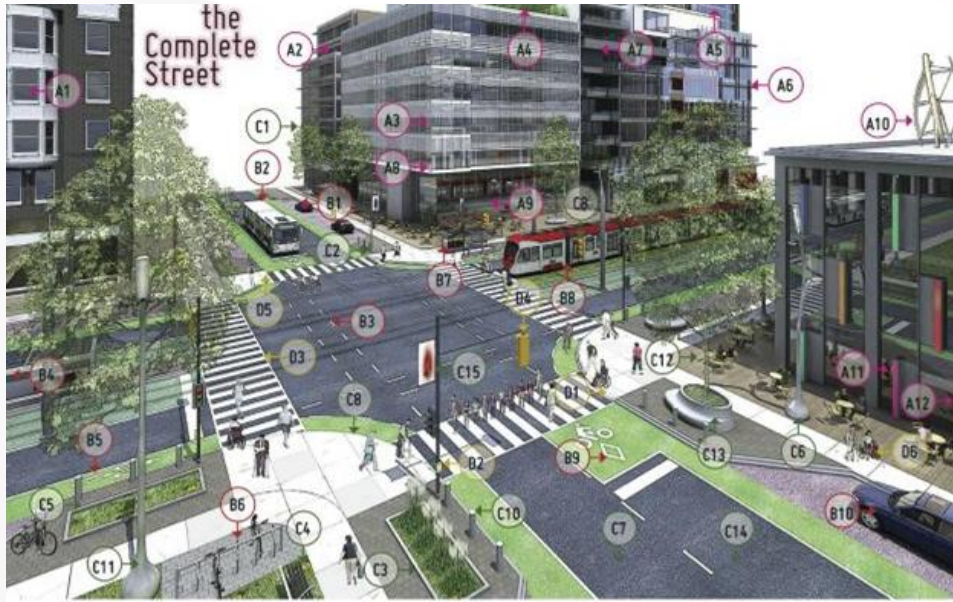
NEED TO EXAMINE ITS MODAL-SPLIT AND MIXED USE/CIVIC TRANSITION



charrette introduction

# COMPLETE STREETS

*“Complete Streets are streets that are designed to be safe for everyone: people who walk, bicycle, take transit, or drive, and people of all ages and abilities”*



charrette introduction

# ASSIGNMENT...

30 min

**DESIGN CHARRETTE BREAKOUT**

4 tables

"Stakeholder" led working session

15 min

**BREAK**

20 min

**CASE STUDIES + LIVE DEMO BUILDING**

30 min

**DEMO EXPLORATION**



**CYCLING/ACTIVE  
TRANSPORTATION FOCUS**



**TRANSIT FOCUS**



**PEDESTRIAN/RETAIL FOCUS**



**GREEN STREET FOCUS**

charrette assignment

# WORKFLOW

REVIEW EXISTING  
CONDITIONS



DESIGN CROSS  
SECTION



STREETMIX



CITYENGINE  
+ VR



# TO CONSIDER...

Consider comfort and safety of users

Ensure your cross section works within the 18m ROW

Ensure each group member has contributed to your final cross section

Don't forget to translate your cross section into Streetmix



**CYCLING/ACTIVE  
TRANSPORTATION FOCUS**



**TRANSIT FOCUS**



**PEDESTRIAN/RETAIL FOCUS**



**GREEN STREET FOCUS**



10:15 - 10:30

# BREAK

After the break... **CASE STUDIES + LIVE DEMO**  
**EXPLORATION**

case studies

# OUR STORY



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2014



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## QUEEN STREET CORRIDOR STUDY REPORT

VILLAGE OF BOLTON  
DRAFT FINAL REPORT

FEBRUARY 2, 2018



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# Queen Street - Bolton Corridor Study: Opportunities & Constraints

## King Street & Queen Street



### Legend

-  Primary Active Transportation Route
-  Pedestrian Connection Improvements
-  Crossing Improvements
-  Streetscape Improvements: Urban
-  Gateway Potential: Paving
-  Streetscape Improvements
-  Crossing Improvements
-  Primary Cycling Route
-  Pedestrian / Cycling Connections

# Queen Street - Bolton Corridor Study: Opportunities & Constraints

## Allan Drive & Highway 50



### Legend

-  Primary Active Transportation Route
-  Pedestrian Connection Improvements
-  Crossing Improvements
-  Streetscape Improvements: Suburban
-  Gateway Potential: Paving
-  Infill Opportunities
-  Streetscape Improvements
-  Crossing Improvements
-  Primary Cycling Route
-  Pedestrian / Cycling Connections

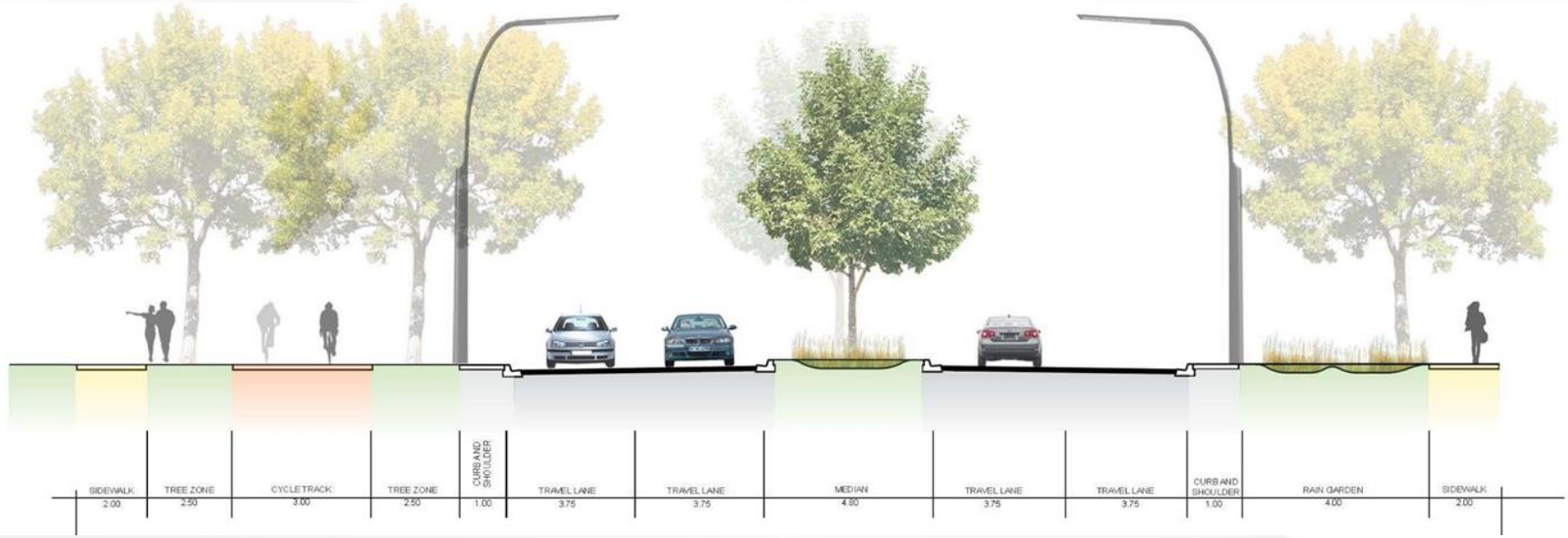
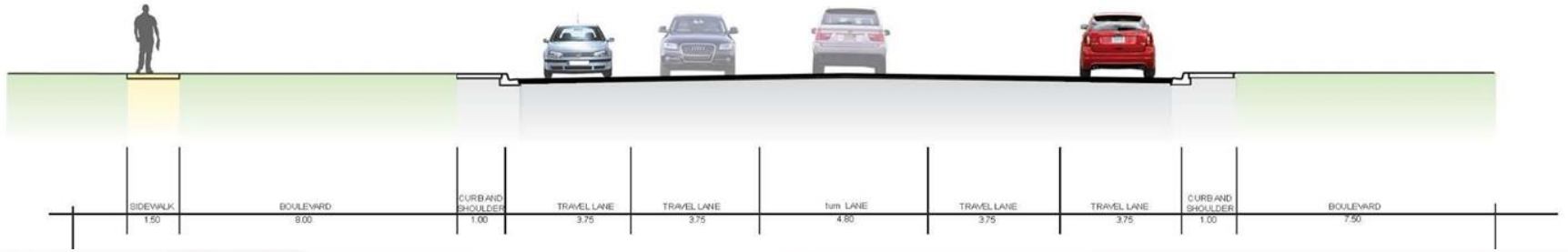
# Queen Street - Bolton Corridor Study: Opportunities & Constraints

## McEwan & Highway 50

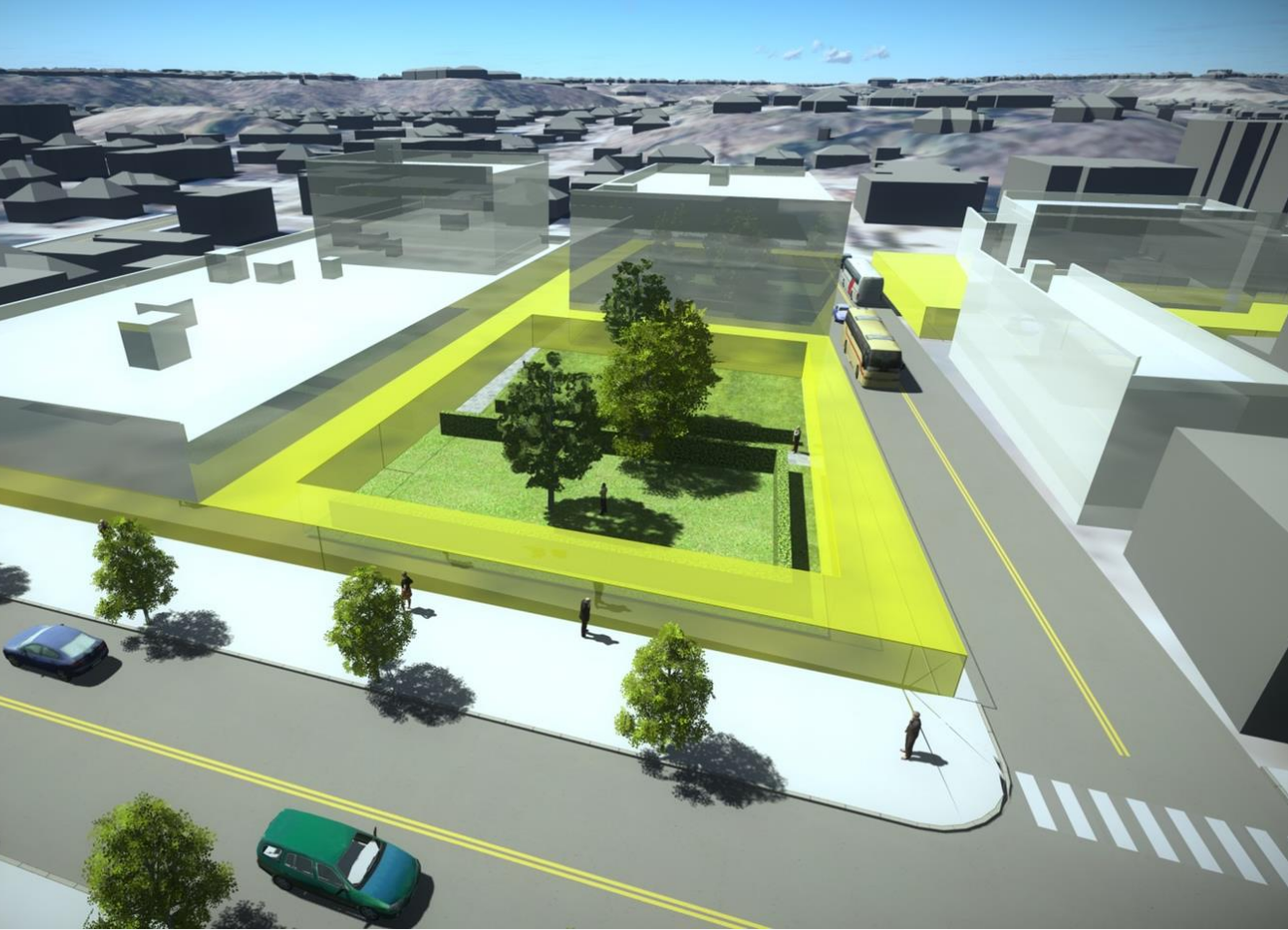


### Legend

-  Primary Active Transportation Route
-  Pedestrian Connection Improvements
-  Crossing Improvements
-  Streetscape Improvements: Suburban
-  Gateway Potential: First Area / Public Space
-  Infill Opportunities
-  Streetscape Improvements
-  Crossing Improvements
-  Primary Cycling Route
-  Pedestrian / Cycling Connections



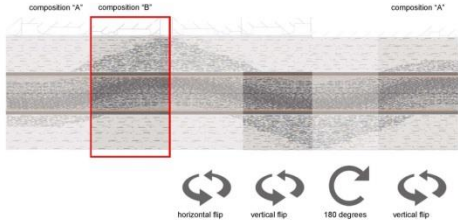








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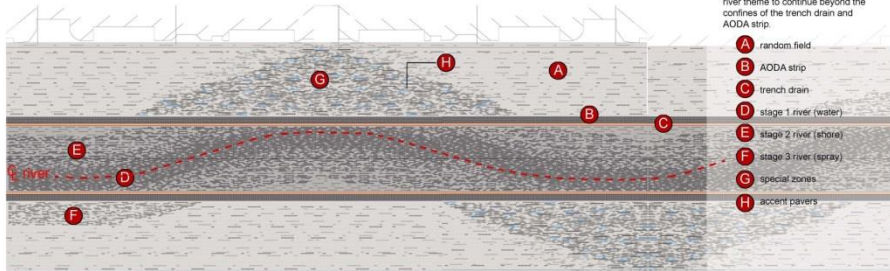


**NOTE**  
 It is important to note that these diagrams provide the general intent of paver distribution. However the design is intended to be flexible and allows for on site adjustment if a concentrations of a single colour occurs. On site adjustment of the running bond should be encouraged.

**composition "B"**

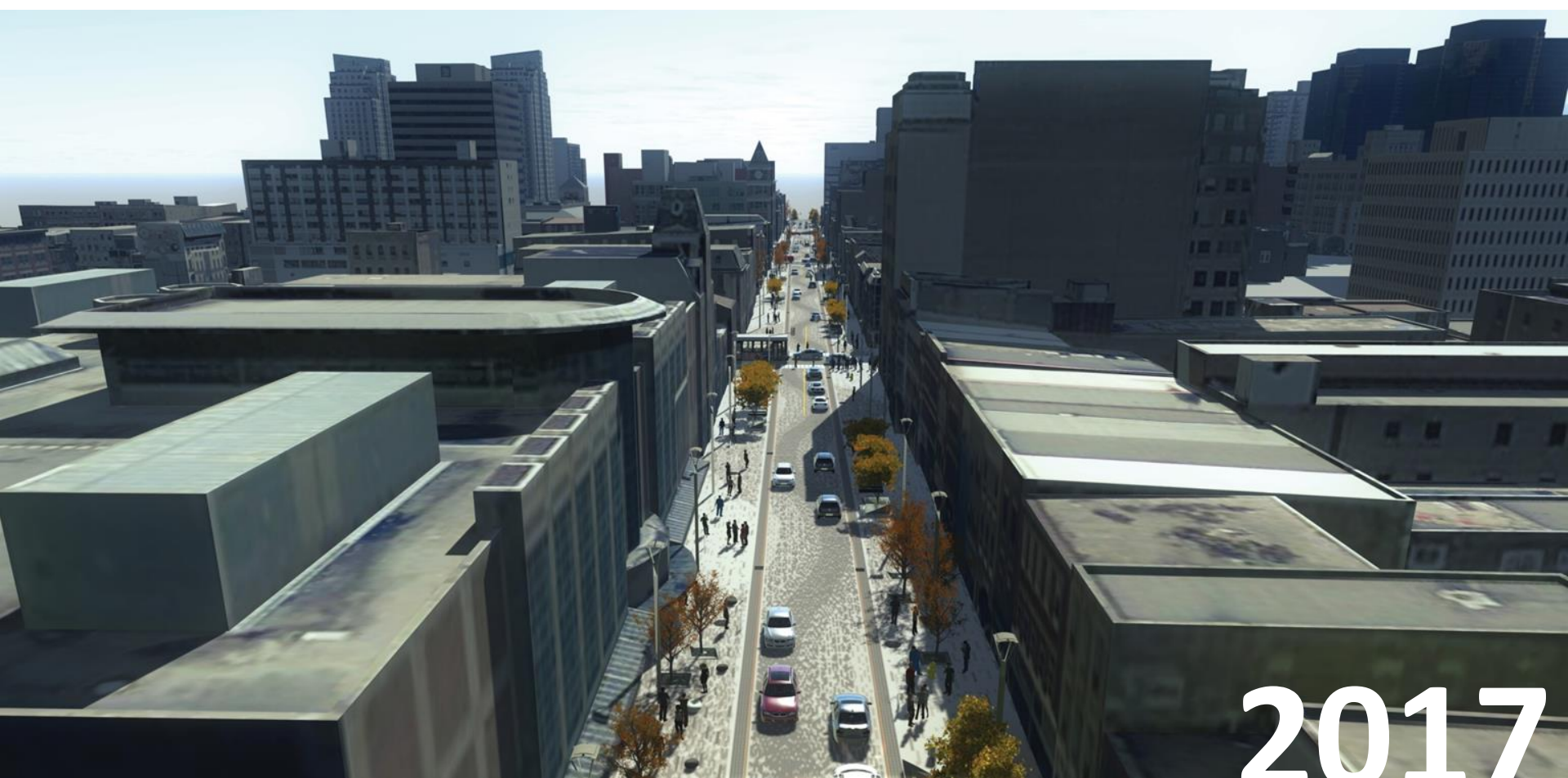
This composition is designed to be an extension of composition "A", and is intended to expand the stage 3 (spray) zone further into the sidewalk area. These zones will provide a paving definition of the "special areas" along the corridor. Composition "B" is also designed in intervals of 12.5 x 20m, and rotated and flipped in order to create a seamless wave.

Overall the composition is made up of 5 pavers colours. The sidewalk composition is made up of all 5 pavers in the special zones. This includes a random pattern using the 3 lightest pavers and both the darkest paver and blue pavers as accents. The roadway is made up of the darkest 3 pavers. This would provide a coloured contrast between both zones however allow for the overall river theme to continue beyond the confines of the trench drain and AODA strip.



**EMBANKMENT  
 artistic zones**

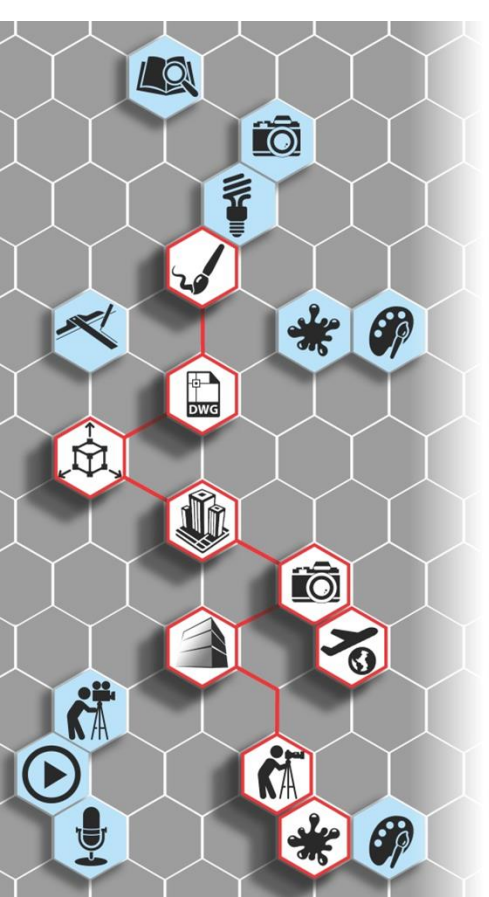
These areas our outlined for curated art and information. Signage and wayfinding, along with seating and other furnishings will help create a particular point of interested and destination along the corridor.



2017



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CityEngine Advanced 2016.1 - BrickFinalHerringboneDark.cga

File Edit Select Layer Graph Shapes Search Scripts Window Help

PMazza\_maps\_dillon (Dillon Consulting Limited)

\*Navigator

Search for files in workspace All types

- scenes
  - Converting.cej
  - DPDD\_20171023\_back1.cej
  - DPDD\_20171023.cej
- scripts

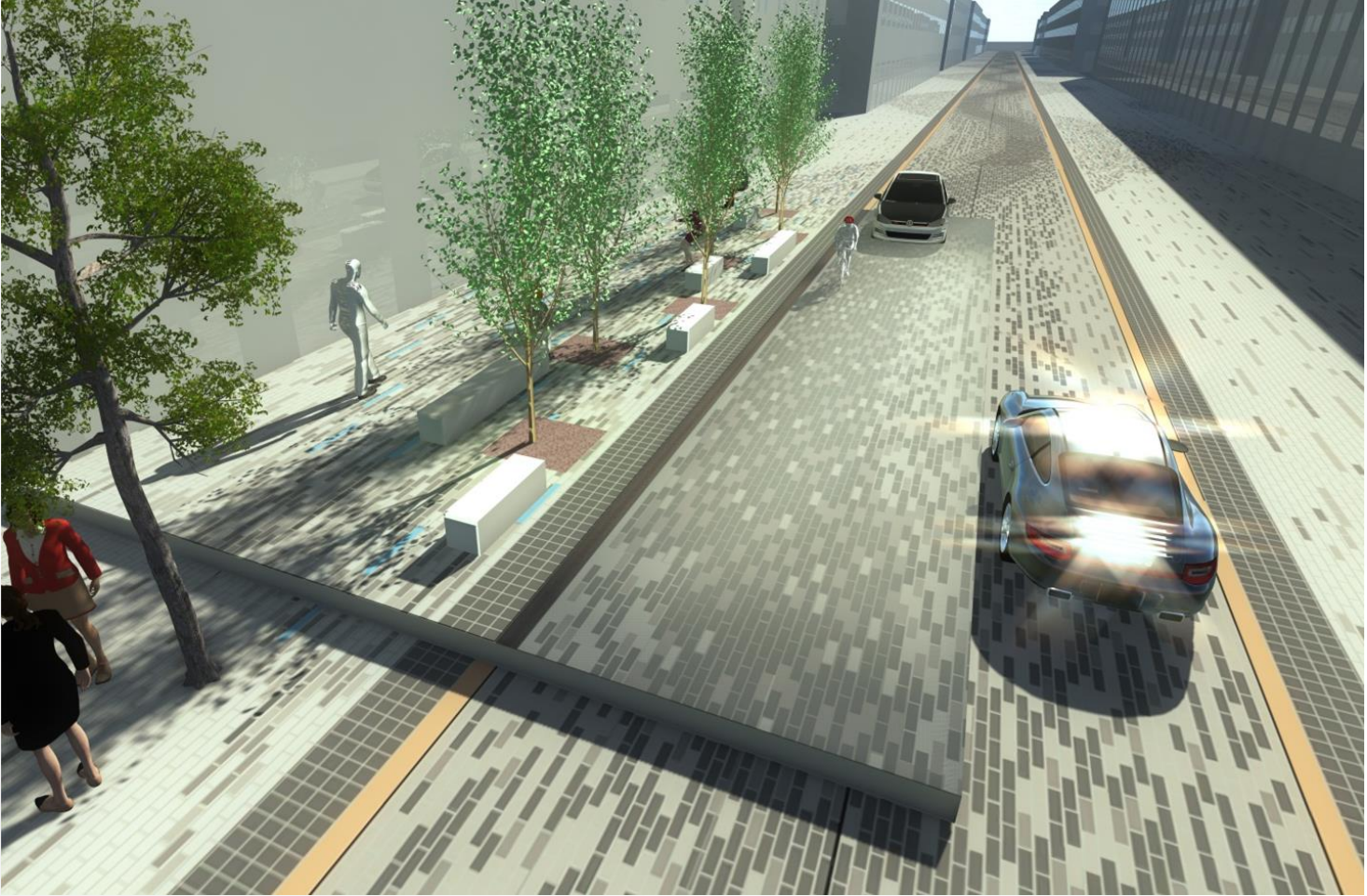
\*Scene BrickFinalHerringboneDark.cga

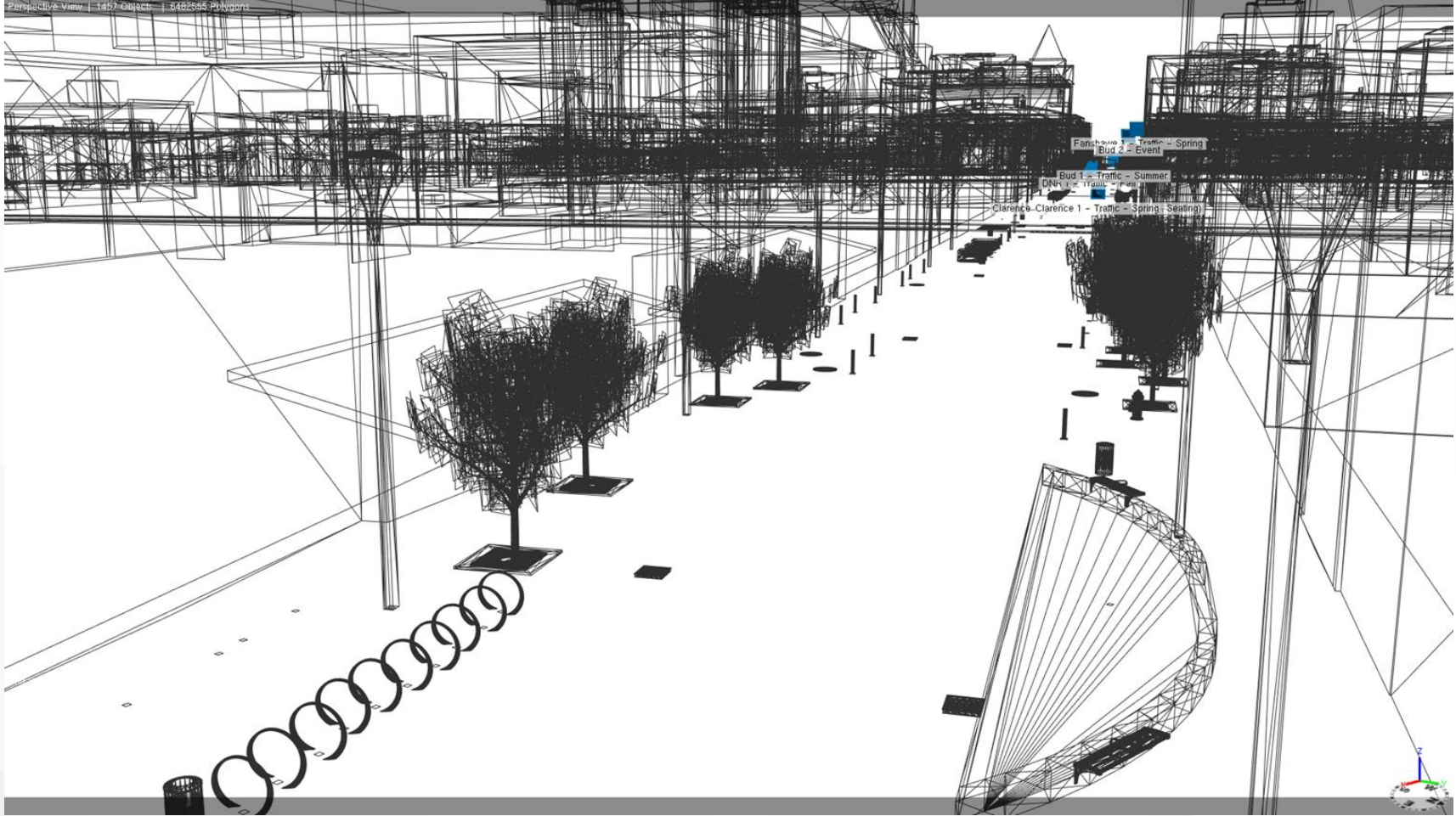
```
Facade -->
case Rotation <= 0:
  texture("/DundasPlace/assets/Brick/herringboneDark.cga")
  alignScopeToGeometry(zUp, 0, longest)
  setupProjection(0, scope.xy, StreetWidth, Pat)
  projectUV(0)
else:
  texture("/DundasPlace/assets/Brick/herringboneDark.cga")
  alignScopeToGeometry(zUp, 0, world.lowest)
  setupProjection(0, scope.xy, StreetWidth, Pat)
  projectUV(0)
```

Perspective View | 1457 Objects (2 selected) | 6482555 Polygons

Grid Size: 100m | WGS 1984 UTM Zone 17N

WGS 1984 UTM Zone 17N (EPSG:32617) Free Memory: 3773[MB] 23[GB]





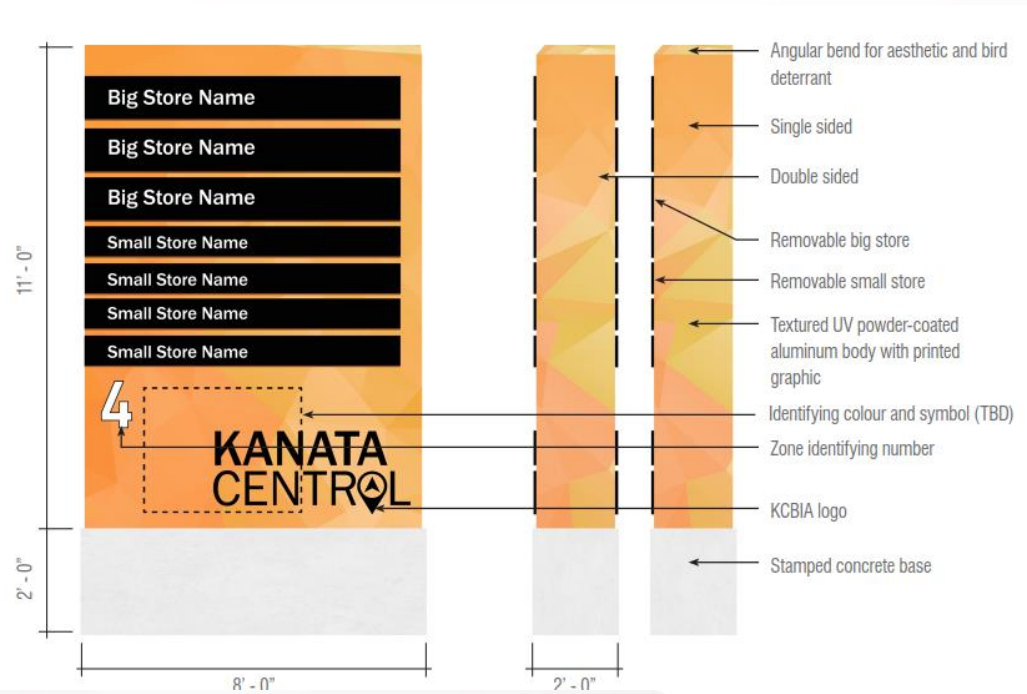




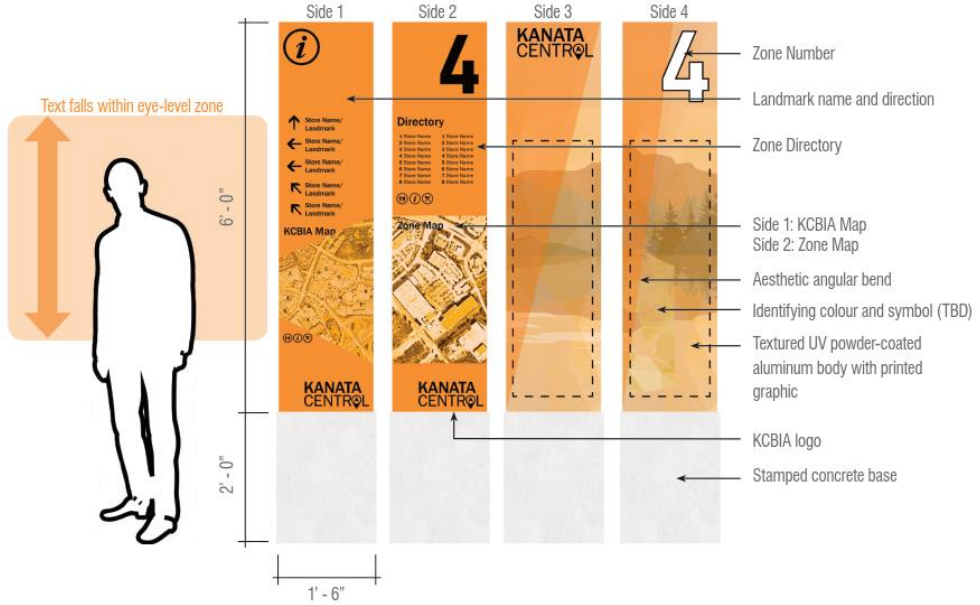


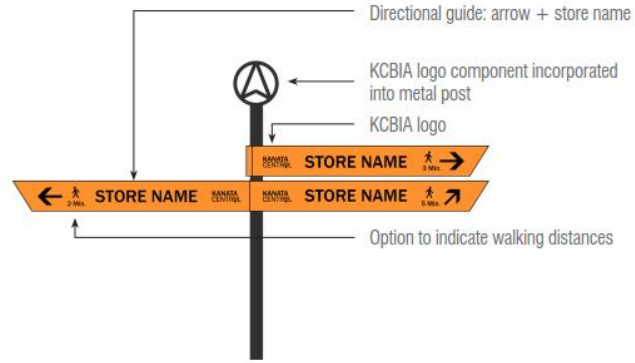
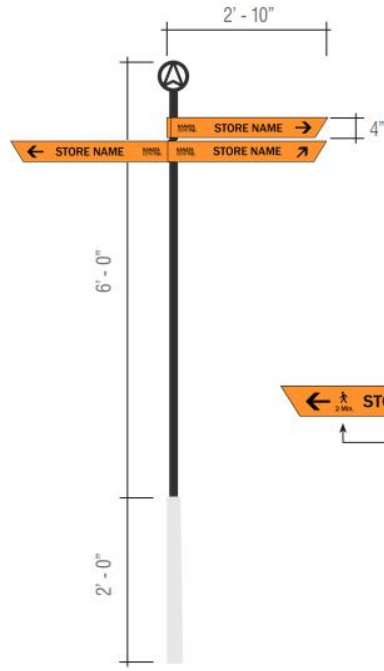


2019











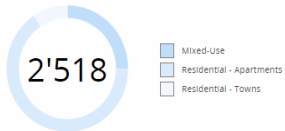




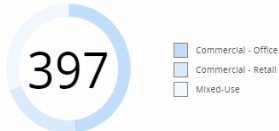
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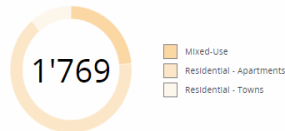
People by Land Use



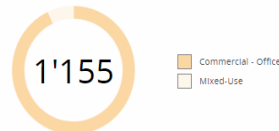
Jobs by Land Use



People by Land Use



Jobs by Land Use



### # People

#1	2'518
#2	1'769

### # Jobs

#1	397
#2	1'155

### People %

#1	0.86
#2	0.6

### Jobs %

#1	0.14
#2	0.4

### Total People and Jobs

#1	2'915
#2	2'924

### Density (P&J/ha)

#1	159
#2	160

CityEngine

# LIVE DEMO



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Scenario

# EXPLORATION



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conclusion

# DEBRIEF + INFORMAL DISCUSSION

## **MORGAN BOYCO**

Associate + Planner and  
Community Engagement  
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KITCHENER

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