Transforming Toronto's "Spaghetti" Junction into a Complete Streets Solution

An innovative urban / active transportation design

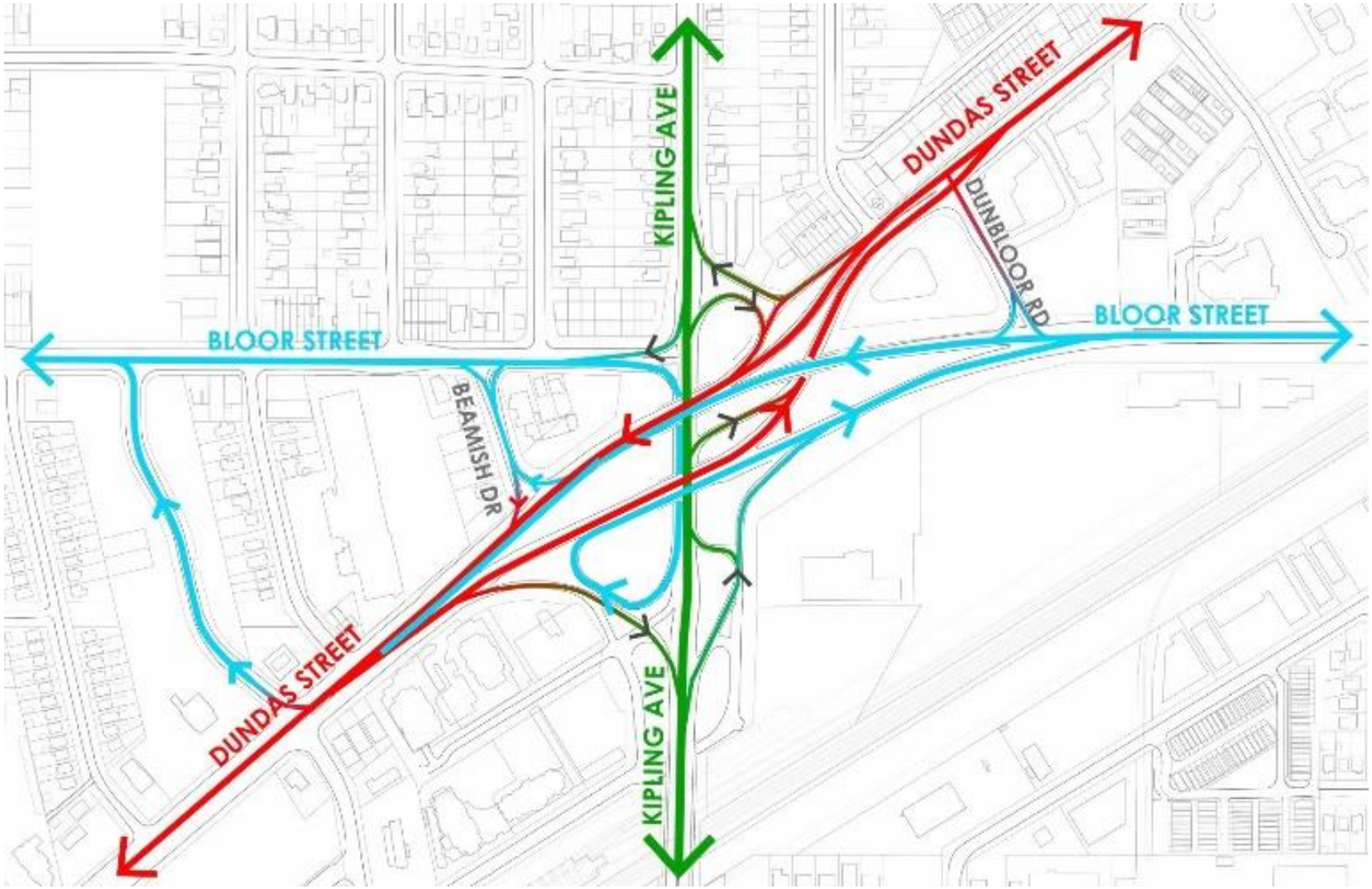
Outline

Project Overview

- **Issues:**
  - Existing grade-separated Interchange in the west end of the City of Toronto
  - Six Legs (Six Points) arterial road interchange
  - Car Centric with few neighbourhood amenities
  - No cycling and limited pedestrian infrastructure
  - Intensification and land use challenges

- **Goal: To transform the neighbourhood to a transit–oriented mixed-use cycle and pedestrian-friendly community**

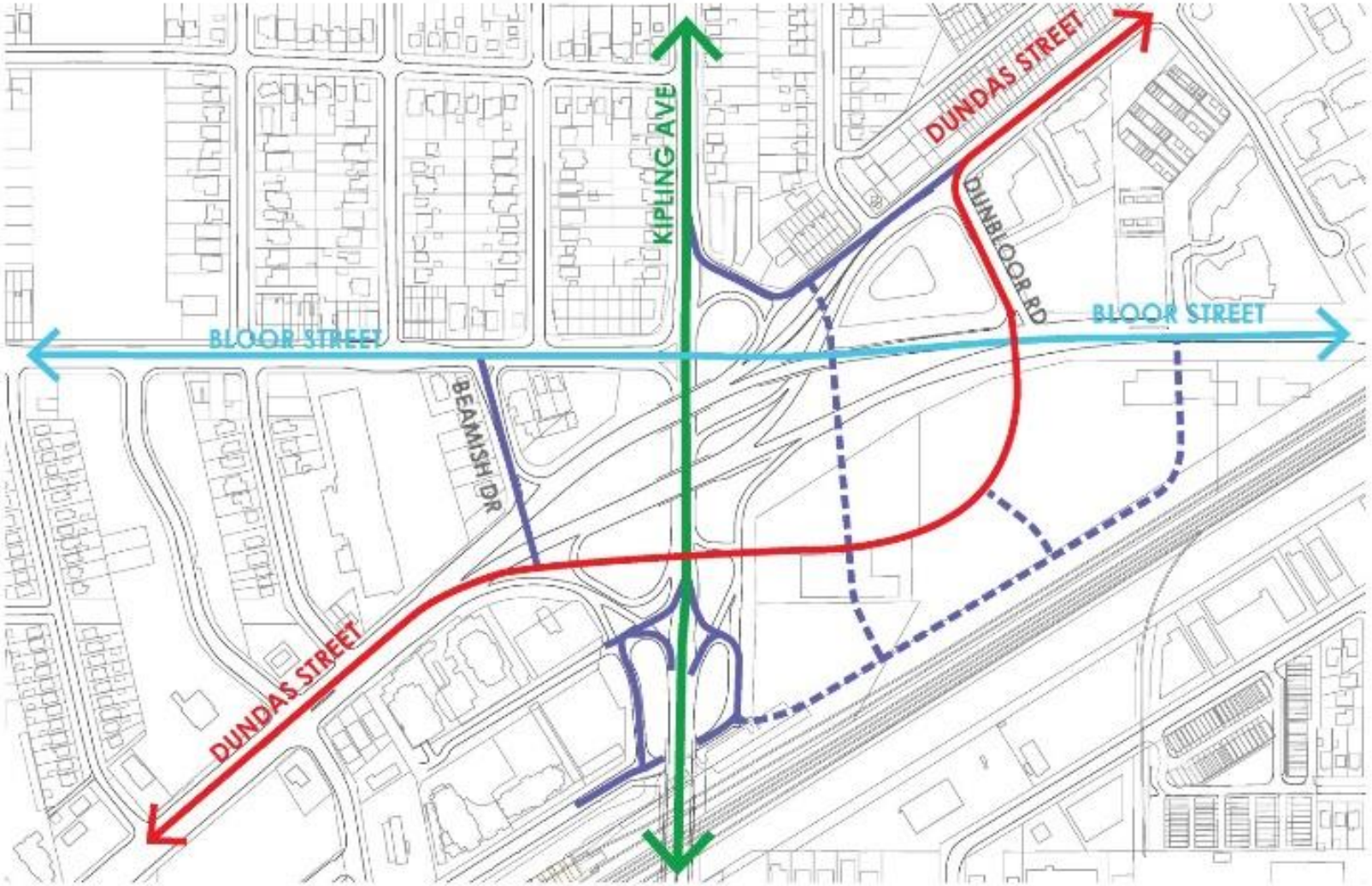
“A Spaghetti Junction” of multiple ramps and grade separated structures



Future Vision

- Place to Live, Work & Play
- Place to connect
- Pedestrian friendly
- Transit friendly

Unravelling the spaghetti junction to a complete streets solution and provide development opportunities



Future Vision

Introduce other modes of Transportation

Design Objective

Dundas Street West

Bloor Street West

Kipling Avenue

- Mixed-use, pedestrian-friendly street network that supports all modes of travel, reduces storm-water discharges, improves utilities

- Active uses at-grade to enliven the public realm and make it a place to come to rather than pass through

Major Design Challenges

- Minimizing the Turning Radii at intersections
- Achieving stakeholder consensus
- Stormwater Management

Design Standards

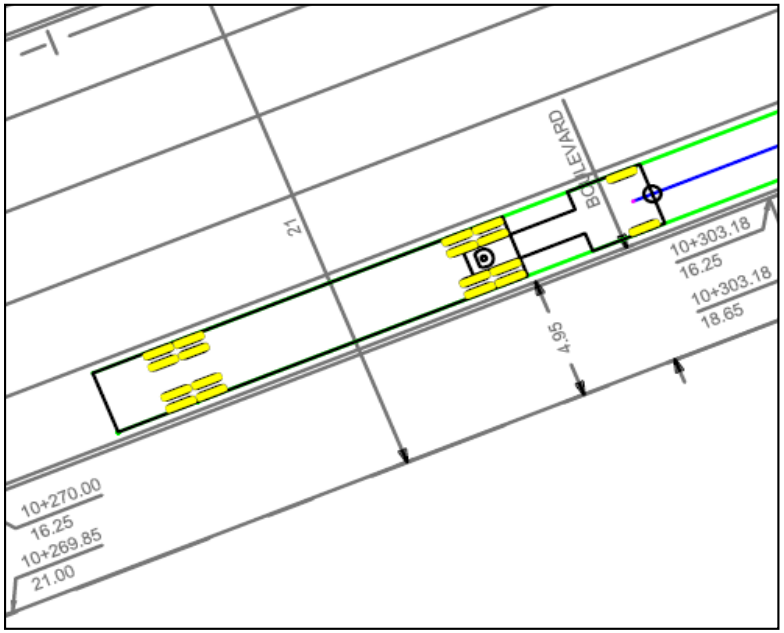
- City of Toronto Standards
- TAC Design Standards
- MTO Design Standards
- North American/Other Standards
- Standards not available for design

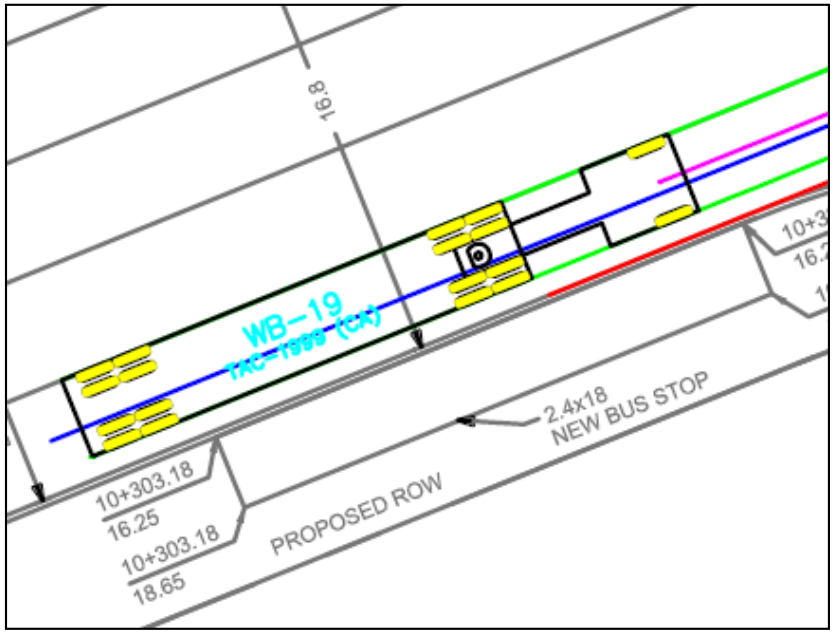
Design Elements

- Careful selection of Design Elements – Key Consideration
  - Speed (Design/Posted)
  - Bike Lanes/Cycle Track
  - Pedestrian Realm (Sidewalk/Boulevard Area)
  - Control Vehicle (Vehicle selection such as Trucks, articulated bus or special delivery
  - Turning Radii

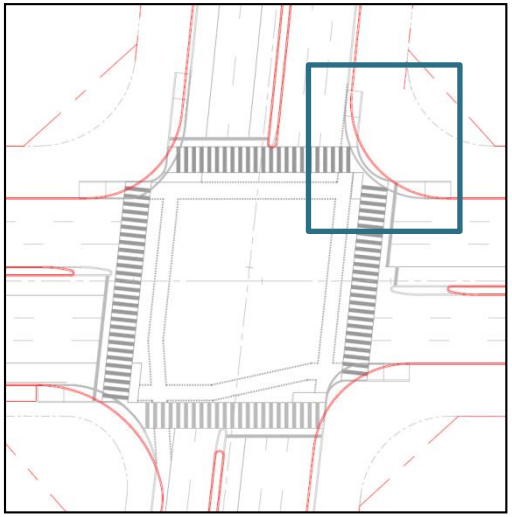
Design Challenge 1
Minimizing the Turning Radii at intersections

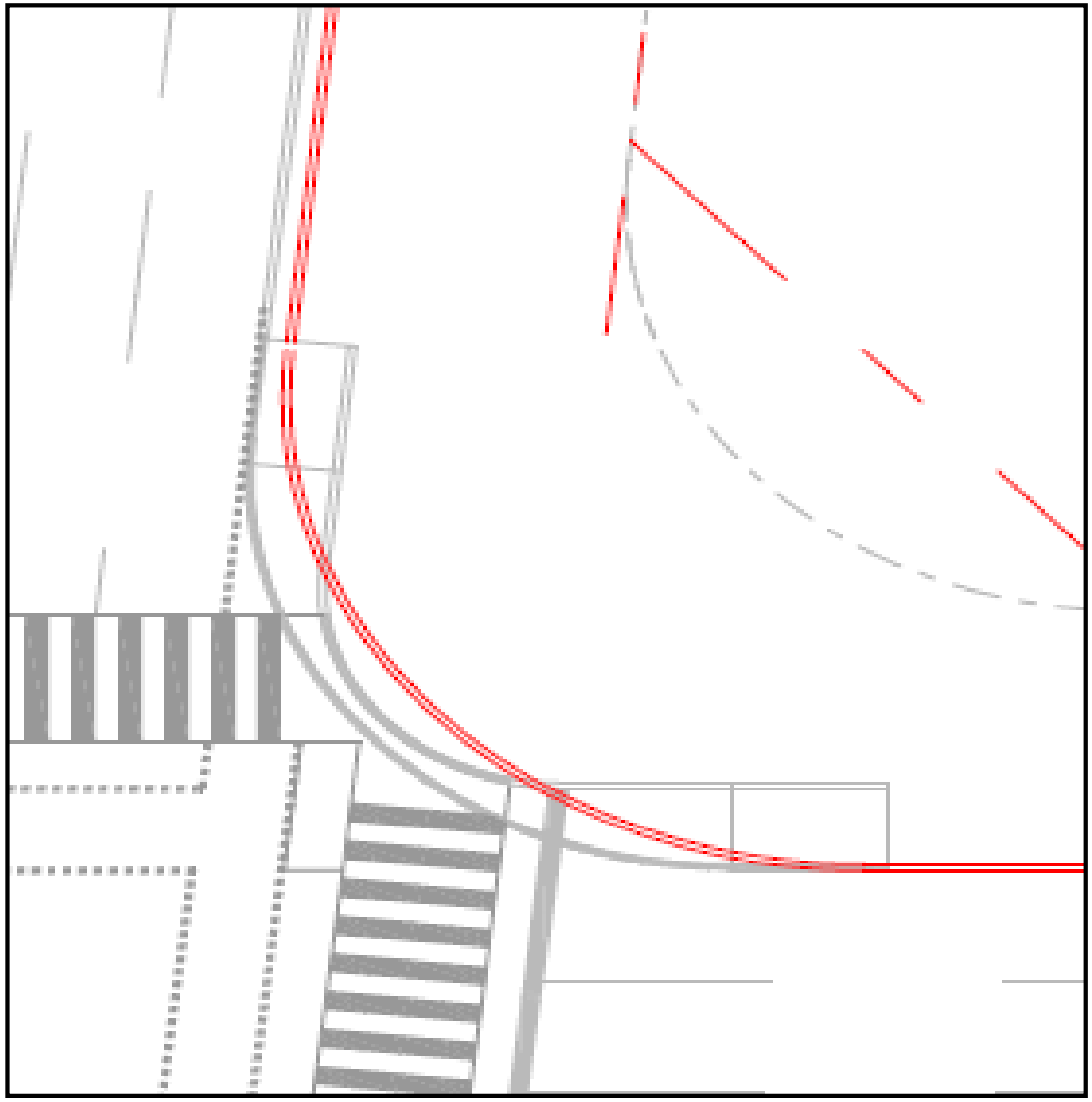
- Vehicle Position
- Use of Compound Radius



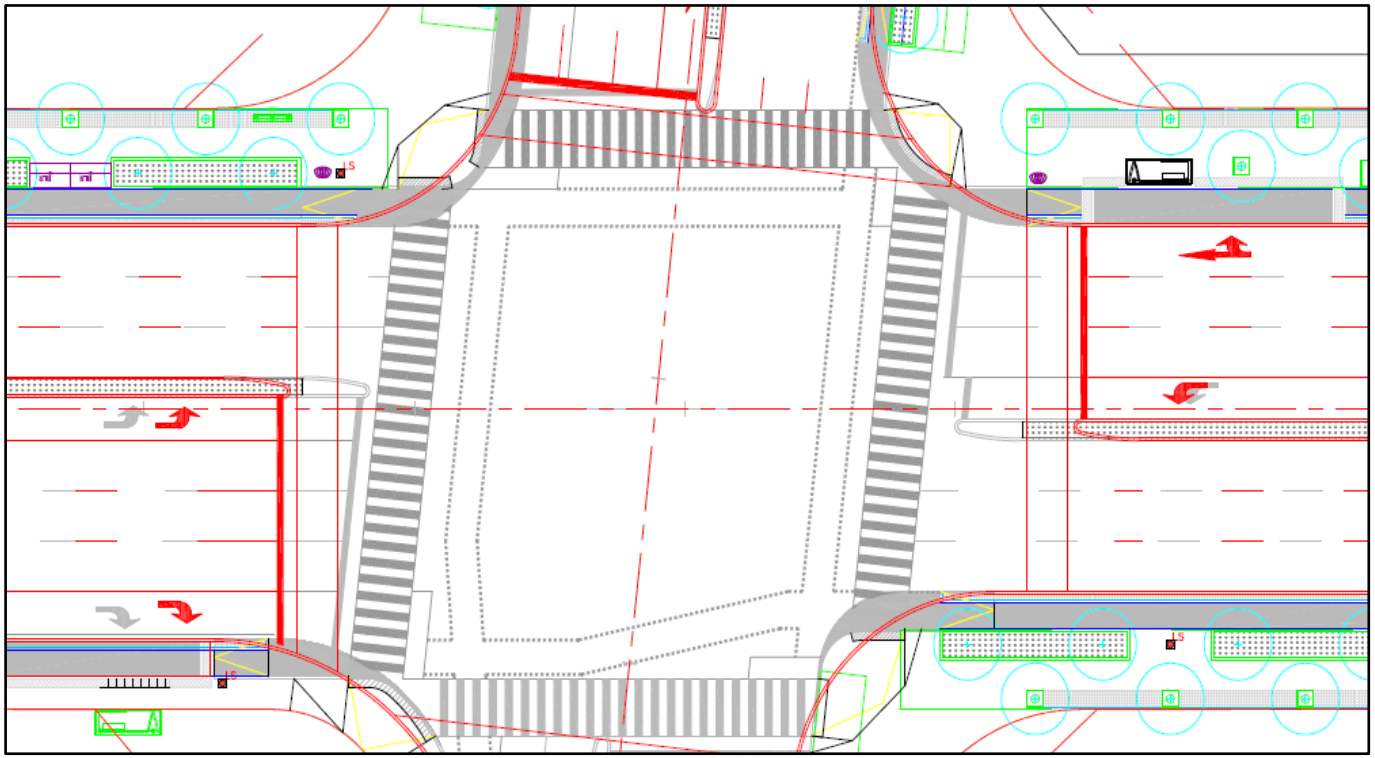


Design Challenge 1 (Solution) – image to be updated





Design Challenge 1 (Outcome)



1. Smaller Radii's reduced Pedestrian Crossing Distance
2. Safer Bike Lane Transition at Intersection
3. Reduction in conflicts between Pedestrians, Vehicles and Cyclist at Intersection Crossings
4. Slower Turning Traffic at corners may result in lower conflicts between Turning Vehicles and Pedestrians
5. Results in Optimized Signal Timings
6. Overall "Optimized" Intersection to suit the Project Needs

Design Challenge 2
Achieve consensus from multiple stakeholders

- **A wide range of stakeholders which included but were not limited to:**

i. Internal City Departments including Urban Design and Active Transportation
ii. Utility providers
iii. Advocacy groups
iv. Transit agencies

Design Challenge 2 Outcome

- **Achieved consensus through:**

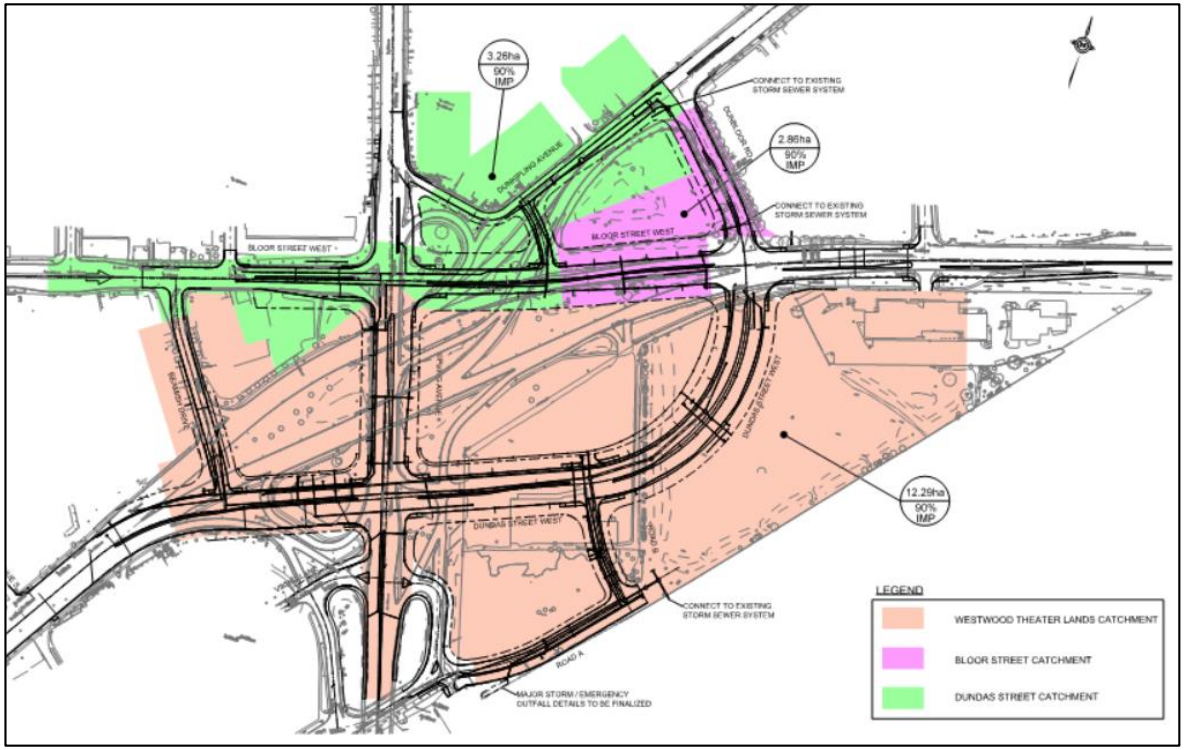
i. Information sharing at public information centres

ii. Stakeholder engagement through series of collaborative workshops

iii. Open and honest communication

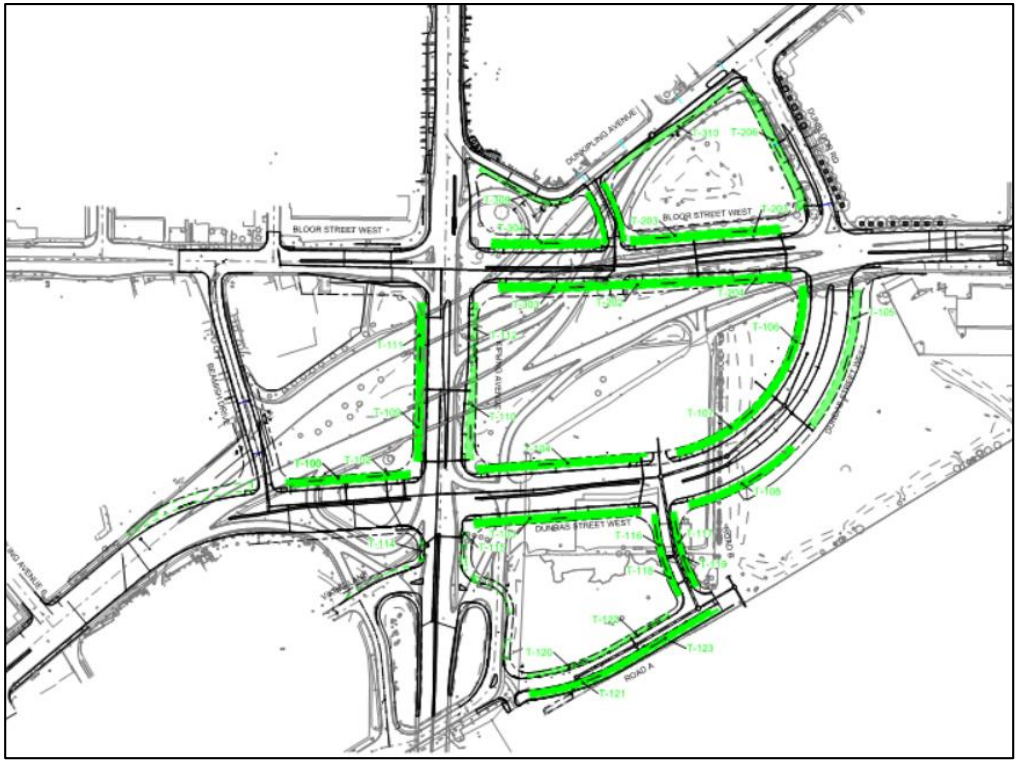
Design Challenge 3
Stormwater Management

- Connectivity to the existing adjacent storm sewer system
- Increased pavement area due to roadway improvements
- Limited downstream capacity in sewer network
- Constrained space for the provision of stormwater management facilities



Design Challenge 3
Stormwater Management (Solution)

- A comprehensive landscaping strategy involving the use of soil trench systems within the boulevard to accommodate the increased surface runoff
- A soil trench system is a self-contained bioretention planter with underground modular cells to provide the necessary soil media for tree growths
- A total of 27 soil trenches incorporated into the design of the new roadway network



Design Challenge 3
Stormwater Management (Outcome)

- Reduction in overall stormwater volume due to evapotranspiration
- Improve water quality due to bio-filtration
- Reduces downstream drainage system impacts

Final View

Thank you!!

Questions ??