2067 - Weston Road - Teston Road to King Road

Project Description

Location	Weston Road	**Project ID**	**2067**
Municipality	Vaughan, King	**Road Segment ID**	56-12 to 56-16
Project Limits	Teston Road to King Road	**Length**	6,200 m
Project Type	Widen to 4 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 36 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	880	740	0.87	0.74
Daily truck volume	N/A	N/A		

Description

Existing 2 general purpose lanes. Widens to 4 lanes at the intersection of Teston Road/Weston Road with turning lanes at this intersection. No sidewalks on either side. Shared roadway (unsigned route). No transit services.

Natural and Built Environment

Natural Environment Observations: Near Regional Greenlands System.

Land Use and Built Environment Primarily agricultural lands with pocket of estate residential. Laskay hamlet south of King Road. Mainly designated urban area up to north Vaughan boundary.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,940	1,500	1.94	1.49
2041 Proposed Network	2,570	2,260	1.28	1.13

2067 - Weston Road - Teston Road to King Road (continued)

Problem or Opportunity Statement

- Transportation network improvements needed to accommodate expansion of the Designated Urban Area.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements need to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion.
3. Urbanize corridor but maintain 2-lane cross-section - Does not address traffic congestion. Opportunity to improve walking and cycling facilities.
4. Widen corridor to 4 lanes and maintain rural cross-section - Addresses traffic capacity. Does not improve walking facilities.
5. Widen corridor to 4 lanes and construct to urban arterial standard - Addresses traffic capacity. Opportunity to improve walking and cycling facilities.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and provides no improvements to walking and cycling facilities.

Recommended Improvement and Justification

Recommendation

Widen corridor to 4 lanes and construct to urban arterial standard.

Justification

Forecast travel demands meet threshold for widening to 4 lanes. Widening accommodates growth in urban area in north Vaughan and King. Opportunity to improve walking and cycling facilities.

TMP Phase

2027 to 2031: Teston Road to Kirby Road
2032 to 2041: Kirby Road to King Road

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	36,155,500
Incremental Annual Road Operating Cost	$	309,900
Incremental Road Maintenance and Rehabilitation Cost	$	116,900

Related Projects

Name	Project ID

2067 - Weston Road - Teston Road to King Road (continued)

Key Intersections and Constraints

Weston Road at Teston Road

Weston Road at King Road

2069 - Pine Valley Drive - Rutherford Road to King Vaughan Road

Project Description

Location	Pine Valley Drive	**Project ID**	**2069**
Municipality	Vaughan	**Road Segment ID**	57-08 to 57-14
Project Limits	Rutherford Road to King Vaughan Road	**Length**	8,280 m
Project Type	Widen to 4 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 36 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	650	480	0.65	0.49
Daily truck volume	N/A	N/A		

Description

Existing 2 general purpose lanes with turning lanes at some intersections. No sidewalks on either side. Shared pathway (in-boulevard) from Davos Road to Via Teodoro. Curbside transit from Davos Road to Major Mackenzie Drive. Jogged intersection at Pine Valley Drive and Teston Road.

Natural and Built Environment

Natural Environment Observations: Forested blocks on the east side between Rutherford Road and Major Mackenzie Drive. Corridor traverses or is adjacent to Regional Greenlands System throughout.
Environmentally Sensitive Areas: Designated areas northeast and northwest of Rutherford Road and Pine Valley Drive. Multiple ANSIs located on east side of Pine Valley Drive between Rutherford Road and Major Mackenzie Drive.

Land Use and Built Environment Kortright Centre for Conservation on west side between Rutherford Road and Major Mackenzie Drive. Primarily agricultural with some residential development.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,370	1,170	1.37	1.23
2041 Proposed Network	2,150	1,690	1.12	0.90

2069 - Pine Valley Drive - Rutherford Road to King Vaughan Road (continued)

Problem or Opportunity Statement

- Transportation network improvements needed to accommodate expansion of the Designated Urban Area.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements need to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion.
3. Urbanize corridor but maintain 2-lane cross-section - Does not address traffic congestion. Opportunity to improve walking and cycling facilities.
4. Widen corridor to 4 lanes and maintain rural cross-section - Addresses traffic capacity. Does not improve walking facilities.
5. Widen corridor to 4 lanes and construct to urban arterial standard - Addresses traffic capacity. Opportunity to improve walking and cycling facilities.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and provides no improvements to walking and cycling facilities.

Recommended Improvement and Justification

Recommendation

Widen corridor to 4 lanes and construct to urban arterial standard.

Justification

Forecast demands meet threshold for widening to 4 lanes. Capacity improvements will serve growth in North Vaughan provide a continuous north-south corridor with the construction of the Pine Valley Drive missing road link. Opportunity to improve walking and cycling facilities.

TMP Phase

2022 to 2026: Major Mackenzie Drive to Teston Road
2027 to 2031: Rutherford Road to Major Mackenzie Drive
2032 to 2041: Teston Road to King Vaughan Road

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	44,444,700
Incremental Annual Road Operating Cost	$	413,900
Incremental Road Maintenance and Rehabilitation Cost	$	156,100

Related Projects

Name	Project ID

2069 - Pine Valley Drive - Rutherford Road to King Vaughan Road (continued)

Key Intersections and Constraints

Pine Valley Drive at Rutherford Road

Pine Valley Drive at Major Mackenzie Drive

Pine Valley Drive at Teston Road

2070 - Warden Avenue - Steeles Avenue to McNabb Street

Project Description

Location	Warden Avenue	**Project ID**	**2070**
Municipality	Markham	**Road Segment ID**	65-02
Project Limits	Steeles Avenue to McNabb Street	**Length**	1,500 m
Project Type	Widen to 6 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 45 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,270	1,270	0.70	0.70
Daily truck volume	1,670 /day	1,670 /day		

Description

Existing 4 general purpose lanes from Steeles Avenue to south of McNabb Street. Widens to 6 lanes at the intersection of McNabb Street/Warden Avenue. Turning lanes at intersections. Continuous sidewalks on both sides, but no dedicated cycling facilities. Curbside transit service.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides.

Land Use and Built Environment Primarily employment lands with some residential areas and retail/commercial.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,570	1,570	0.87	0.87
2041 Proposed Network	1,990	1,990	0.85	0.85

2070 - Warden Avenue - Steeles Avenue to McNabb Street (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Corridor experiences congestion in peak periods. Opportunity to provide continuous transit/HOV lane from Steeles Avenue to 16th Avenue and encourages shift to transit/HOV. Opportunity to provide cycling facilities.

TMP Phase 2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	12,433,200
Incremental Annual Road Operating Cost	$	75,000
Incremental Road Maintenance and Rehabilitation Cost	$	28,300

Related Projects

Name	Project ID

2070 - Warden Avenue - Steeles Avenue to McNabb Street (continued)

Key Intersections and Constraints

Warden Avenue at Denison

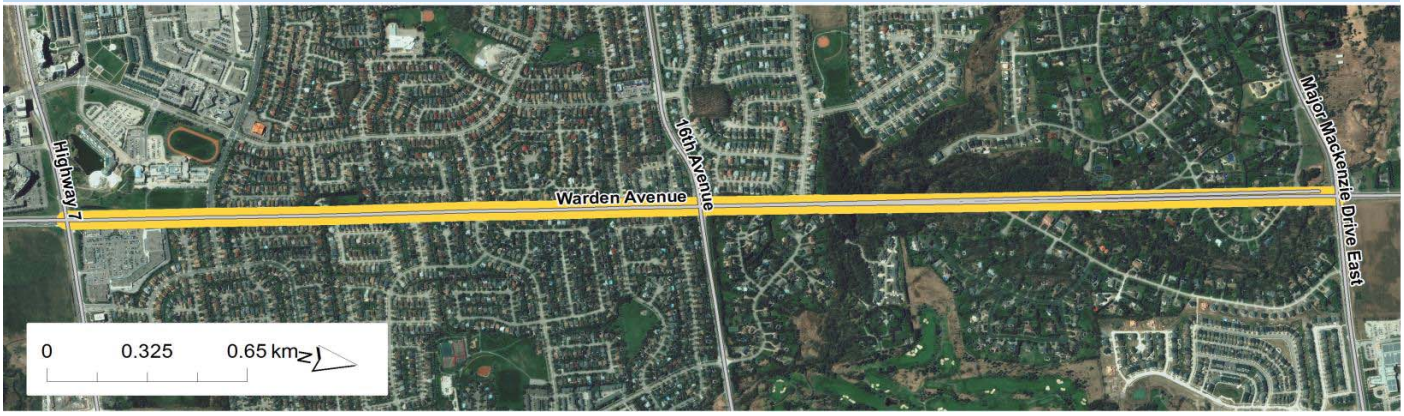
Warden Avenue at 14th Avenue

2072 - Warden Avenue - Highway 7 to Major Mackenzie Drive

Project Description

Location	Warden Avenue	**Project ID**	**2072**
Municipality	Markham	**Road Segment ID**	65-06 to 65-08
Project Limits	Highway 7 to Major Mackenzie Drive	**Length**	3,780 m
Project Type	Widen to 6 lanes		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,900	1,900	0.79	0.79
Daily truck volume	870 /day	870 /day		

Description

Existing 6 general purpose lanes from Highway 7 to Apple Creek Boulevard. Tapers to 4 lanes from Apple Creek Boulevard to 16th Avenue. Continuous sidewalks on both sides. No dedicated cycling facilities. Curbside transit service.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides. Crossing of Berczy Creek and valley , part of Regional Greenlands System, north of 16th Avenue.

Land Use and Built Environment Primarily residential areas with civic centre in the northwest quadrant of Highway 7 and Warden Avenue.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,840	2,840	1.18	1.18
2041 Proposed Network	2,510	2,510	1.16	1.16

2072 - Warden Avenue - Highway 7 to Major Mackenzie Drive (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation	Widen corridor to 6 lanes to implement transit/HOV lanes. Convert 2 existing lanes south of Highway 7 to provide continuous transit/HOV lanes.
Justification	Corridor experiences congestion in peak periods. Forecast traffic demand meets threshold for widening to 6 lanes to implement transit/HOV lane. Opportunity to provide continuous transit/HOV lane from Steeles Avenue to 16th Avenue and encourages shift to transit/HOV. Opportunity to improve walking and cycling facilities.
TMP Phase	2027 to 2031: Highway 7 to 16th Avenue 2032 to 2041: 16th Avenue to Major Mackenzie Drive

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	44,102,100
Incremental Annual Road Operating Cost	$	188,900
Incremental Road Maintenance and Rehabilitation Cost	$	71,300

Related Projects

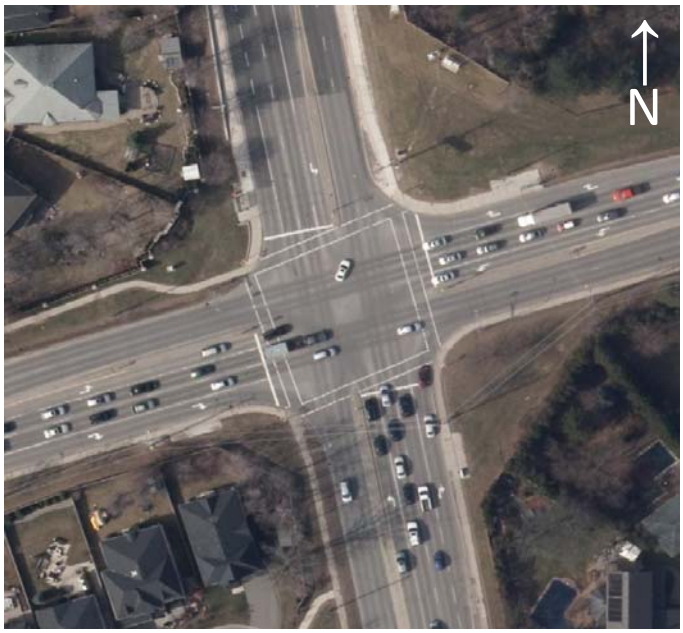
Name	Project ID
Warden Avenue - Major Mackenzie Drive to Donald Cousens Parkway - Widen to 4 lanes	2073

2072 - Warden Avenue - Highway 7 to Major Mackenzie Drive (continued)

Key Intersections and Constraints

Warden Avenue at Highway 7

Warden Avenue at 16th Avenue



2073 - Warden Avenue - Major Mackenzie Drive to Donald Cousens Parkway

Project Description

Location	Warden Avenue	**Project ID**	**2073**
Municipality	Markham	**Road Segment ID**	65-10 to 65-12
Project Limits	Major Mackenzie Drive to Donald Cousens Parkway	**Length**	3,510 m
Project Type	Widen to 4 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	980	840	1.22	0.97
Daily truck volume	300 /day	210 /day		

Description

Existing 2 general purpose lanes with turning lanes at intersections. No sidewalk on either side. Paved shoulder. No transit services.

Natural and Built Environment

Natural Environment Observations: Agricultural fields on both sides.

Land Use and Built Environment Low density residential south of Major Mackenzie Drive. Primarily agricultural uses north of Major Mackenzie Drive.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,530	2,000	2.23	1.81
2041 Proposed Network	2,960	2,610	1.49	1.36

2073 - Warden Avenue - Major Mackenzie Drive to Donald Cousens Parkway (continued)

Problem or Opportunity Statement

- Transportation network improvements needed to accommodate expansion of the Designated Urban Area.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements need to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion.
3. Urbanize corridor but maintain 2-lane cross-section - Does not address traffic congestion. Opportunity to improve walking and cycling facilities.
4. Widen corridor to 4 lanes and maintain rural cross-section - Addresses traffic capacity. Does not improve walking facilities.
5. Widen corridor to 4 lanes and construct to urban arterial standard - Addresses traffic capacity. Opportunity to improve walking and cycling facilities.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and provides no improvements to walking and cycling facilities.

Recommended Improvement and Justification

Recommendation Widen corridor to 4 lanes and construct to urban arterial standard.

Justification Corridor is congested in peak periods. Forecast demand exceeds threshold for widening. Widening will accommodate growth in designated urban area. Opportunity for improved walking and cycling facilities.

TMP Phase 2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	17,837,200
Incremental Annual Road Operating Cost	$	175,400
Incremental Road Maintenance and Rehabilitation Cost	$	66,200

Related Projects

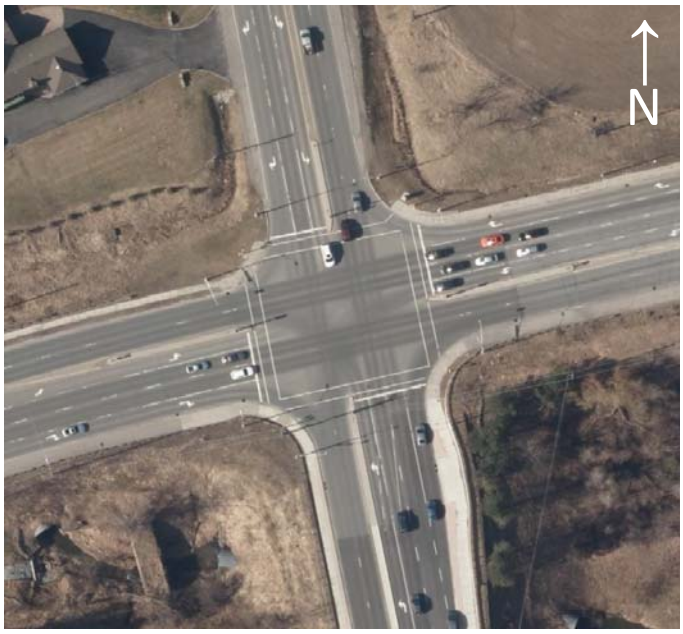
Name	Project ID
Warden Avenue - Highway 7 to Major Mackenzie Drive - Widen to 6 lanes	2072

2073 - Warden Avenue - Major Mackenzie Drive to Donald Cousens Parkway (continued)

Key Intersections and Constraints

Warden Avenue at 16th Avenue

Warden Avenue at Major Mackenzie Drive

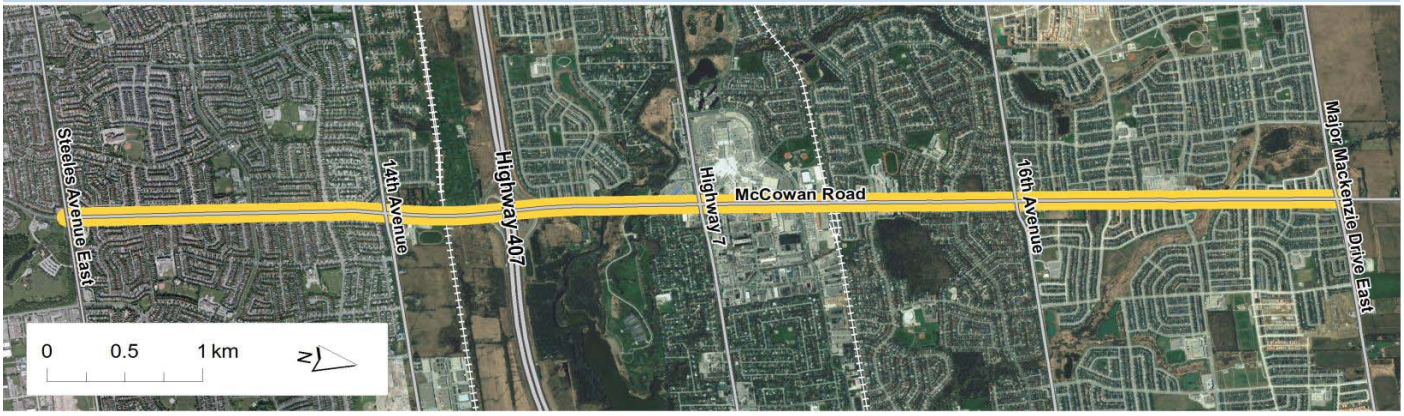


2074 - McCowan Road - Steeles Avenue to Major Mackenzie Drive

Project Description

Location	McCowan Road	**Project ID**	**2074**
Municipality	Markham	**Road Segment ID**	67-01 to 67-08
Project Limits	Steeles Avenue to Major Mackenzie Drive	**Length**	7,770 m
Project Type	Widen to 6 lanes		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 45 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	2,000	1,720	1.14	0.99
Daily truck volume	5,610 /day	3,780 /day		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Continuous sidewalks on both sides. No dedicated cycling facilities. Curbside transit service. Grade separated rail crossing for CN York Subdivision south of Highway 407. At-grade crossing of Stouffville GO line north of highway 7.

Natural and Built Environment

Natural Environment Observations: Crossing of Rouge River north of Highway 407. Milne Dam Conservation Park in northeast quadrant of McCowan Road and Highway 407.
Environmentally Sensitive Areas: Designated area east side of McCowan north of Highway 407 (Milne Dam Conservation Area).

Land Use and Built Environment Primarily residential south of Highway 7 and also north of Bullock Drive. Regional shopping centre northwest quadrant of McCowan Road and Highway 7. Employment/industrial area between Highway 7 and Bullock Drive on the east side.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,880	2,430	1.71	1.40
2041 Proposed Network	2,910	2,530	1.21	1.03

2074 - McCowan Road - Steeles Avenue to Major Mackenzie Drive (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation

Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification

Corridor experiences congestion during peak periods. Forecast volumes meet threshold for widening to 6 lanes to implement transit/HOV lanes. Transit/HOV lanes benefit transit travel time and encourages shift to transit/HOV. Opportunity to improve cycling facilities.

TMP Phase

2022 to 2026: Steeles Avenue to 16th Avenue
2032 to 2041: 16th Avenue to Major Mackenzie Drive

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	75,874,500
Incremental Annual Road Operating Cost	$	388,400
Incremental Road Maintenance and Rehabilitation Cost	$	146,500

Related Projects

Name	Project ID
McCowan Road - Major Mackenzie Drive to Donald Cousens Parkway - Widen to 4 lanes	2075
Stouffville GO Grade Separation - McCowan Road north of Highway 7 - Rail grade separation	2138

2074 - McCowan Road - Steeles Avenue to Major Mackenzie Drive (continued)

Key Intersections and Constraints

McCowan Road at Steeles Avenue

McCowan Road at 14th Avenue

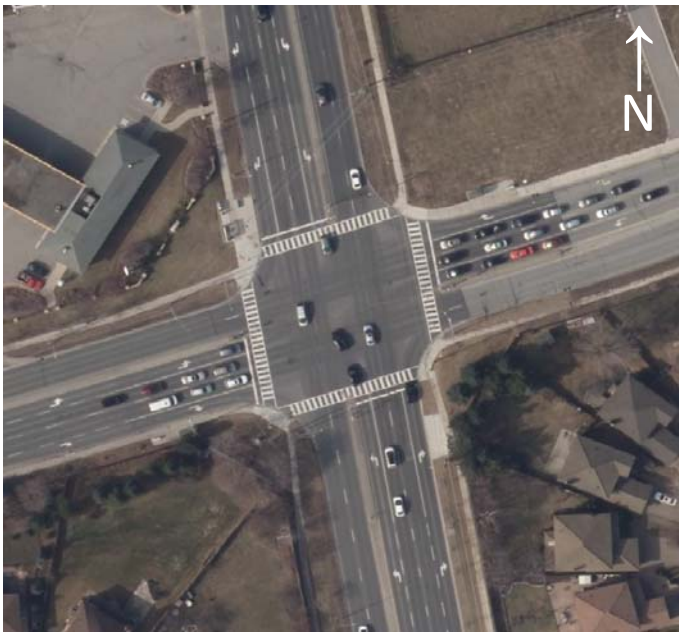
McCowan Road at Highway 407

McCowan Road at Highway 7

2074 - McCowan Road - Steeles Avenue to Major Mackenzie Drive (continued)

Key Intersections and Constraints

McCowan Road at 16th Avenue



McCowan Road at Major Mackenzie Drive

Stouffville GO at McCowan Road

2075 - McCowan Road - Major Mackenzie Drive to Donald Cousens Parkway

Project Description

Location	McCowan Road	**Project ID**	**2075**
Municipality	Markham	**Road Segment ID**	67-10 to 67-12
Project Limits	Major Mackenzie Drive to Donald Cousens Parkway	**Length**	2,640 m
Project Type	Widen to 4 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 36 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	670	660	0.66	0.65
Daily truck volume	N/A	N/A		

Description

Existing 2 general purpose lanes with turning lanes at intersections. Widens to 4 lanes at the intersection of McCowan Road/Major Mackenzie Drive. No sidewalks on either side. Paved shoulder. No transit services.

Natural and Built Environment

Natural Environment Observations: Agricultural fields on both sides.
Environmentally Sensitive Areas: ANSI located midway between Major Mackenzie Drive and Elgin Mills Road.

Land Use and Built Environment Primarily agricultural lands. Markham Fairgrounds at northeast quadrant of McCowan Road and Elgin Mills Road.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,300	1,080	1.30	1.08
2041 Proposed Network	1,710	1,240	0.85	0.81

2075 - McCowan Road - Major Mackenzie Drive to Donald Cousens Parkway (continued)

Problem or Opportunity Statement

- Transportation network improvements needed to accommodate expansion of the Designated Urban Area.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements need to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion.
3. Urbanize corridor but maintain 2-lane cross-section - Does not address traffic congestion. Opportunity to improve walking and cycling facilities.
4. Widen corridor to 4 lanes and maintain rural cross-section - Addresses traffic capacity. Does not improve walking facilities.
5. Widen corridor to 4 lanes and construct to urban arterial standard - Addresses traffic capacity. Opportunity to improve walking and cycling facilities.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and provides no improvements to walking and cycling facilities.

Recommended Improvement and Justification

Recommendation Widen corridor to 4 lanes and construct to urban arterial standard.

Justification Forecast meets threshold for 4-lane widening. Accommodates growth in designated urban area. Provides improved facilities for walking and cycling.

TMP Phase 2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	14,711,500
Incremental Annual Road Operating Cost	$	132,000
Incremental Road Maintenance and Rehabilitation Cost	$	49,800

Related Projects

Name	Project ID
McCowan Road - Steeles Avenue to Major Mackenzie Drive - Widen to 6 lanes	2074

2075 - McCowan Road - Major Mackenzie Drive to Donald Cousens Parkway (continued)

Key Intersections and Constraints

McCowan Road at Major Mackenzie Drive

2076 - Markham Road - Steeles Avenue to north of 14th Avenue

Project Description

Location	Markham Road	**Project ID**	**2076**
Municipality	Markham	**Road Segment ID**	68-01 to 68-02
Project Limits	Steeles Avenue to north of 14th Avenue	**Length**	2,000 m
Project Type	Widen to 6 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 45 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,950	1,790	0.98	0.94
Daily truck volume	N/A	N/A		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Widens to 6 lanes at the intersection of Steeles Avenue/Markham Road. Continuous sidewalk on west side from Steeles Avenue to CN railway underpass. Discontinuous sidewalk on east side south of New Delhi Road (~200 m). No dedicated cycling facilities. Curbside transit service. CN York Subdivision railway underpass south of 14th Avenue; structural walls of underpass abuts travel lanes and sidewalk.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides.

Land Use and Built Environment Residential and retail-commercial land uses on both sides of corridor.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,330	2,220	1.17	1.16
2041 Proposed Network	2,500	2,470	1.07	1.06

2076 - Markham Road - Steeles Avenue to north of 14th Avenue (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Traffic demand meets threshold for widening to 6 lanes for transit/HOV lanes. Connects to 6-lane corridor south of Steeles Avenue. Opportunity to provide continuous transit/HOV lanes which benefits transit travel time and encourages shift to transit/HOV. Opportunity to improve walking and cycling facilities.

TMP Phase 2022 to 2026

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	51,755,300
Incremental Annual Road Operating Cost	$	100,000
Incremental Road Maintenance and Rehabilitation Cost	$	37,700

Related Projects

Name	Project ID
Highway 48 (MTO) - Major Mackenzie Drive to Bloomington Road - Widen to 4 lanes	2077

2076 - Markham Road - Steeles Avenue to north of 14th Avenue (continued)

Key Intersections and Constraints

Markham Road at Steeles Avenue

Markham Road at 14th Avenue

Railway underpass south of 14th Avenue (Image capture: 2015, ©2016 Google)

2077 - Highway 48 (MTO) - Major Mackenzie Drive to Bloomington Road

Project Description

Location	Highway 48 (MTO)	**Project ID**	**2077**
Municipality	Markham, Whitchurch-Stouffville	**Road Segment ID**	68-10 to 68-18
Project Limits	Major Mackenzie Drive to Bloomington Road	**Length**	10,190 m
Project Type	Widen to 4 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW N/A

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	710	670	0.71	0.66
Daily truck volume	N/A	N/A		

Description

Existing 2 general purpose lanes from Major Mackenzie Drive to Stouffville Road. Widens to 4 lanes from Stouffville Road to north of Millard Street. Tapers to 2 lanes south of Bloomington Road. Widens to 4 lanes at the intersection of Bloomington Road/Highway 48. No sidewalks on either side. No dedicated cycling facilities. Curbside transit service between Sam's Way to Millard Street.

Natural and Built Environment

Natural Environment Observations: Corridor crosses forested areas and Regional Greenlands System.
Source Water Protection Areas: Adjacent to protection area just south of Bloomington Road.

Land Use and Built Environment Primarily agricultural lands on both sides of corridor. Cemetery located on west side south of Elgin Mills Road. Corridor bypasses Dickenson Hill hamlet. Parcel of retail-commercial located south of Stouffville. Golf course and commercial uses north of Stouffville Road-Main Street.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,300	1,060	1.29	1.05
2041 Proposed Network	1,600	1,520	0.80	0.76

2077 - Highway 48 (MTO) - Major Mackenzie Drive to Bloomington Road (continued)

Problem or Opportunity Statement

- Transportation network improvements needed to accommodate expansion of the Designated Urban Area.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements need to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion.
3. Urbanize corridor but maintain 2-lane cross-section - Does not address traffic congestion. Opportunity to improve walking and cycling facilities.
4. Widen corridor to 4 lanes and maintain rural cross-section - Addresses traffic capacity. Does not improve walking facilities.
5. Widen corridor to 4 lanes and construct to urban arterial standard - Addresses traffic capacity. Opportunity to improve walking and cycling facilities.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and provides no improvements to walking and cycling facilities.

Recommended Improvement and Justification

Recommendation	Widen corridor to 4 lanes and construct to urban arterial standard within designated urban areas.
Justification	Provides additional north-south capacity parallel to Ninth Line to accommodate growth in Stouffville. Serves as a Primary Arterial for Goods Movement. Corridor under Provincial jurisdiction. Opportunity to improve walking and cycling facilities within urban area.
TMP Phase	2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	42,478,500
Incremental Annual Road Operating Cost	$	320,000
Incremental Road Maintenance and Rehabilitation Cost	$	192,100

Related Projects

Name	Project ID
Markham Road - Steeles Avenue to north of 14th Avenue - Widen to 6 lanes	2076

2077 - Highway 48 (MTO) - Major Mackenzie Drive to Bloomington Road (continued)

Key Intersections and Constraints

Highway 48 at Major Mackenzie Drive

Highway 48 at Stouffville Road

Highway 48 at Bloomington Road

Cemetery east side of Highway 48 south of 19th Avenue

2078 - 14th Avenue - Markham Road to York/Durham Line

Project Description

Location	14th Avenue	**Project ID**	**2078**
Municipality	Markham	**Road Segment ID**	71-40 to 71-46
Project Limits	Markham Road to York/Durham Line	**Length**	6,660 m
Project Type	Widen to 4 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,100	440	1.37	0.57
Daily truck volume	1,040 /day	220 /day		

Description

Existing 4 general purpose lanes from Markham Road to Havelock Gate. Tapers to 2 lanes from Havelock Gate to York/Durham Line. Turning lanes at some intersections. Jogged intersection at Reesor Road. Sidewalk on south side from Markham Road to Sellwood Lane. Discontinuous sidewalk on north side. Multiuse path in Roxbury Park. Curbside transit from Markham Road to Chatelaine Drive, Boxwood Crescent to Legacy Drive, and from Riverwalk Drive to Donald Cousens Parkway. At-grade rail crossing for CP Havelock Rail Line east of Donald Cousens Parkway (Box Grove Collector Road). Corridor serves as an extension of the future Whitevale Bypass in Pickering, serving the Seaton community.

Natural and Built Environment

Natural Environment Observations: 14th Avenue crosses Rouge River west of Ninth Line and crosses Little Rouge Creek east of Reesor Road. Corridor traverses forested areas, Regional Greenlands System, and Rouge National Urban Park (RNUP) between Donald Cousens Parkway and York/Durham Line. Widening of corridor will likely pose one of the largest challenges of any park-related road improvement in terms of conservation of nature, culture and agriculture, promotion of visitor connection with park resources and landscape character.

Land Use and Built Environment Historic community of Box Grove located at Ninth Line. Residential subdivisions between Markham Road and Donald Cousens Parkway. Cedar Grove Community Centre east of Reesor Road is designated under the Ontario Heritage Act. Corridor traverses the RNUP between Donald Cousens Parkway and York/Durham Line. Parks Canada noted that 14th Avenue passes through important cultural and natural heritage landscapes within the RNUP and is one of the Park's distinguishing 2-lane rural roads. The Bob Hunter Memorial Park portion of the RNUP is an important venue for ecological restoration, loop trails, public programming and education.

2078 - 14th Avenue - Markham Road to York/Durham Line (continued)

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,640	750	2.04	0.96
2041 Proposed Network	2,230	1,330	1.39	0.86

Problem or Opportunity Statement

- Transportation network improvements needed to accommodate expansion of the Designated Urban Area.
- Elimination of jogged intersection needed to provide continuous corridor.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements need to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion.
3. Urbanize corridor but maintain 2-lane cross-section - Does not address traffic congestion. Opportunity to improve walking and cycling facilities.
4. Widen corridor to 4 lanes and construct to urban arterial standard - Addresses traffic capacity. Opportunity to improve walking and cycling facilities.
5. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and provides no improvements to walking and cycling facilities.

Recommended Improvement and Justification

Recommendation

Widen corridor to 4 lanes and construct to urban arterial standard within designated urban area. A rural standard could be considered within Rouge National Urban Park with special attention to park functions, values, and character. Eliminate jogged intersection at Reesor Road. Timing of this widening be coordinated with Durham Region's construction of the Whitevale Bypass, which already has a completed EA. Parks Canada requested that the scope of any future EA include the examination of larger network solutions to accommodate east-west traffic movements.

Justification

Corridor is congested during peak periods and is a bottleneck in the road network. Widening will complete the partial urban cross-section on existing segments of the roadway. Will provide connection to a future arterial road in Durham (Whitevale Bypass). Section east of railway is outside of designated urban area and rural cross-section is recommended. Realigned intersection improves capacity and traffic flow. A roundabout could be an option to address the jogged intersection at Reesor Road. Parks Canada requested that the corridor's landscape character, and its contribution to the pastoral character of this part of RNUP, be a key consideration in future environmental assessments.

TMP Phase

2022 to 2026: Markham Road to Donald Cousens Parkway
2032 to 2041: Donald Cousens Parkway to York/Durham Line

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	41,006,400
Incremental Annual Road Operating Cost	$	236,500
Incremental Road Maintenance and Rehabilitation Cost	$	125,500

Related Projects

Name	Project ID
CP Havelock Grade Separation - 14th Avenue east of Donald Cousens Parkway - Rail grade separation	2155

2078 - 14th Avenue - Markham Road to York/Durham Line (continued)

Key Intersections and Constraints

14th Avenue at Markham Road

14th Avenue at Box Grove Bypass

14th Avenue at Donald Cousens Parkway

Jogged intersection at 14th Avenue at Reesor Road

2078 - 14th Avenue - Markham Road to York/Durham Line (continued)

Key Intersections and Constraints

14th Avenue at York/Durham Line

CP Havelock at 14th Avenue

2079 - Langstaff Road - Weston Road to Jane Street

Project Description

Location	Langstaff Road	**Project ID**	**2079**
Municipality	Vaughan	**Road Segment ID**	72-15 to 72-16
Project Limits	Weston Road to Jane Street	**Length**	1,960 m
Project Type	Widen to 6 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 36 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,800	1,700	1.12	1.06
Daily truck volume	N/A	N/A		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Continuous sidewalk on south side. Sidewalk on north side is disconnected across the Highway 400 crossing. No dedicated cycling facilities. Curbside transit service.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides.

Land Use and Built Environment Major employment area with light industrial and warehouse uses on both sides.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,220	2,160	1.39	1.35
2041 Proposed Network	2,460	2,190	1.14	1.01

2079 - Langstaff Road - Weston Road to Jane Street (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Forecast traffic demand meets threshold for widening to 6 lanes for transit/HVO lanes. Provides continuous 6-lane corridor with completion of missing link east of Jane Street. Corridor serves as Primary Arterial for Goods Movement and provides access to Highway 400. Opportunity to improve walking and cycling facilities.

TMP Phase 2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	24,505,800
Incremental Annual Road Operating Cost	$	98,000
Incremental Road Maintenance and Rehabilitation Cost	$	36,900

Related Projects

Name	Project ID
Langstaff Road - Jane Street to Keele Street - Missing Link	2080
Highway 400 Interchange Improvements - at Langstaff Road - Interchange Improvements	2113

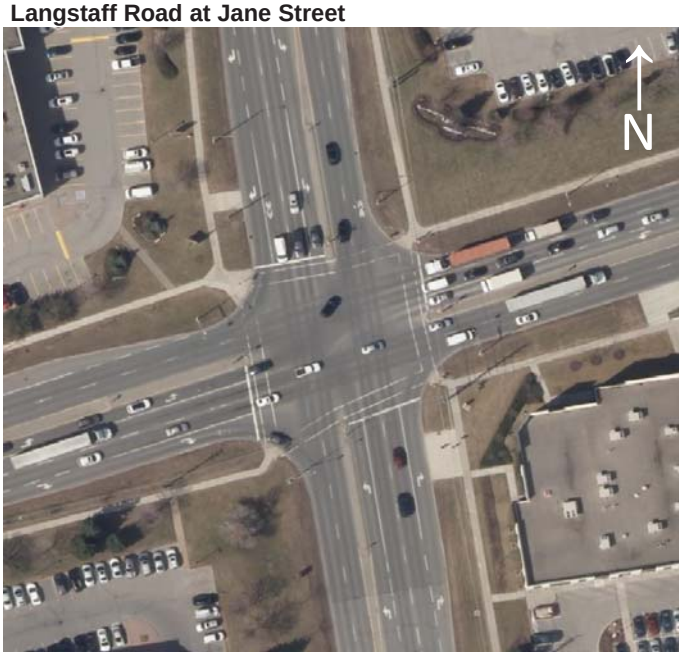
2079 - Langstaff Road - Weston Road to Jane Street (continued)

Key Intersections and Constraints

Langstaff Road at Weston Road

Langstaff Road at Highway 400

Langstaff Road at Jane Street



2080 - Langstaff Road - Jane Street to Keele Street

Project Description

Location	Langstaff Road	**Project ID**	**2080**
Municipality	Vaughan	**Road Segment ID**	72-18 to 72-19
Project Limits	Jane Street to Keele Street	**Length**	2,010 m
Project Type	Missing Link		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW N/A

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	390	390	0.27	0.27
Daily truck volume	N/A	N/A		

Description

Existing 4 general purpose lanes from Jane Street to industrial area. The road is discontinuous at the CN MacMillan Yard. The existing road section does not have cycling facilities, but has sidewalks on both sides.

Natural and Built Environment

Natural Environment Observations: Existing development on both west of Creditstone Road. Railyard east of Creditstone Road.

Land Use and Built Environment Major employment area with light industrial and warehouse uses. Missing road link across CN MacMillan Yard, which is the largest rail yard in North America and operates 24 hours per day and 7 days per week.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	800	800	0.57	0.57
2041 Proposed Network	2,140	2,140	1.13	1.13

2080 - Langstaff Road - Jane Street to Keele Street (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - Potential to divert travel demand to other corridor. Does not address travel demand within corridor. No improvements to walking and cycling. No improvement to transit service.
3. Construct missing link - Addresses travel demand in corridor. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation	Construct 6-lane missing link and implement transit/HOV lanes. Alternative alignments to be evaluated as part of subsequent Environmental Assessments. Note that CN Rail has expressed concern about impacts to operations and overall feasibility.
Justification	New road connection needed for network connectivity in Vaughan and supports surrounding employment lands. Forecast demands meet thresholds for 6-lane corridor. Transit/HOV lane benefits transit travel time and encourages shift to transit/HOV. Corridor also serves as Primary Arterial for Goods Movement and provides a connection from the employment lands to Highway 400. Opportunity to improve walking and cycling facilities.
TMP Phase	2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	587,600,000
Incremental Annual Road Operating Cost	$	233,000
Incremental Road Maintenance and Rehabilitation Cost	$	113,700

Related Projects

Name	Project ID
Langstaff Road - Weston Road to Jane Street - Widen to 6 lanes	2079
Langstaff Road - Keele Street to Dufferin Street - Widen to 6 lanes	2081

2080 - Langstaff Road - Jane Street to Keele Street (continued)

Key Intersections and Constraints

Langstaff Road at Jane Street

Langstaff Road at Keele Street

CN MacMillan Yard

2081 - Langstaff Road - Keele Street to Dufferin Street

Project Description

Location	Langstaff Road	**Project ID**	**2081**
Municipality	Vaughan	**Road Segment ID**	72-20
Project Limits	Keele Street to Dufferin Street	**Length**	2,140 m
Project Type	Widen to 6 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 36 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	990	990	1.10	1.10
Daily truck volume	N/A	N/A		

Description

Existing 2 general purpose lanes with turning lanes at some intersections. Widens to 4 lanes at the intersection of Dufferin Street/Langstaff Road. Sidewalk on north side only from west of Dufferin Street to Staffern Drive and from Spinnaker Way to Keele Street. No dedicated cycling facilities. Curbside transit between Planchet Road and North Rivermede Road. At-grade rail crossing of Barrie GO Line east of Keele Street.

Natural and Built Environment

Natural Environment Observations: Langstaff Park located on south side east of Keele Street.

Land Use and Built Environment Major employment area with light industrial and warehouse uses.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,190	1,190	1.31	1.31
2041 Proposed Network	2,440	2,440	1.00	1.00

2081 - Langstaff Road - Keele Street to Dufferin Street (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Forecast traffic demand meets threshold for widening to 6 lanes. Provides continuous 6-lane transit/HOV corridor with completion of missing link west of Keele Street and connection to Highway 400. Corridor serves as Primary Arterial for Goods Movement. Opportunity to improve walking and cycling facilities.

TMP Phase 2022 to 2026

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	18,964,300
Incremental Annual Road Operating Cost	$	107,000
Incremental Road Maintenance and Rehabilitation Cost	$	40,300

Related Projects

Name	Project ID
Langstaff Road - Jane Street to Keele Street - Missing Link	2080
Barrie GO Grade Separation - Langstaff Road east of Keele Street - Rail grade separation	2136

2081 - Langstaff Road - Keele Street to Dufferin Street (continued)

Key Intersections and Constraints

Langstaff Road at Keele Street

Langstaff Road at Dufferin Street

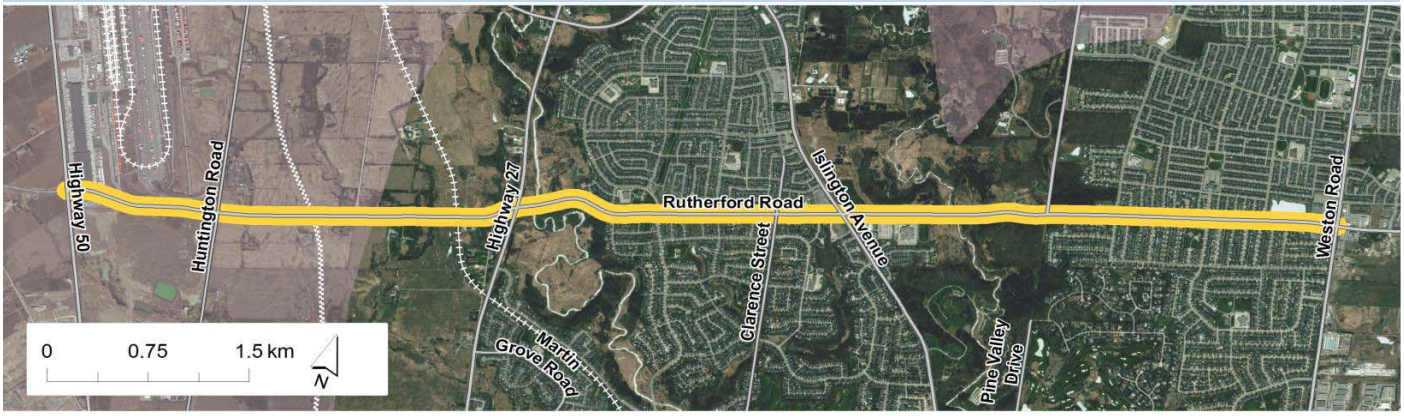
Barrie GO at Langstaff Road

2082 - Rutherford Road - Highway 50 to Weston Road

Project Description

Location	Rutherford Road	**Project ID**	**2082**
Municipality	Vaughan	**Road Segment ID**	73-06 to 73-14
Project Limits	Highway 50 to Weston Road	**Length**	9,290 m
Project Type	Widen to 6 lanes		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,580	1,150	0.87	0.69
Daily truck volume	4,770 /day	2,800 /day		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Sidewalk on north side from Weston Road to Pine Valley Drive and from Islington Avenue to Highway 27. Sidewalk on south side form Weston Road to Vaughan Mills Road. Shared pathway (in-boulevard) from Vaughan Mills Road to west of Islington Avenue, and from Islington Avenue to Humber River Trail. Curbside transit from Highway 50 to Huntington Road and from Highway 27 to Weston Road. At-grade rail crossing for CP Rail Line located west of Highway 27.

Natural and Built Environment

Natural Environment Observations: Crossing of Humber River east of Highway 27. Crossing of East Humber River east of Islington Avenue. Abuts Boyd Conservation Area & Kortright Centre Conservation Area.
Environmentally Sensitive Areas: Designated area east of Highway 27 on south side of Rutherford Road. Designated areas on north and south sides of Rutherford Road east of Islington Avenue to east of Pine Valley Drive.

Land Use and Built Environment Industrial uses and CP Rail terminal located between Highway 50 to Huntington. Agricultural lands between Huntington and Highway 27. Cemetery located on the north side east of McGillivray Road. Mix of residential and valley lands between Highway 27 and Weston Road.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,980	1,720	1.10	1.05
2041 Proposed Network	3,040	2,060	1.12	0.87

2082 - Rutherford Road - Highway 50 to Weston Road (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation	Widen corridor to 6 lanes to implement transit/HOV lanes. Convert 2 existing lanes between Weston Road and Jane Street to transit/HOV lanes.
Justification	Meets threshold for widening to 6 lanes along most of the corrido. Improves access to Highway 427 extension and interchange. Opportunity to provide continuous transit/HOV lanes which benefits transit travel time and encourages shift to transit/HOV. Provides improved walking and cycling facilities. Improvements at the intersection of Highway 50 will require coordination with Peel Region
TMP Phase	2027 to 2031: Pine Valley Drive to Weston Road 2032 to 2041: Highway 50 to Pine Valley Drive

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	98,023,700
Incremental Annual Road Operating Cost	$	464,300
Incremental Road Maintenance and Rehabilitation Cost	$	175,100

Related Projects

Name	Project ID
CP MacTier Grade Separation - Rutherford Road west of Highway 27 - Rail grade separation	2144

2082 - Rutherford Road - Highway 50 to Weston Road (continued)

Key Intersections and Constraints

Rutherford Road at Highway 50

Rutherford Road at Highway 27

Rutherford Road at Islington Avenue

Rutherford Road at Pine Valley Drive

2082 - Rutherford Road - Highway 50 to Weston Road (continued)

Key Intersections and Constraints

Rutherford Road at Weston Road

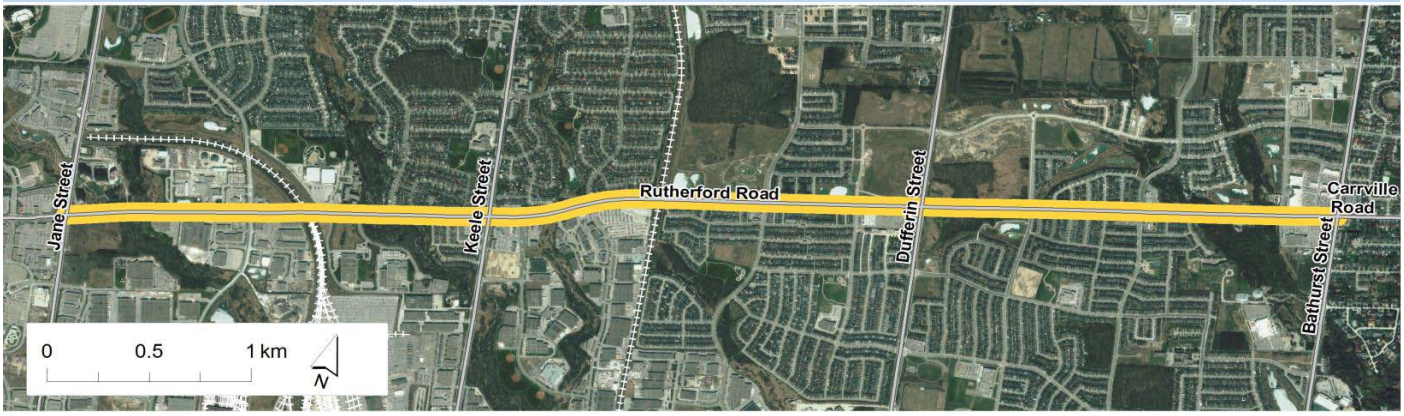
CP MacTier at Rutherford Road

2084 - Rutherford Road - Jane Street to Bathurst Street

Project Description

Location	Rutherford Road	**Project ID**	**2084**
Municipality	Vaughan	**Road Segment ID**	73-18 to 73-22
Project Limits	Jane Street to Bathurst Street	**Length**	6,270 m
Project Type	Widen to 6 lanes		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,800	1,630	1.00	0.90
Daily truck volume	2,960 /day	2,410 /day		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Widens to 6 lanes at the intersection of Rutherford Road/Jane Street. No continuous sidewalk between Jane Street and Bathurst Street. No dedicated cycling facilities. Curbside transit service. Grade separated rail crossing of CN rail spur east of Jane Street. At-grade rail crossing of Barrie GO Line east of Keele Street.

Natural and Built Environment

Natural Environment Observations: A number of forested areas and creek crossings along the corridor.

Land Use and Built Environment Mix of industrial and residential land uses. Residential ranges from condo developments near Jane Street to low-density subdivisions.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,340	2,110	1.30	1.17
2041 Proposed Network	2,370	2,340	0.88	0.86

2084 - Rutherford Road - Jane Street to Bathurst Street (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation	Widen corridor to 6 lanes to implement transit/HOV lanes. Convert 2 existing lanes between Weston Road and Jane Street to transit/HOV lanes.
Justification	Forecast demand meets threshold for widening to 6 lanes. Continuous transit/HOV lanes benefits transit travel time and encourages shift to transit/HOV. Improves cycling facilities in the corridor. EA study for corridor (Jane Street to Yonge Street) underway. Opportunity to improve walking and cycling facilities.
TMP Phase	2017 to 2021

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	71,928,500
Incremental Annual Road Operating Cost	$	313,400
Incremental Road Maintenance and Rehabilitation Cost	$	118,200

Related Projects

Name	Project ID
Carrville Road - Bathurst Street to Yonge Street - Widen to 6 lanes	2085
Barrie GO Grade Separation - Rutherford Road east of Keele Street - Rail grade separation	2131

2084 - Rutherford Road - Jane Street to Bathurst Street (continued)

Key Intersections and Constraints

Rutherford Road at Jane Street

Rutherford Road at Keele Street

Rutherford Road at Dufferin Street

Rutherford Road at Bathurst Street

2084 - Rutherford Road - Jane Street to Bathurst Street (continued)

Key Intersections and Constraints

Barrie GO at Rutherford Road

2085 - Carrville Road - Bathurst Street to Yonge Street

Project Description

Location	Carrville Road	**Project ID**	**2085**
Municipality	Richmond Hill	**Road Segment ID**	73-24
Project Limits	Bathurst Street to Yonge Street	**Length**	2,150 m
Project Type	Widen to 6 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,030	1,030	0.64	0.64
Daily truck volume	1,490 /day	1,490 /day		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Continuous sidewalks on both sides. No dedicated cycling facilities. Curbside transit service.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides. Crossing of Regional Greenlands System. Environmentally Sensitive Areas: Designated area just south of Carrville Road east of Bathurst within Regional Greenlands System.

Land Use and Built Environment Mostly residential, with direct residential frontage on Carrville Road. Public school located midway between Bathurst Street and Yonge Street . Retail/commercial uses centred on Yonge Street.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,200	1,200	0.75	0.75
2041 Proposed Network	1,600	1,600	0.67	0.67

2085 - Carrville Road - Bathurst Street to Yonge Street (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Forecast demand meets threshold for widening to 6 lanes. Continuous transit/HOV lanes benefits transit travel time and encourages shift to transit/HOV. Improves cycling facilities in the corridor. EA study for corridor (Jane Street to Yonge Street) underway.

TMP Phase 2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	19,799,100
Incremental Annual Road Operating Cost	$	107,500
Incremental Road Maintenance and Rehabilitation Cost	$	40,500

Related Projects

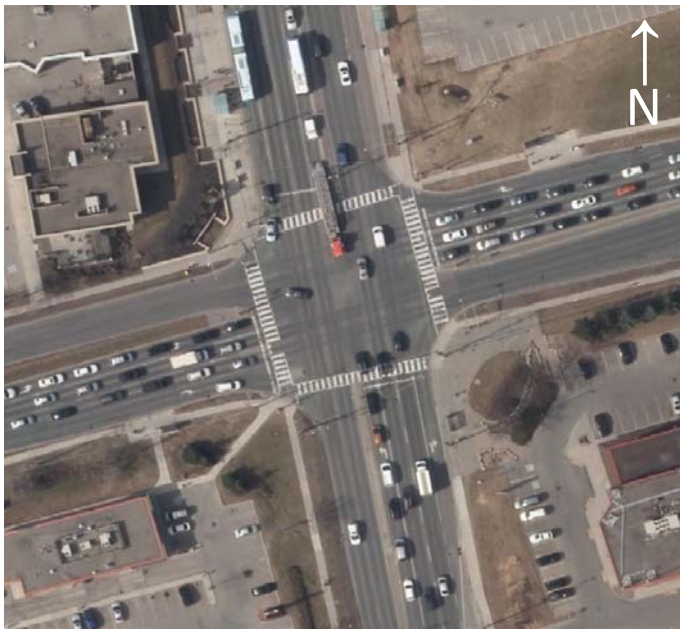
Name	Project ID
Rutherford Road - Jane Street to Bathurst Street - Widen to 6 lanes	2084
16th Avenue - Yonge Street to Leslie Street - Widen to 6 lanes	2086

2085 - Carrville Road - Bathurst Street to Yonge Street (continued)

Key Intersections and Constraints

Carrville Road at Bathurst Street

Carrville Road at Yonge Street

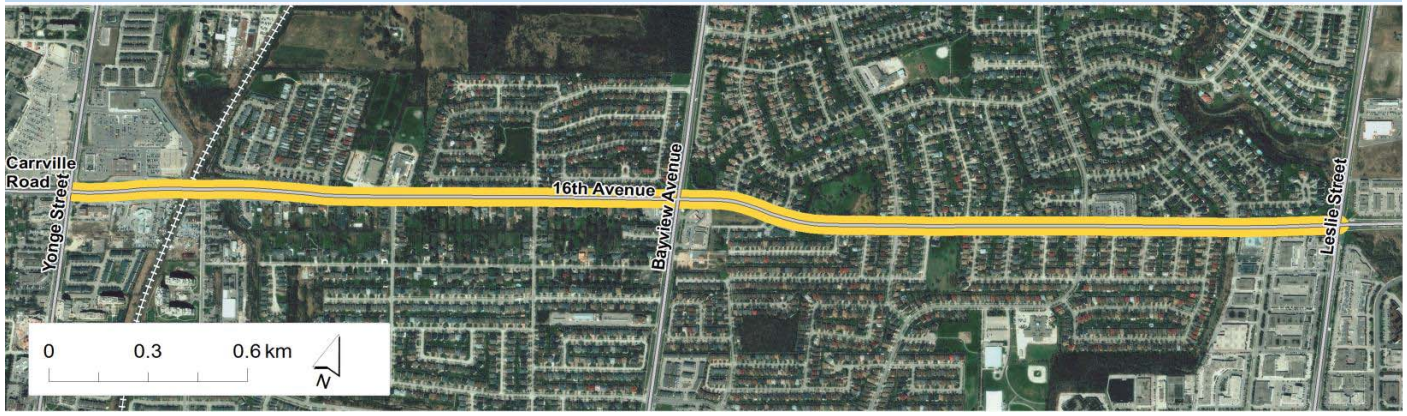


2086 - 16th Avenue - Yonge Street to Leslie Street

Project Description

Location	16th Avenue	**Project ID**	**2086**
Municipality	Richmond Hill	**Road Segment ID**	73-26 to 73-28
Project Limits	Yonge Street to Leslie Street	**Length**	3,870 m
Project Type	Widen to 6 lanes		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,460	1,330	0.81	0.74
Daily truck volume	1,780 /day	1,650 /day		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Continuous sidewalks on both sides. No dedicated cycling facilities. Curbside transit service. Grade separated rail crossing for Richmond Hill GO/CN Rail Line located east of Yonge Street.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides. Crossing of German Mills Creek east of Yonge Street.

Land Use and Built Environment Retail/commercial uses at Yonge Street. Residential eastward to Leslie with direct frontage on to 16th Avenue on the south side between Yonge Street and Bayview Avenue. Employment area at Leslie Street.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,060	1,940	1.14	1.08
2041 Proposed Network	2,310	2,160	0.85	0.80

2086 - 16th Avenue - Yonge Street to Leslie Street (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Forecast demand meets threshold for widening to 6 lanes. Continuous transit/HOV lanes benefits transit travel time and encourages shift to transit/HOV. Improves cycling facilities in the corridor. Widening is included in the 10-year Capital Program with EA study to be initiated for 16th Avenue from Yonge Street to Woodbine Avenue.

TMP Phase 2022 to 2026

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	43,295,600
Incremental Annual Road Operating Cost	$	193,400
Incremental Road Maintenance and Rehabilitation Cost	$	72,900

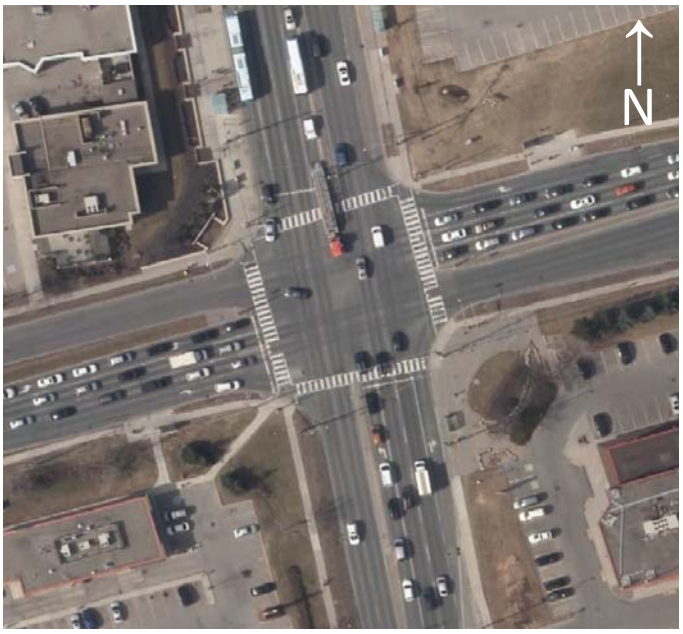
Related Projects

Name	Project ID
Carrville Road - Bathurst Street to Yonge Street - Widen to 6 lanes	2085
16th Avenue - Leslie Street to Woodbine Avenue - Widen to 6 lanes	2087

2086 - 16th Avenue - Yonge Street to Leslie Street (continued)

Key Intersections and Constraints

16th Avenue at Yonge Street



16th Avenue at Bayview Avenue

16th Avenue at Leslie Street

2087 - 16th Avenue - Leslie Street to Woodbine Avenue

Project Description

Location	16th Avenue	**Project ID**	**2087**
Municipality	Richmond Hill, Markham	**Road Segment ID**	73-29 to 73-30
Project Limits	Leslie Street to Woodbine Avenue	**Length**	2,040 m
Project Type	Widen to 6 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,810	1,700	1.00	0.94
Daily truck volume	2,260 /day	1,800 /day		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Sidewalks on both sides from Leslie Street to Mural Street. Discontinuous sidewalks under Highway 404 overpass. Sidewalk on south side from Woodbine Avenue to Highway 404. Sidewalk on north side from Woodbine Avenue to Cachet Wood Court. No dedicated cycling facilities. Curbside transit service.

Natural and Built Environment

Natural Environment Observations: Crossing of Beaver Creek east of Leslie Street and crossing of Rouge River west of Woodbine Avenue.

Land Use and Built Environment Employment lands with light industrial uses between Leslie Street and Highway 404. Buttonville Airport east of Highway 404.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,260	2,180	1.25	1.21
2041 Proposed Network	2,880	2,550	1.06	0.94

2087 - 16th Avenue - Leslie Street to Woodbine Avenue (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Forecast demand meets threshold for widening to 6 lanes. Continuous transit/HOV lanes benefits transit travel time and encourages shift to transit/HOV. Improves walking and cycling facilities in the corridor. Widening is included in the 10-year Capital Program with EA study to be initiated for Yonge Street to Woodbine Avenue.

TMP Phase 2017 to 2021

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	49,241,200
Incremental Annual Road Operating Cost	$	102,000
Incremental Road Maintenance and Rehabilitation Cost	$	38,500

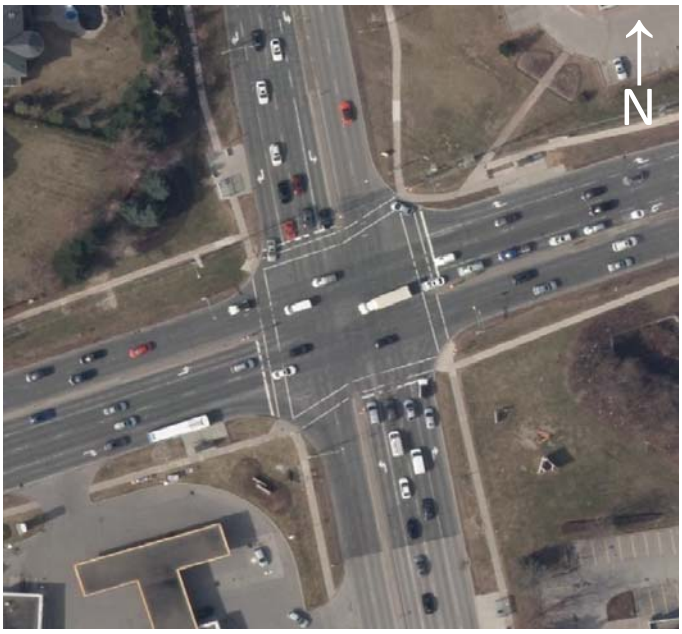
Related Projects

Name	Project ID
16th Avenue - Yonge Street to Leslie Street - Widen to 6 lanes	2086
16th Avenue - Woodbine Avenue to McCowan Road - Widen to 6 lanes	2088
Highway 404 Interchange Improvements - at 16th Avenue - Interchange Improvements	2106

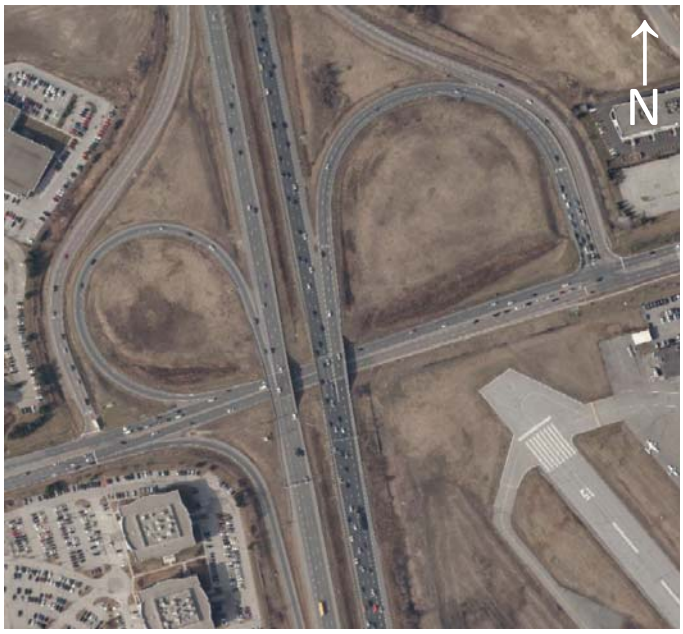
2087 - 16th Avenue - Leslie Street to Woodbine Avenue (continued)

Key Intersections and Constraints

16th Avenue at Leslie Street



16th Avenue at Highway 404



16th Avenue at Woodbine Avenue

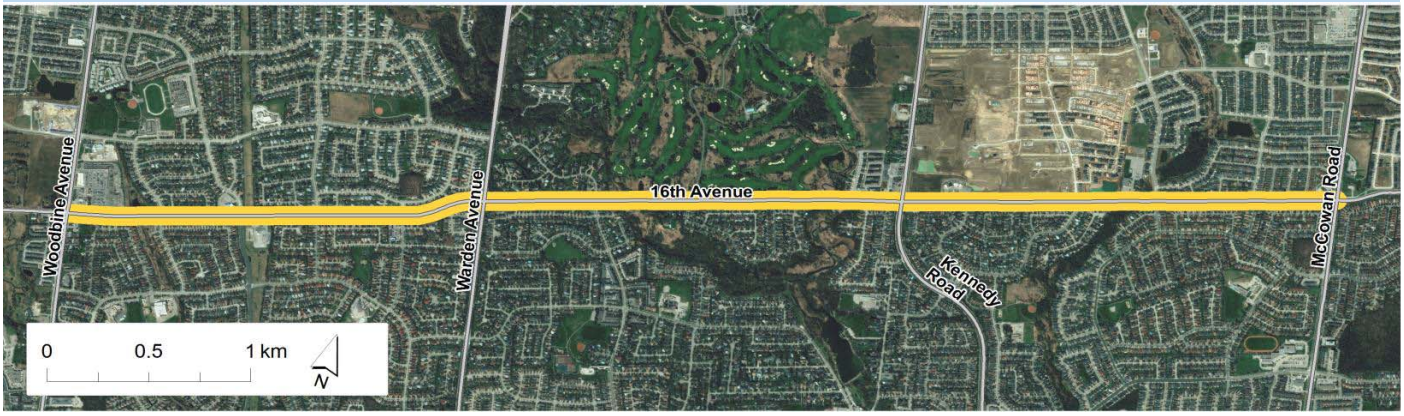
Highway 404 overpass (Image capture: 2015, ©2016 Google)

2088 - 16th Avenue - Woodbine Avenue to McCowan Road

Project Description

Location	16th Avenue	**Project ID**	**2088**
Municipality	Markham	**Road Segment ID**	73-32 to 73-36
Project Limits	Woodbine Avenue to McCowan Road	**Length**	5,960 m
Project Type	Widen to 6 lanes		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	1,970	1,790	1.09	0.99
Daily truck volume	1,600 /day	1,200 /day		

Description

Existing 4 general purpose lanes with turning lanes at intersections. Continuous sidewalk on south side. No continuous sidewalk on north side from Warden Avenue to Kennedy Road. No dedicated cycling facilities. Curbside transit service.

Natural and Built Environment

Natural Environment Observations: Park on the south side (Toogood Pond Park).

Land Use and Built Environment Primarily residential subdivisions.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	2,650	2,500	1.47	1.39
2041 Proposed Network	3,180	3,070	1.18	1.14

2088 - 16th Avenue - Woodbine Avenue to McCowan Road (continued)

Problem or Opportunity Statement

- Capacity improvements needed to address existing congestion and goods movement.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements needed to support transit and HOV.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion. Does not improve transit/HOV and active modes.
3. Widen corridor to 6 lanes for general purpose capacity improvements - Improves traffic flow and reduces congestion. Opportunity to improve walking and cycling facilities. Does not support shift to transit/HOV. Not consistent with Council policy to widen to 6 lanes for transit/HOV lanes only.
4. Widen corridor to 6 lanes to implement transit/HOV lanes - Addresses traffic capacity. Opportunity to improve walking and cycling facilities. Potential to improve transit travel time and encourage shift to transit/HOV.
5. Widen corridor to implement rapid transit - Does not address traffic congestion. Transit ridership does not meet RT threshold.
6. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and travel demand, no improvements to walking and cycling facilities, does not encourage shift to transit/HOV.

Recommended Improvement and Justification

Recommendation Widen corridor to 6 lanes to implement transit/HOV lanes.

Justification Forecast demand meets threshold for widening to 6 lanes along most of the corridor. Continuous transit/HOV lanes benefits transit travel time and encourages shift to transit/HOV. Improves walking and cycling facilities in the corridor.

TMP Phase 2022 to 2026

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	58,863,700
Incremental Annual Road Operating Cost	$	297,900
Incremental Road Maintenance and Rehabilitation Cost	$	112,300

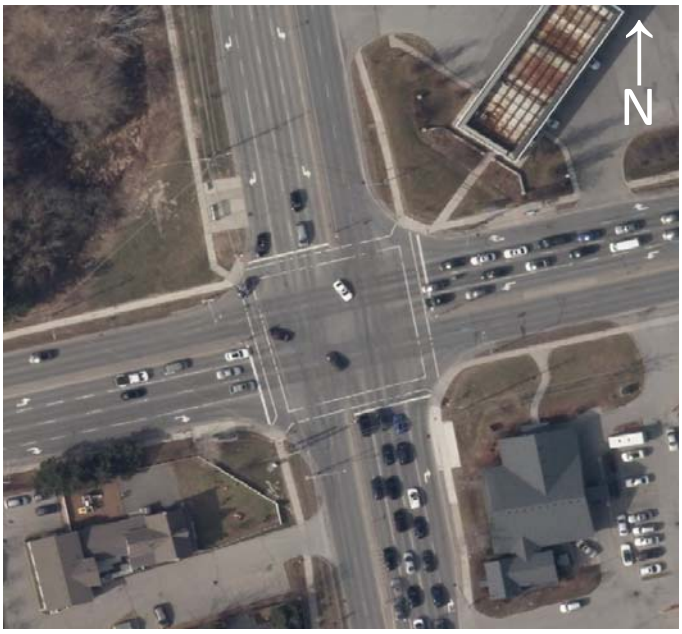
Related Projects

Name	Project ID
16th Avenue - Leslie Street to Woodbine Avenue - Widen to 6 lanes	2087

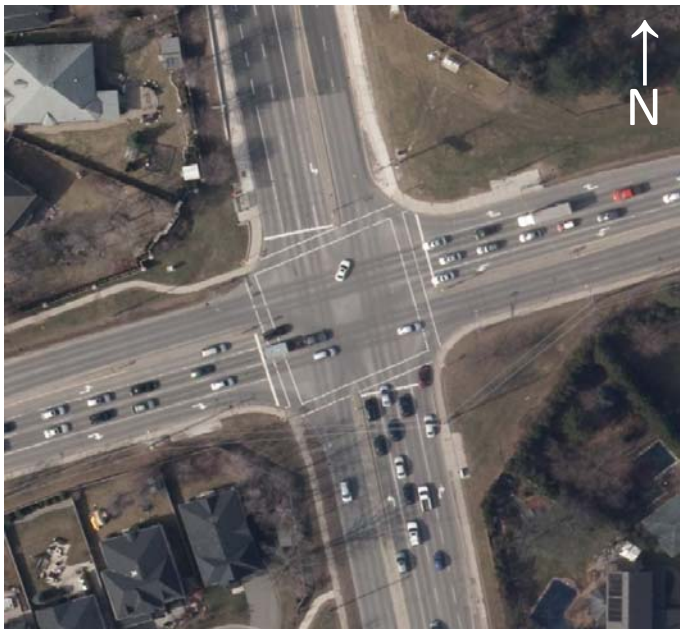
2088 - 16th Avenue - Woodbine Avenue to McCowan Road (continued)

Key Intersections and Constraints

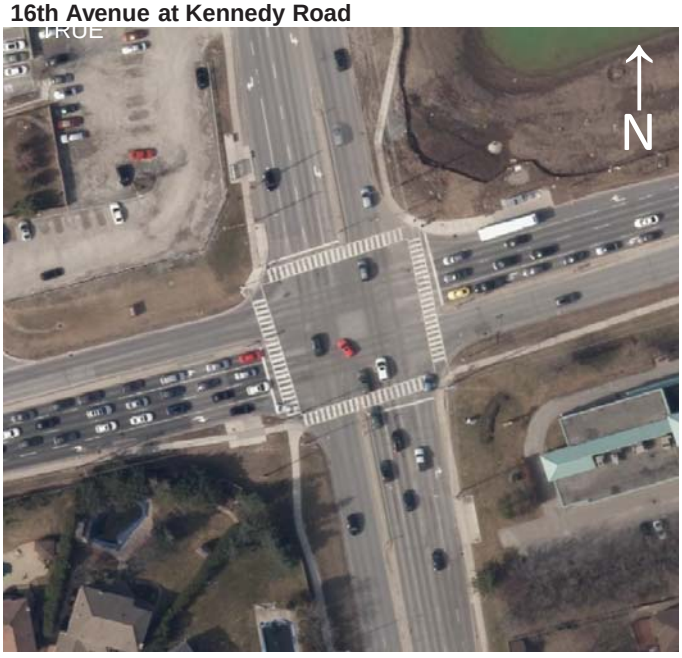
16th Avenue at Woodbine Avenue



16th Avenue at Warden Avenue



16th Avenue at Kennedy Road



16th Avenue at McCowan Road

2089 - Queensville Sideroad - Leslie Street to Woodbine Avenue

Project Description

Location	Queensville Sideroad	**Project ID**	**2089**
Municipality	East Gwillimbury	**Road Segment ID**	77-29 to 77-30
Project Limits	Leslie Street to Woodbine Avenue	**Length**	1,300 m
Project Type	Widen to 4 lanes		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 43 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	350	350	0.35	0.35
Daily truck volume	140 /day	140 /day		

Description

Existing 2 general purpose lanes with turning lanes at intersections. Crossing over Highway 404 is 4 lanes. Sidewalk on both sides from within Queensville community from Leslie Street to 200m easterly. Shared roadway (unsigned route).

Natural and Built Environment

Natural Environment

Observations: Agricultural fields.
Environmentally Sensitive Areas: Designated area encompasses corridor from Leslie Street to Highway 404.
Source Water Protection Areas: Protection zone starts just west of Highway 404.

Land Use and Built Environment

Queensville community centred on Leslie Street surrounded primarily by agricultural lands.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	1,680	1,680	0.84	0.84
2041 Proposed Network	1,890	1,890	0.94	0.94

2089 - Queensville Sideroad - Leslie Street to Woodbine Avenue (continued)

Problem or Opportunity Statement

- Transportation network improvements needed to accommodate expansion of the Designated Urban Area.
- Capacity improvements needed to accommodate future travel demands.
- Corridor improvements needed to support walking and cycling.
- Corridor improvements need to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Optimize existing facility with intersection improvements only - Minor improvement for corridor traffic flow. Does not address overall traffic congestion.
3. Urbanize corridor but maintain 2-lane cross-section - Does not address traffic congestion. Opportunity to improve walking and cycling facilities.
4. Widen corridor to 4 lanes and construct to urban arterial standard - Addresses traffic capacity. Opportunity to improve walking and cycling facilities.
5. Widen parallel/adjacent corridor - Potential to divert some traffic to other corridors. Does not address corridor congestion and provides no improvements to walking and cycling facilities.

Recommended Improvement and Justification

Recommendation Widen corridor to 4 lanes and construct to urban arterial standard.

Justification Accommodates growth in designated urban area. Provides improved facilities for walking and cycling.

TMP Phase 2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	7,116,500
Incremental Annual Road Operating Cost	$	65,000
Incremental Road Maintenance and Rehabilitation Cost	$	24,500

Related Projects

Name	Project ID

2089 - Queensville Sideroad - Leslie Street to Woodbine Avenue (continued)

Key Intersections and Constraints

Queensville Sideroad at Leslie Street

Queensville Sideroad at Highway 404

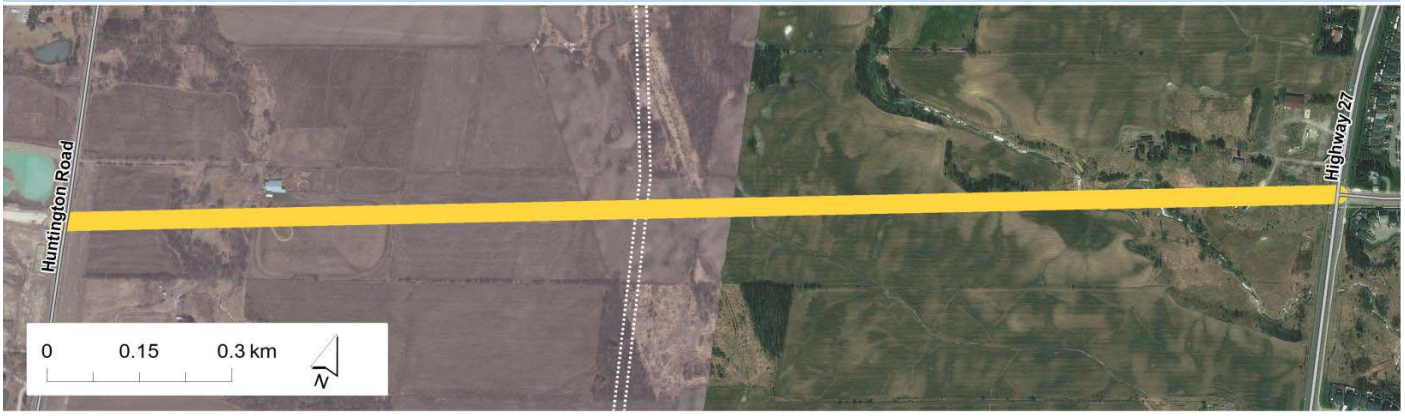
Queensville Sideroad at Woodbine Avenue

2090 - Midblock Crossing of Highway 427 - North of Langstaff Road

Project Description

Location	Midblock Crossing of Highway 427	**Project ID**	**2090**
Municipality	Vaughan	**Road Segment ID**	94-01
Project Limits	North of Langstaff Road	**Length**	2,070 m
Project Type	New Midblock Crossing		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Up to 36 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

No existing facility.

Natural and Built Environment

Natural Environment Observations: Wooded areas and watercourses. Corridor crosses Regional Greenlands System.

Land Use and Built Environment Currently undeveloped farmland with a hydro corridor crossing at an angle. New road planned to flyover planned Highway 427 extension.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	320	320	0.22	0.22

2090 - Midblock Crossing of Highway 427 - North of Langstaff Road (continued)

Problem or Opportunity Statement

- Network improvements needed to address existing congestion.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation

Construct mid-block crossing of 400-series highway.

Justification

New crossing across Highway 427 will accommodate growth in employment lands on both sides of Highway 427. Provides improved access for walking, cycling and transit to employment lands. City of Vaughan and Block 59 (as co-proponents) completed the Municipal Class EA for midblock crossing in August 2015. EA provides detailed justification.

TMP Phase

2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	34,924,200
Incremental Annual Road Operating Cost	$	171,700
Incremental Road Maintenance and Rehabilitation Cost	$	78,000

Related Projects

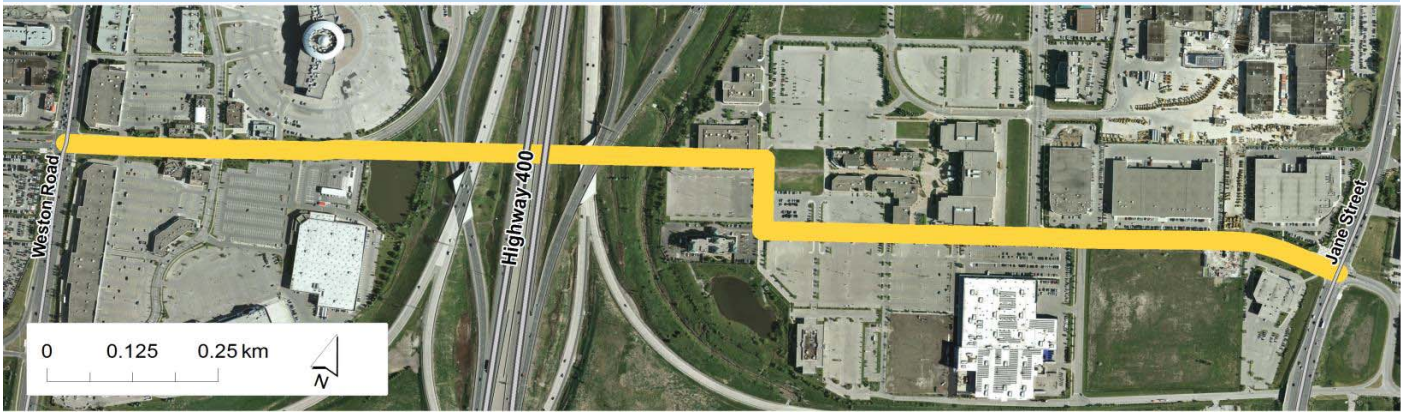
Name	Project ID

2091 - Midblock Crossing of Highway 400 - South of Highway 7

Project Description

Location	Midblock Crossing of Highway 400	**Project ID**	**2091**
Municipality	Vaughan	**Road Segment ID**	94-02
Project Limits	South of Highway 7	**Length**	650 m
Project Type	New Midblock Crossing		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

Approaches to midblock crossing are 2-lane roads with sidewalks on the west approach (Colossus Drive), and sidewalks on the south side only on the east approach (Interchange Way). No transit service or cycling facilities.

Natural and Built Environment

Natural Environment Observations: Tributary of Black Creek on east side of Highway 400. Existing development.

Land Use and Built Environment Big box-style retail developments on both sides of Highway 400.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	1,200	1,200	1.20	1.20

2091 - Midblock Crossing of Highway 400 - South of Highway 7 (continued)

Problem or Opportunity Statement

- Network improvements needed to address existing congestion.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation

Construct mid-block crossing of 400-series highway. Alternative alignments to be evaluated as part of subsequent Environmental Assessments.

Justification

New crossing of Highway 400 supports growth and intensification of Vaughan Metropolitan Centre. New connection also provides improved facilities for walking and cycling and improved transit access in and through VMC. Crossing provides congestion relief for Highway 7.

TMP Phase

2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	46,622,900
Incremental Annual Road Operating Cost	$	53,900
Incremental Road Maintenance and Rehabilitation Cost	$	24,500

Related Projects

Name	Project ID

2091 - Midblock Crossing of Highway 400 - South of Highway 7 (continued)

Key Intersections and Constraints

Highway 400 south of Highway 7

2092 - Midblock Crossing of Highway 400 - North of Rutherford Road

Project Description

Location	Midblock Crossing of Highway 400	**Project ID**	**2092**
Municipality	Vaughan	**Road Segment ID**	94-04
Project Limits	North of Rutherford Road	**Length**	1,500 m
Project Type	New Midblock Crossing		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

West approach to midblock crossing is a 2-lane residential road with sidewalks on both sides and curbside transit service. East approach is a 4-lane private road with no sidewalks and no transit service. No dedicated cycling facilities on either approach.

Natural and Built Environment

Natural Environment Observations: Forested area on the east side of Highway 400. Ponds and watercourses on both side of Highway 400. Existing development.

Land Use and Built Environment Residential on both sides of Highway 400 with Canada's Wonderland amusement park located northeast of proposed crossing. Crossing would connect existing roads with some residential frontage.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	900	900	1.12	1.12

2092 - Midblock Crossing of Highway 400 - North of Rutherford Road (continued)

Problem or Opportunity Statement

- Network improvements needed to address existing congestion.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation	Construct mid-block crossing of 400-series highway. Alternative alignments to be evaluated as part of subsequent Environmental Assessments.
Justification	New crossing of Highway 400 improves walking, cycling and transit access to development on both sides of the freeway. Crossing is an alternative to Rutherford Road and Major Mackenzie Drive which are congested in existing and future conditions.
TMP Phase	2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	49,777,200
Incremental Annual Road Operating Cost	$	124,400
Incremental Road Maintenance and Rehabilitation Cost	$	56,500

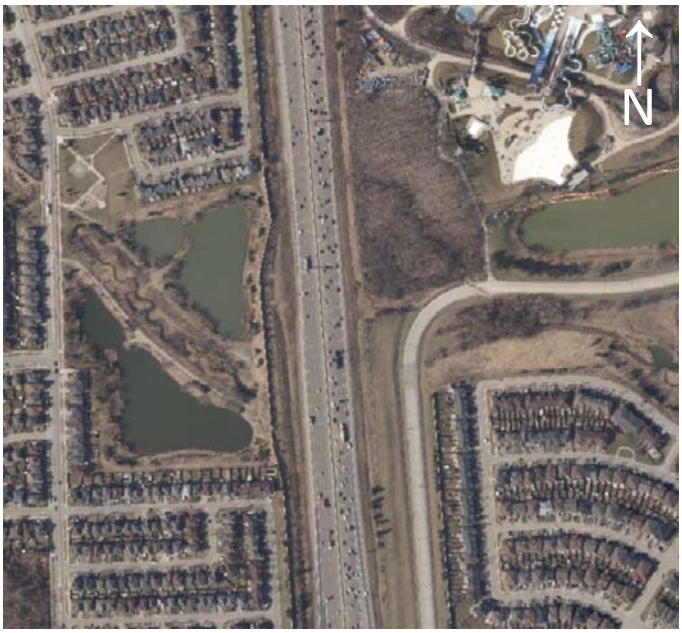
Related Projects

Name	Project ID

2092 - Midblock Crossing of Highway 400 - North of Rutherford Road (continued)

Key Intersections and Constraints

Highway 400 north of Rutherford Road

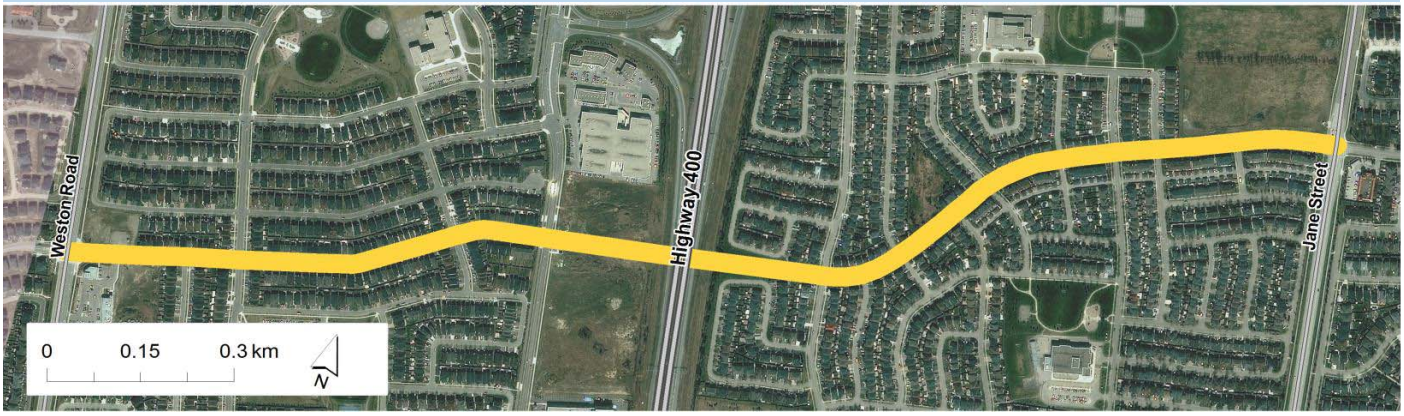


2093 - Midblock Crossing of Highway 400 - North of Major Mackenzie Drive

Project Description

Location	Midblock Crossing of Highway 400	**Project ID**	**2093**
Municipality	Vaughan	**Road Segment ID**	94-05
Project Limits	North of Major Mackenzie Drive	**Length**	850 m
Project Type	New Midblock Crossing		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

Approaches to midblock crossing are 2-lane residential roads with sidewalks on both sides and no dedicated cycling facilities. Curbside transit service.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides.

Land Use and Built Environment Residential on both sides of Highway 400. Crossing would connect existing roads with direct residential frontage.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	640	640	0.53	0.53

2093 - Midblock Crossing of Highway 400 - North of Major Mackenzie Drive (continued)

Problem or Opportunity Statement

- Network improvements needed to accommodate expansion of the Designated Urban Area.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation

Construct mid-block crossing of 400-series highway.

Justification

New crossing of Highway 400 improves walking, cycling and transit access to development on both sides of the freeway. Corridor is an alternative route to Major Mackenzie Drive which is congested in existing and future conditions. City of Vaughan's Municipal Class EA for midblock crossing was completed in December 2013 and received MOECC clearance to proceed in November 2014. EA provides detailed justification.

TMP Phase

2027 to 2031

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	27,668,900
Incremental Annual Road Operating Cost	$	42,500
Incremental Road Maintenance and Rehabilitation Cost	$	16,000

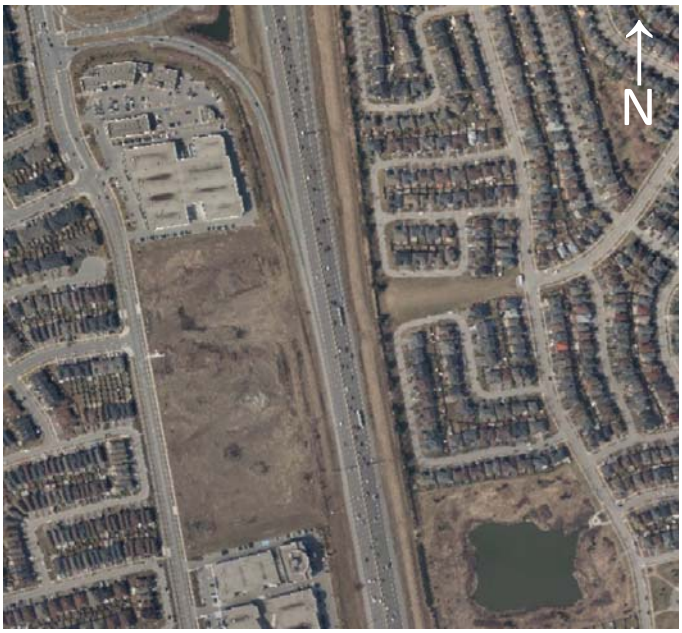
Related Projects

Name	Project ID

2093 - Midblock Crossing of Highway 400 - North of Major Mackenzie Drive (continued)

Key Intersections and Constraints

Highway 400 north of Major Mackenzie Drive



2094 - Midblock Crossing of Highway 400 - North of Kirby Road

Project Description

Location	Midblock Crossing of Highway 400	**Project ID**	**2094**
Municipality	Vaughan	**Road Segment ID**	94-06
Project Limits	North of Kirby Road	**Length**	1,980 m
Project Type	New Midblock Crossing		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

n/a

Natural and Built Environment

Natural Environment Observations: Regional Greenlands System on west side of Highway 400 with forested areas and watercourse.

Land Use and Built Environment Mostly farmland on both sides of Highway 400 with highway service center on west side of Highway 400. Potential location of GTA West connection to Highway 400.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	610	610	0.51	0.51

2094 - Midblock Crossing of Highway 400 - North of Kirby Road (continued)

Problem or Opportunity Statement

- Network improvements needed to accommodate expansion of the Designated Urban Area.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation	Construct mid-block crossing of 400-series highway. Alternative alignments to be evaluated as part of subsequent Environmental Assessments.
Justification	New crossing supports growth and development in Northern Vaughan. Provides opportunity for improved walking, cycling and transit access to development on both sides of Highway 400.
TMP Phase	2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	46,731,000
Incremental Annual Road Operating Cost	$	164,300
Incremental Road Maintenance and Rehabilitation Cost	$	74,600

Related Projects

Name	Project ID

2094 - Midblock Crossing of Highway 400 - North of Kirby Road (continued)

Key Intersections and Constraints

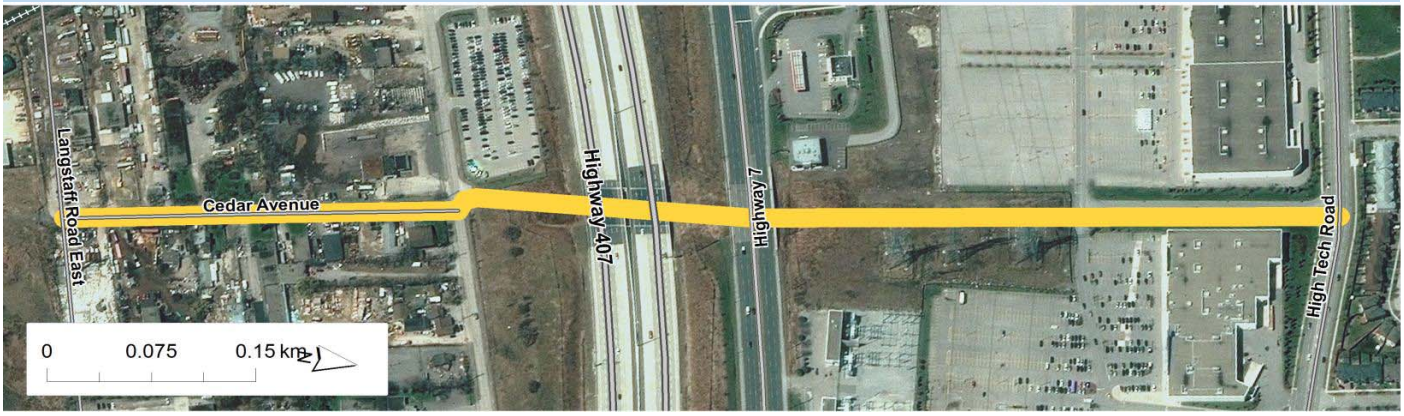
Highway 400 north of Kirby Road

2095 - Midblock Crossing of Highway 407 - at Cedar Avenue

Project Description

Location	Midblock Crossing of Highway 407	**Project ID**	**2095**
Municipality	Richmond Hill, Markham	**Road Segment ID**	94-07
Project Limits	at Cedar Avenue	**Length**	630 m
Project Type	New Midblock Crossing		

Map



Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

Approaches to midblock crossing are 2-lane industrial roads with no sidewalks and no dedicated cycling facilities. No transit service.

Natural and Built Environment

Natural Environment Observations: Existing development on both sides.

Land Use and Built Environment Retail/commercial north of Highway 407 and industrial uses to the south. Designated Richmond Hill Centre and Langstaff redevelopment areas. Pre-constructed overpass structures at Highway 407 and Highway 7.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	720	720	0.90	0.90

2095 - Midblock Crossing of Highway 407 - at Cedar Avenue (continued)

Problem or Opportunity Statement

- Network improvements needed to address existing congestion.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation	Construct mid-block crossing of 400-series highway. Alternative alignments to be evaluated as part of subsequent Environmental Assessments. Timing of construction to be coordinated with the Town of Richmond Hill.
Justification	New crossing of Highway 407 supports growth and intensification of Richmond Hill Centre and Langstaff Gateway. Crossing will provides improved facilities for walking, cycling and transit access between Richmond Hill Centre and Langstaff Gateway. Highway 407 and Highway 7 structures over the new road alignment are already in place.
TMP Phase	2017 to 2021

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	3,093,500
Incremental Annual Road Operating Cost	$	52,300
Incremental Road Maintenance and Rehabilitation Cost	$	23,800

Related Projects

Name	Project ID

2095 - Midblock Crossing of Highway 407 - at Cedar Avenue (continued)

Key Intersections and Constraints

Highway 407 at Cedar Avenue

2096 - Midblock Crossing of Highway 404 - North of Highway 7

Project Description

Location	Midblock Crossing of Highway 404	**Project ID**	**2096**
Municipality	Richmond Hill, Markham	**Road Segment ID**	94-08
Project Limits	North of Highway 7	**Length**	920 m
Project Type	New Midblock Crossing		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

Approaches to midblock crossing are 2-lane roads with sidewalks on at least one side. Dedicated bike lanes provided on East Pearce Street. Curbside transit service provided on Centurian Drive.

Natural and Built Environment

Natural Environment Observations: Regional Greenlands System with watercourse and ponds on the east side of Highway 404. Existing development.

Land Use and Built Environment Employment lands with office and light industrial uses on both sides of Highway 404 with Seneca College Campus on the east.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	1,340	1,340	1.12	1.12

2096 - Midblock Crossing of Highway 404 - North of Highway 7 (continued)

Problem or Opportunity Statement

- Network improvements needed to address existing congestion.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation Construct mid-block crossing of 400-series highway.

Justification New crossing of Highway 404 serves growth in employment lands on both sides of the freeway. Crossing provides an alternative to Highway 7 which is congested under existing and future conditions. Improves walking, cycling and transit access to the employment lands and Seneca College Campus.

TMP Phase 2017 to 2021

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	41,479,400
Incremental Annual Road Operating Cost	$	76,300
Incremental Road Maintenance and Rehabilitation Cost	$	34,700

Related Projects

Name	Project ID

2096 - Midblock Crossing of Highway 404 - North of Highway 7 (continued)

Key Intersections and Constraints

Highway 404 north of Highway 7

2097 - Midblock Crossing of Highway 404 - North of 16th Avenue

Project Description

Location	Midblock Crossing of Highway 404	**Project ID**	**2097**
Municipality	Richmond Hill, Markham	**Road Segment ID**	94-09
Project Limits	North of 16th Avenue	**Length**	590 m
Project Type	New Midblock Crossing		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

Model Forecast	Peak Hour Auto Volume Maximum	Peak Hour Auto Volume Average	Peak Hour V/C Ratio Maximum	Peak Hour V/C Ratio Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

Midblock crossing will connect 2-lane industrial road on the west to 3-lane collector road on the east.

Natural and Built Environment

Natural Environment Observations: Regional Greenlands System crosses Highway 404 at this location. Forested areas and crossing of Rouge River east of Highway 404.

Land Use and Built Environment Office park style developments on both sides, with some low density residential on the east side of Highway 404; some undeveloped farmland on the west side

Future Transportation Conditions

	Peak Hour Auto Volume Maximum	Peak Hour Auto Volume Average	Peak Hour V/C Ratio Maximum	Peak Hour V/C Ratio Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	970	970	0.97	0.97

2097 - Midblock Crossing of Highway 404 - North of 16th Avenue (continued)

Problem or Opportunity Statement

- Network improvements needed to address existing congestion.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation

Construct mid-block crossing of 400-series highway.

Justification

New crossing over Highway 404 supports growth in employment lands on both sides of the freeway and provides network connectivity. Crossing provides an alternative to 16th Avenue which is congested in the Highway 404 area. Improves walking, cycling and transit access to employment lands.

TMP Phase

2017 to 2021

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	44,296,700
Incremental Annual Road Operating Cost	$	48,900
Incremental Road Maintenance and Rehabilitation Cost	$	22,200

Related Projects

Name	Project ID

2097 - Midblock Crossing of Highway 404 - North of 16th Avenue (continued)

Key Intersections and Constraints

Highway 404 north of 16th Avenue

2098 - Midblock Crossing of Highway 404 - North of Major Mackenzie Drive

Project Description

Location	Midblock Crossing of Highway 404	**Project ID**	**2098**
Municipality	Richmond Hill, Markham	**Road Segment ID**	94-10
Project Limits	North of Major Mackenzie Drive	**Length**	1,400 m
Project Type	New Midblock Crossing		

Map

Preliminary Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

Midblock crossing will connect 2-lane industrial road on the west to 3-lane collector road on the east.

Natural and Built Environment

Natural Environment Observations: Regional Greenlands System to the west of Highway 404 with forested areas and crossing of Rouge River. The Ministry of Natural Resources and Fisheries has identified the presence of species at risk in this area.

Land Use and Built Environment Undeveloped land and some offices/commercial on the west side of Highway 404, new urbanism-style residential/commercial development to the east

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	730	730	0.61	0.61

2098 - Midblock Crossing of Highway 404 - North of Major Mackenzie Drive (continued)

Preliminary Problem or Opportunity Statement

- Network improvements needed to address existing congestion.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Preliminary Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Preliminary Recommended Improvement and Justification

Recommendation	Construct mid-block crossing of 400-series highway. A full assessment of alternative alignments which considers species at risk to be evaluated as part of Environmental Assessment.
Justification	New crossing over Highway 404 serves growth in North Markham and provides network connectivity. Crossing provides improved walking, cycling and transit access to development on both sides of Highway 404 including employment lands.
TMP Phase	2027 to 2031

Preliminary Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Preliminary Costs

Capital Cost	$	43,847,800
Incremental Annual Road Operating Cost	$	116,100
Incremental Road Maintenance and Rehabilitation Cost	$	52,800

Related Projects

Name	Project ID

2098 - Midblock Crossing of Highway 404 - North of Major Mackenzie Drive (continued)

Key Intersections and Constraints

Highway 404 north of Major Mackenzie Drive

2099 - Midblock Crossing of Highway 404 - North of Elgin Mills Road

Project Description

Location	Midblock Crossing of Highway 404	**Project ID**	**2099**
Municipality	Richmond Hill, Markham	**Road Segment ID**	94-11
Project Limits	North of Elgin Mills Road	**Length**	1,500 m
Project Type	New Midblock Crossing		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

No existing facility.

Natural and Built Environment

Natural Environment Observations: Regional Greenlands System to the west of highway 404 with forested areas and crossing of Rouge River.

Land Use and Built Environment Primarily farmland. Designated employment lands.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	680	680	0.57	0.57

2099 - Midblock Crossing of Highway 404 - North of Elgin Mills Road (continued)

Problem or Opportunity Statement

- Network improvements needed to accommodate expansion of the Designated Urban Area.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation Construct mid-block crossing of 400-series highway.

Justification New crossing of Highway 404 supports growth in employment lands on both sides of the freeway and serves growth in North Markham. Crossing provides improved walking, cycling and transit access.

TMP Phase 2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
◑	●	●	◑	●

Costs

Capital Cost	$	43,608,900
Incremental Annual Road Operating Cost	$	124,400
Incremental Road Maintenance and Rehabilitation Cost	$	56,500

Related Projects

Name	Project ID

2099 - Midblock Crossing of Highway 404 - North of Elgin Mills Road (continued)

Key Intersections and Constraints

Highway 404 north of Elgin Mills Road

2100 - Midblock Crossing of Highway 404 - North of Green Lanes

Project Description

Location	Midblock Crossing of Highway 404	**Project ID**	**2100**
Municipality	East Gwillimbury	**Road Segment ID**	94-12
Project Limits	North of Green Lanes	**Length**	2,050 m
Project Type	New Midblock Crossing		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

No existing facility.

Natural and Built Environment

Natural Environment Observations: Agricultural fields.

Land Use and Built Environment Low density residential to the west of Highway 404 (north of midblock crossing), farmland to the east of Highway 404.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	10	10	0.00	0.00

2100 - Midblock Crossing of Highway 404 - North of Green Lanes (continued)

Problem or Opportunity Statement

- Network improvements needed to accommodate expansion of the Designated Urban Area.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation	Construct mid-block crossing of 400-series highway. Alternative alignments to be evaluated as part of subsequent Environmental Assessments.
Justification	New crossing serves growth in East Gwillimbury and provides improved walking, cycling and transit access to development on both sides of Highway 404.
TMP Phase	2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
◑	●	◑	◑	◑

Costs

Capital Cost	$	23,028,000
Incremental Annual Road Operating Cost	$	170,100
Incremental Road Maintenance and Rehabilitation Cost	$	77,300

Related Projects

Name	Project ID

2100 - Midblock Crossing of Highway 404 - North of Green Lanes (continued)

Key Intersections and Constraints

Highway 404 north of Green Lane

2101 - Midblock Crossing of Highway 404 - North of Doane Road

Project Description

Location	Midblock Crossing of Highway 404	**Project ID**	**2101**
Municipality	East Gwillimbury	**Road Segment ID**	94-13
Project Limits	North of Doane Road	**Length**	2,050 m
Project Type	New Midblock Crossing		

Map

Existing Conditions

Physical and Transportation Conditions

OP Designated ROW Proposed up to 26 metres

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
Model Forecast	Maximum	Average	Maximum	Average
2011 Existing	N/A	N/A	N/A	N/A
Daily truck volume	N/A	N/A		

Description

No existing facility.

Natural and Built Environment

Natural Environment Observations: Regional Greenlands System with forested areas on both sides of Highway 404. Tributary of Maskinonge River on west side of Highway 404.
Environmentally Sensitive Areas: Designated ESA between Leslies Street and Woodbine Avenue.
Source Water Protection Areas: Within SWP zone

Land Use and Built Environment Agricultural lands on both sides of Highway 404. Designated urban area.

Future Transportation Conditions

	Peak Hour Auto Volume		Peak Hour V/C Ratio	
	Maximum	Average	Maximum	Average
2041 Do Nothing	N/A	N/A	N/A	N/A
2041 Proposed Network	210	210	0.17	0.17

2101 - Midblock Crossing of Highway 404 - North of Doane Road (continued)

Problem or Opportunity Statement

- Network improvements needed to accommodate expansion of the Designated Urban Area.
- Network improvements needed to accommodate future travel demands.
- Network improvements needed to support walking and cycling.
- Network improvements needed to support transit.

Alternatives Considered

1. Do Nothing - Does not address Problem or Opportunity Statement.
2. Widen parallel/adjacent corridor - May not fully address travel demand needs as adjacent corridor is at capacity. No improvements to walking and cycling. No improvement to transit service.
3. Construct mid-block crossing - Addresses travel demand. Opportunity to provide walking and cycling facilities. Potential to improve transit service.

Recommended Improvement and Justification

Recommendation	Construct mid-block crossing of 400-series highway. Alternative alignments to be evaluated as part of subsequent Environmental Assessments.
Justification	New crossing serves growth in East Gwillimbury and provides improved walking, cycling and transit access to development growth on both sides of Highway 404.
TMP Phase	2032 to 2041

Alignment with TMP Objectives

Support Transit	Support Road Network	Support Active Transportation	Support Goods Movement	Support Last Mile
				

Costs

Capital Cost	$	23,028,000
Incremental Annual Road Operating Cost	$	170,100
Incremental Road Maintenance and Rehabilitation Cost	$	77,300

Related Projects

Name	Project ID

2101 - Midblock Crossing of Highway 404 - North of Doane Road (continued)

Key Intersections and Constraints

Highway 404 north of Doane Road