

BANK STREET RENEWAL

RIVERSIDE DRIVE TO LEDBURY AVENUE

FUNCTIONAL DESIGN STUDY

PUBLIC OPEN HOUSE
DECEMBER 6, 2016



AGENDA

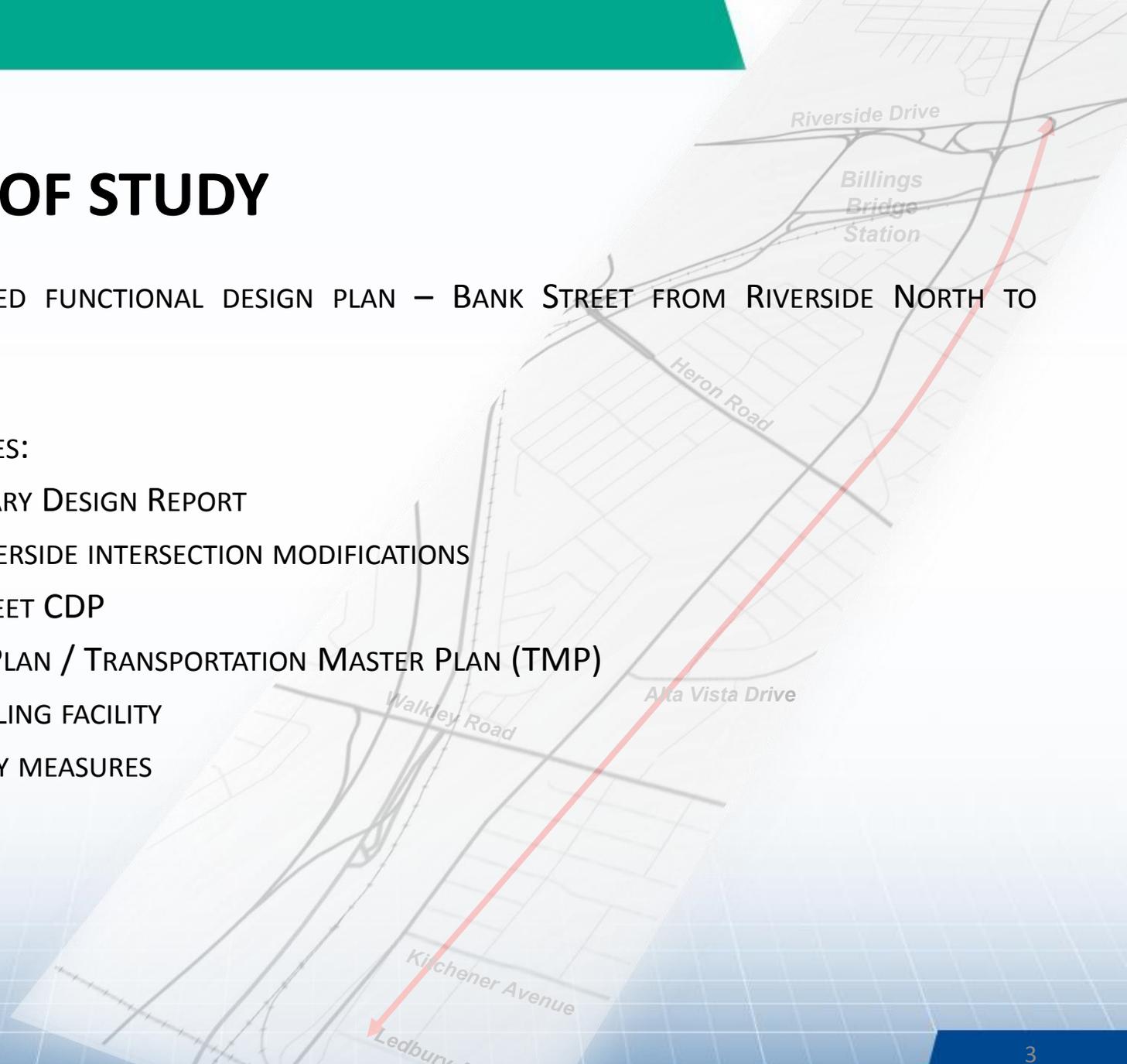
- PURPOSE OF STUDY
- STUDY TIMELINE
- STUDY CONTEXT
- CORRIDOR DESIGN CRITERIA
- RECOMMENDED FUNCTIONAL DESIGN (NORTH TO SOUTH)
- FEEDBACK & DISCUSSION

PURPOSE OF STUDY

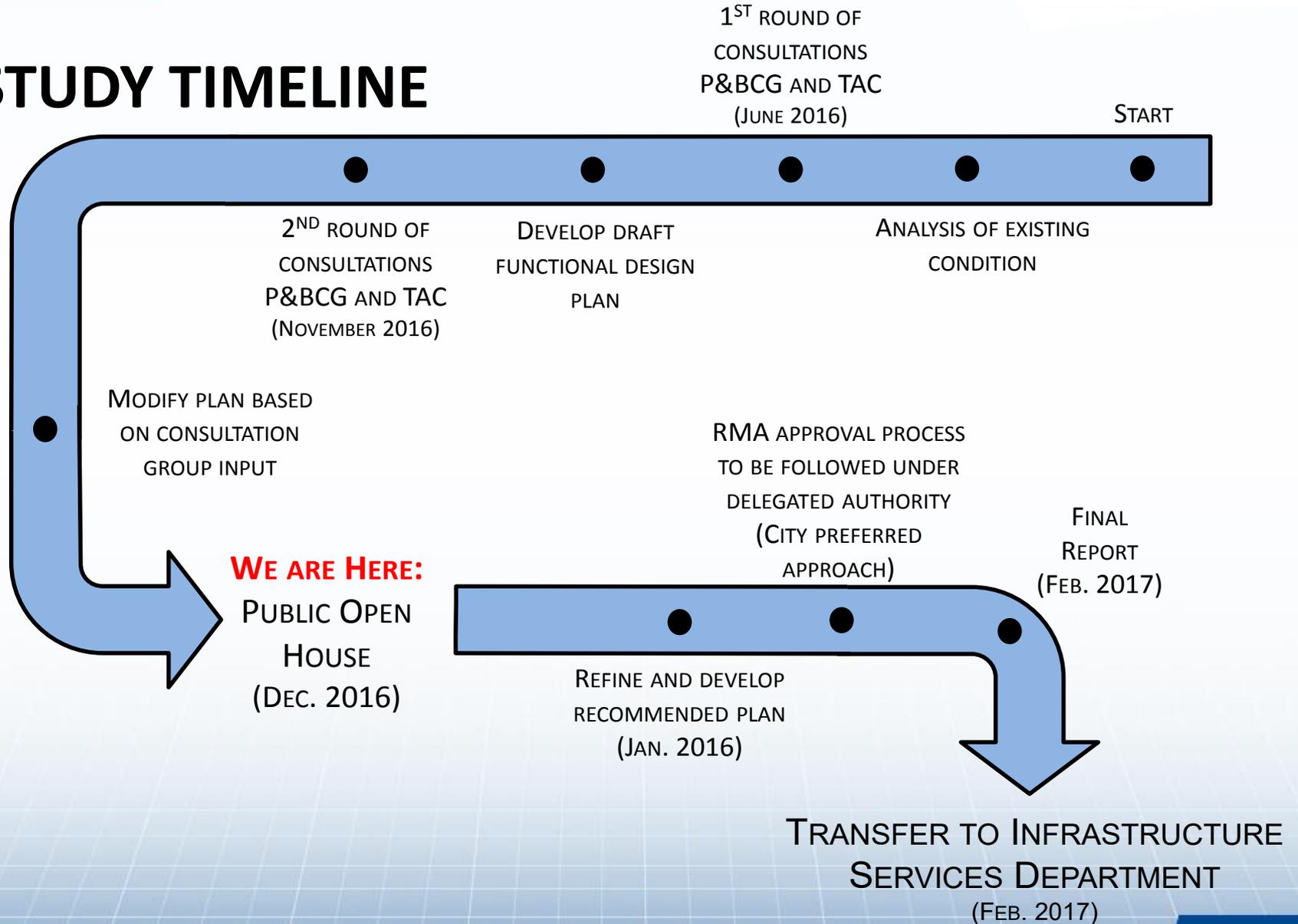
DEVELOP AN UPDATED FUNCTIONAL DESIGN PLAN — BANK STREET FROM RIVERSIDE NORTH TO LEDBURY AVENUE

UPDATE INCORPORATES:

- 2007 PRELIMINARY DESIGN REPORT
- 2008 BANK/RIVERSIDE INTERSECTION MODIFICATIONS
- 2012 BANK STREET CDP
- 2013 OFFICIAL PLAN / TRANSPORTATION MASTER PLAN (TMP)
- SEGREGATED CYCLING FACILITY
- TRANSIT PRIORITY MEASURES



STUDY TIMELINE



STUDY CONTEXT

2012 BANK STREET COMMUNITY DESIGN PLAN (CDP)

- FRAMEWORK FOR FUTURE DEVELOPMENT:
 - POLICY DIRECTIONS IN THE CITY'S OFFICIAL PLAN
 - SITE SPECIFIC OBJECTIVES

- CDP's 13 CAPITAL PROJECTS:
 - #1 – BANK STREET RECONSTRUCTION PROJECT



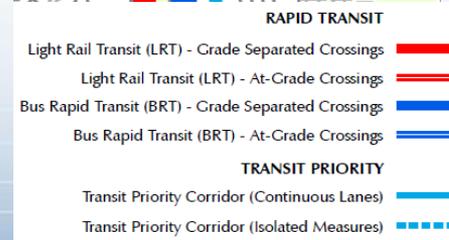
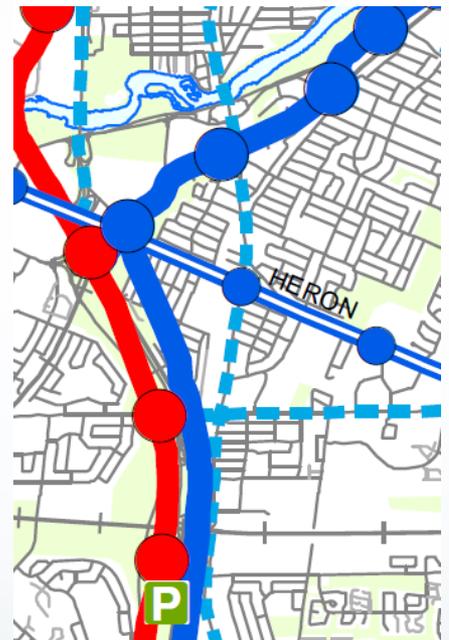
STUDY CONTEXT

2013 TRANSPORTATION MASTER PLAN (TMP)

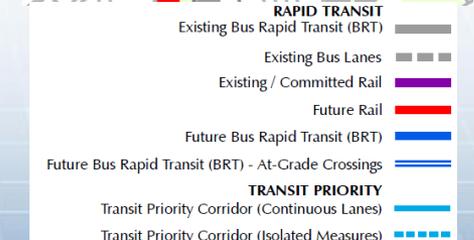
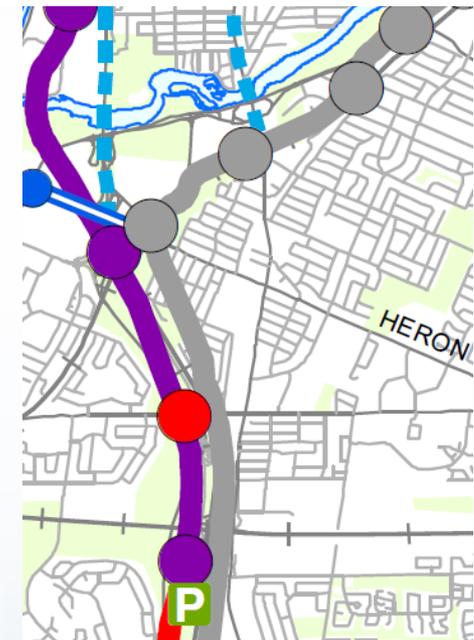
- TRANSPORTATION VISION 2031:
 - COMPLETE STREETS
 - WALKING / CYCLING
 - TRANSIT-ORIENTED DEVELOPMENT

- BANK STREET IDENTIFIED AS:
 - ARTERIAL MAIN STREET
 - CROSS-TOWN BIKEWAY OR SPINE ROUTE (CYCLING)
 - ISOLATED TRANSIT PRIORITY (ULTIMATE NETWORK)

ULTIMATE TRANSIT NETWORK



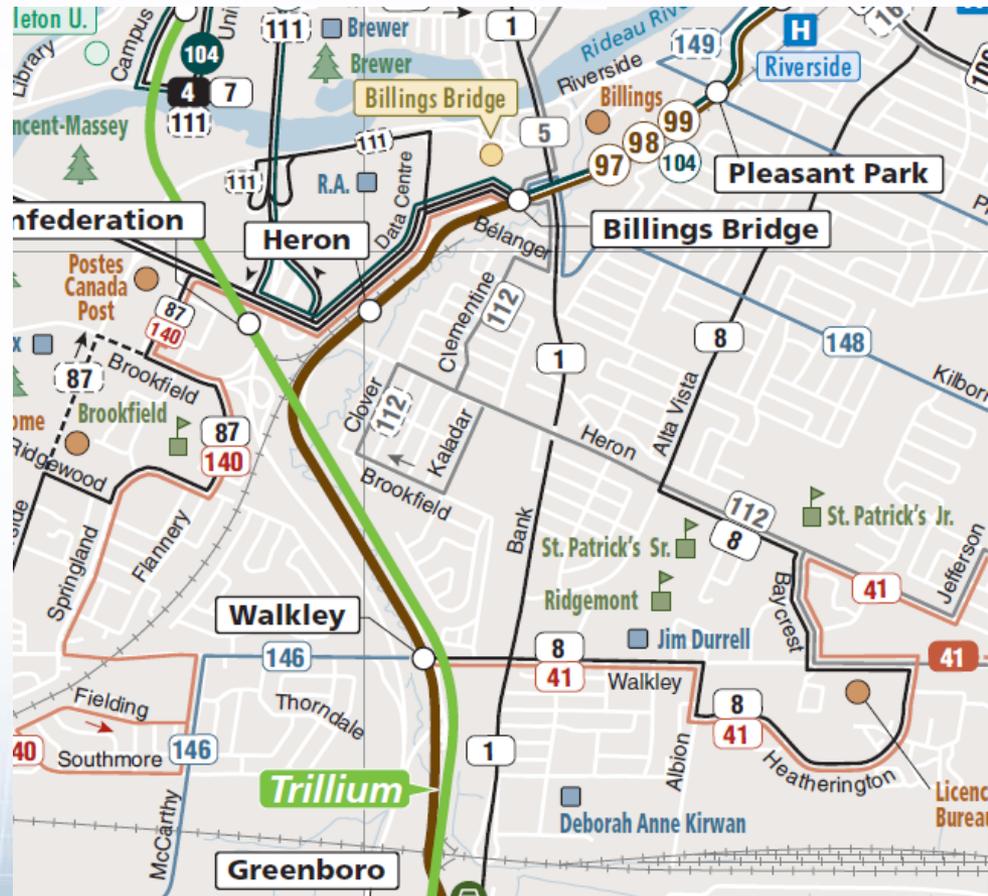
2031 AFFORDABLE TRANSIT NETWORK



STUDY CONTEXT

TRANSIT SERVICES

- OPERATING ROUTES:
 - 1
 - 5
 - 8
 - 41
 - 112
 - 148



STUDY CONTEXT

COMPLETE STREETS AND MULTI-MODAL LEVEL OF SERVICE (MMLOS)

- COMPLETE STREETS:
 - BALANCE THE SAFETY AND MOBILITY OF ALL USERS
 - DEVELOPMENT OF THE MMLOS GUIDELINES

MODE	ELEMENT	LEVEL OF SERVICE	
		←	→
Pedestrians (PLOS)	Segments	High level of comfort	Low level of comfort
	Intersections	Short delay, high level of comfort, low risk	Long delay, low level of comfort, high risk
Bicycles (BLOS)	Segments	High level of comfort	Low level of comfort
	Intersections	Low level of risk / stress	High level of risk / stress
Trucks (TkLOS)	Segments	Unimpeded movement	Impeded movement
	Intersections	Unimpeded movement / short delay	Impeded movement / long delay
Transit (TLOS)	Segments	High level of reliability	Low level of reliability
	Intersections	Short delay	Long delay
Vehicles (LOS)	Intersections	Low lane utilization	High lane utilization

- MMLOS
 - COMPARISON OF MODES
 - RELATIVE ATTRACTIVENESS/COMFORT
 - TRADE-OFFS

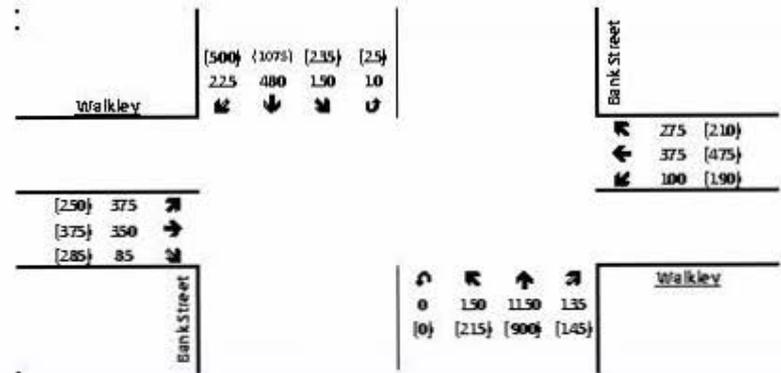
OP Designation / Policy Area	Road Class	Bicycle - BLOS					Transit - TLOS ²		Truck - TrLOS		Auto - LOS	
		PLOS	Cross-town Bikeway	Spine Route	Local Route	Elsewhere	Rapid Transit Corridor	TP - Continuous Lanes	TP - Isolated Measures	Truck Route		Other
<i>Land Use Designation</i>												
Arterial Main Street	Arterial	C	B	C	D	D	B	C	D	D	E	D
<i>Policy Area³</i>												
Within 600m of a rapid transit station	Arterial	A	A	C	B	D	A	C	D	D	E	E
	Collector	A	A	B	B	D	A	C	D	D	No target	E
	Local	A	A	B	B	D	A	C	D	N/A	No target	E

CITY'S INTERSECTION MMLOS TARGETS						
1	RIVERSIDE DRIVE WESTBOUND	A	A	D	D	E
2	RIVERSIDE DRIVE EASTBOUND	A	A	D	D	E
13	HERON ROAD	C	B	D	D	D
19	ALTA VISTA DRIVE	A	C	D	D	E
20	WALKLEY ROAD	A	C	D	D	E

STUDY CONTEXT

TRANSPORTATION ANALYSIS

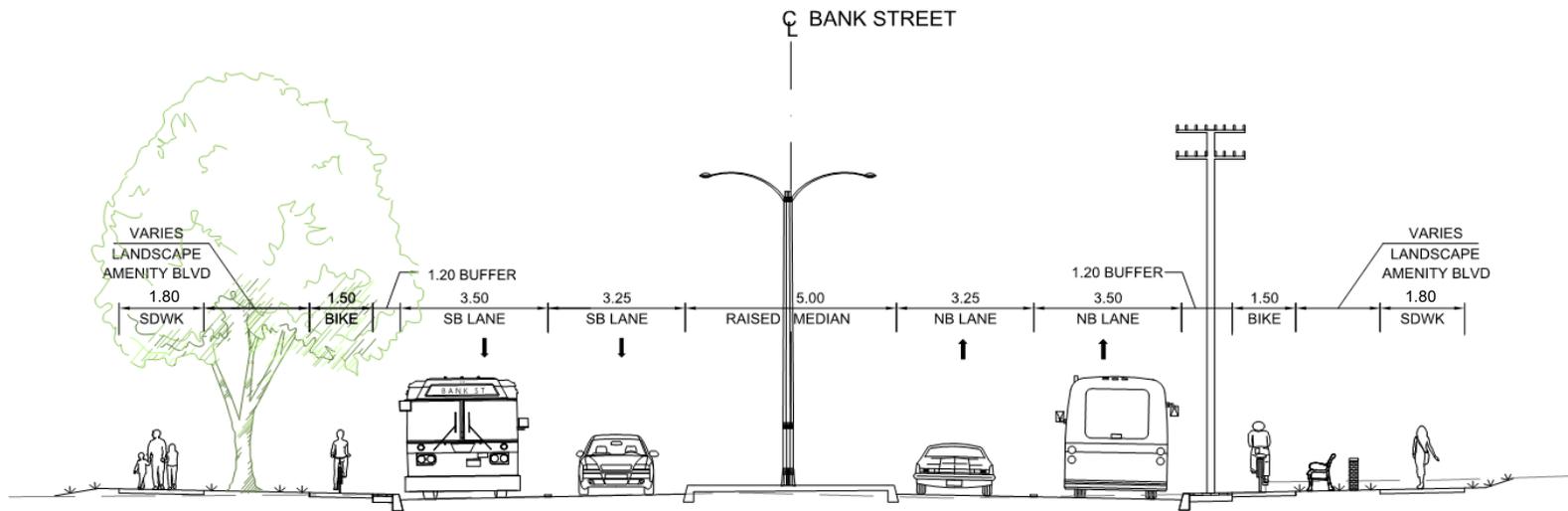
- TRAFFIC VOLUMES AND SIMULATION:
 - AM AND PM PEAK HOUR
 - FUTURE (2031) CONDITIONS:
 - CITY TRANS REGIONAL MODEL SHOWS TRAFFIC DECREASE (~5%)
 - RESULTS IN THIS PRESENTATION ARE FROM ANALYSES USING EXISTING VOLUMES
- COLLISION DATA



CORRIDOR DESIGN CRITERIA

GENERAL DESIGN CRITERIA

- 37.5M ULTIMATE RIGHT-OF-WAY
- 50 KM/H DESIGN SPEED
- 3.25M GENERAL LANES
- 3.5M CURB LANES
- MINIMUM 1.5M MEDIAN
- 4.0-5.0M DEPRESSED MEDIAN



CORRIDOR DESIGN CRITERIA

DEPRESSED MEDIAN DESIGN

- EXISTING TWO-WAY LEFT-TURN LANES:
 - IDENTIFIED FOR REMOVAL WITHIN CDP
 - COMMUNITY CONCERNS
 - HIGH COLLISION RATES

- FUNCTIONAL DESIGN:
 - 1.5M MEDIAN WITH 3.25M-3.5M ONE-WAY LEFT TURN LANES
 - DEPRESSED MEDIAN FOR MULTIPLE ACCESSES



Raised 1.5m Median w/ Left-Turn Lanes



Depressed 4.0-5.0m Median

CORRIDOR DESIGN CRITERIA

CRITERIA FOR PEDESTRIAN AND CYCLING REALM

- PREFERRED (WITH BOULEVARD):
 - 1.2M BUFFER
 - 1.5M CYCLE TRACK
 - 1.5-2.5M LANDSCAPE / AMENITY BOULEVARD
 - 1.8M SIDEWALK



CORRIDOR DESIGN CRITERIA

CRITERIA FOR PEDESTRIAN AND CYCLING REALM

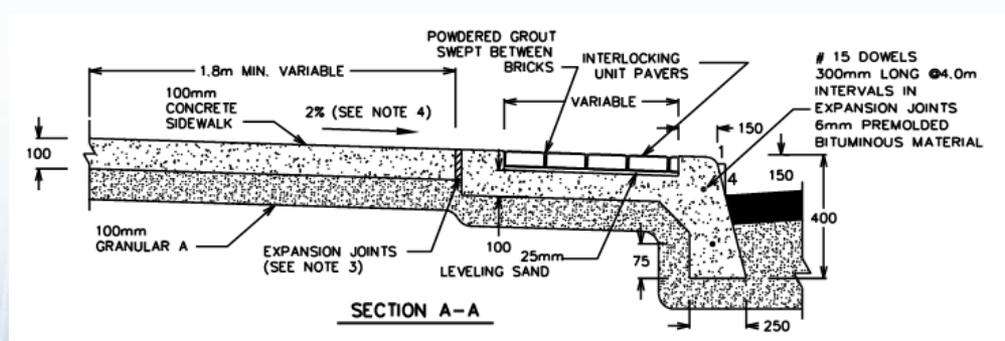
- PREFERRED (NO BOULEVARD):

- 1.2M BUFFER
- 1.8M CYCLE TRACK
- 0.2M DELINEATOR STRIP
- 2.0M SIDEWALK
- 1.8M BUS STOP PAD



- MINIMUM:

- 0.65M BUFFER
- 1.5M CYCLE TRACK
- 0.2M DELINEATOR STRIP
- 1.8M SIDEWALK
- 1.2M BUS STOP PAD



RECOMMENDED FUNCTIONAL DESIGN

FROM NORTH TO SOUTH – AREAS OF INTEREST



ELEVEN AREAS:

- RIVERSIDE NORTH
- RIVERSIDE SOUTH
- BILLINGS BRIDGE SHOPPING CENTRE ACCESS
- KILBORN PLACE
- BLUE HERON MALL
- HERON ROAD
- BETWEEN HERON AND ERIE
- ALTA VISTA DRIVE
- WALKLEY ROAD
- NOTTING HILL AVENUE
- BETWEEN NOTTING HILL AND KITCHENER

RIVERSIDE DRIVE NORTH



- EXISTING CONDITIONS
- GRADE SEPARATED RIDEAU RIVER EASTERN PATHWAY
- RECOMMENDED FUNCTIONAL DESIGN

RIVERSIDE DRIVE NORTH

EXISTING CONDITIONS

- LANE CONFIGURATION
 - TWO THROUGH LANES FOR NORTHBOUND, SOUTHBOUND, AND WESTBOUND VEHICLES
 - DEDICATED WBL LANE
- NORTH CROSSWALK
 - NO CROSSRIDE FACILITY
 - CONSTRAINED NORTH CORNERS
- COLLISION HISTORY:
 - CYCLING FATALITY IN 2013



RIVERSIDE DRIVE NORTH

RIDEAU RIVER EASTERN PATHWAY CROSSING

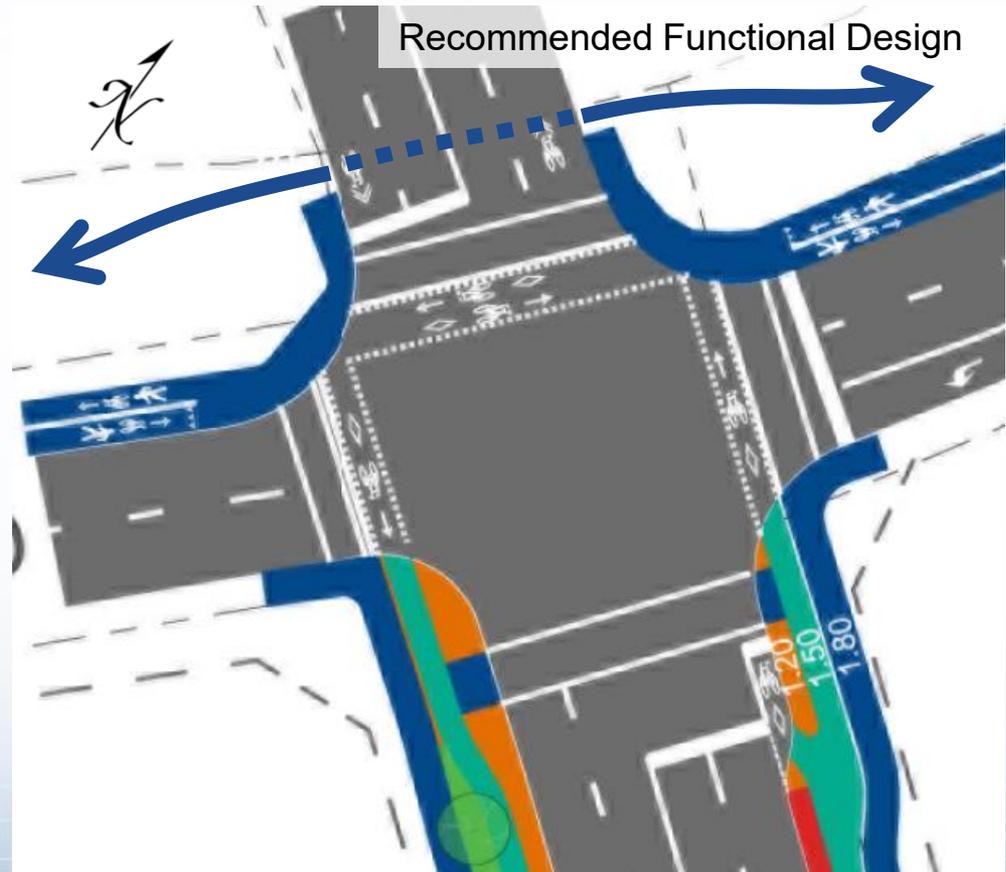
- CITY/NCC GRADE SEPARATED RIDEAU RIVER EASTERN PATHWAY:
 - CONSTRUCTION 2018
 - MAJORITY OF EAST-WEST CYCLING/PEDESTRIAN TRAFFIC REMOVED FROM INTERSECTION



RIVERSIDE DRIVE NORTH

RIDEAU RIVER EASTERN PATHWAY CROSSING

- NO CHANGE TO LANE CONFIGURATION
- NORTH LEG CROSSING
 - SEPARATED CROSSRIDE
 - ACCOMMODATES ALL USERS AND MOVEMENTS
 - NORTH CORNERS REMAIN CONSTRAINED
- NORTHBOUND CYCLISTS :
 - TRANSITION TO MIXED TRAFFIC USING BIKE LANE WITH ADVANCED STOP BAR
 - OR CROSSRIDE TO NORTHEAST CORNER



RIVERSIDE DRIVE SOUTH



- EXISTING CONDITIONS
- RECOMMENDED FUNCTIONAL DESIGN

RIVERSIDE DRIVE SOUTH

EASTBOUND VEHICLE CAPACITY AND WEAVING

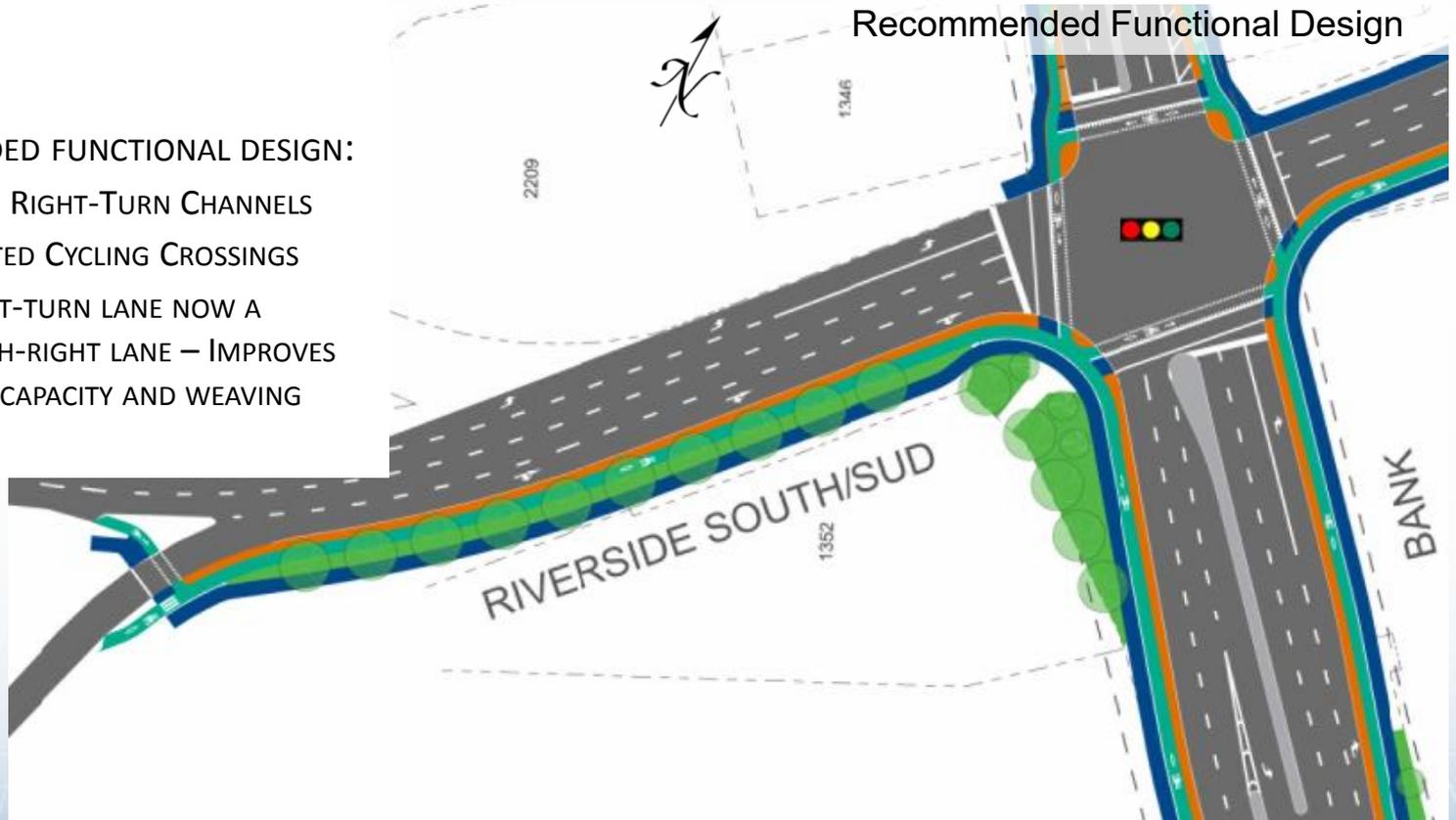
- LANE CONFIGURATION
 - TWO THROUGH LANES FOR NORTHBOUND, SOUTHBOUND, AND EASTBOUND VEHICLES
 - DEDICATED EBL, EBR AND NBR LANES
- EXISTING WEAVING ISSUE:
 - TWO WEAVES
 - 60M IN LENGTH FOR LEFT TURN CHANNEL
 - 35M IN LENGTH FOR RIGHT TURN CHANNEL
- NORTHERN EXTENT OF BANK STREET BIKE LANES
- LARGE EASTBOUND RIGHT-TURN ISLAND



RIVERSIDE DRIVE SOUTH

EASTBOUND VEHICLE CAPACITY AND WEAVING

- RECOMMENDED FUNCTIONAL DESIGN:
 - REMOVE RIGHT-TURN CHANNELS
 - PROTECTED CYCLING CROSSINGS
 - EB RIGHT-TURN LANE NOW A THROUGH-RIGHT LANE – IMPROVES VEHICLE CAPACITY AND WEAVING



BILLINGS BRIDGE SHOPPING CENTRE

SPECIFIC ISSUES AND CONCERNS

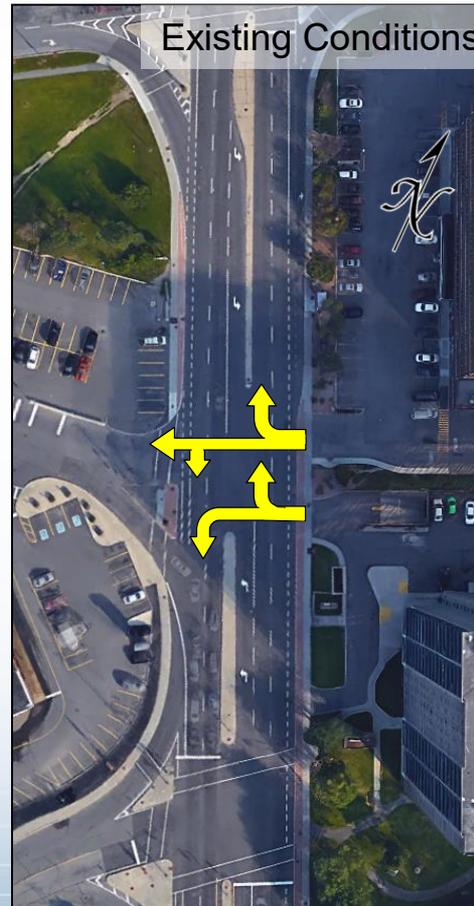


- COMMERCIAL/APARTMENT ACCESS
- UNSIGNALIZED NORTHBOUND LEFT-TURN
 - EXISTING ISSUE
- RECOMMENDED FUNCTIONAL DESIGN

BILLINGS BRIDGE SHOPPING CENTRE

COMMERCIAL/APARTMENT ACCESS

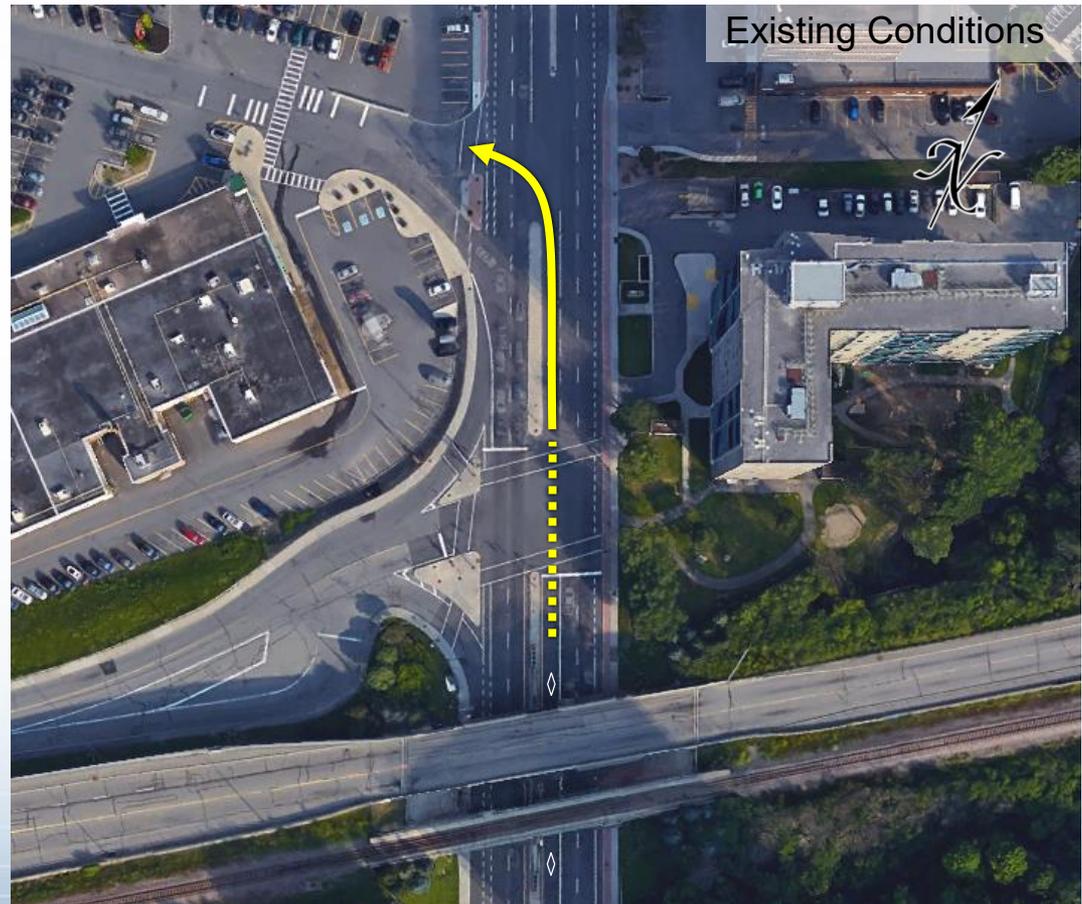
- UNSIGNALIZED WBT AND WBL FROM APARTMENT COMPLEX /COMMERCIAL ACCESS DIFFICULT TO COMPLETE
- RECOMMENDED FUNCTIONAL DESIGN:
 - NEW CENTRE MEDIAN
 - APARTMENT COMPLEX/COMMERCIAL ACCESS RIGHT-OUT ONLY



BILLINGS BRIDGE SHOPPING CENTRE

UNSIGNALIZED NORTHBOUND LEFT-TURN

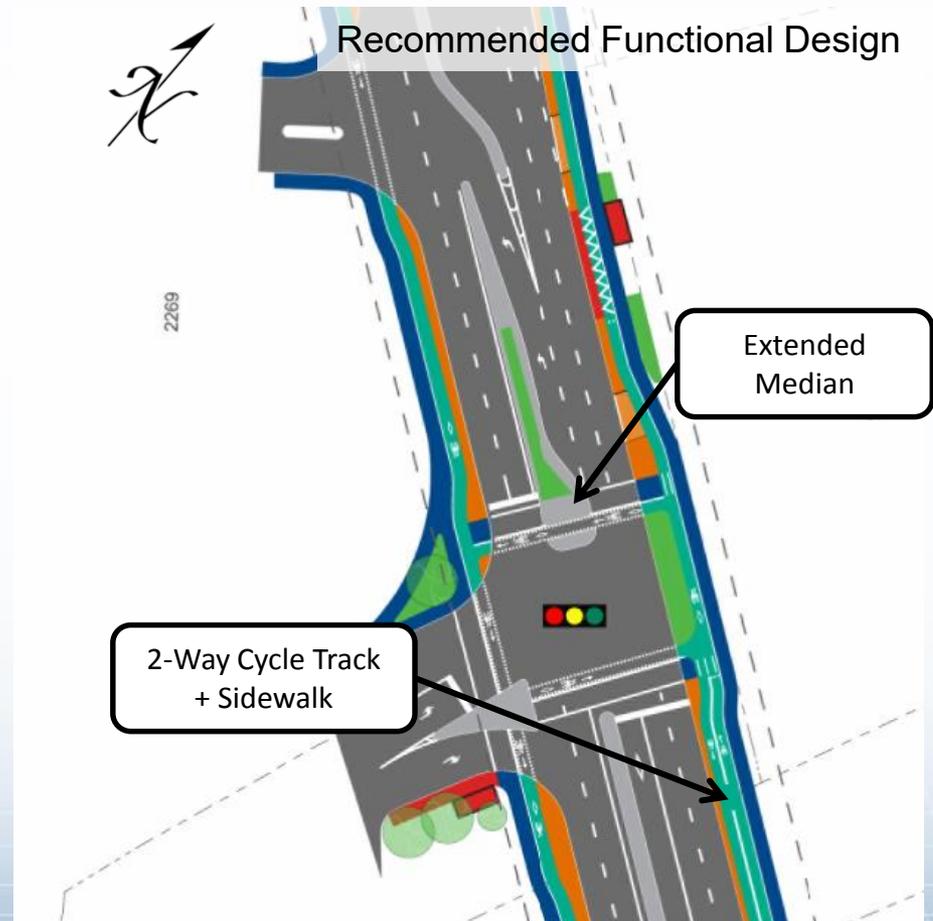
- EXISTING ISSUE:
 - NBL STORAGE LENGTH INSUFFICIENT
 - VEHICLES QUEUE BEYOND TRANSITWAY INTERSECTION
 - BLOCK TRANSIT VEHICLES



BILLINGS BRIDGE SHOPPING CENTRE

UNSIGNALIZED NORTHBOUND LEFT-TURN

- RECOMMENDED FUNCTIONAL DESIGN:
 - ENDS NB LEFT-TURN STORAGE BY EXTENDING MEDIAN (MATCHES EXISTING HATCHING)
 - VEHICLES QUEUE INTO GENERAL NB VEHICLE LANE DURING PEAK PERIODS
 - TRANSIT NOT IMPACTED
- REMOVE RIGHT-TURN ISLAND AT NORTHWEST CORNER OF TRANSITWAY INTERSECTION



KILBORN PLACE

SPECIFIC ISSUES AND CONCERNS



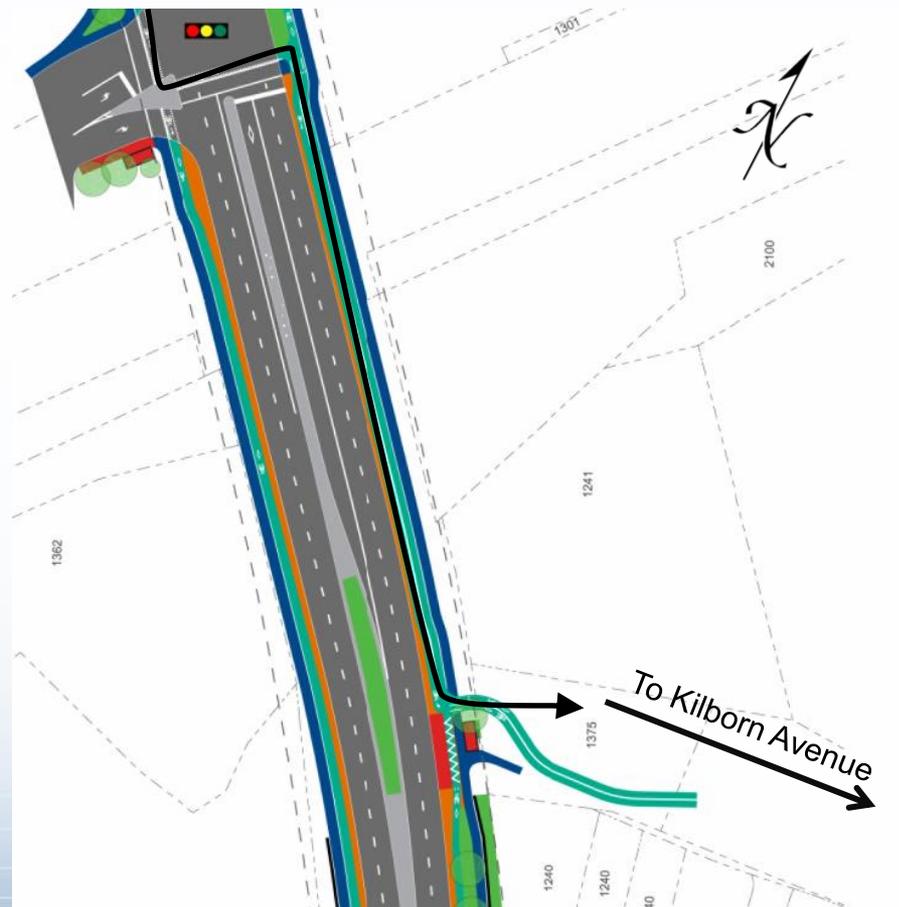
- CYCLING CONNECTION TO KILBORN PLACE
 - RECOMMENDED FUNCTIONAL DESIGN

KILBORN PLACE

CYCLING CONNECTION TO KILBORN PLACE

- IMPROVE CYCLING CONNECTION FROM BANK STREET (NORTH) TO KILBORN AVENUE VIA KILBORN PLACE

- RECOMMENDED FUNCTIONAL DESIGN:
 - TWO-WAY CYCLING FACILITY FROM TRANSITWAY INTERSECTION TO KILBORN PLACE
 - SEPARATE SIDEWALK



BLUE HERON MALL

SPECIFIC ISSUES AND CONCERNS

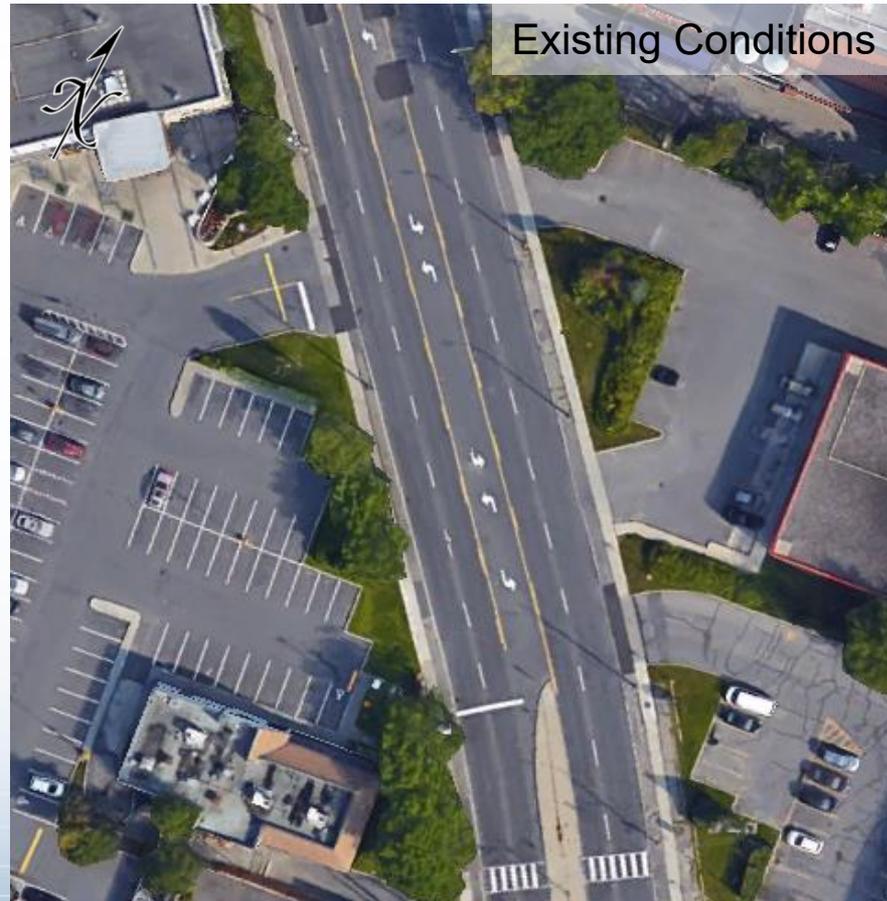


- DIFFICULT EASTBOUND LEFT-TURN EXITING BLUE HERON MALL
 - EXISTING CONDITIONS
 - OPTION 1: SIGNALIZE EXISTING ACCESS
 - OPTION 2: NEW SIGNALIZED ACCESS

BLUE HERON MALL

EXISTING CONDITIONS

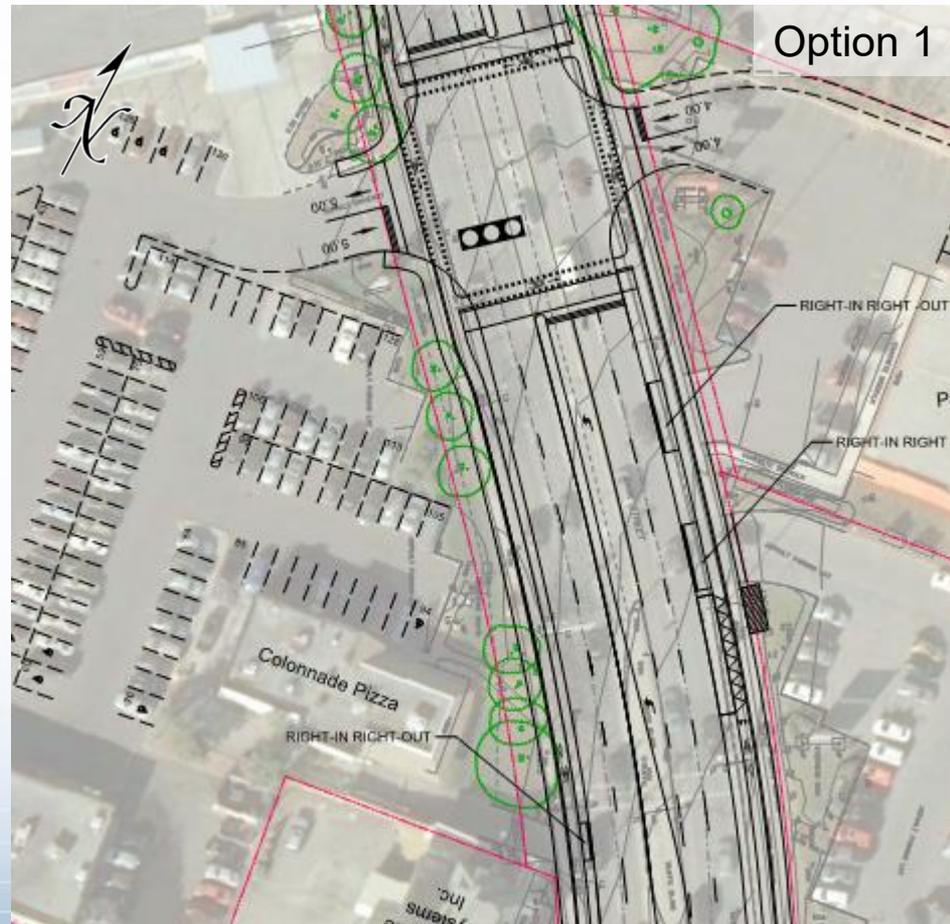
- EXISTING TWO-WAY LEFT-TURN LANE
- DIFFICULT FOR VEHICLES TO MAKE LEFT TURNS
- EXISTING SIGNALIZED PEDESTRIAN CROSSING



BLUE HERON MALL

OPTION 1: SIGNALIZED EXISTING ACCESS

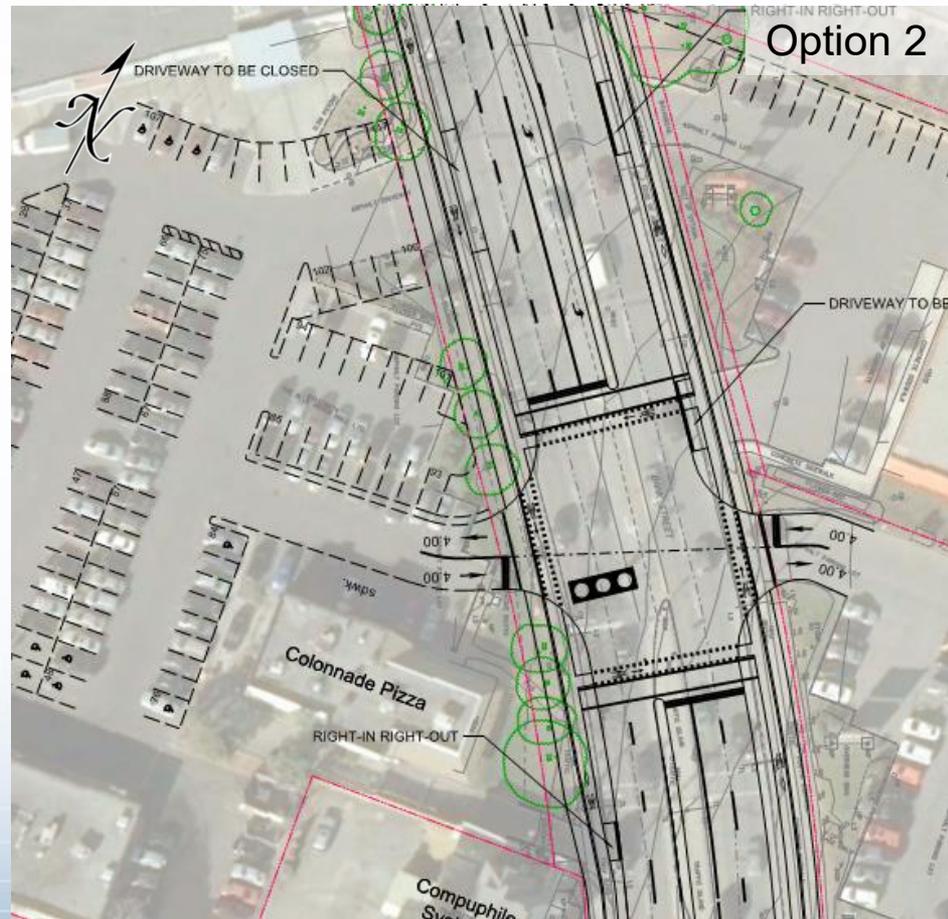
- INCREASE “THROAT LENGTH” OF BLUE HERON MALL ENTRANCE
- SHARED ACCESS TO 1515 AND 1525 BANK STREET
- REMOVE EXISTING PEDESTRIAN CROSSING
- APPROXIMATELY 115M BETWEEN CROSSWALKS OF RANDALL AVENUE AND NEW SIGNALIZATION



BLUE HERON MALL

OPTION 2: NEW SIGNALIZED ACCESS

- “SPLITS THE DIFFERENCE” BETWEEN RANDALL AVENUE AND HERON ROAD
- SHARED ACCESS TO 1515 AND 1525 BANK STREET
- CLOSER TO EXISTING SIGNALIZED PEDESTRIAN CROSSING
- ASSESSMENT OF OPTIONS INCLUDES IMPACTS ON PROPERTY, CIRCULATION, AND AFFECTS TO PARKING



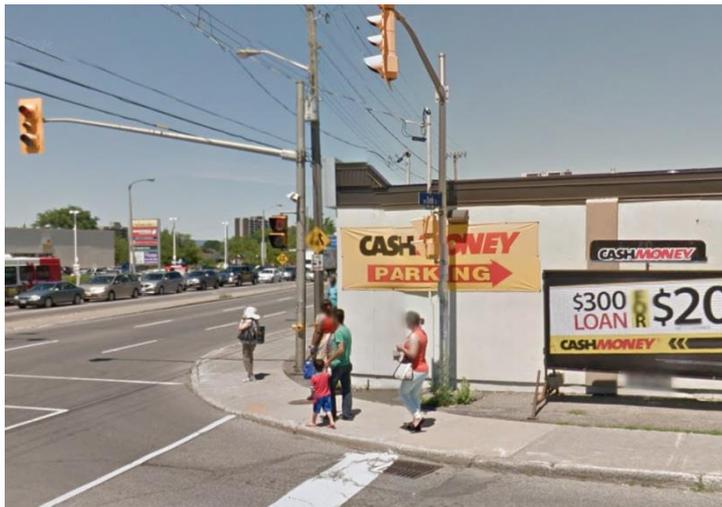
HERON ROAD



- EXISTING CONDITIONS
- ASSESSMENT OF OPTIONS

HERON ROAD

EXISTING CONDITIONS

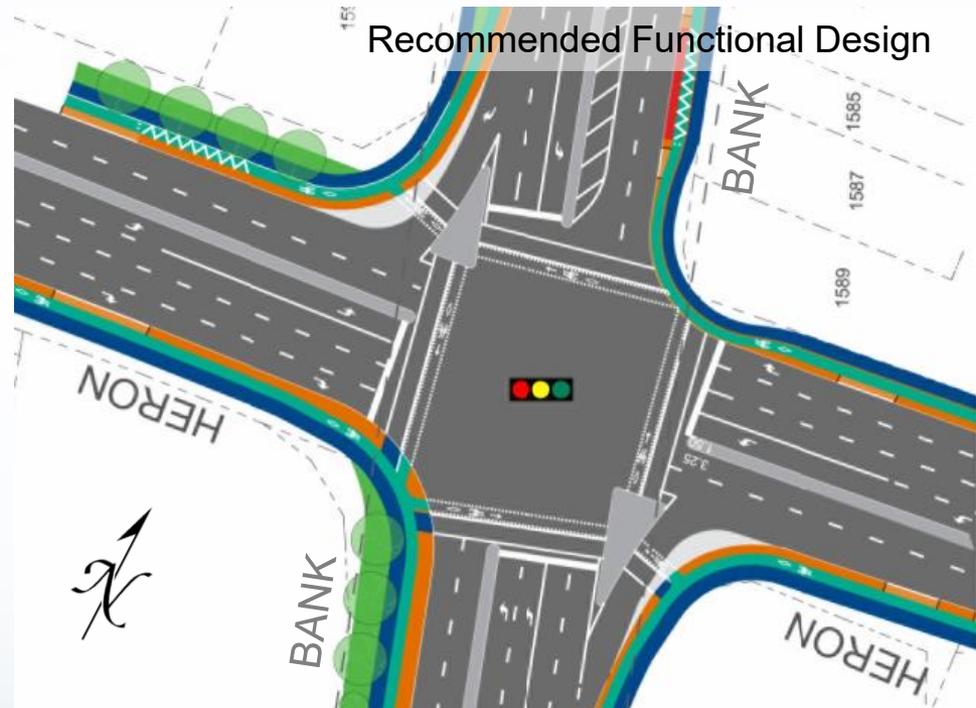


HERON ROAD

RECOMMENDED FUNCTIONAL DESIGN

- CHANGES FROM EXISTING
 - CYCLE TRACKS
 - REMOVE RIGHT TURN CHANNEL / ISLAND ON SOUTHWEST CORNER

- AVERAGE 'PEDESTRIAN EXPOSURE TO TRAFFIC AT SIGNALIZED INTERSECTIONS' (PETS!) SCORE IMPROVES BY 7.75 POINTS



BETWEEN HERON AND ERIE

SPECIFIC ISSUES AND CONCERNS



- DEPRESSED MEDIAN TREATMENT
 - RECOMMENDED FUNCTIONAL DESIGN

BETWEEN HERON AND ERIE

DEPRESSED MEDIAN TREATMENT

- EXISTING TWO-WAY LEFT-TURN LANE
- RECOMMENDED FUNCTIONAL DESIGN:
 - DEPRESSED CONCRETE MEDIAN (4.0-5.0M WIDE)
 - BREAKS IN MEDIAN AT UNSIGNALIZED INTERSECTIONS
 - TEXTURED TREATMENT



ALTA VISTA DRIVE



- EXISTING CONDITIONS
- RECOMMENDED FUNCTIONAL DESIGN

ALTA VISTA DRIVE

EXISTING CONDITIONS

- LANE CONFIGURATION
 - THREE NB LANES, TWO SB LANES
 - NB AND SB LEFT-TURN LANES
 - WBL AND SHARED WB LANE
 - NORTHBOUND RIGHT-TURN CHANNEL
 - WEST LEG IS ACCESS 1770 BANK STREET

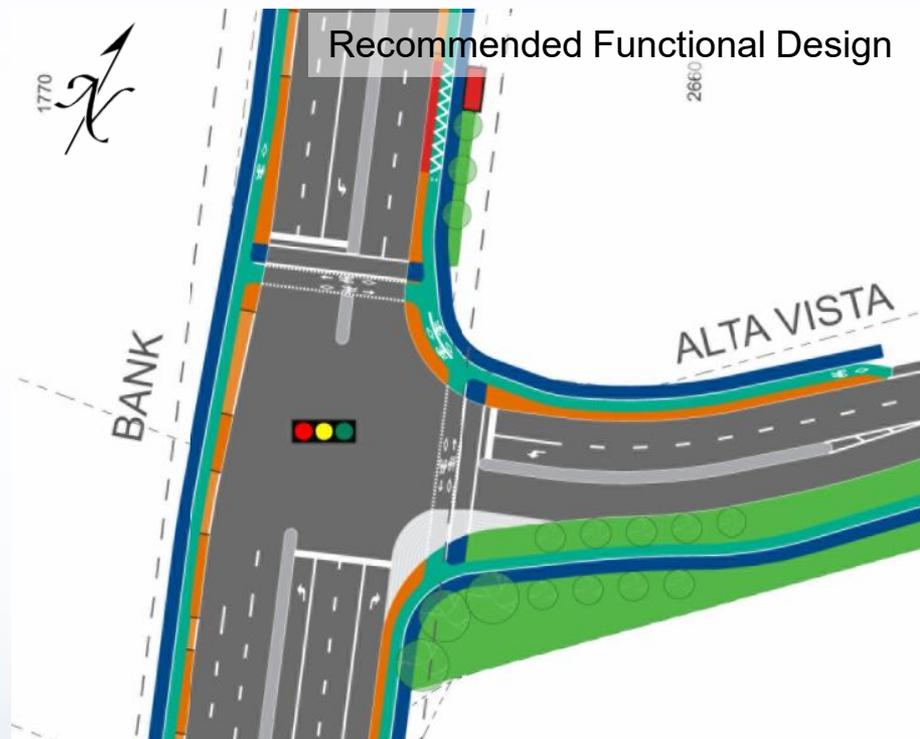
- ADEQUATE VEHICLE CAPACITY
 - OVERALL INTERSECTION LOS B (C)



ALTA VISTA DRIVE

RECOMMENDED FUNCTIONAL DESIGN

- CYCLE TRACKS AND CROSSRIDES
- 3RD NBT LANE BECOMES A DEDICATED NORTHBOUND RIGHT-TURN LANE
 - REMOVE NORTHBOUND BUS BAY
- REMOVES NORTHBOUND RIGHT-TURN CHANNELIZATION
- UNABLE TO ADD A NEW SOUTH CROSSWALK
 - BUSINESSES ACCESSES ON WEST SIDE OF ROAD LIMIT CROSSWALK LANDING AREA
 - CROSSING CANNOT OCCUR ACROSS A DOUBLE LEFT-TURN



WALKLEY ROAD



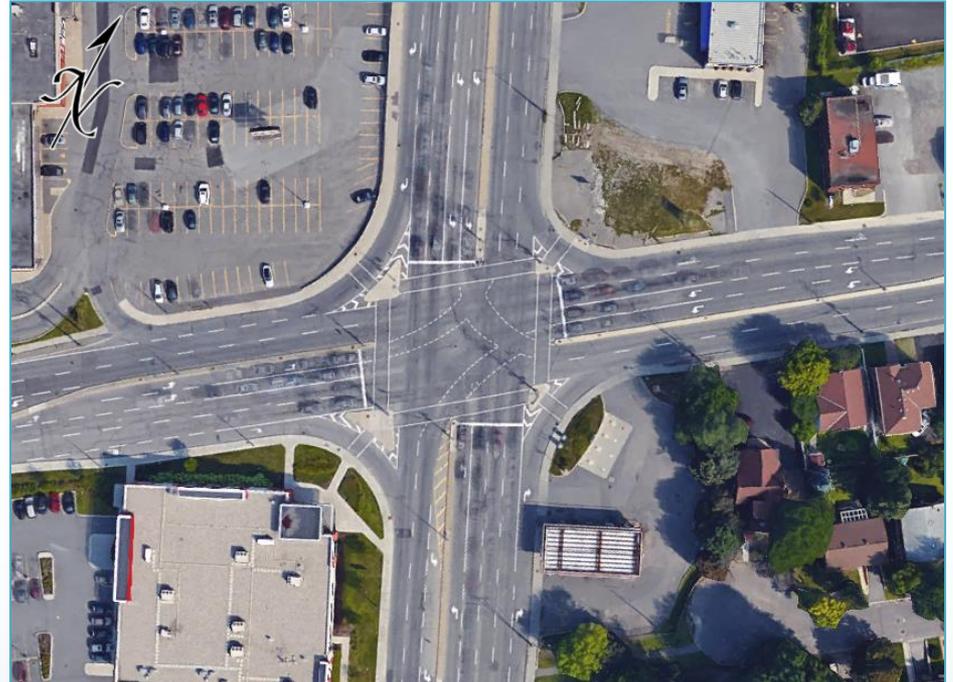
- EXISTING CONDITIONS
- RECOMMENDED FUNCTIONAL DESIGN

WALKLEY ROAD

EXISTING CONDITIONS

- LANE CONFIGURATION
 - TWO THROUGH LANES ON ALL APPROACHES, AND THREE NBT LANES
 - TWO LEFT TURN LANES ON THREE APPROACHES, AND ONE NBL LANE
 - RIGHT-TURN CHANNELS ON ALL CORNERS
 - NB AND SB RIGHT TURN LANES

- ADEQUATE VEHICLE CAPACITY
 - OVERALL INTERSECTION LOS C (E)

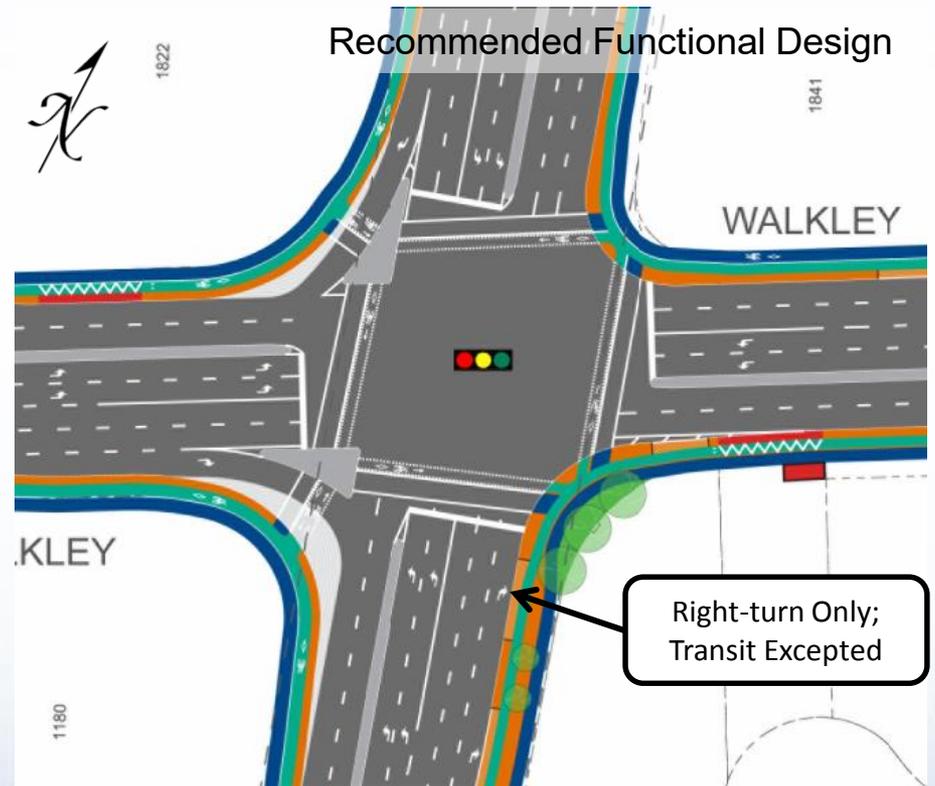


WALKLEY ROAD

RECOMMENDED FUNCTIONAL DESIGN

- CHANGES FROM EXISTING
 - CYCLE TRACKS
 - NEW 2ND NORTHBOUND LEFT-TURN LANE
 - REMOVE RIGHT TURN CHANNELS / ISLANDS ON EAST CORNERS
 - 3RD NB LANE AND NB RIGHT-TURN LANE BECOME A RIGHT-TURN LANE (TRANSIT EXCEPTED)

- AVERAGE 'PEDESTRIAN EXPOSURE TO TRAFFIC AT SIGNALIZED INTERSECTIONS' (PETSU) SCORE IMPROVES BY 15 POINTS



NOTTING HILL AVENUE



- NEW SIGNALIZATION - RECOMMENDED FUNCTIONAL DESIGN

NOTTING HILL AVENUE

RECOMMENDED FUNCTIONAL DESIGN

- REDUCES DISTANCE WITHOUT PEDESTRIAN CROSSING
 - EXISTING 465M BETWEEN CROSSWALKS OF WALKLEY AND KITCHENER
 - REDUCED TO 190M AND 250M BETWEEN CROSSWALKS
- POSSIBLE FUTURE ACTIVE TRANSPORTATION ROUTE TO WALKLEY STATION
 - SIGNALIZATION PROPOSED IN PRELIMINARY WORK OF LRT STAGE 2 STATION CONNECTIVITY STUDY



BETWEEN NOTTING HILL AND KITCHENER

SPECIFIC ISSUES AND CONCERNS

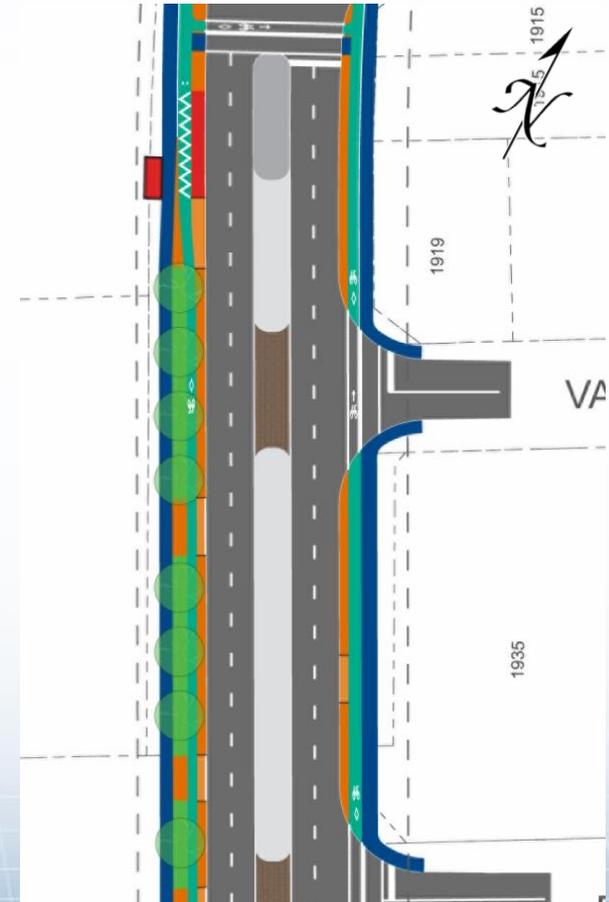
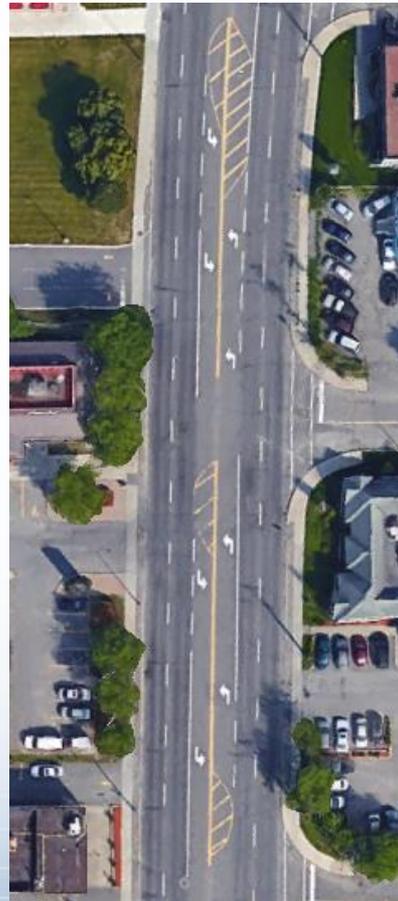


- DEPRESSED MEDIAN TREATMENT
 - RECOMMENDED FUNCTIONAL DESIGN

BETWEEN NOTTING HILL AND KITCHENER

DEPRESSED MEDIAN TREATMENT

- EXISTING TWO-WAY LEFT-TURN LANE
- RECOMMENDED FUNCTIONAL DESIGN:
 - DEPRESSED CONCRETE MEDIAN (4.0-5.0M WIDE)
 - BREAKS IN MEDIAN AT UNSIGNALIZED INTERSECTIONS
 - TEXTURED TREATMENT



FEEDBACK & DISCUSSION

<http://ottawa.ca/en/city-hall/public-consultations/transportation/bank-street-renewal-between-riverside-drive-north-and>

Your comments are welcome and encouraged (by December 23, 2016 please)

Please complete a Comment Sheet or send us your feedback via e-mail at:

Ann.Selfe@Ottawa.ca

Thank You!

**Your involvement is essential to the
successful completion of this study.**

Freedom of Information and Protection of Privacy Act

Comments and information are being collected in accordance with the Freedom of Information and Protection of Privacy Act. This material will be maintained on file and may be included in project documentation. With the exception of personal information, all comments will become part of the public record.