Markville Secondary Plan

Draft Final Study Report

Development Services Committee Meeting

June 10, 2025

WSP | DTAH | Parcel | Monteith-Brown Planning | Helene Iardas Consulting

markham.ca/Markville

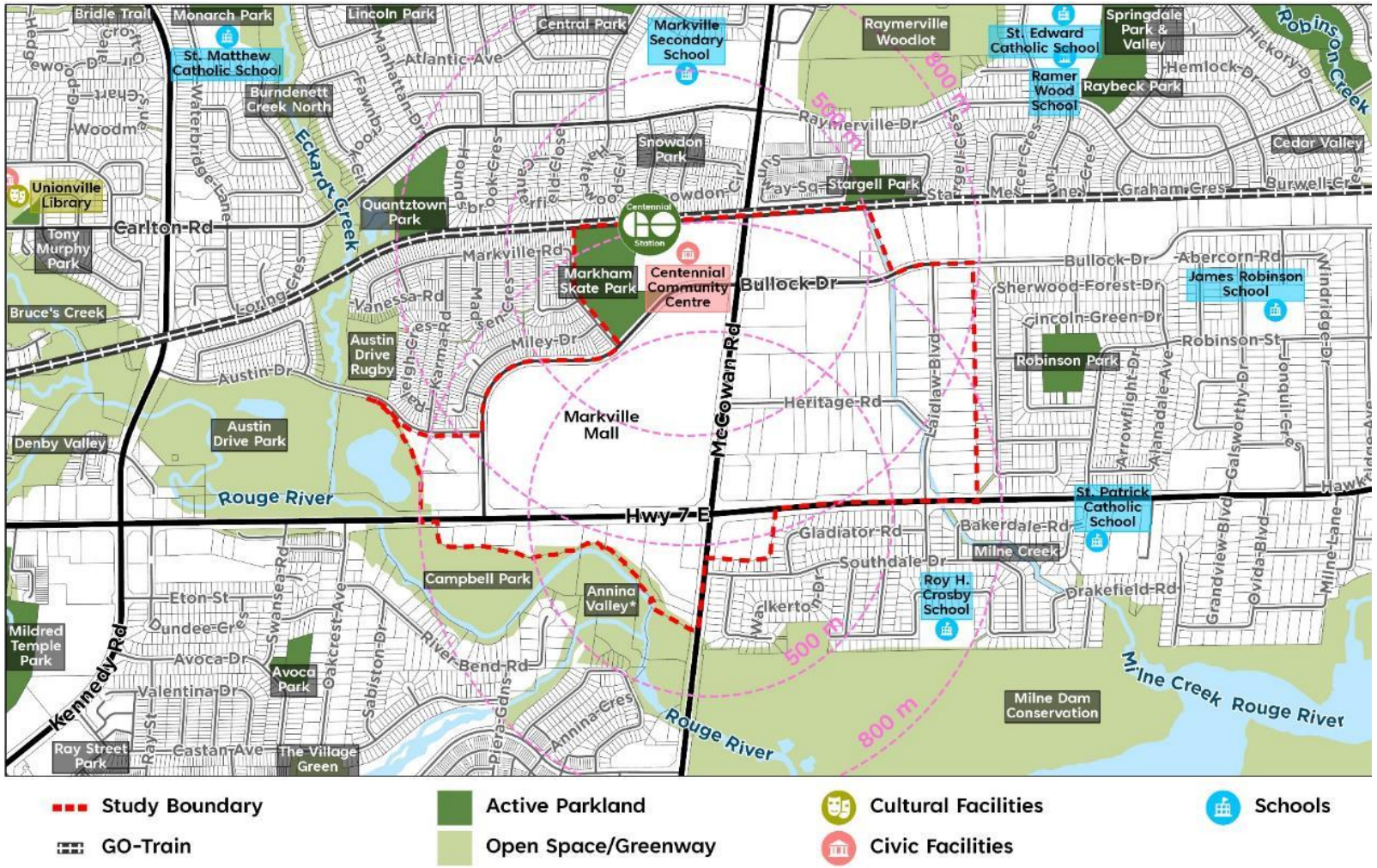
MARKHAM

Your Markville – Planning for the Future

Why are we planning for Markville's future?

A new secondary plan for Markville is required to guide the development of a complete community with transit-supportive densities.

The Secondary Plan Study will evaluate **sustainable land use**, **urban design**, **transportation**, and **municipal services** to inform the preparation of the secondary plan.



Why are we planning for Markville's future?

Planning Regime in Ontario

The Planning Act, Provincial Planning Statement (2024), Conservation Authorities Act, City of Markham Official Plan and York Region Transportation Master Plan and Water and Wastewater Master Plan, among others, set the context and framework for how Markville is to grow.

What does this mean?

This is an area identified in the PPS (2024) for growth, one that will be served by higher-order transit and a mix of uses for all current and future residents

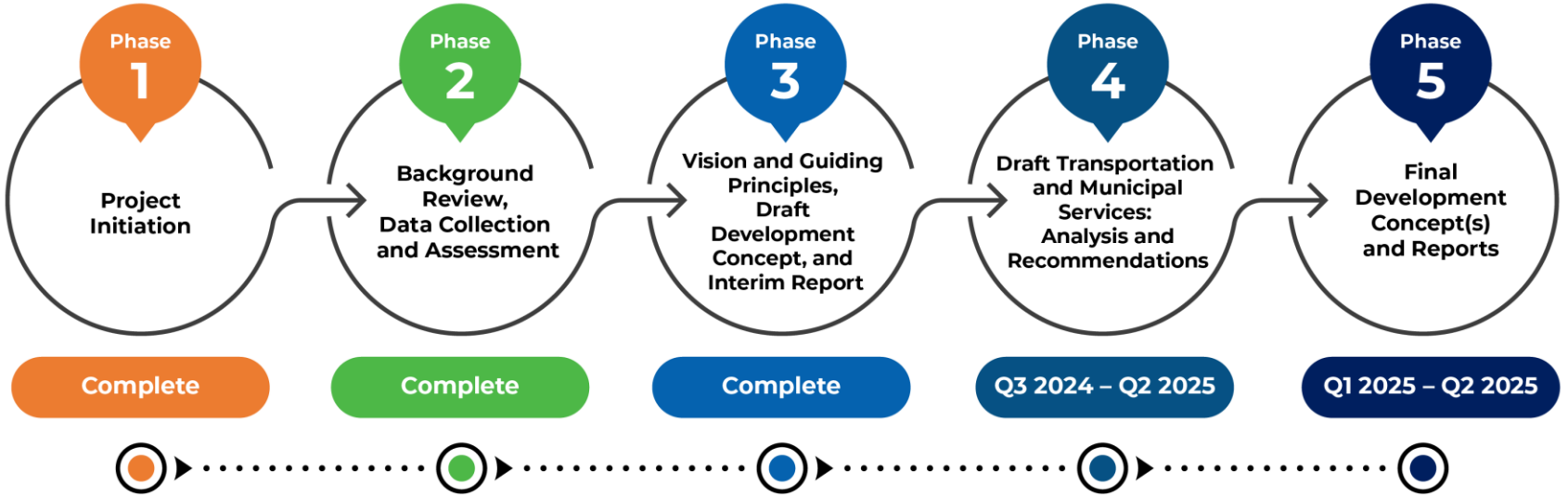
What did we do?

A refined plan was developed with unique districts that enable complete communities with new parks and open spaces and facilities for everyone

What's next?

The Final Study Report and supporting technical reports will inform a City-initiated Secondary Plan

Who is our Team and where have we been?



- Project Initiation Meeting
- Meeting with Communications
- Meeting with CAO and Commissioner
- Draft Communications and Engagement Plan
- Kick-off presentation to DSC (#1)

- Final Communications and Engagement Plan
- Existing Conditions Report
- Study Webpage Launch

- Community Information Meeting #1 and Visioning Workshop
- Draft Development Concepts
- Community Information Meeting #2
- Agency/Stakeholder Meetings
- Interim Report and Engagement Summary
- Presentation to DSC (#2)
- Community Information Meeting #3

- Refined Plan and Development Concepts
- Multi-modal Transportation Analysis
- Municipal Servicing Analysis
- Agency/Stakeholder Meetings

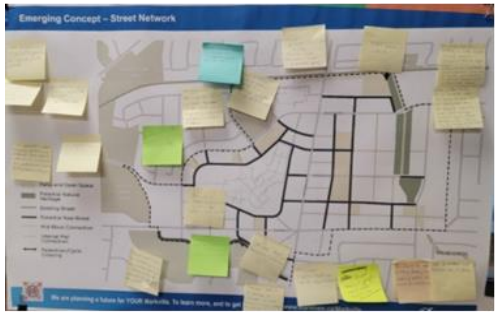
- Final Study Report
- Urban Design Report
- Community Services and Facilities Strategy
- Multi-modal Transportation Report and Servicing Report
- Final Study Report to DSC

Throughout the project we have had many conversations... To recap what have we heard:

- Develop a policy framework to manage future development
- Plan for more schools, community services, and healthcare facilities
- Address traffic congestion through transit improvements and multi-modal solutions
- Encourage a mix of uses, including retail and community uses for residents
- Create larger park spaces
- Improve pedestrian and cycling infrastructure with new connections

Throughout the project we have had many conversations... together we are shaping Markville

Engagement Activity	Engagement Highlights	Dates
Online Engagement	• **16, 000 +** total visits • **2,900** informed visitors • **9,700** aware visitors.	January 2022 – June 2025
Youth Visioning Workshop	• **57** grade nine students	November 17, 2022
Youth Focus Group	• **18** grade 7 to grade 12 students	July 11, 2023
Community Information Meeting #1	• **85** participants	January 19, 2023
Public Visioning Workshop (Virtual)	• **90** participants	February 3, 2023
Community Information Meeting #2	• **40+** participants in-person and **30+** participants virtually	May 24, 2023
Councillor Hosted Community Meeting (In-person/Virtual)	• **50+** participants	January 25, 2024
Residents Association Meeting (In-Person)	• Included participation of Residents Association membership	April 9, 2024
Community Information Meeting #3	• **100** participants	June 27, 2024
Agency and Stakeholder Engagement	• **3** meetings with City Staff and Agencies and Landowners and Residents Associations	June – July 2024
Written Submissions	• **8** letters submitted by landowners and interested parties	Ongoing



What is the Vision for Markville?

Markville will be a **vibrant destination** for culture and entertainment in a connected community with a **mix of uses** and access to frequent transit and **active transportation** options. The area will offer important community amenities and **public spaces** and preserve **employment lands** and economic landmarks that are an important part of the community while enhancing green spaces and **sustainability**.

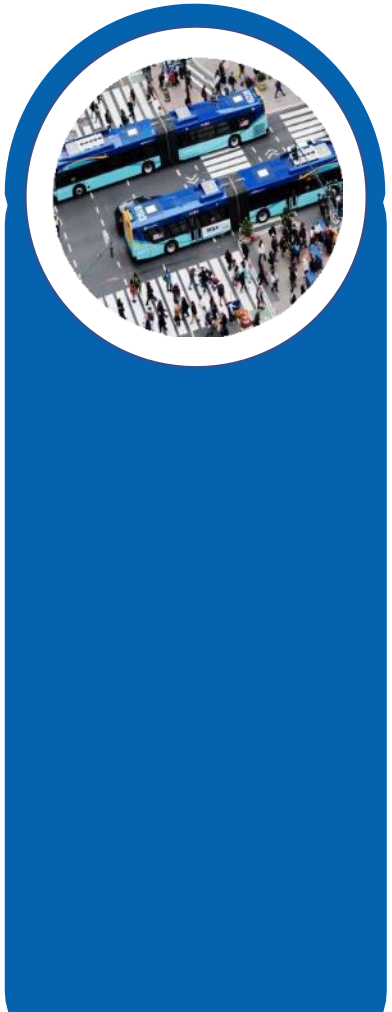
What are the Guiding Principles for Markville ?

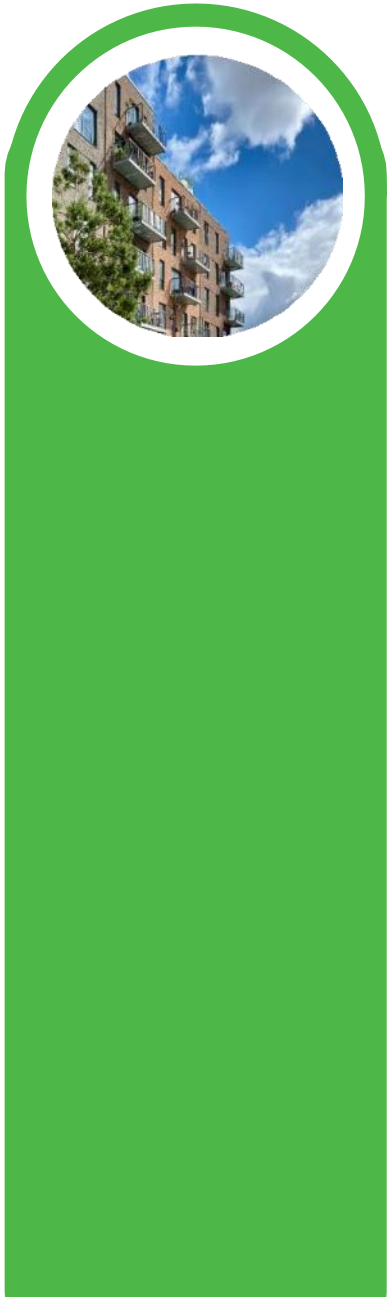
- A Complete Community
- An Attractive Community with Great Buildings & Spaces
- Leverage Transit
- Inclusive Community & Affordable Housing
- Community Node
- A Connected Community
- Enhanced & Connected Green Space
- Active Transportation

What will be the projected population and number of jobs for the Markville Secondary Plan Area? – Achieving Balanced Growth

	Existing	Planned
Persons	1,050	26,541
Jobs	1,250	14,923
Persons and Jobs per Hectare in Secondary Plan Area	N/A	397

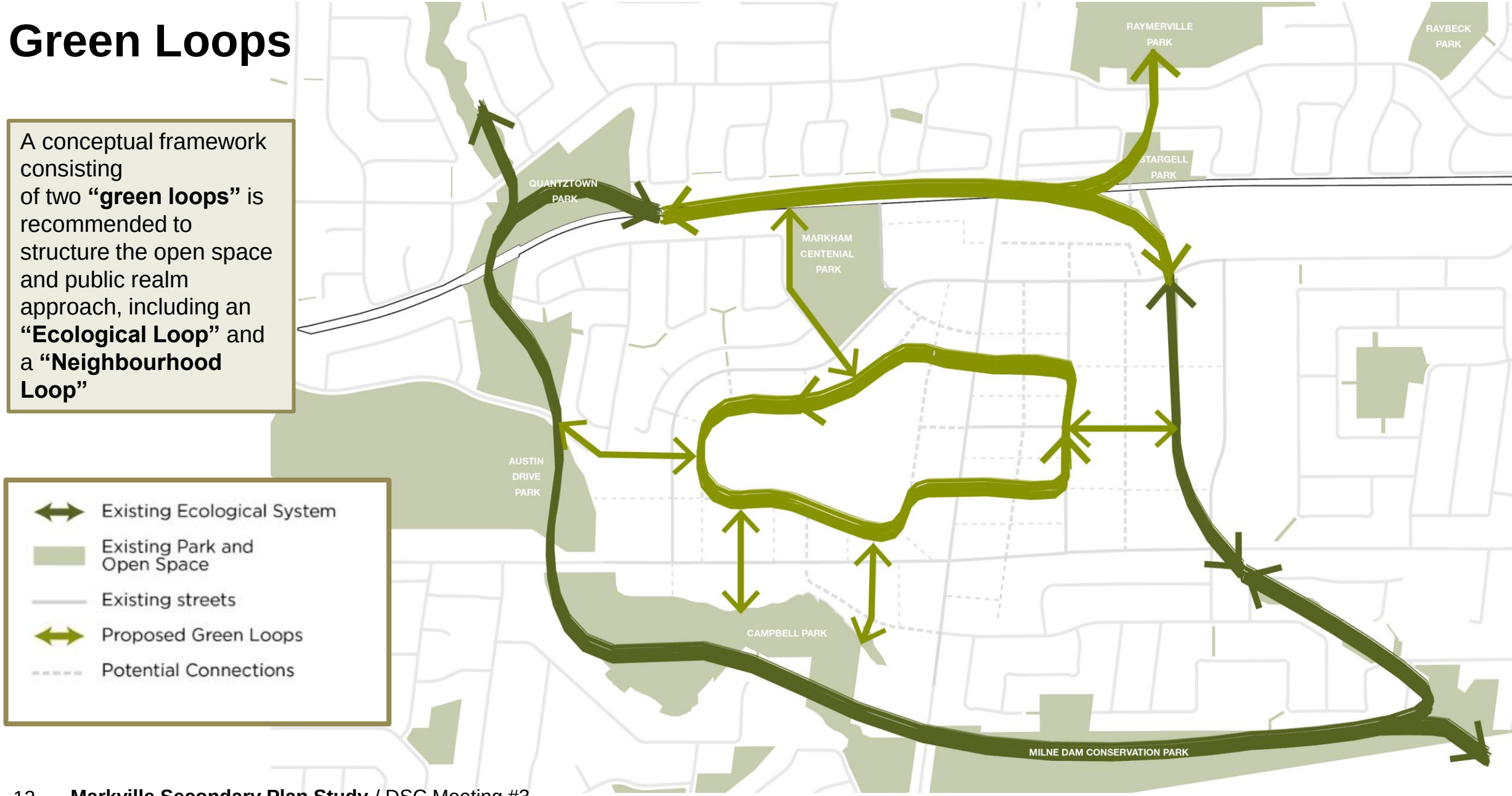
Refined Plan





Green Loops

A conceptual framework consisting of two **“green loops”** is recommended to structure the open space and public realm approach, including an **“Ecological Loop”** and a **“Neighbourhood Loop”**



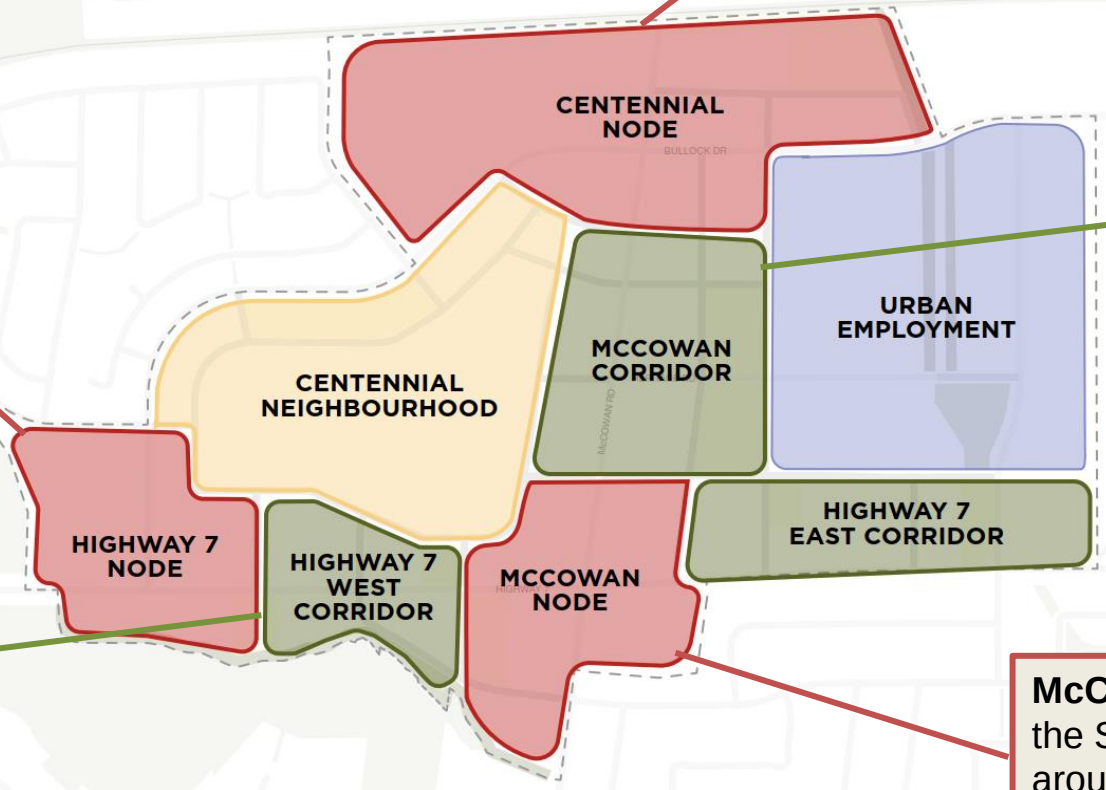
Secondary Plan Districts

The Refined Plan is guided by the division of the Secondary Plan Area into smaller districts, each with a distinct role.

Centennial Node will be community-focused, containing the Centennial GO Station, Centennial Park, and the Centennial Community Centre

Highway 7 Node will act as a high-density gateway to the Markville Mall and any future redevelopment there.

McCowan Corridor will be the central thoroughfare of the Secondary Plan Area.



Highway 7 West and East Corridors will connect Nodes and transition to lower-density areas and the Rouge River Valley.

McCowan Node will anchor the Secondary Plan Area around the McCowan VIVA BRT stop.

Land Use

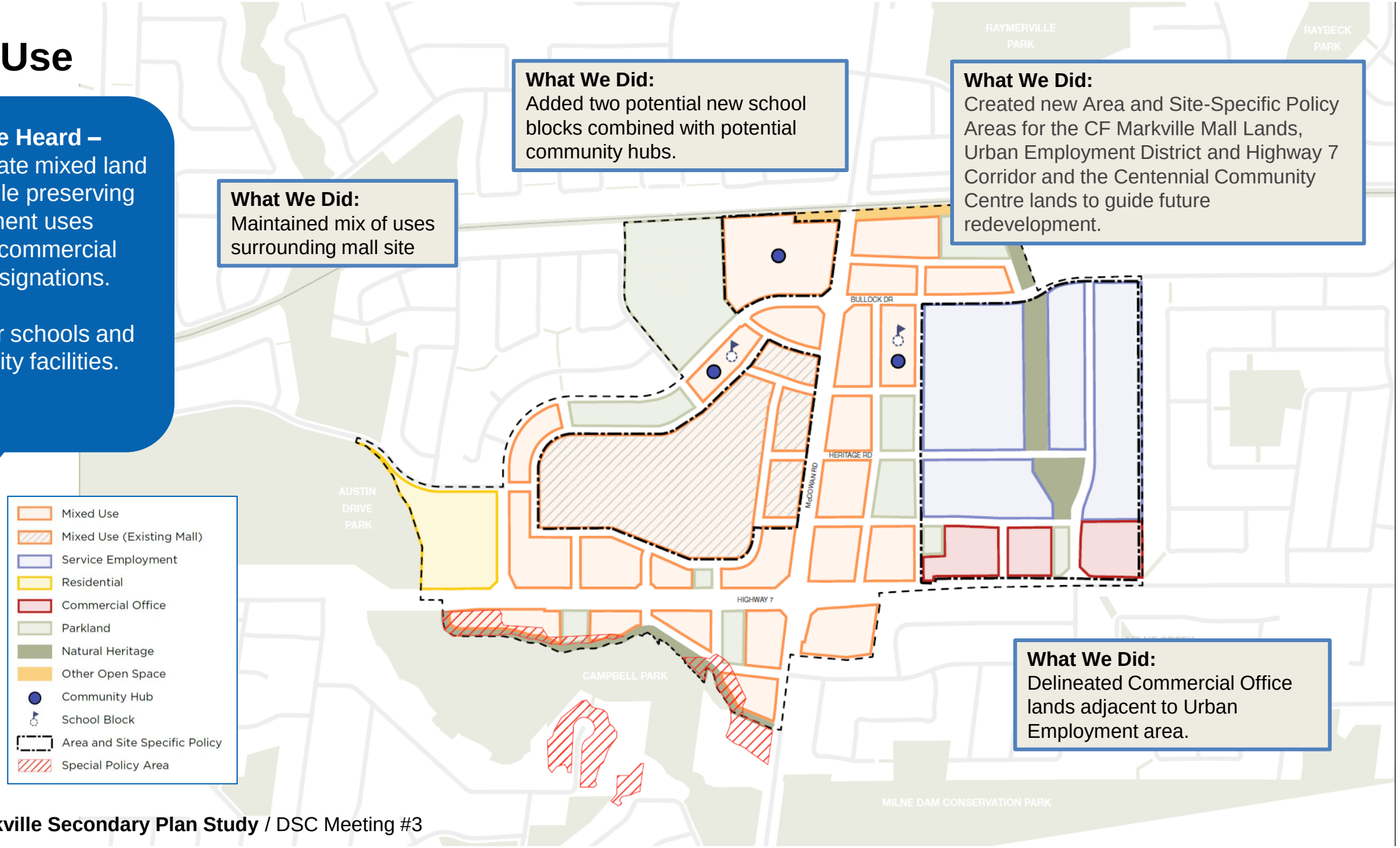
What We Heard –
Incorporate mixed land uses while preserving employment uses such as commercial office designations.

Consider schools and community facilities.

What We Did:
Maintained mix of uses surrounding mall site

What We Did:
Added two potential new school blocks combined with potential community hubs.

What We Did:
Created new Area and Site-Specific Policy Areas for the CF Markville Mall Lands, Urban Employment District and Highway 7 Corridor and the Centennial Community Centre lands to guide future redevelopment.



What We Did:
Delineated Commercial Office lands adjacent to Urban Employment area.

Built Form

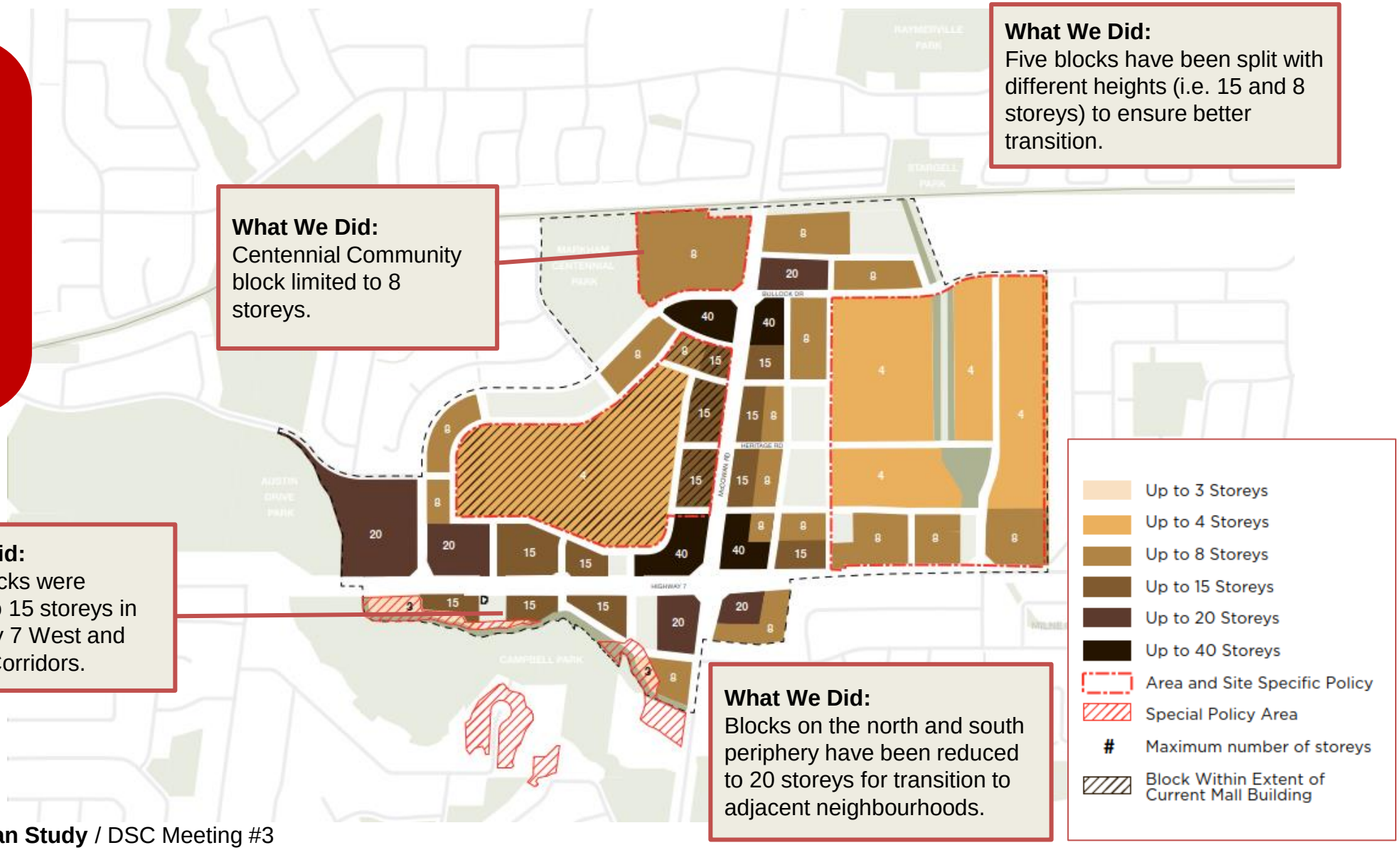
What We Heard -
Sensitivity to the transition from taller buildings (21-40 storeys) to mid-to low-rise areas (5-8 storeys), with concerns about impacts to sightlines, shadowing and incompatibility with adjacent uses.

What We Did:
Centennial Community block limited to 8 storeys.

What We Did:
Five blocks have been split with different heights (i.e. 15 and 8 storeys) to ensure better transition.

What We Did:
8 storey blocks were increased to 15 storeys in the Highway 7 West and McCowan Corridors.

What We Did:
Blocks on the north and south periphery have been reduced to 20 storeys for transition to adjacent neighbourhoods.



Parks, Open Spaces & Environmental Systems

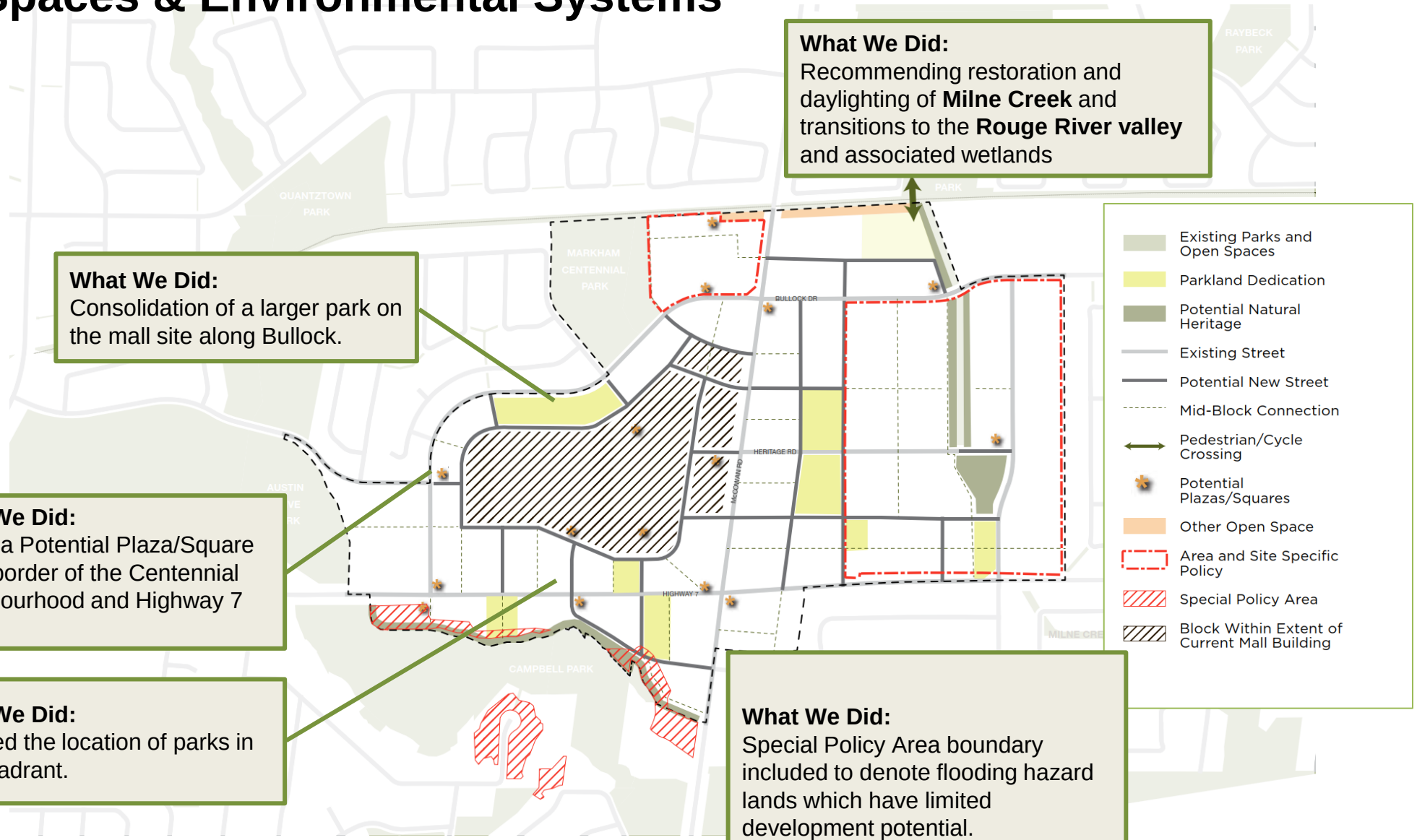
What We Heard – Create larger parks by combining smaller park. Promote the connectivity of the park network and open spaces to other uses such as schools and employment areas.

What We Did:
Recommending restoration and daylighting of **Milne Creek** and transitions to the **Rouge River valley** and associated wetlands

What We Did:
Consolidation of a larger park on the mall site along Bullock.

What We Did:
Added a Potential Plaza/Square at the border of the Centennial Neighbourhood and Highway 7 Node.

What We Did:
Adjusted the location of parks in SW quadrant.

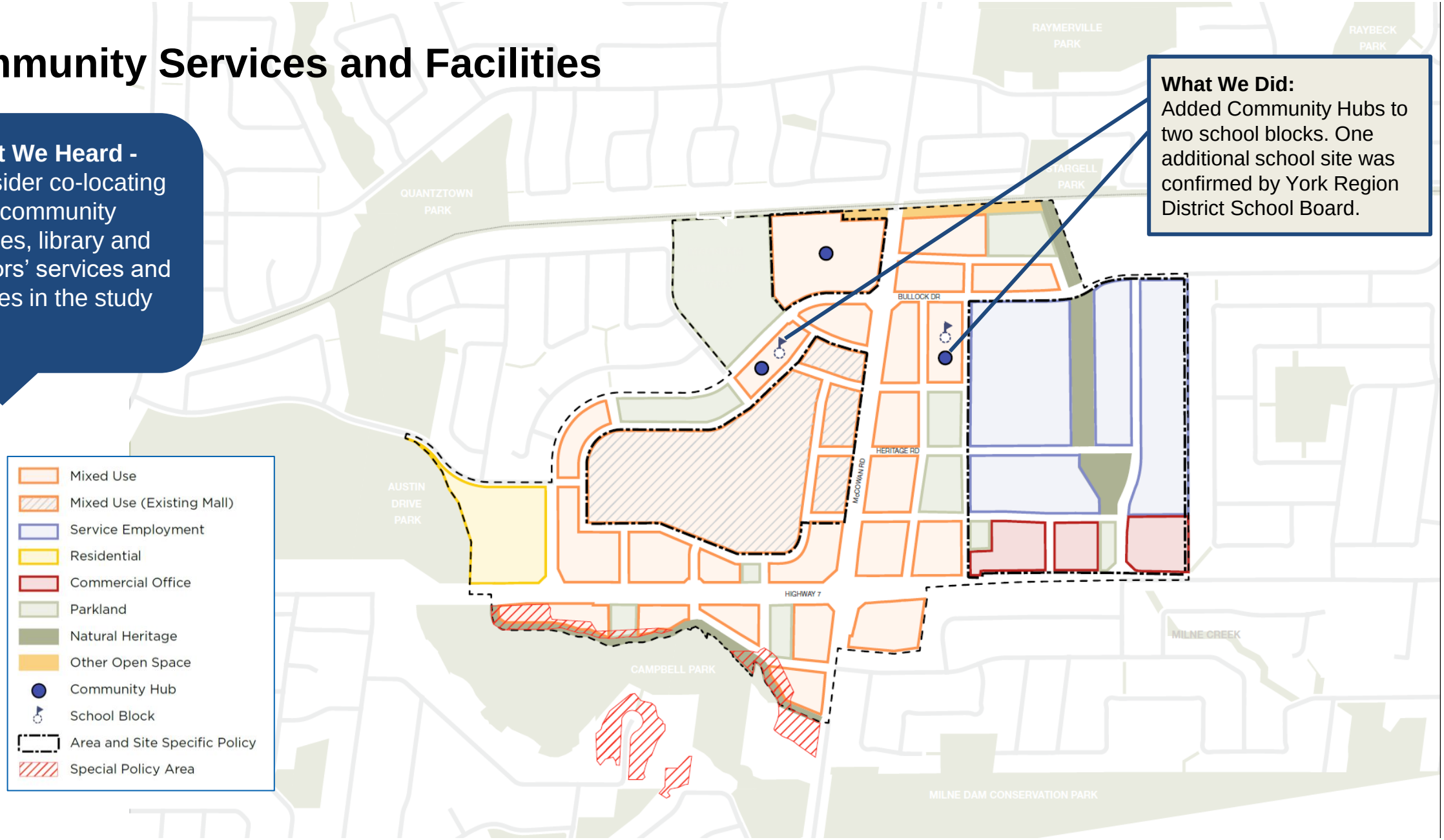


What We Did:
Special Policy Area boundary included to denote flooding hazard lands which have limited development potential.

Community Services and Facilities

What We Heard -
Consider co-locating arts, community centres, library and seniors' services and spaces in the study area.

What We Did:
Added Community Hubs to two school blocks. One additional school site was confirmed by York Region District School Board.



Public Realm and Sustainability

Streetscaping

Recommendations encourage multi-functional mid-block connections and pedestrian activity with attractive facades, outdoor features, and accessible entrances.

Required Retail, Service Commercial or Public Use Frontage

Recommended (Optional) Retail, Service Commercial or Public Use Frontage

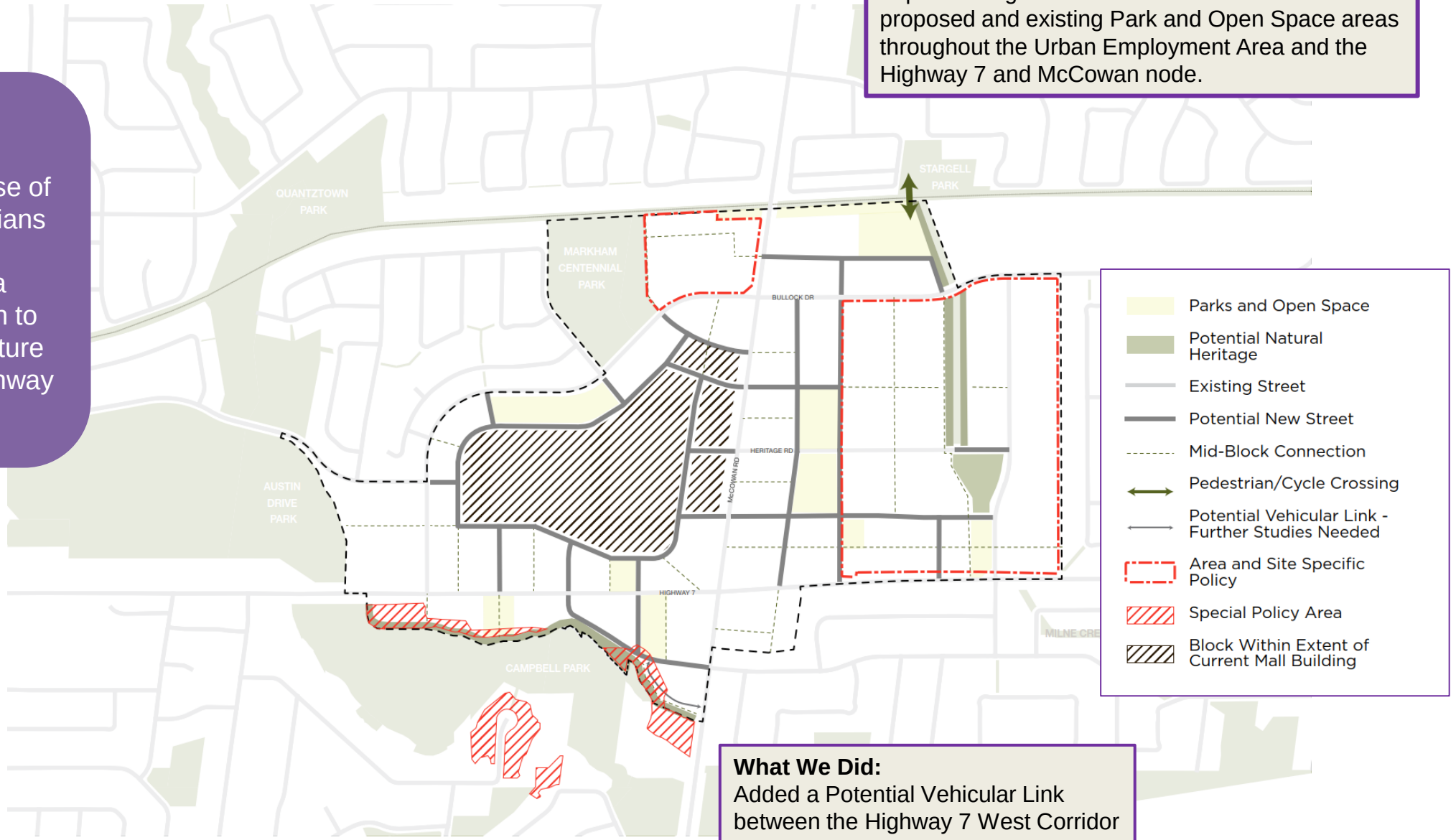
Sustainable Development

To achieve sustainable development, employ the City's Sustainability Metrics Program to meet minimum scores for site and subdivision plans. Additionally, use sustainable design practices and technologies in both public and private infrastructure.

Street Network

What We Heard –
Introduce mid-block crossings to promote use of multi-modal for pedestrians and cyclists.
Recommendations for a traffic improvement plan to address existing and future traffic issues along Highway 7 and McCowan Rd.

What We Did:
Improved alignment of Mid-Block connections with proposed and existing Park and Open Space areas throughout the Urban Employment Area and the Highway 7 and McCowan node.



What We Did:
Added a Potential Vehicular Link between the Highway 7 West Corridor and McCowan Node.

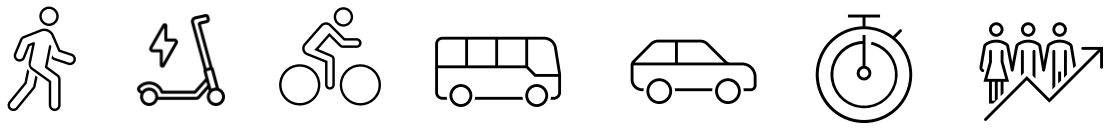
Phasing Strategy – Managing Growth Responsibly

What is a Holding Provision?

- A **planning tool** used by municipalities in Ontario under the Planning Act to manage the timing and conditions of land development.
- **Purpose**: It temporarily restricts development or use of land **until certain conditions are met**. These conditions might include:
  - Installation of municipal services (for example roads, water, sewers)
  - Completion of environmental or traffic studies
  - Execution of legal agreements
  - Approval of subdivision plans or site plans
- **Removal**: Once the specified conditions are fulfilled, the municipality can pass an amending by-law to allow development to proceed.

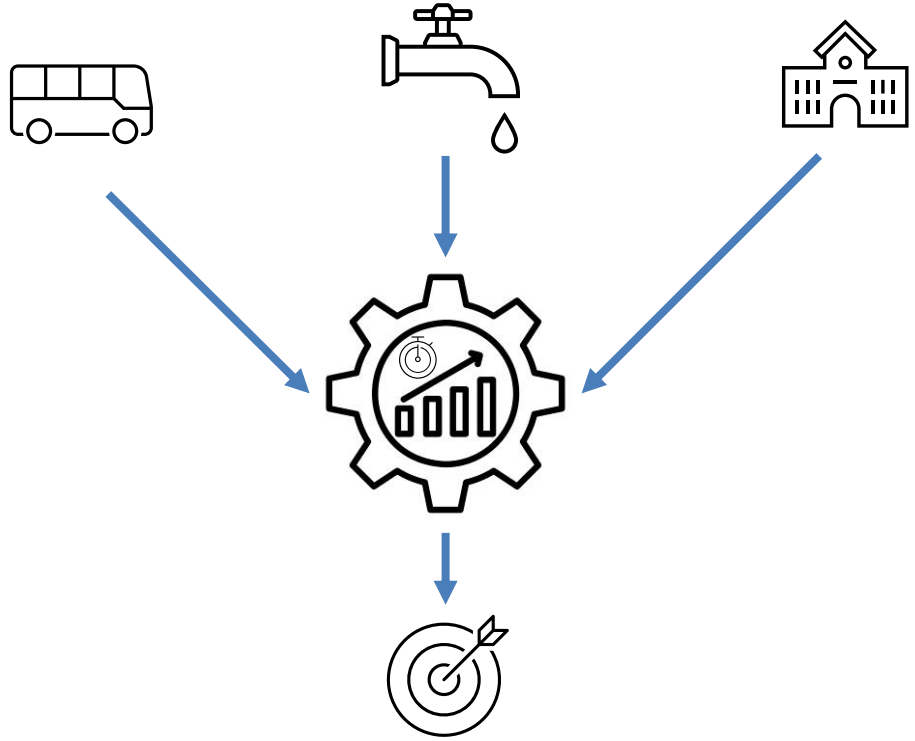
How Does it Apply to Markville SP?

- The holding provision in the zoning by-law will govern the timing of development, ensuring that sufficient transportation and other infrastructure is adequate to support growth.



Phasing Strategy

- The phasing strategy will align growth to transportation improvements, servicing improvements, community service and schools. Transit and transportation infrastructure will be a key factor.



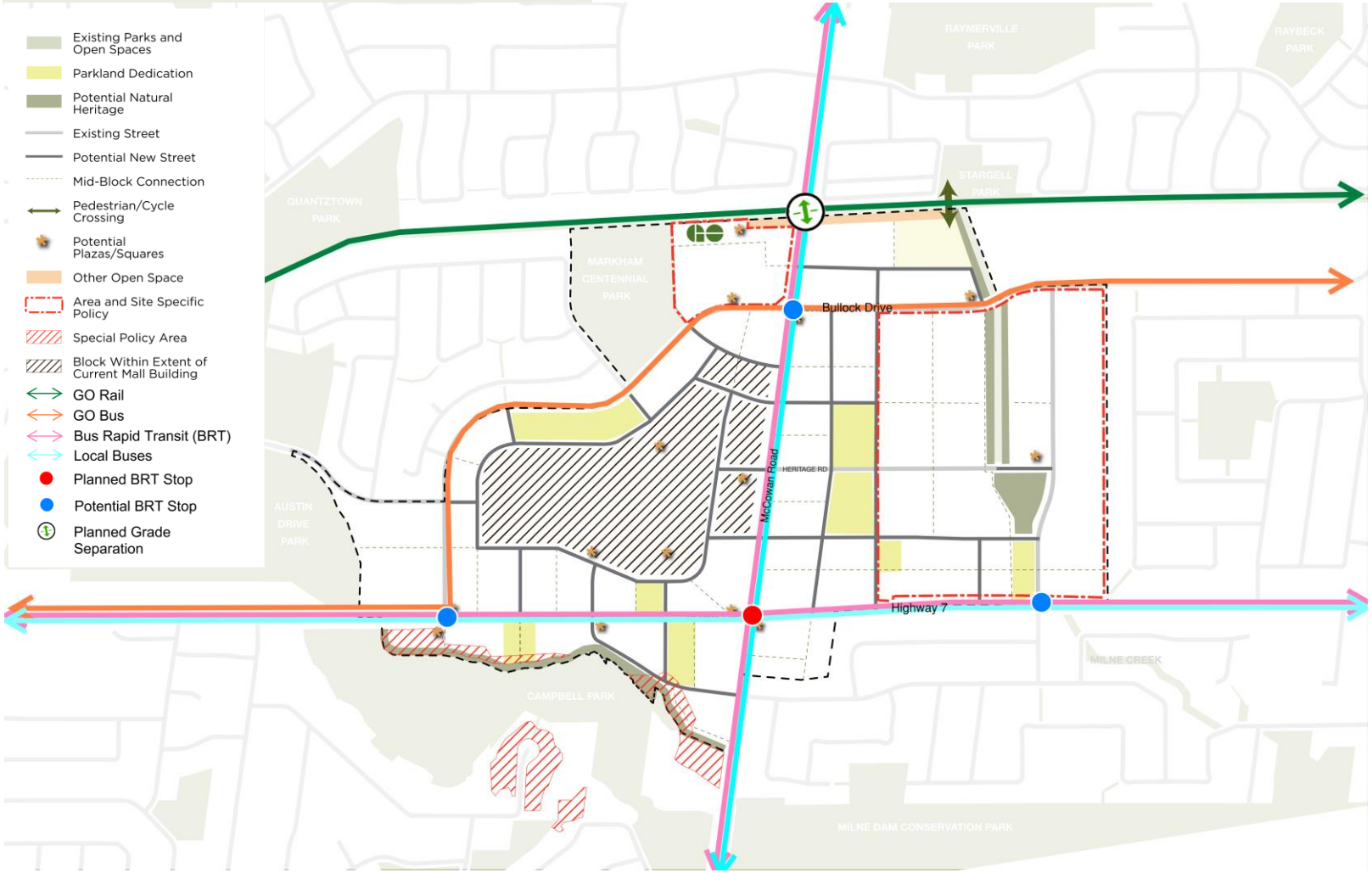
Transit Improvements – Enabling Development

Transit serves as the primary enabler of growth in Markville, and planned improvements are essential to facilitate a shift in transportation modes while ensuring sufficient capacity to accommodate the needs of future residents and workers.

In addition to the planned transit improvements in the area, collaborate with Metrolinx/ Region to enhance transit levels:

- Increase BRT frequencies
- City should continue to work with Metrolinx to explore opportunities service enhancements beyond Unionville Station.
- Enhancing local route service in mixed traffic, including weekend and off-peak extensions;
- Strengthening connections to Centennial GO and BRT routes.

Transit Network Map



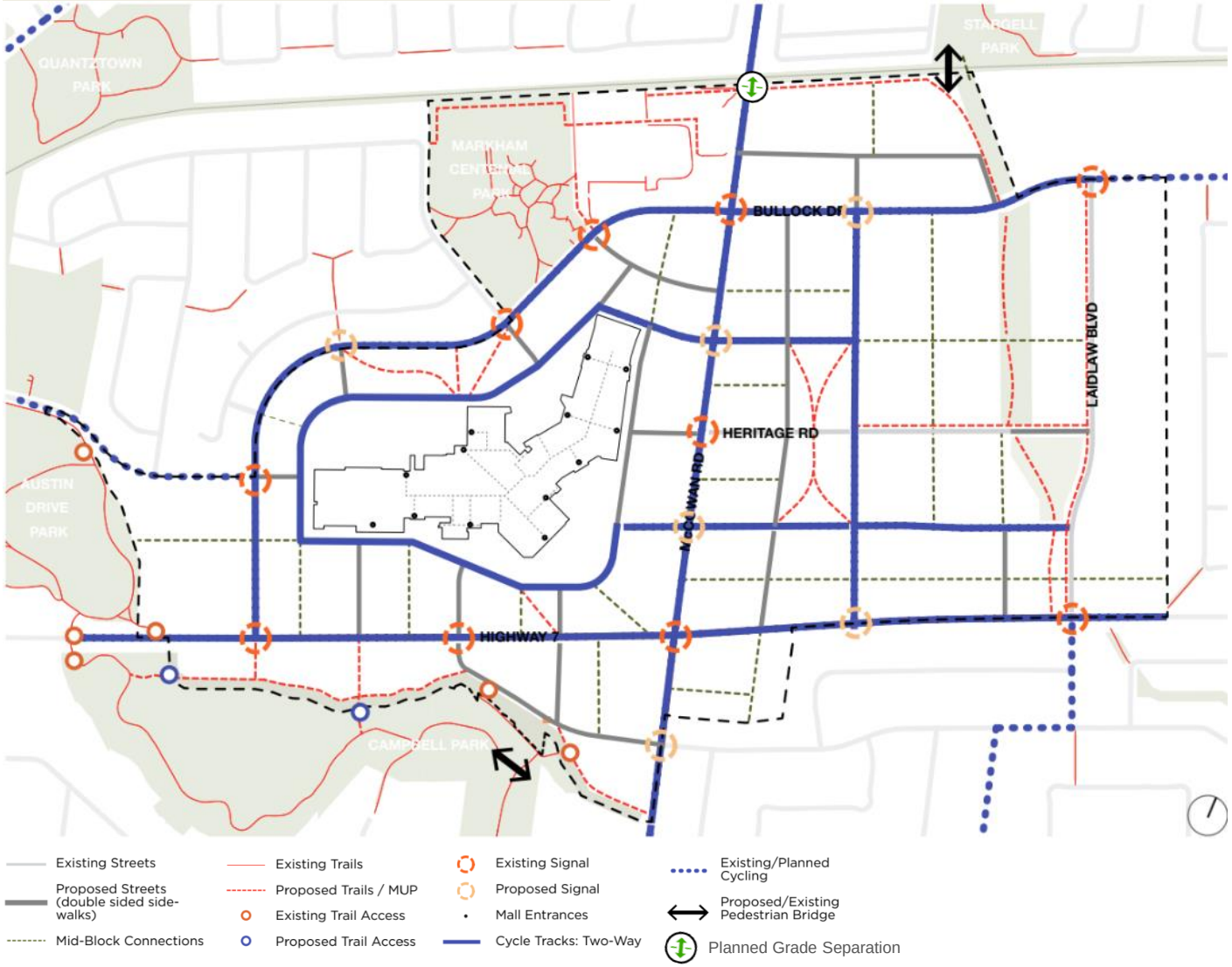
Active Transportation – Expanding Local Travel Choices

Active Transportation recommendations focus on providing dedicated/buffered cycling facilities on key arterial roads (which are additionally separated from pedestrians to reduce conflicts), and matching active transportation facility designs to the expected volumes and speeds of vehicles on the collector/local street network.

Proposed Active Transportation Network

- Builds a complete AT network to support first- and last-mile travel
- Reduces car dependency and encourages sustainable mobility
- Improves internal connectivity within the Secondary Plan area
- Strengthens links to adjacent neighborhoods
- Helps lower vehicle trip generation through better infrastructure
- The proposed AT network is in sync with Markham's 2021 Active Transportation Master Plan

Active Transportation Map



Parking and Transportation Demand Management (TDM) – Managing Demand Proactively

Summary of Parking Strategy

Vehicle Parking

- **Reduced Minimums**: No minimum parking as per the Planning Act (Bill 185) by the Province.
- **Consider Maximums:** Parking rates below the current ones in ZBL 2024-19
- **Shared Parking**: Implementation of shared parking between land uses to reduce the amount of under-utilized parking lots.
- **Parking Study:** to assess parking needs when planning public amenities such as community centres and parks.

Summary of TDM Measures

- Discounted transit passes
- Car share program
- Propose and micromobility parking plan with micromobility hubs
- Paid parking in the Secondary Plan area
- On-street parking and curbside management plan
- Full implementation of the recommended AT network

Source: Scooty Mobility Inc (SCOOTY), 2024

Road Network – Supporting Safe and Efficient Movement

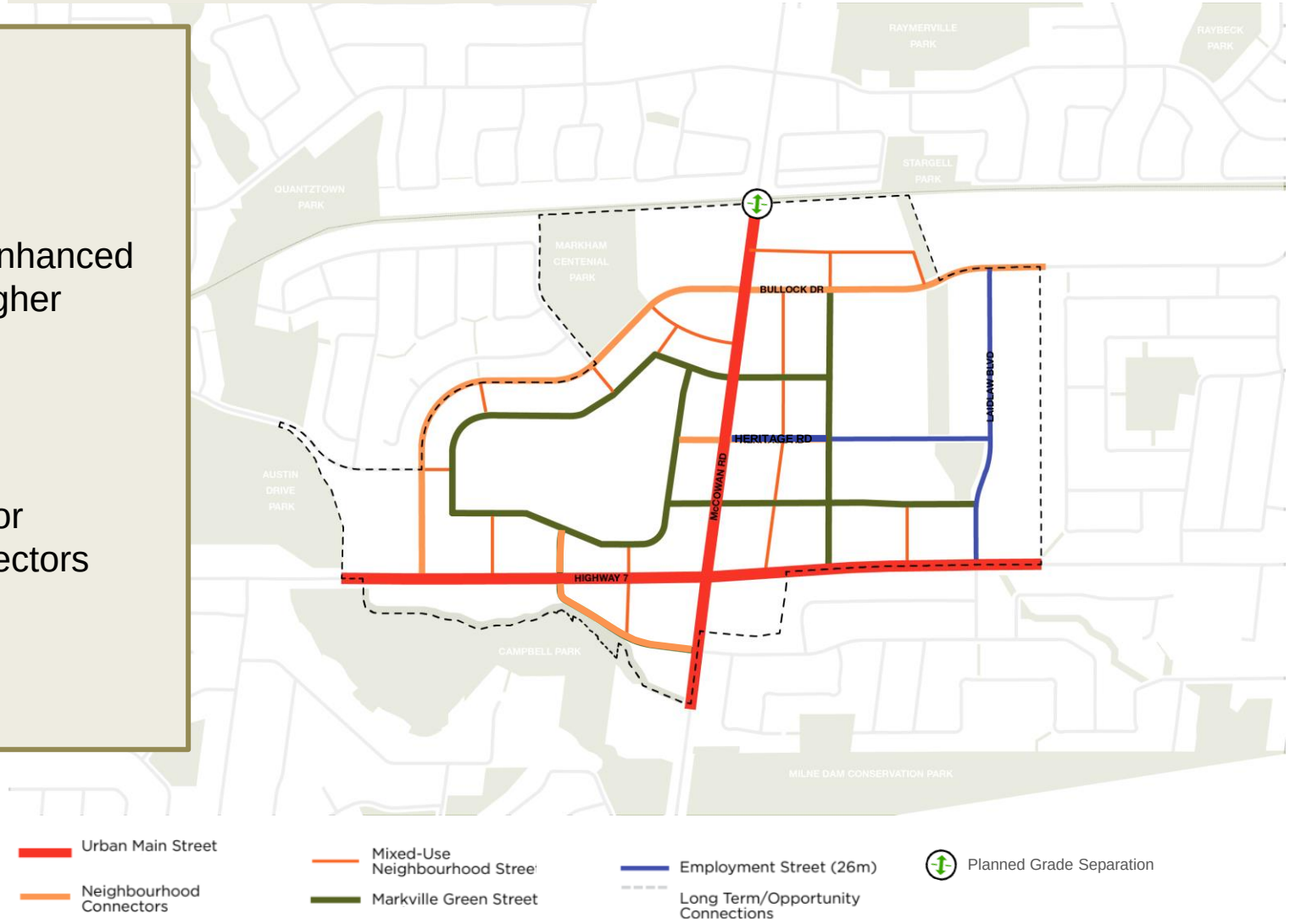
The roadway network was developed to:

- Divide large blocks
- Improve connectivity
- Improve the public realm that supports enhanced transit service and AT to encourage a higher mode share of alternative travel modes

Road classification and ROW:

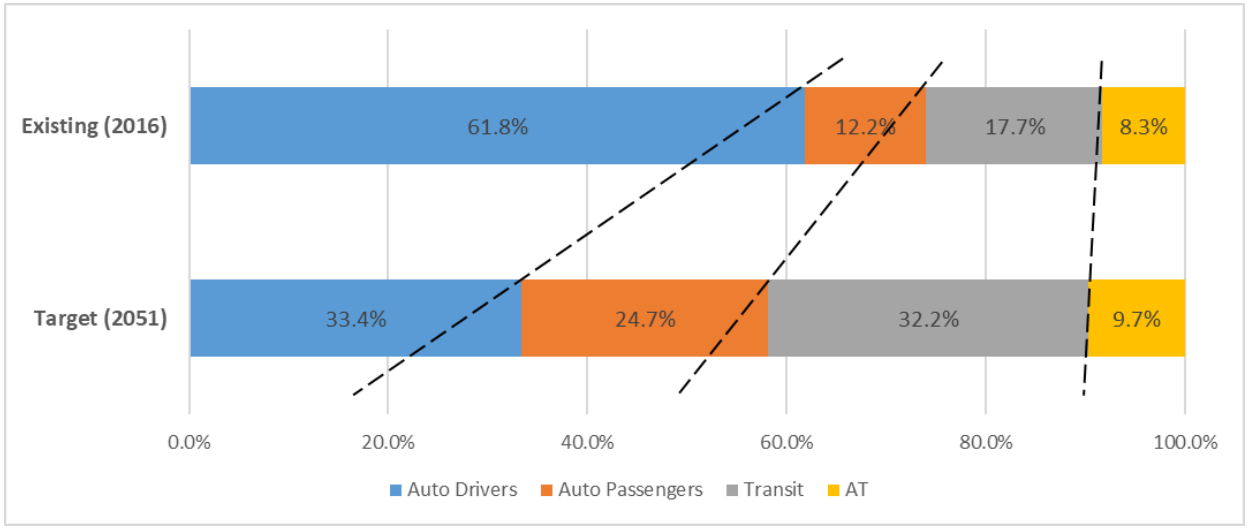
- Arterial Roads - Urban Main Streets Major Collector Roads – Neighbourhood Connectors Minor Collector Roads – Marville Green Streets and Employment Streets
- Local Road – Mixed-Use Streets

Network Hierarchy Map



Vision for a Multimodal Transportation System

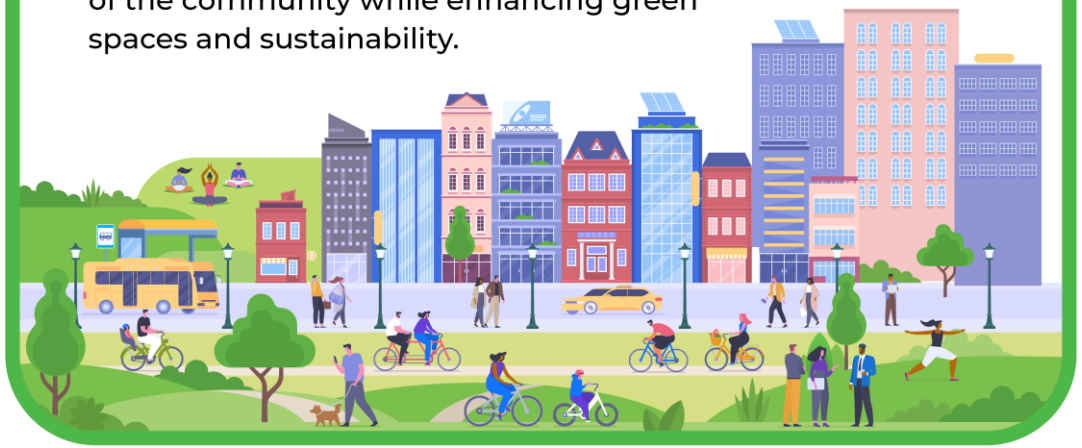
AM Period Mode Share



Based on transportation forecasting model output

Markville Secondary Plan Vision Statement

Markville will be a vibrant destination for culture and entertainment in a connected community with a mix of uses and access to frequent transit and active transportation options. The area will offer important community amenities and public spaces and preserve employment lands and economic landmarks that are an important part of the community while enhancing green spaces and sustainability.



Water Servicing Recommendations

The main objectives of the servicing review are to assess the performance of the City of Markham's future servicing system in the Markville Secondary Plan Area, as well as the external areas that may be impacted by the surrounding existing and planned development under certain conditions and to identify areas of opportunity.

Water Servicing Upgrades

Hydraulic simulation was conducted using the InfoWater model provided by the City and updated by WSP

The hydraulic performance of the future water distribution system in PD5B and PD6RC is as follows:

- Few junctions with low elevation and/or near zone boundaries were simulated with high pressures.
- Few junctions along the transmission line and with high elevations were simulated with pressures below 275 kPa.
- Most existing watermains within PD5B and PD6RC can operate with a headloss gradient below 2m/km.
- High headloss was simulated within the Secondary Plan Area and along the 300mm main on McCowan Road.

Water Servicing Upgrades

Infrastructure upgrades are recommended based on the hydraulic simulation to meet pressure requirements and/or improve headloss.

The following watermain upgrades are recommended to the Secondary Plan Area:

- Watermains on Bullock Dr north of the study area
- Watermains on McCowan Road east and north of the study area

The identified areas of opportunity that are recommended for upgrades are subject to further City review and analysis.

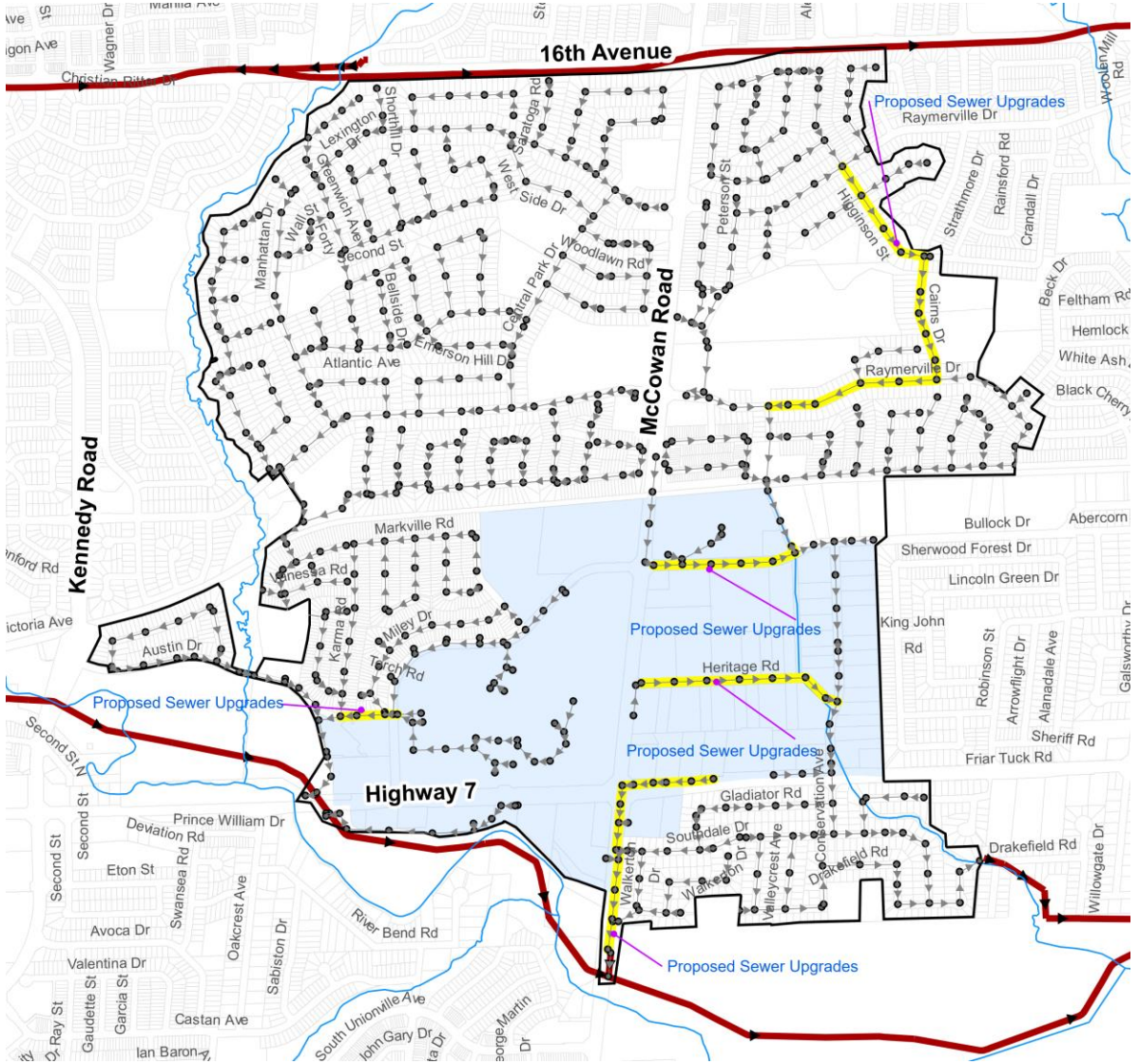
Wastewater Servicing Recommendations

Sanitary Servicing Analysis – 2051 Growth Scenario

- **Assessment Findings:**
  - Analysis of the 2051 sanitary loading identified **multiple capacity constraints** within the study area.
  - Dry Weather Flow showed multiple surcharged sewers in the study area
  - Wet Weather Flow using 25-Year & 100-Year Design Storm showed HGL Level above the Basement level at multiple nodes within the study area

- **Sewer improvements were proposed to mitigate the capacity constraints**
  - The Sewers now meet the Level of Service Criteria
  - The assessment is subject to further review by City staff and Region input

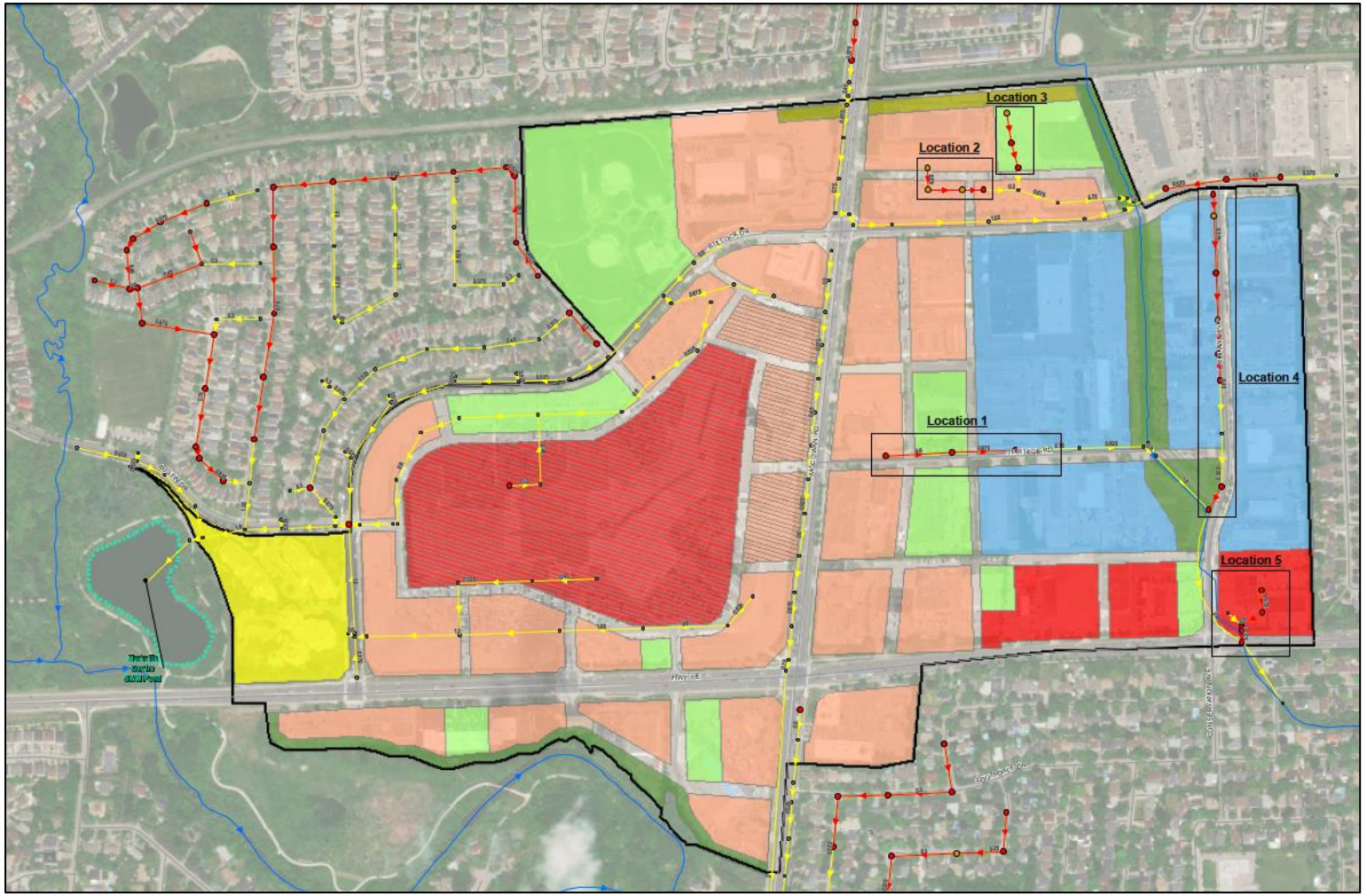
- **Preliminary Proposed Sewer Upgrades:**
  - Higginson St., Cairns Dr., Raymerville Dr.
  - Bullock Dr. (east of McCowan Rd.):
  - Highway 7 & McCowan Rd.
  - Austin Dr.
  - Heritage Rd.



Stormwater Servicing Recommendations

The **Storm Sewer** capacity analysis indicates that, based on the ***City of Markham's Design Criteria (June 2016)***, the storm drainage system (primarily serving the employment area east of McCowan Road) generally lacks sufficient capacity to convey the peak flows from the contributing area to the outlet. The storm pipes are surcharged during storm events with return periods of 2 years to 5 years or greater. Although certain sections of the storm sewers are expected to be upgraded during the next design phase, this study recommends upgrades at five (5) identified existing locations. Further upgrades could be identified subject to further review and investigation.

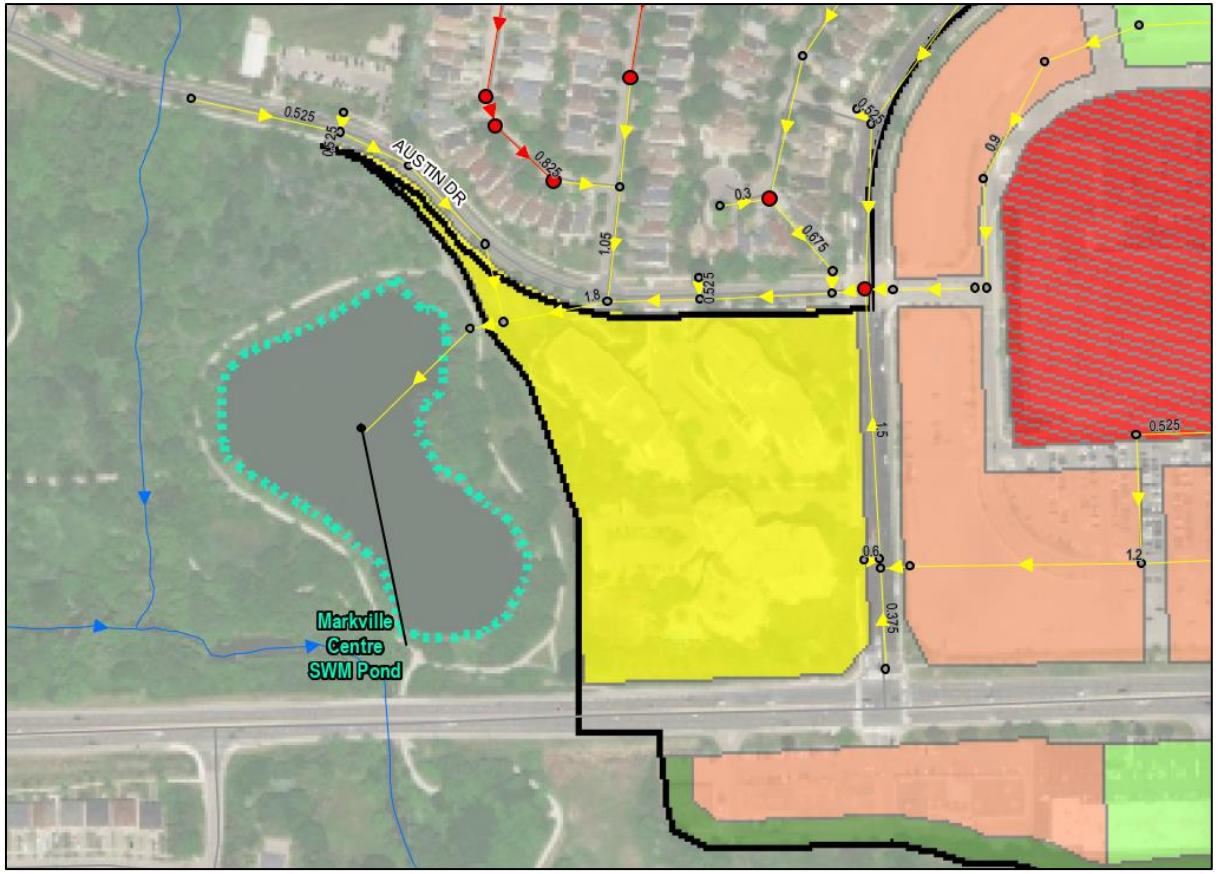
Note that Storm Sewer along the HWY 7 (Regional Rd) is not included in the subject study.



Stormwater Servicing Recommendations

The **Markville Centre SWM Pond** was designed to provide erosion and water quality control for the contributing drainage area, therefore, it does not have sufficient storage volume to provide flood controls. Since the imperviousness of the contributing drainage area (CDA) remains generally unchanged, the proposed development is not expected to impact the SWM pond's performance. However, the impact on the SWM pond will be reviewed to confirm it will function following the proposed area changes.

It is recommended that a detailed survey of the Markville Centre SWM Pond, including both the storage volume and outlet control structures, be conducted to confirm its erosion and water quality control performance. Following the survey, the PCSWMM model should be updated to reflect the pond characteristics based on the collected data.



It is also recommended that **on-site low impact development (LID) best management practices (BMPs)** be incorporated into the site plan to address concerns from MECP and/or TRCA on the water balance and water quality issue.

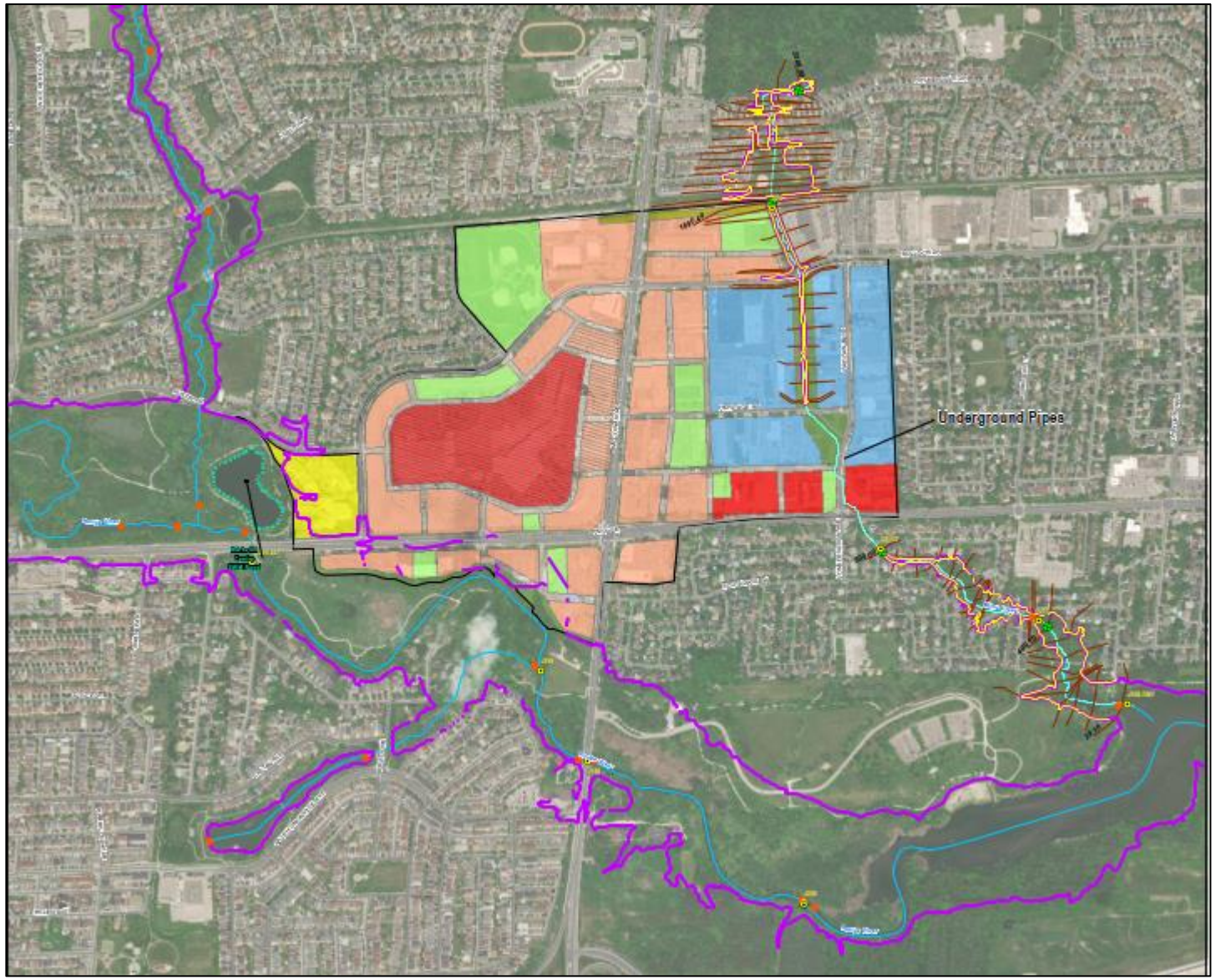
Hydraulics and Floodplain Mapping Recommendations

Rouge River:

Compared to the flow rates under existing conditions, the changes in Regional flows in the Rouge River at flow nodes adjacent to or downstream of the Study Area are minimal. Based on the consultant team's preliminary assessment. The change in peak flow rates is considered negligible, and the impacts on Regional flood elevations are expected to be minimal. Therefore, it is anticipated that there is no need to update the MIKE FLOOD 2D model for the Unionville SPA, but this will be confirmed following further review and subject to input by TRCA.

Milne Creek:

A preliminary comparison of the proposed flow rates with existing conditions indicates that Regional flows remain generally unchanged under the proposed development scenario. This is to be confirmed following further review.



Implementation and Monitoring

District Phasing Strategy

- Larger development permits are at the discretion of the city.
- Prioritize early delivery of community services and facilities.
- Minimize disruptions to residential and non-residential tenants.

Developers Group Agreements

- Coordinate the delivery of municipal services, transportation network, and shared access points on development sites.
- Ensure an equitable share of costs for servicing, infrastructure, and community services and facilities.

Monitoring

- Periodic review as part of the City's comprehensive Official Plan (OP) regarding phasing, population and employment, development, infrastructure and servicing delivery and capacity, school, and community services and facilities (CSF) capacity.

Next Steps

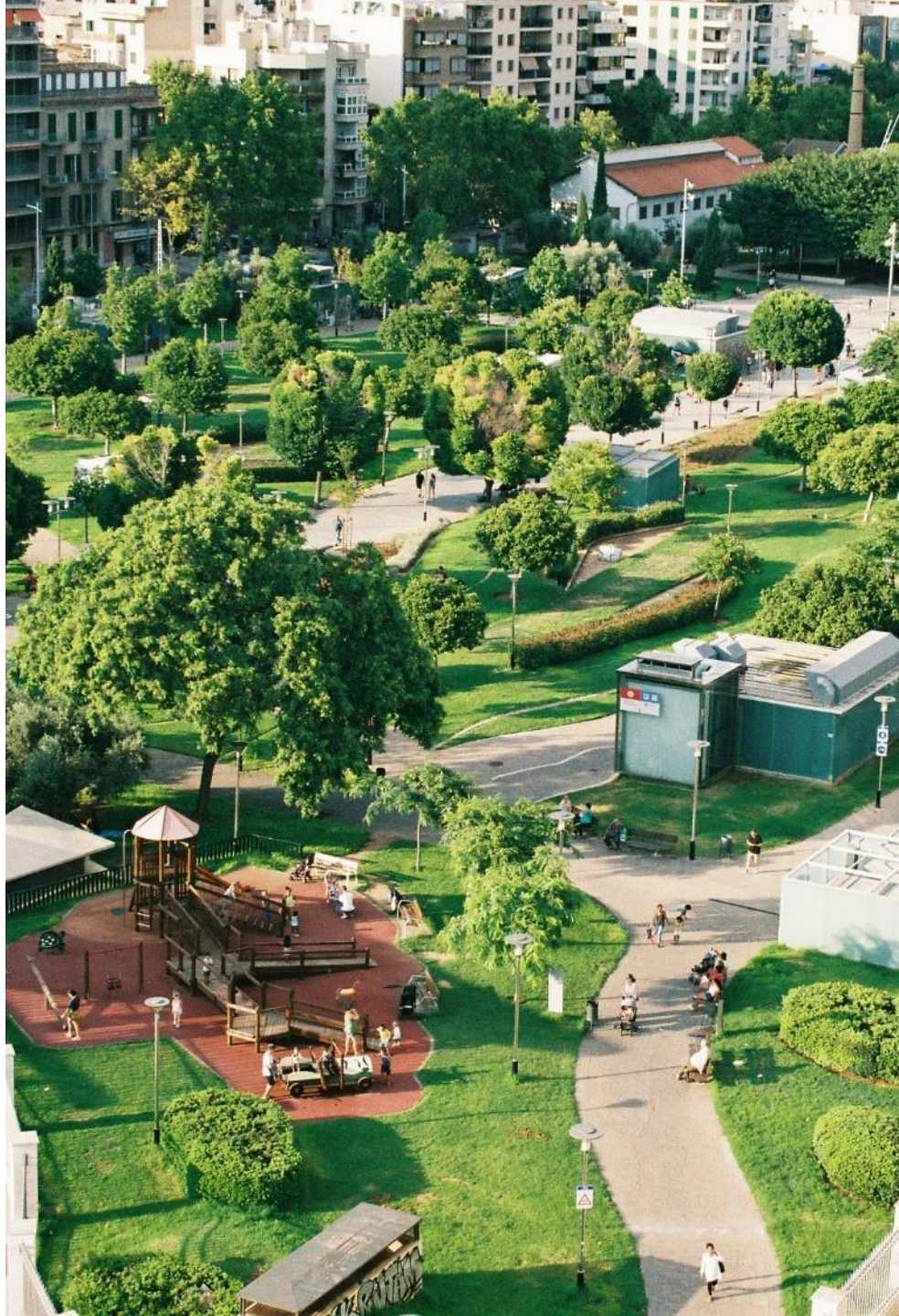
Draft Final Study Report

- The draft Final Study Report contains detailed policy and infrastructure recommendations and associated schedules / mapping for the Secondary Plan.
- The Final Study Report will contain supporting technical reports related to urban design, transportation, servicing, community services and facilities and cultural heritage
- The draft Markville Secondary Plan policy framework will be prepared by staff based on the Final Study Report and brought to a statutory public meeting targeting Q4 2025 for consultation with a Public Meeting Information Report.

Thank You!

- Visit **www.markham.ca/markville** to stay up-to-date and provide feedback on the Secondary Plan Study.

- Email the Markville Secondary Plan Project Team at **yourmarkville@markham.ca**

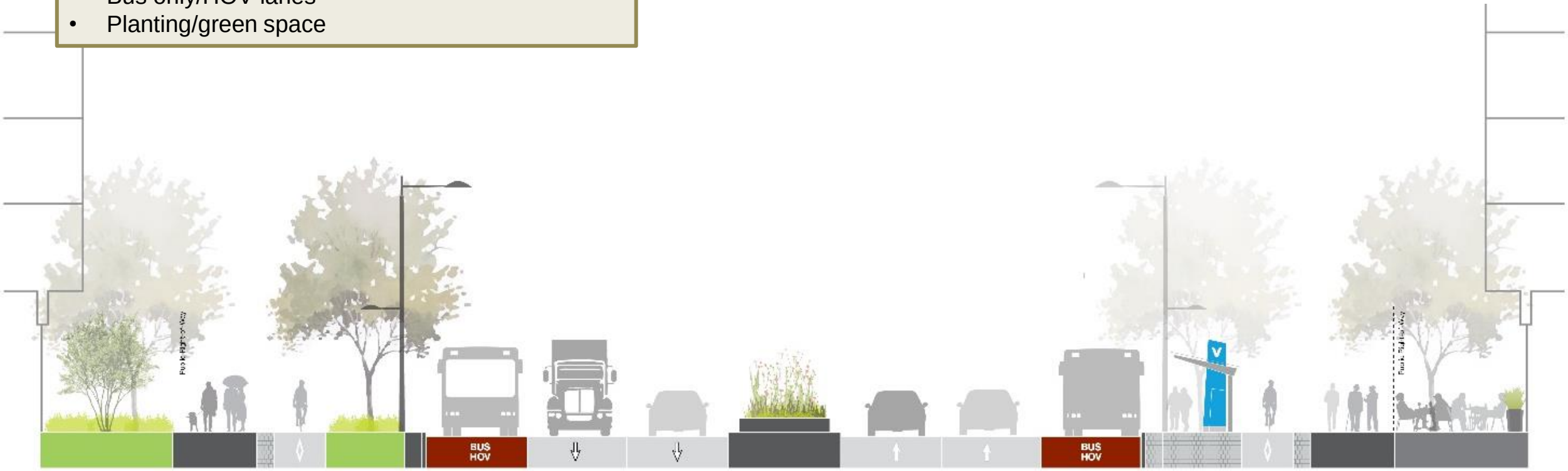


Street Typology – Urban Main Street (McCowan) (ROW 43m)

The purpose of this street typology is to efficiently move large volumes of vehicles and facilitate safe travel for active transportation users.

Features include:

- Dedicated pedestrian realm space
- Buffered bike lanes
- Bus only/HOV lanes
- Planting/green space

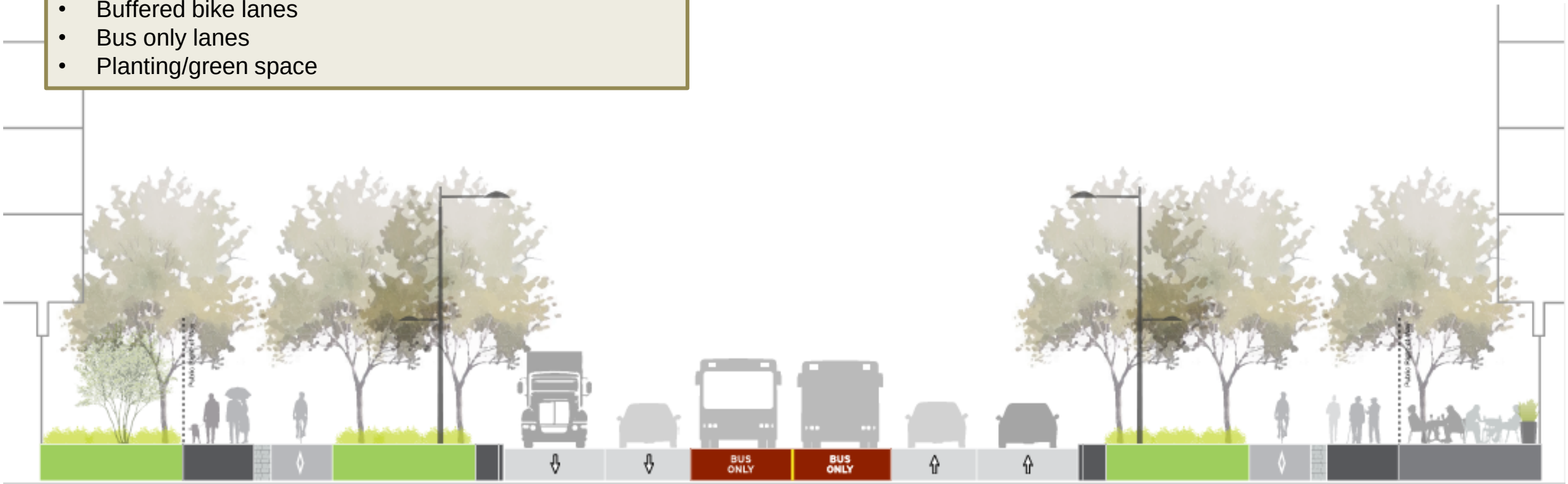


Street Typology – Urban Main Street (Highway 7) (ROW 45m)

The purpose of this street typology is also to efficiently move large volumes of vehicles and facilitate safe travel for active transportation users, but with an added emphasis on the dedicated 'Bus Only' lanes for faster transit times.

Features include:

- Dedicated pedestrian realm space
- Buffered bike lanes
- Bus only lanes
- Planting/green space

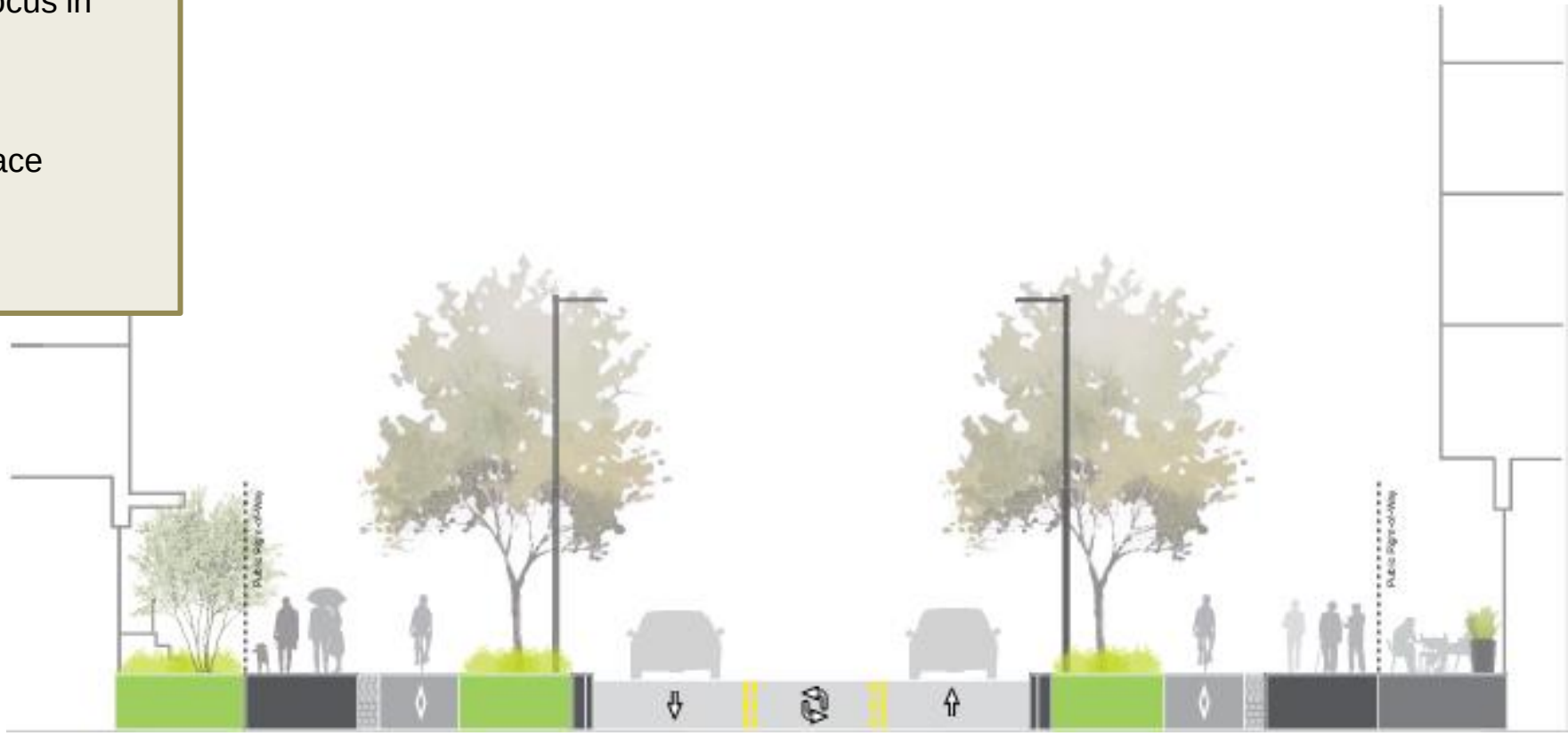


Street Typology – Neighbourhood Connections (ROW 26m)

Neighbourhood Connector streets will help to move vehicles from the Urban Main Streets closer to their destinations, and will need to serve a hybrid role in both mobility and access functions. Safety for active transportation users will be a key focus in implementing these roads.

Features include:

- Dedicated pedestrian realm space
- Buffered bike lanes
- Two-way left turn lanes
- Planting/green space

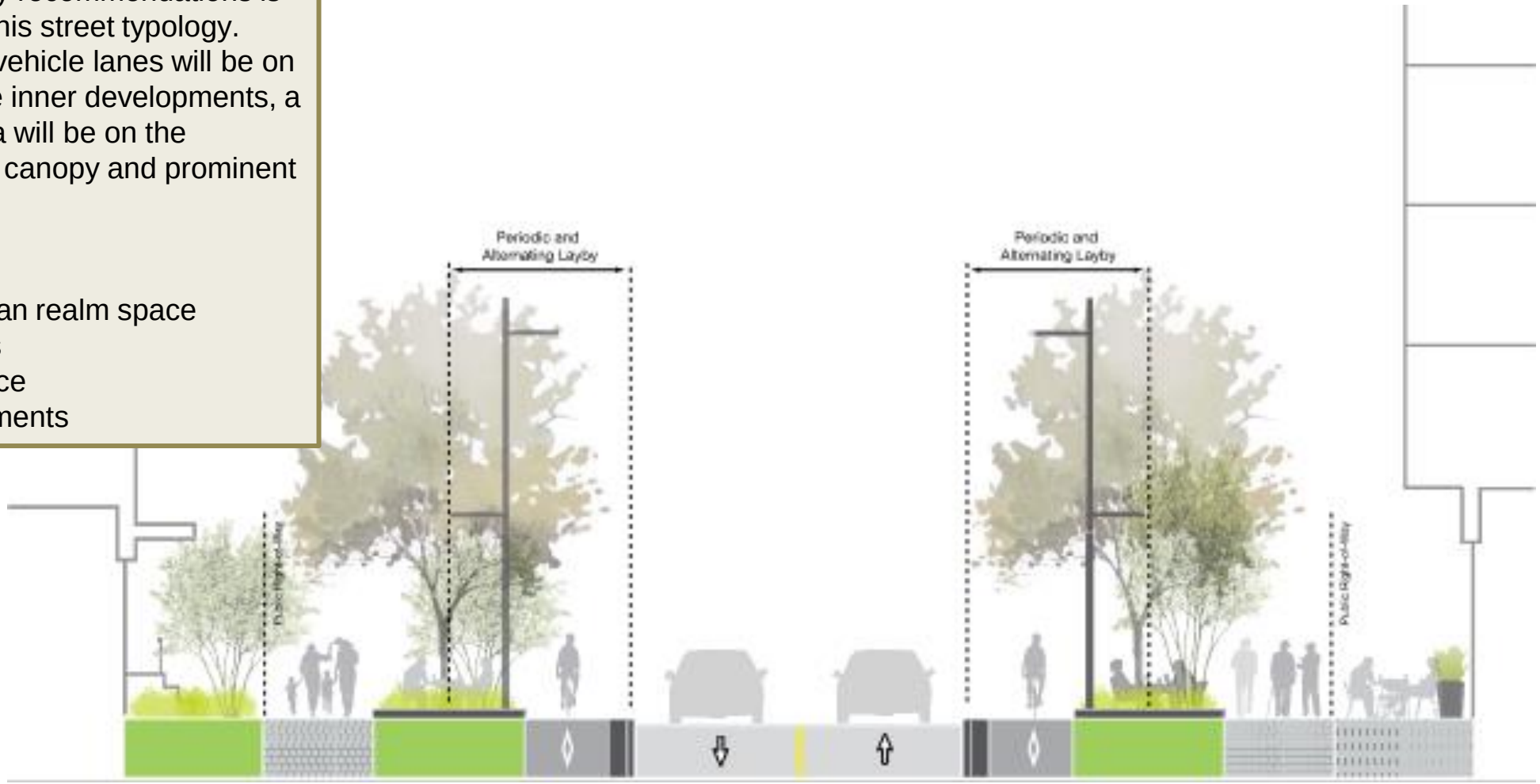


Street Typology – Markville Green Street (ROW up to 26m)

The “Neighbourhood Green Loop” identified in the Urban Design study recommendations is implemented through this street typology. While the focus of the vehicle lanes will be on providing access to the inner developments, a major focus in this area will be on the integration of an urban canopy and prominent planting spaces.

Features include:

- Dedicated pedestrian realm space
- Buffered bike lanes
- Planting/green space
- Access to developments



Street Typology – Employment Street (ROW 26m)

The employment streets intend to serve the low-medium rise employment land uses in the eastern district, and will primarily serve as a minor goods movement corridor, while still accommodating safe active transportation designs.

Features include:

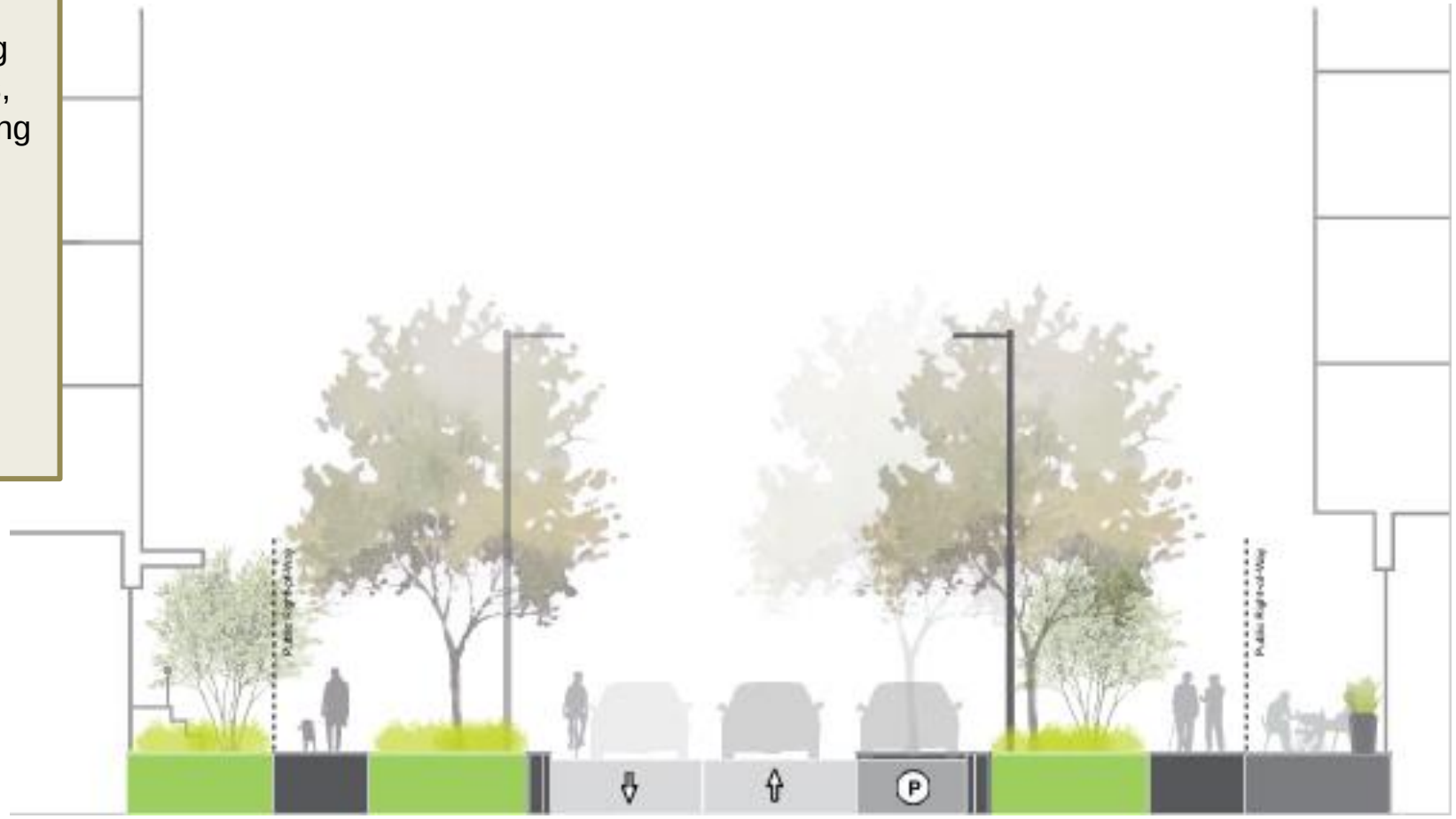
- Multi-use pathway
- On street parking
- Lane widths suitable for heavy vehicles

Street Typology – Mixed-Use Street (ROW 20m)

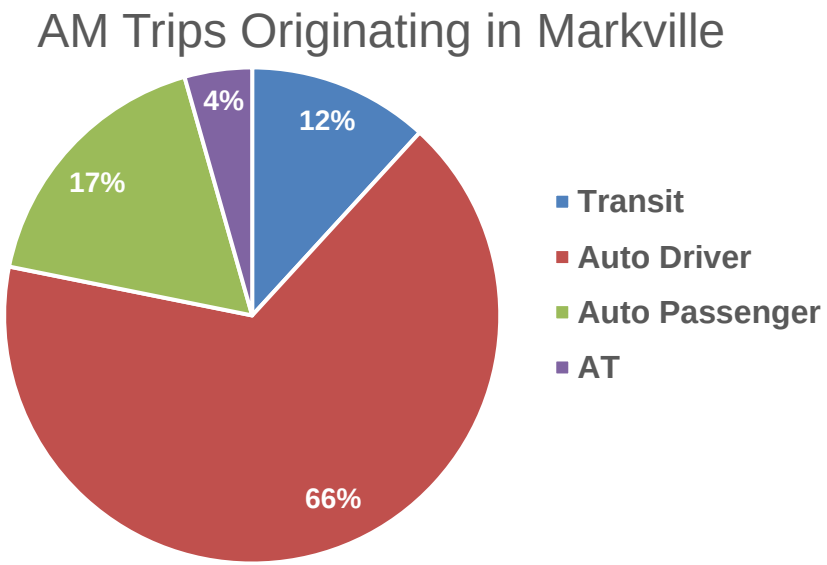
The mixed-use street is intended to be a primarily shared space for all road users. Through the use of narrow driving lanes and a variety of horizontal-deflection measures to calm traffic, it is expected that traffic moving through these roads are at very low speeds, where cyclists would feel comfortable sharing the same space, and can safely avoid any conflicts with parked cars.

Features include:

- Dedicated pedestrian realm space
- Parking spaces
- Low speed designs
- Planting/green space

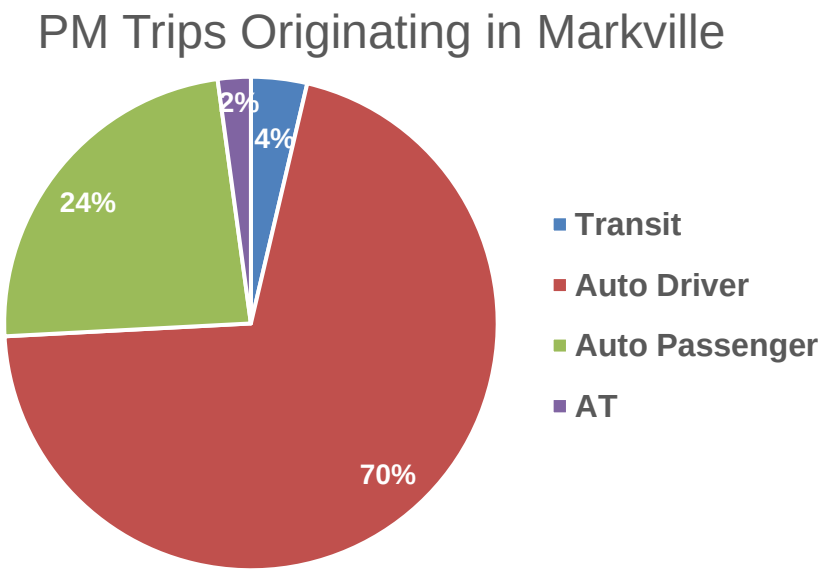


Existing Modal Splits and Trip Distribution (AM)

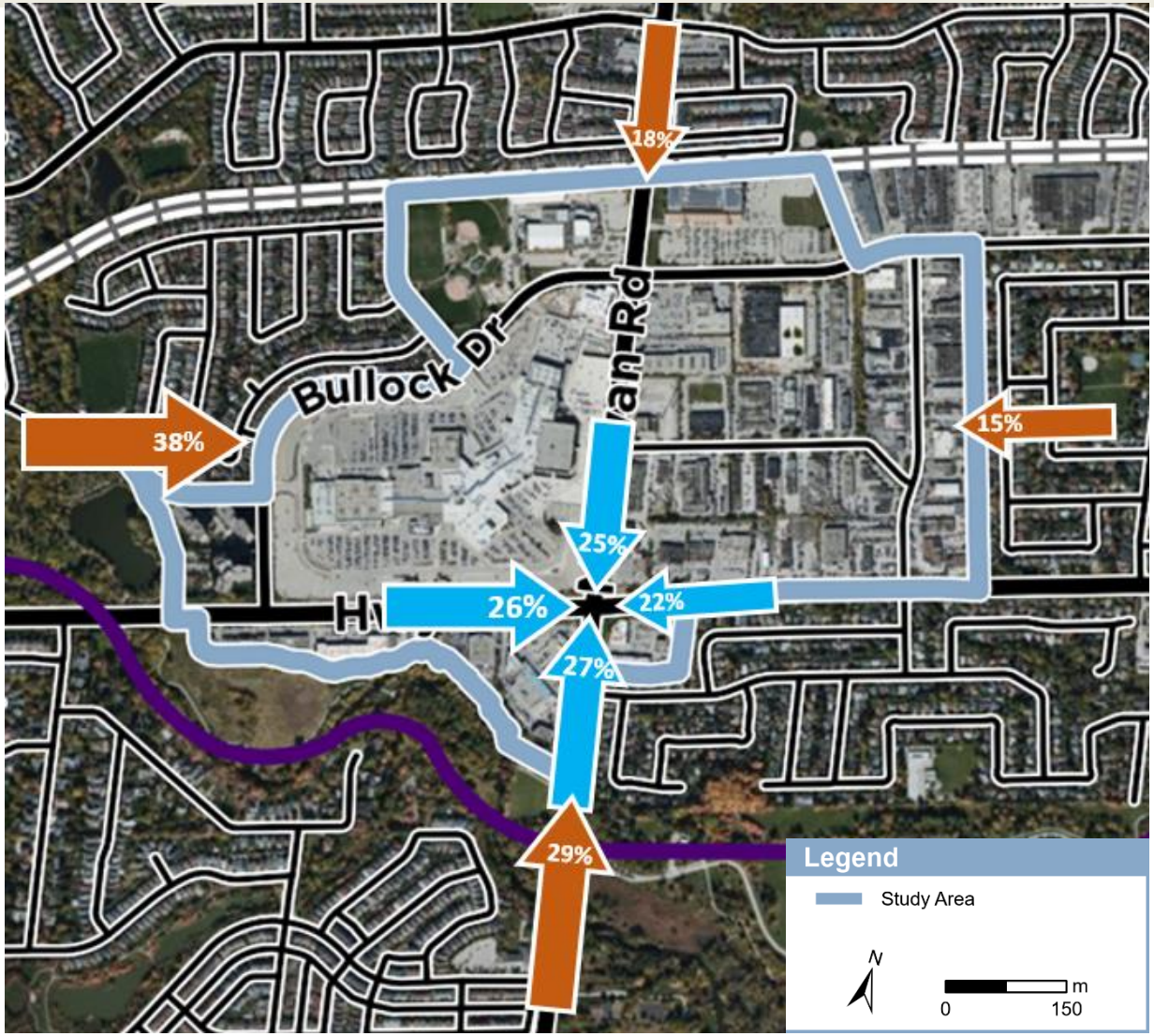


Direction of External Trips Entering Markville in the AM Peak Hour

Existing Modal Splits and Trip Distribution (PM)



Direction of External Trips Entering Markville in the PM Peak Hour



Markville SP Mode Shares

Daily Origin Mode Share

	Total Trips	Auto Drivers	Auto Passengers	Transit	AT
2016 Model	12,972	72.3%	15.4%	7.7%	4.5%
2051 Model	105,680	51.9%	23.1%	19.2%	5.9%

AM Period Origin Mode Share

	Total Trips	Auto Drivers	Auto Passengers	Transit	AT
2016 Model	2,356	61.8%	12.2%	17.7%	8.3%
2051 Model	17,755	33.4%	24.7%	32.2%	9.7%

AM Period Mode Share by Trip Direction

	Total Trips	Auto Drivers	Auto Passengers	Transit	AT
2016 Leaving / Entering the Area	7,120	62.0%	12.2%	17.7%	8.1%
2016 Internal to the Area	50	33%	11%	11%	44%
2051 Leaving / Entering the Area	33,820	44%	24%	27%	6%
2051 Internal to the Area	1,490	24%	17%	6%	52%

Daily Mode Share Comparison to Other Areas

	2051	2016				
	Markville Secondary Plan	Downtown Toronto (PD1)	Midtown Toronto (PD4)	North York (PD 11)	City of Markham	York Region
0 Car Households (%)	60%	51.7%	28.6%	18.2%	4.5%	3.9%
Average Auto Ownership / HHLD	0.40	0.60	1.03	1.22	1.77	2.00
Auto Trips	79,260	173,028	287,915	257,635	488,641	1,700,952
	75%	31.2%	58.2%	63.7%	81.7%	84.2%
Transit	20,290	154,911	139,094	117,271	62,238	166,870
	19.2%	28.0%	28.1%	29.0%	10.4%	8.3%
Active Transportation	6,130	224,665	65,306	27,084	37,600	107,656
	5.8%	40.6%	13.2%	6.7%	6.3%	5.3%
Total	105,680	553,788	494,834	404,500	598,064	2,020,777

Peak Hour Mode Share Comparison to Other Secondary Plan Areas

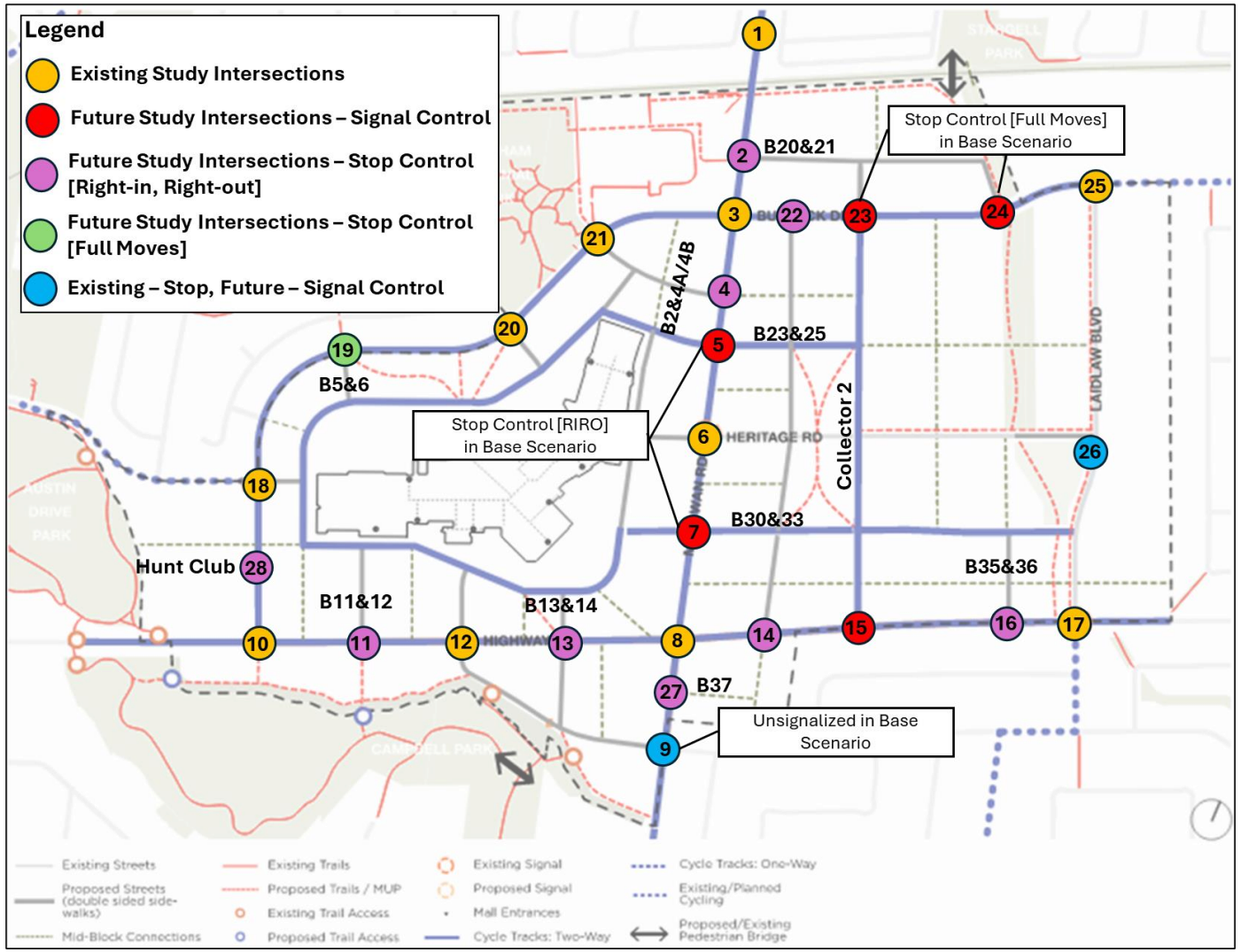
Peak Period Mode Share	Markville SP (AM Peak)	Mount Joy SP* (AM and PM Peak)	Markham Centre SP** (AM and PM Peak)	Yonge Street SP (PM Peak)
Transit	32.2%	Low: 10% High: 18%	<1 km 5% 1 – 5 km 30% >5 km 30%	Internal:14% External:39%
Active Transportation	9.7%	Low: 11% High: 20%	<1 km 85% 1 – 5 km 40% >5 km 0%	Internal: 43% External: 9%
Auto Driver and Passenger	58%	Low: 79% High: 63%	<1 km 10% 1 – 5 km 20% >5 km 60%	Internal:43% Extenal:52%

* Low and high non-auto mode share scenarios
** Others mode share: 0%, 10%, 10% for each trip distance, respectively.

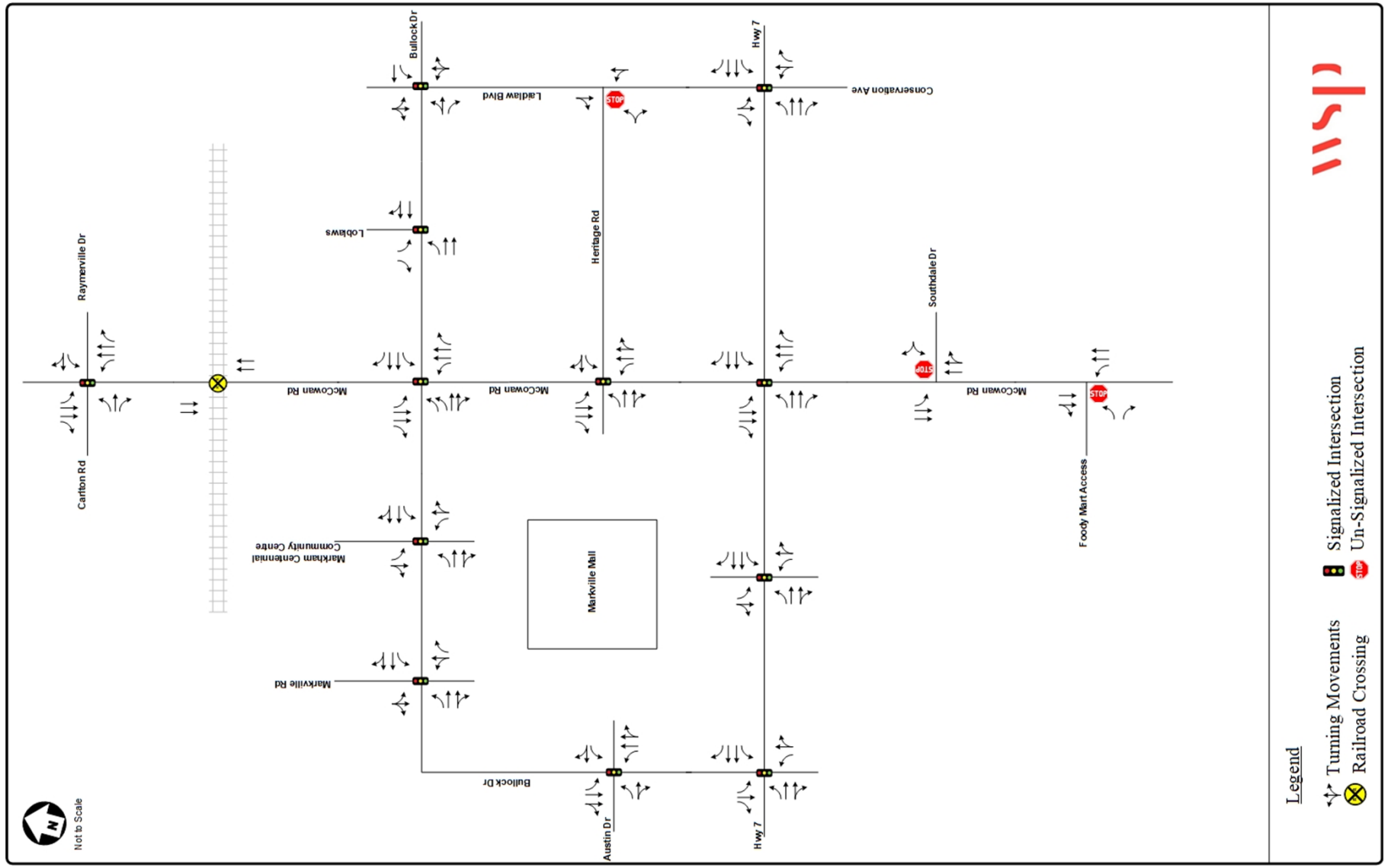
Future Intersection Control Type for Alternatives

WSP tested four alternatives for 2051

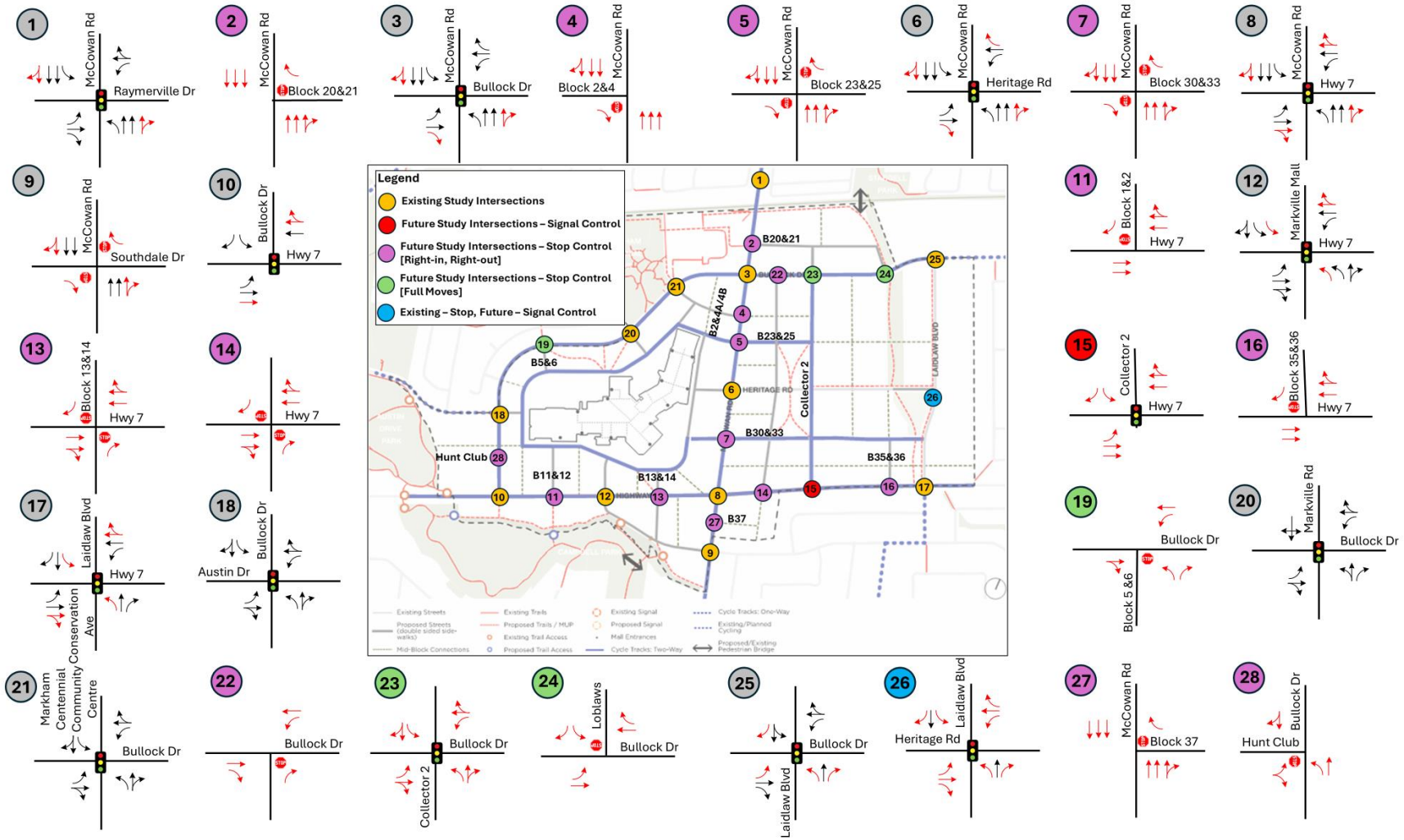
- Base Case
- Alternative 1
- Alternative 2
- Alternative 3



Existing Lane Configurations



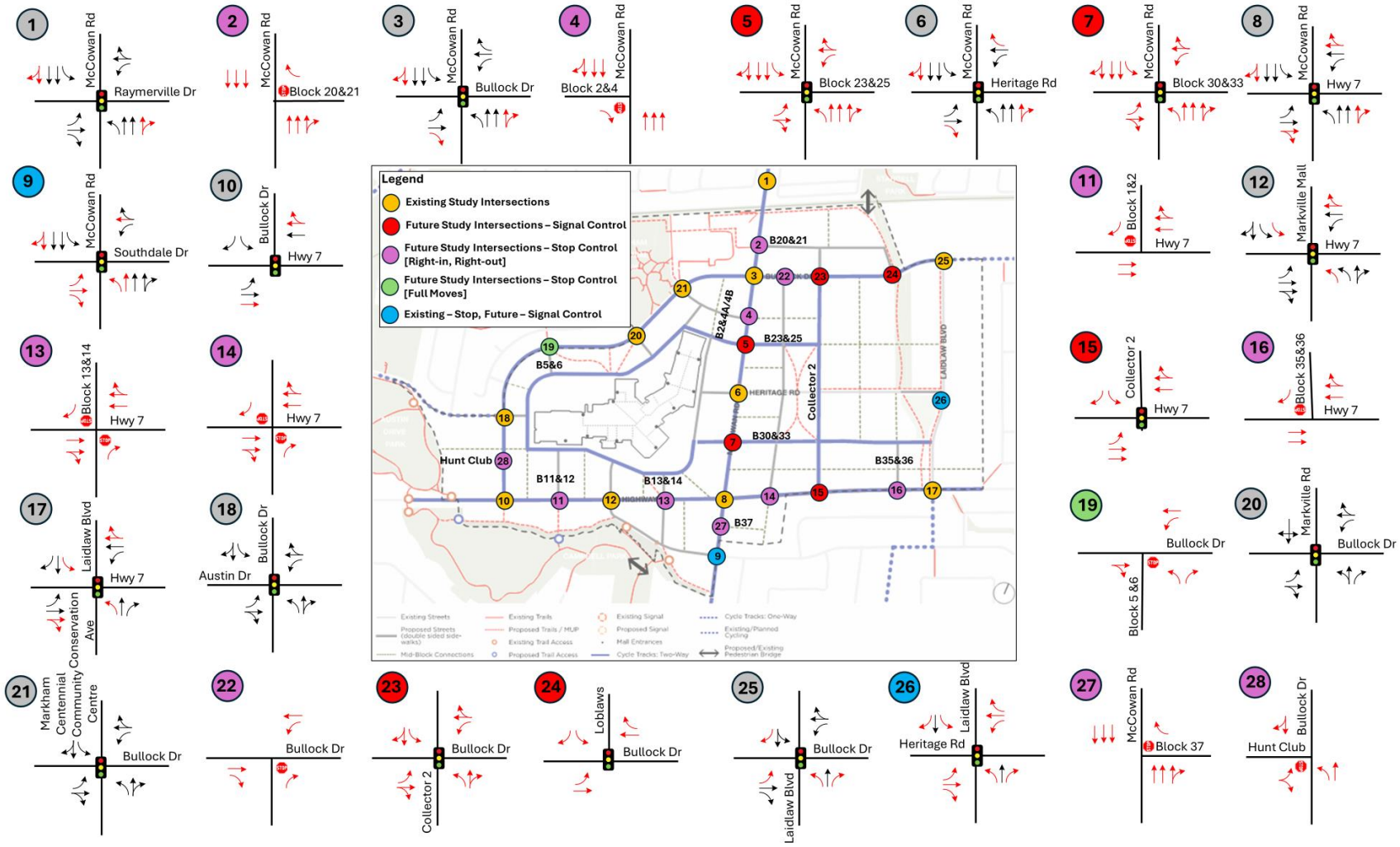
2051 Lane Configurations – Base Case



Legend Signal Control Stop Control Turning Movements Additional/Modified Movements

2051 Lane Configuration – Base Case

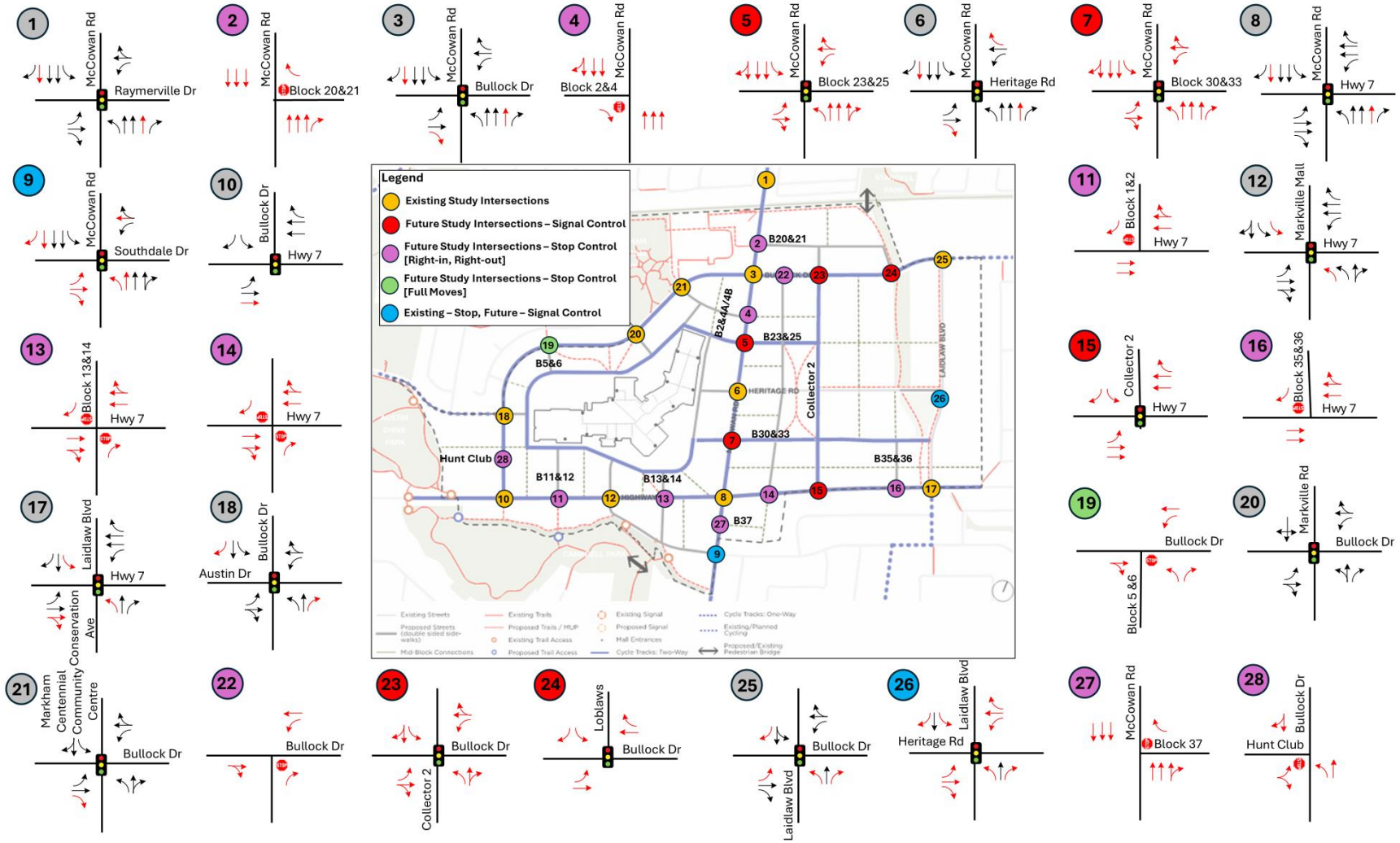
2051 Lane Configurations – Alternative 1



Legend Signal Control Stop Control Turning Movements Additional/Modified Movements

2051 Lane Configuration – Alt. 1

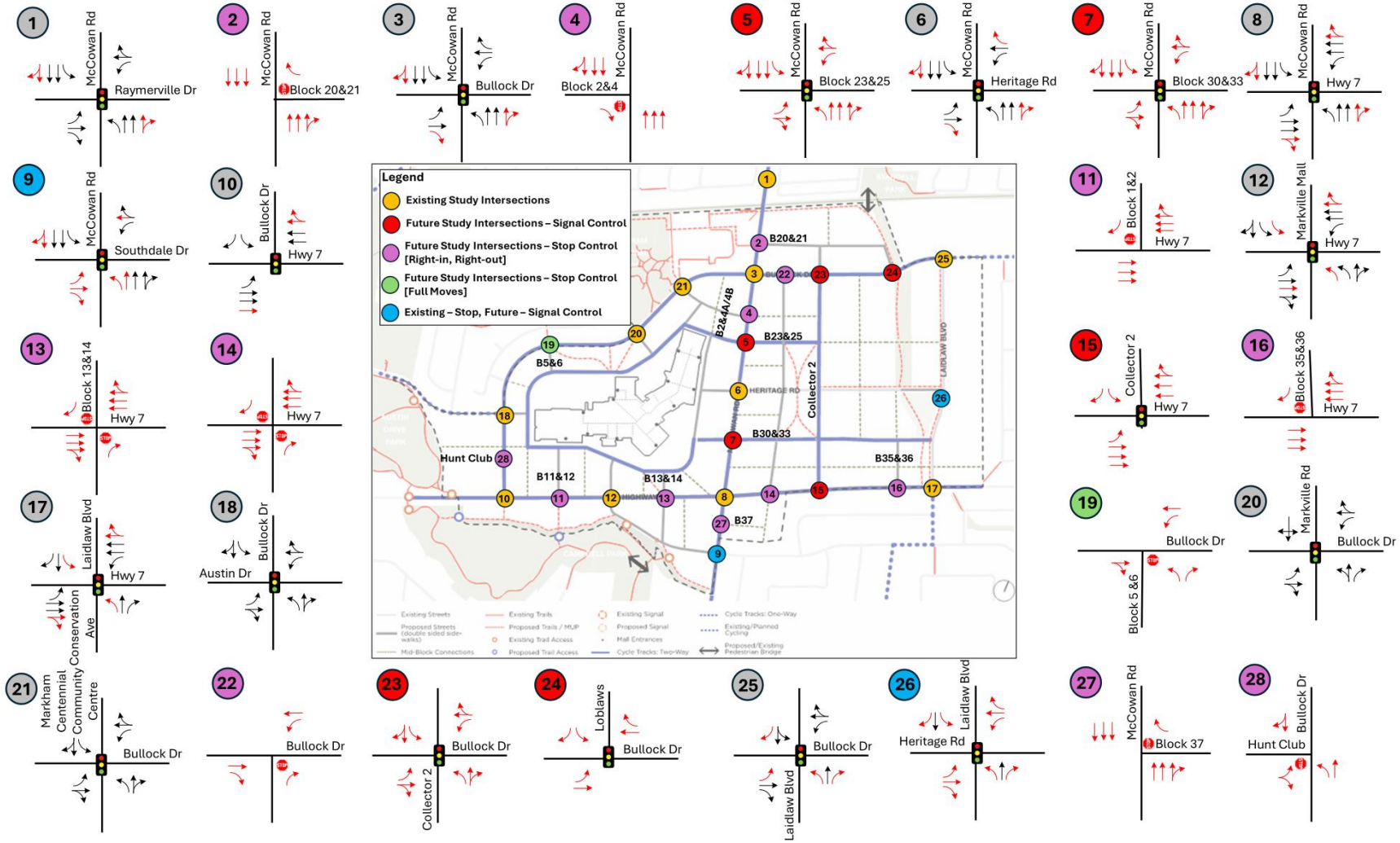
2051 Lane Configurations – Alternative 2



Legend Signal Control Stop Control Turning Movements Additional/Modified Movements

Future Lane Configuration – Alt. 2

2051 Lane Configurations – Alternative 3



Existing LOS Analysis at Key Intersections

Existing - AM Peak Hour

LEGEND

- Road network
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Existing LOS Analysis at Key Intersections

Existing - PM Peak Hour

LEGEND

- Road network
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Existing LOS Analysis at Key Intersections

Existing - Sat Peak Hour

LEGEND

- Road network
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

Base 2051 - AM Peak Hour

LEGEND

- Road network
- XX → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

Base 2051 - PM Peak Hour

LEGEND

- Road network
- X → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

Base 2051 - Saturday Peak Hour

LEGEND

- Road network
- X → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 1 - AM Peak Hour

LEGEND

- Road network
- X → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 1 - PM Peak Hour

LEGEND

- Road network
- X → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 1 - Saturday Peak Hour

LEGEND

- Road network
- X → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 2 - AM Peak Hour

LEGEND

- Road network
- xx→ v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 2 - PM Peak Hour

LEGEND

- Road network
- XX → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 2 - Saturday Peak Hour

LEGEND

- Road network
- XX → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 3 - AM Peak Hour

LEGEND

- Road network
- XX → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 3 - PM Peak Hour

LEGEND

- Road network
- XX → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Future Intersection LOS Analysis at Key Intersections

2051 Alternative 3 - Saturday Peak Hour

LEGEND

- Road network
- XX → v/c ratio > 1
- Signalized Intersection
- Unsignalized Intersection

Signalized Intersections	
LOS	Delay
A	≤ 10
B	> 10 and ≤ 20
C	> 15 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Unsignalized Intersections	
LOS	Delay (sec)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Note: For unsignalized intersections, the LOS shown on map is for the movement with the longest delay

Transit Capacity