

Doing 'a little' can accomplish 'a lot'.....

**Proposed Change of Municipal
Class Environmental Assessment
from Schedule from 'B' to 'A+'**

**Erin Mills Parkway Intersections at
Dundas Street and Burnhamthorpe Road**

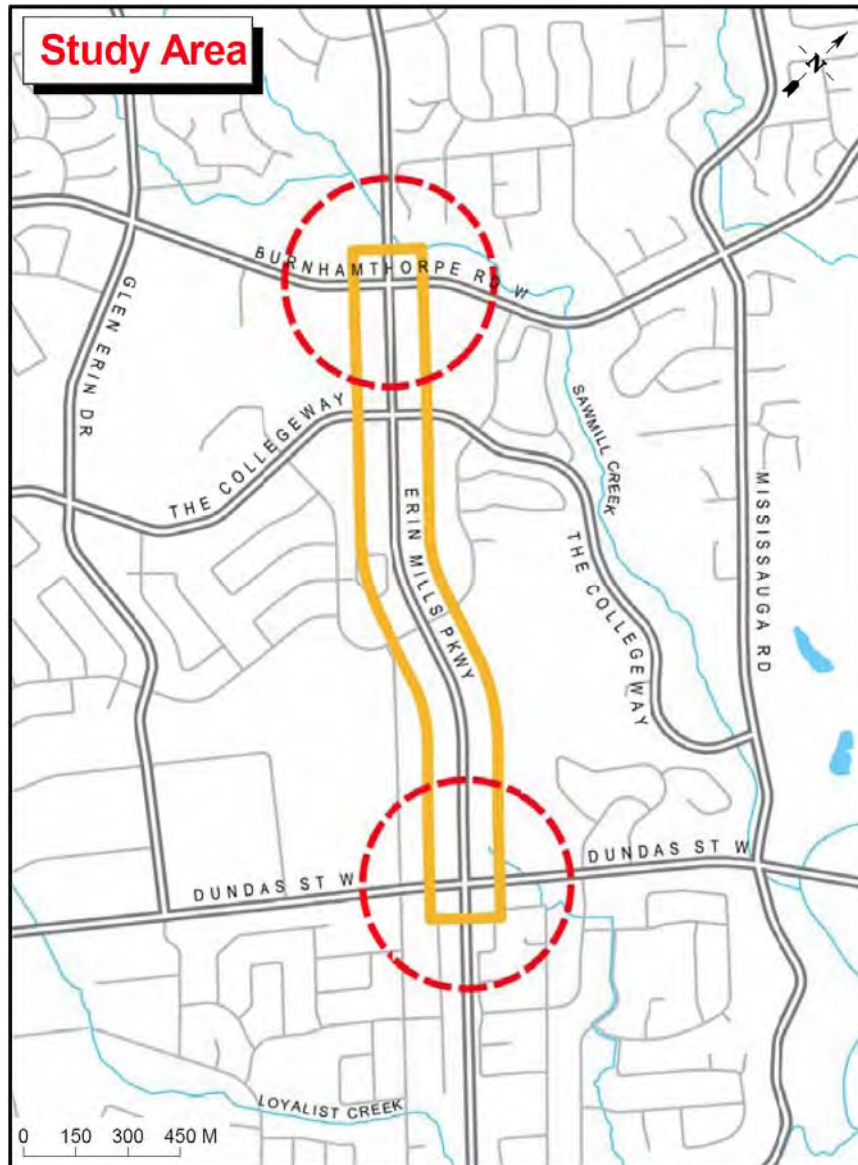
Index of Boards

1. Study Areas, Context and Purpose
2. Regional Policies
3. Transportation Demand Management
4. Mississauga's Official Plan
5. Transit Vision
6. Active Transportation
7. Inactivity/Diet & Long-term health
8. Benefits through Intensification
9. Road Characterization Study
10. Transforming the Intersections
11. What the Traffic Report says
12. Transportation Safety Study
13. Safety Study Conclusions
14. Criteria for Benefit/Cost Analysis of Design Alternatives
15. Benefit/Cost Analysis – EMP @ Burnhamthorpe
16. Preferred Design Alternative – EMP @ Burnhamthorpe



17. Benefit/Cost Analysis - EMP @ Dundas
18. Preferred Design Alternative - EMP @ Dundas
19. Understanding the Analysis & Recommendations
20. Commitments (Dundas Street intersection)
21. Commitments (Burnhamthorpe Rd intersection)
22. Accessibility Improvements
23. Contact

1 STUDY AREAS, CONTEXT and PURPOSE



Context

Two separate intersection projects were combined into one EA Study to better examine intersection requirements from a corridor perspective and:

- take a multimodal viewpoint
- examine traffic flow from the network impact on the intersections, and
- study opportunities to make improvements that enhance the built/road form

Purpose

The study purpose is to address traffic Level of Service (LOS) and safety.

2 REGIONAL POLICIES

PEEL REGION OFFICIAL PLAN (OP)

The Official Plan is the Region's long-term policy framework for decision making. It sets the Regional context for detailed planning by:

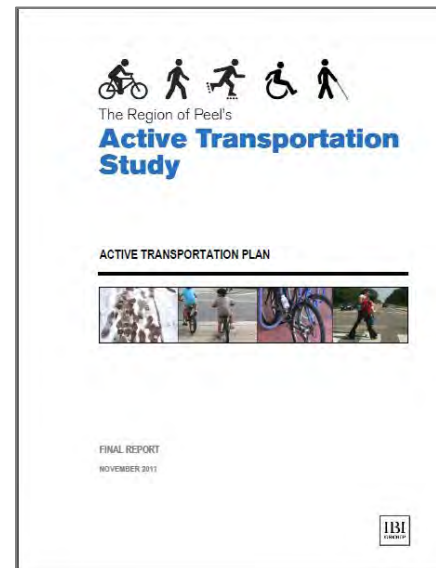
- protecting the environment
- managing resources
- directing growth, and
- setting the basis for providing Regional services.

The Official Plan provides direction for future planning activities and for public and private initiatives aimed at improving the existing physical environment.

ACTIVE TRANSPORTATION PLAN

Planned initiatives include:

1. Creating active transportation friendly communities
2. using education & outreach programs to change travel behaviour, and
3. enhancing pedestrian and cycling networks



Mandate: to create a place where walking, cycling and rolling are safe, convenient, appealing and accessible options for everyone.

3 TRANSPORTATION DEMAND MANAGEMENT

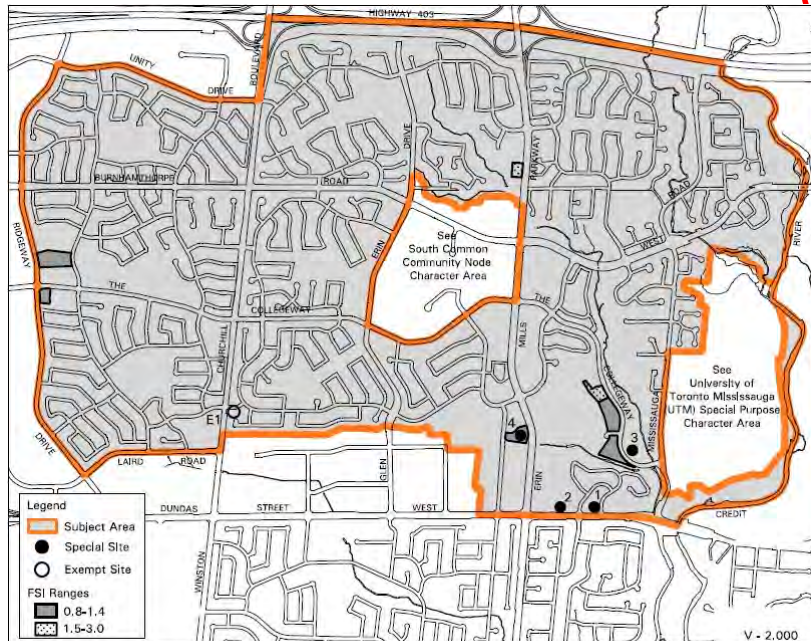
Transportation Demand Management (TDM) is a planning tool that looks at ways to deal with road capacity issues other than road widening. For Erin Mills Parkway the following TDM alternatives have been evaluated:

- **Carpool Lots** - planned for Erin Mills Parkway and Hwy 403
- **HOV Lanes** - there is not enough bus traffic at present for High Occupancy Vehicle (HOV) lanes and along Erin Mills Parkway, too many right turns exist to make it feasible
- **Transit** - there is a transit corridor along Erin Mills Parkway, a planned BRT route along Dundas Street and a new GO station planned at Hwy 403/Erin Mills Parkway as part of the Mississauga Transitway



4 MISSISSAUGA'S OFFICIAL PLAN

- Intensify development along Erin Mills community from suburban to urban
- Support the development of South Common as a Community Node to focus growth on areas with existing and proposed service and infrastructure capacity



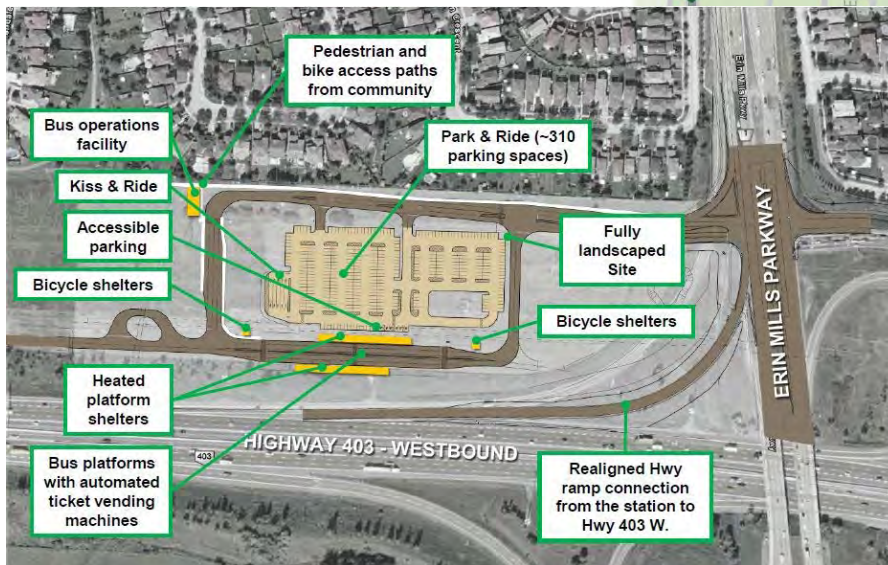
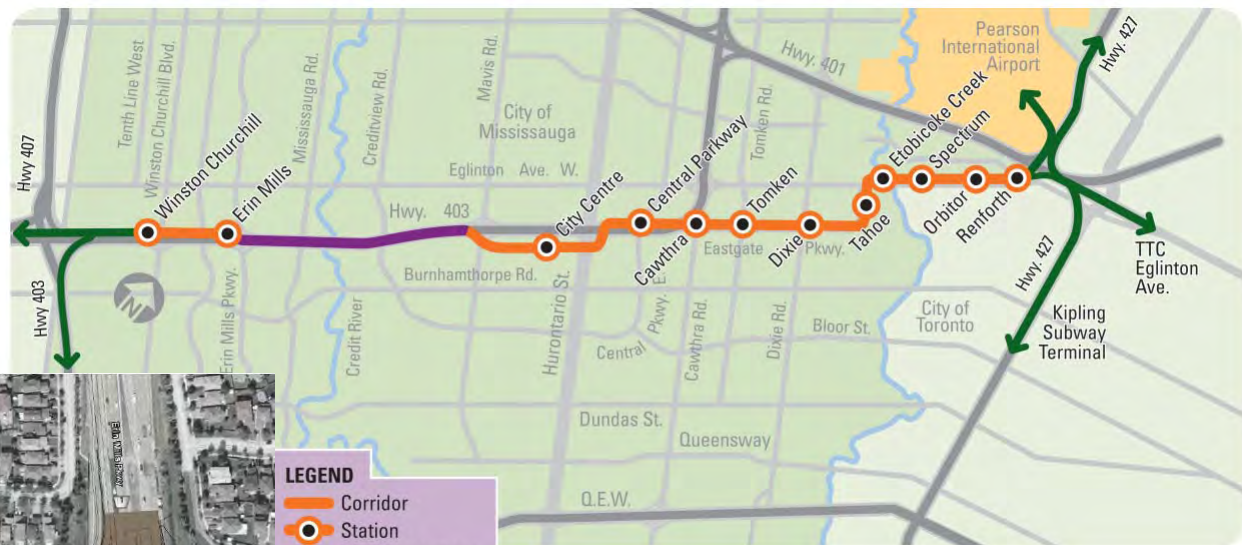
Map 16-10: Erin Mills Neighbourhood Character Area



- Provide more pedestrian-oriented development that provides safer pedestrian connections, considers transit and provides mixed-use development

5 TRANSIT VISION

- Support modal shifts from car to transit
- Provide Bus Rapid Transit (BRT) on Dundas Street
- Build the Mississauga Transitway along Hwy 403 corridor with a station at Erin Mills Parkway. The Transitway will support increased intensity and density of development



6 ACTIVE TRANSPORTATION at the STUDY INTERSECTIONS

Pedestrians

- In the morning and mid-day hours, there is very limited pedestrian traffic except that associated with the secondary school near the Dundas intersection
- The lack of pedestrian traffic may be a result of limited access to Erin Mills Parkway, Burnhamthorpe Road West and Dundas Street from the existing residential and commercial areas

Cyclists

- There are multi-use trails in the northeast corner of both intersections but no on-street bike lanes along Erin Mills Pkwy, Dundas Street or Burnhamthorpe Road
- The City and Region both desire to provide extensive multi-use trails

The only lanes added to these intersections will be for Transit . Adding second left-turn lanes for vehicles would increase crossing times for pedestrians and cyclists without improving operations for vehicles in the long term.

7 INACTIVITY and DIET affect LONG-TERM HEALTH

Chronic Disease in Peel

- over half the adult population is overweight or obese
- 1 in 10 adults in Peel currently have diabetes; by 2025 it will be 1 in 6
- heart disease is the leading cause of death



a key initiative to promote health is create a **Healthy Built Environment**

8 BENEFITS THROUGH INTENSIFICATION

Why the built environment matters to public health

Physical activity has been engineered out of our lives

- there is a decline of manual occupations
- decline in active transportation
- reliance on technology
- neighborhood designs that support car travel
- time pressures



Increasing walkability in the built environment through pedestrian-oriented, transit-friendly, compact and complete community design allows people to make the healthy choice of being mobile without being auto-dependent.

Vehicles emit toxic and carcinogenic compounds associated with adverse health impacts. An exposure zone of 50-100 meters around major roads (or 300-500 meters around highways) is most heavily affected by vehicle emissions. Congestion is one factor that leads to higher concentrations on roads.

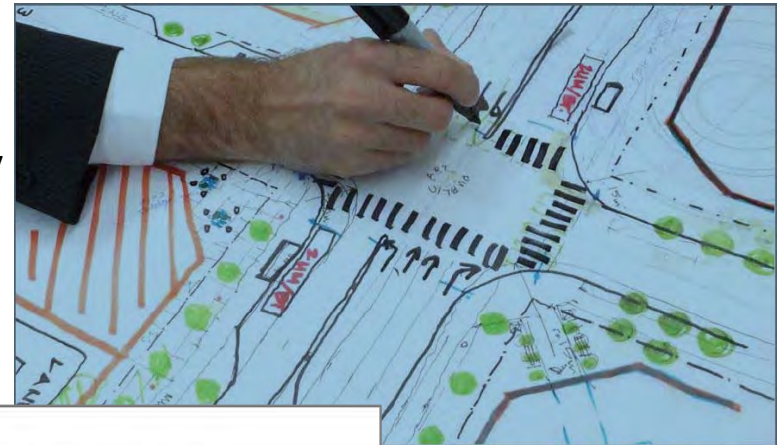
City design, land use planning and transportation management can help reduce exposure to vehicle related air pollution.

9 ROAD CHARACTERIZATION STUDY

Healthy by Design Principles

A growing body of evidence demonstrates the link between health and a built environment that

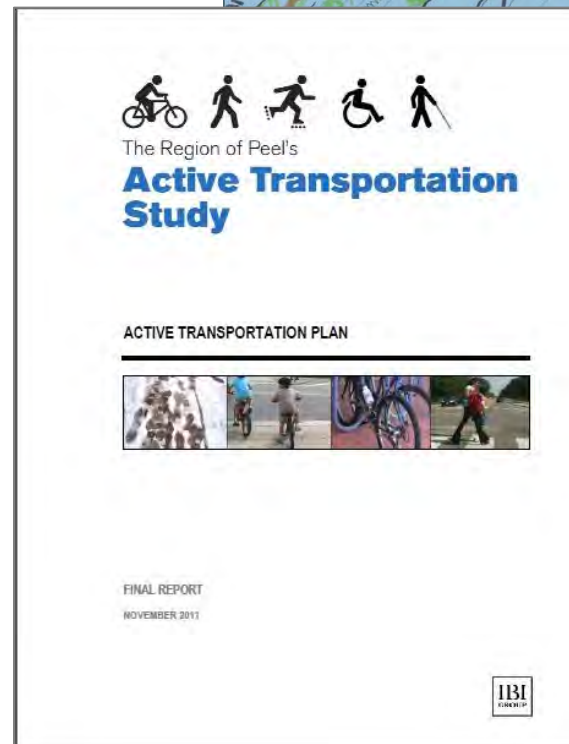
- supports practical and recreational physical activity
- shifts the priority back to pedestrians
- improves opportunities for active transportation, and
- integrates land use and transportation planning



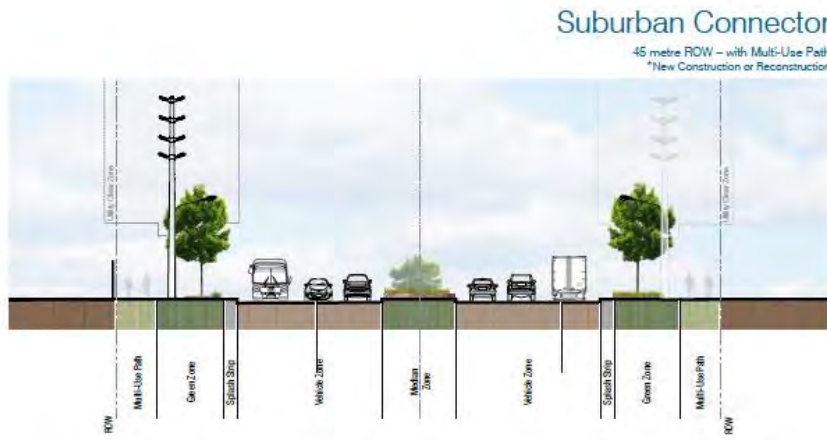
The Road Characterization Study integrates the Healthy by Design principles with Transportation objectives based on land use concepts.

The road character along Erin Mills Parkway is **suburban connector**. Suburban connectors are roads that link between strip commercial retail development hubs and suburban housing.

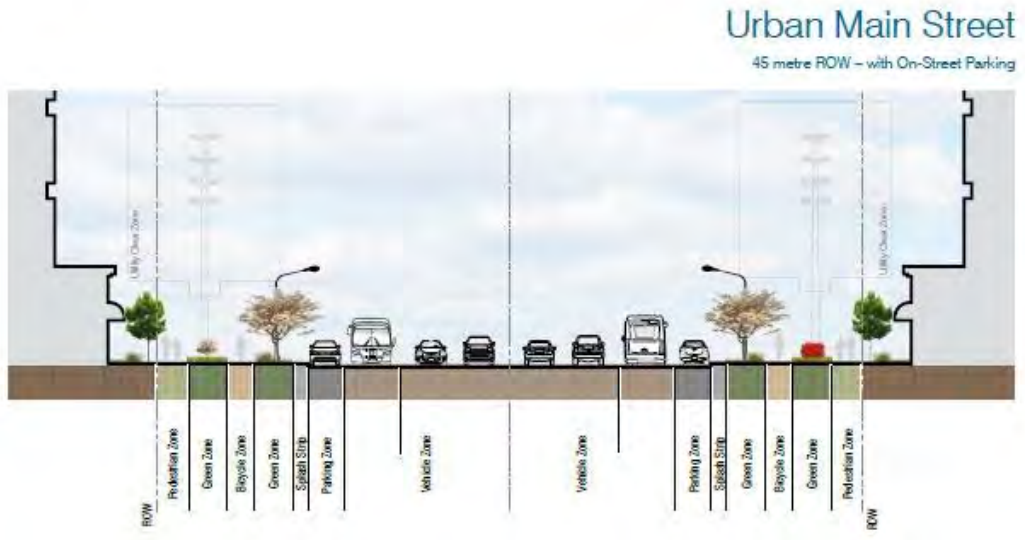
Mississauga's planning vision for Erin Mills Parkway is for it to evolve towards an **urban main street** configuration through intensification.



10 TRANSFORMING THE INTERSECTIONS FROM SUBURBAN CONNECTOR TO URBAN MAIN STREET



TODAY



TOMORROW

11 WHAT THE TRAFFIC REPORT SAYS

- The Traffic Report looked at the current Level of Service (LOS) for the 2 intersections. LOS is the average wait time (in seconds) experienced by drivers based on random arrival at the intersection during the studied time period. The chart below explains the LOS ratings.

LOS	A	B	C	D	E	F
delay in seconds	0-10	10-20	20-35	35-55	55-80	80+

- For the Erin Mills Parkway intersections the length of delay in seconds to make each type of intersection turning movement, i.e. left turns, right turns and straight through movements was determined. Currently the intersection approaches a LOS F – which is the lowest rating (i.e. 80+ seconds)
- The Traffic report used 2013 as its comparison base and modelled traffic for 2021 and 2031 years using projected growth rates and standard planning rationale
- The report shows that even with improvements (including dual left turn lanes in all directions at intersections) and widening along the Erin Mills Parkway, Burnhamthorpe Rd. and Dundas Street, **a traffic LOS F is inevitable.**

The traffic report shows that even with improvements to the intersections, Level of Service F is inevitable.

12 TRANSPORTATION SAFETY STUDY

The results of the collisions analysis identified the following frequent collision patterns:

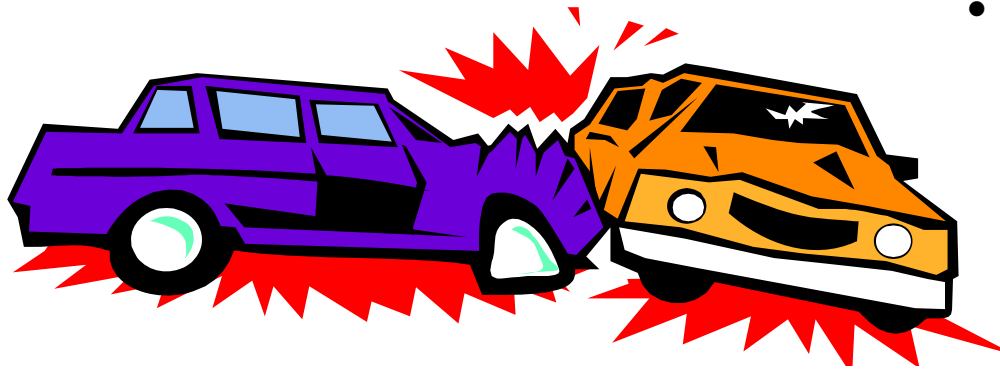


Higher frequency of rear end and turning movement collisions



Higher frequency of rear end, turning movement and sideswipe collisions

13 SAFETY STUDY CONCLUSIONS



- For both intersections, north and south bound vehicles travelling along Erin Mills Parkway arrive in bunches at higher than posted speeds. Drivers making left turns have difficulty turning due to lack of gaps.
- A large number of rear end collisions could be caused by worn pavement surface, speed differences in vehicles arriving in bunches, and traffic congestion at the intersections.
- Driver impatience may result in drivers accepting a gap that is smaller than needed, which in turn may create turning movement type collisions.

Recommended improvements include improved signage, lane markings, conversion of channelized right turn lanes to smart channels*, pavement resurfacing and lighting.

*Smart Channels – are designed to decrease the angle of the right turning lane to approximately 70° to give drivers a better view of the traffic stream while still being able to see crossing pedestrians. Resulting in safer pedestrian crossings.

14 CRITERIA FOR BENEFIT/COST ANALYSIS OF DESIGN ALTERNATIVES

A Benefit-Cost Analysis compared the various benefits with the costs of the proposed alternatives against Doing Nothing. The costs are related to construction and include obtaining property and moving utilities. Benefits come from the savings to users in 3 areas:

- delay
- safety
- environmental sustainability (emissions and energy)

Change in Intersection Delay

- Analysis looked at overall delay in seconds at morning (A.M.) and afternoon (P.M.) peak time periods for 2031. Traffic volumes were calculated using modelling software for 8 different scenarios including Do Nothing (control) as a base for comparison
- The total delay per hour was converted to Total Yearly Delay (in hours) based on 260 travel days per year
- The dollar value of time in peak periods was calculated based on information generated by Metrolinx (2008)

Safety

- The potential effectiveness of each of the proposed alternatives to reduce intersection collisions was calculated based on crash reduction factors compiled by the Federal Highway Administration (2008) and average annual dollar values for property damage only (DPO) and injuries (non-fatal) type of collisions for the 2008-2012 period
- An estimation of the social cost of motor vehicle collisions was calculated based on analysis conducted by Transport Canada (2007)

Emissions and Energy

- Fuel consumption and emissions were estimated based on the overall control delay provided by the software analysis.
- Air pollution cost for each type of emission was calculated based on the information prepared by the Boston Transportation Department (2010).

Construction Cost

- A rough construction cost for each type of proposed intersection improvement was estimated on an annual basis looking at a 15 year period of return.

15 BENEFIT/COST ANALYSIS -

ERIN MILLS PARKWAY @ BURNHAMTHORPE ROAD

	Benefit* (Reduced Delay, Increased Safety, Reduction in Emissions, Reduction in Energy)	Construction Cost	Benefit/ Cost Ratio**
A. Signal Optimization plus Minor Improvements	\$5,415,090	\$ 255,000	319
B. Northbound & Southbound dual left lane only	\$6,372,374	\$1,500,000	64
C. Widening EMP from 6 - 8 lanes	\$9,675,016	\$2,146,000	68
D. Widening Burnhamthorpe from 4-6 lanes	\$6,829,298	\$2,146,000	48
E. Addition of 2nd Left turn lanes east bound (EB) and west bound (WB)	\$6,505,838	\$1,500,000	65
F. Addition of 2nd Left turn lanes (EB and WB) plus widening of Burnhamthorpe (4 - 6)	\$7,810,682	\$4,146,000	28
G. Addition of 2nd Left turn lane all approaches	\$7,315,680	\$3,000,000	37

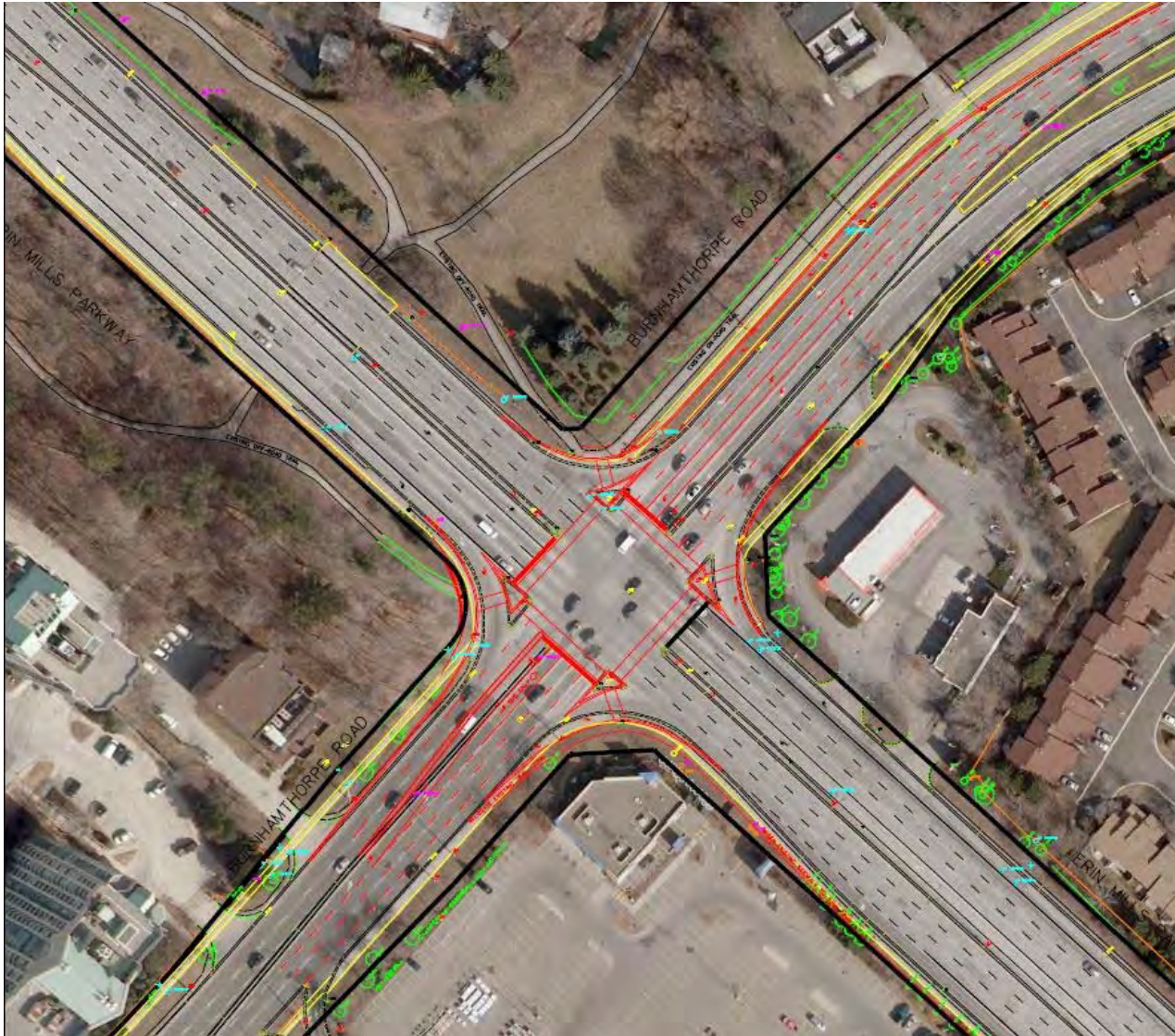
* All benefit factors are weighted equally and a 15 year life expectancy has been assumed

** Benefit/Cost Ratio calculation = Benefit / (Construction Cost/15yr life expectancy of improvement)

16

PREFERRED DESIGN ALTERNATIVE

ERIN MILLS PARKWAY @ BURNHAMTHORPE RD



- provide a 'bus only' left turn lane to allow buses leaving the depot at South Common Mall to go northbound on Erin Mills Parkway to future GO station at Hwy 403
- a shadow left turn will be added in the WB direction for design symmetry
- upgrade sidewalks to multi-use trail
- improved signage, lane markings, pavement surface
- provide safer crossing for vulnerable road users AODA (Accessibility for Ontarians with Disabilities) compliant

17 BENEFIT/COST ANALYSIS - ERIN MILLS PARKWAY @ DUNDAS ST

	Benefit* (Reduced Delay, Increased Safety, Reduction in Emissions, Reduction in Energy)	Construction Cost	Benefit/ Cost Ratio**
A. Signal Optimization plus Minor Improvements	\$637,088	\$ 424,005	23
B. Northbound & Southbound dual left lanes only	\$1,012,858	\$1,500,000	10
C. Widening EMP from 6 - 8 lanes	\$1,391,276	\$2,145,495	10
D. Widening Dundas from 4-6 lanes	\$3,198,435	\$2,145,495	22
E. Addition of 2nd Left turn lanes (all approaches)	\$2,996,459	\$3,000,000	15
F. Addition of 2nd Left turn lanes (westbound and southbound) plus widening of Dundas (4 - 6)	\$6,780,982	\$4,645,995	22
G. Addition of 2nd Left turn lane (westbound and southbound)	\$2,056,115	\$1,999,995	15

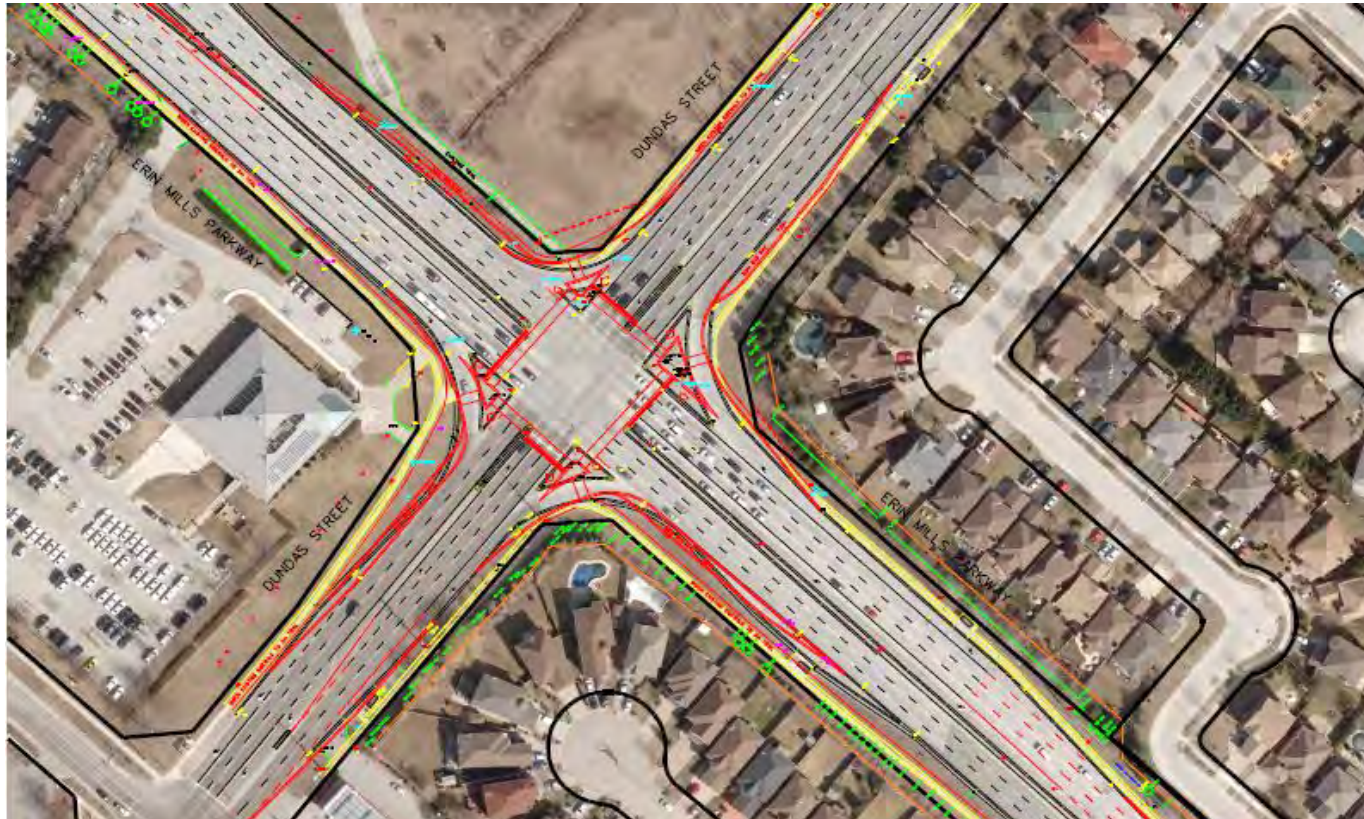
* All benefit factors are weighted equally and a 15 year life expectancy has been assumed

** Benefit/Cost Ratio calculation = Benefit / (Construction Cost/15yr life expectancy of improvement)

18

PREFERRED DESIGN ALTERNATIVE

ERIN MILLS PARKWAY @ DUNDAS ST



Erin Mills Parkway

- extend southbound left turn storage to 131m and extend northbound left turn storage to 167m (rather than add 2nd left turn lanes)
- install traffic signals at Erindale Secondary School with 'on demand' pedestrian crossing signals
- provide transit queue jump lanes in both directions
- upgrade sidewalks to multi-use trail

Dundas Street

- extend eastbound left lane taper and extend eastbound right turn lane storage to 98m
- provide transit queue jump lanes in both directions

19 UNDERSTANDING THE ANALYSIS and RECOMMENDATIONS

Why **Minor Improvements plus Transit Improvements** is the preferred design option for both Erin Mills Parkway / Burnhamthorpe and Erin Mills Parkway/Dundas:

Operational

- analysis shows that all design options and in particular widening the east-west roads and adding turning lanes will improve all benefits in the short term. However there is both a significant financial cost to those undertakings and major property and utility impacts. In the longer term, even if widening the east-west routes was feasible, the Level of Service (amount of delay at the intersection) would return to an F level
- an operationally enhanced intersection would minimize the potential for traffic infiltration into nearby local streets

Community Building/Quality of Life

- an increase in the number of lanes for vehicles is unsupportive of the Region's Active Transportation Plan and the City's goal of pedestrian-friendly development
- the other design options do not support the City's vision for Erin Mills Parkway community nodes; in particular to enhance transit and community

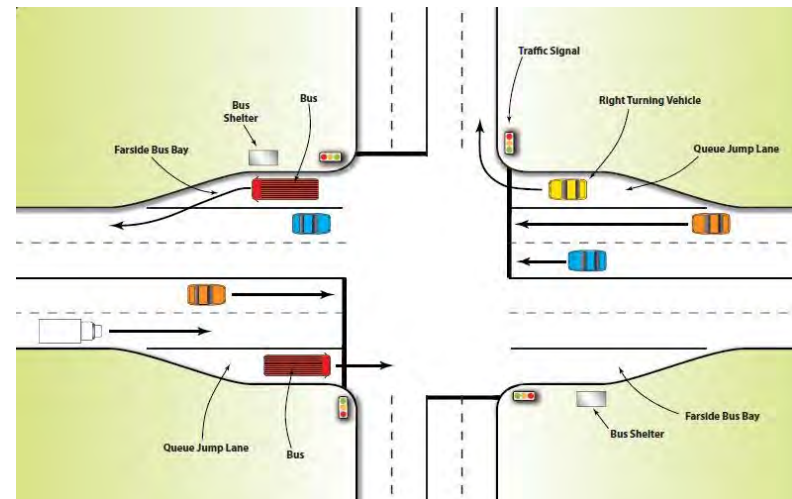
20 COMMITMENTS

Dundas Street Intersection Improvements

- queue jump lanes in all directions for Transit (Dundas BRT is scheduled to commence in 2016)
- removal of the existing pedestrian refuge islands and replacement with a Smart Right Turn Channel (deemed safer for pedestrians)



queue jump lanes



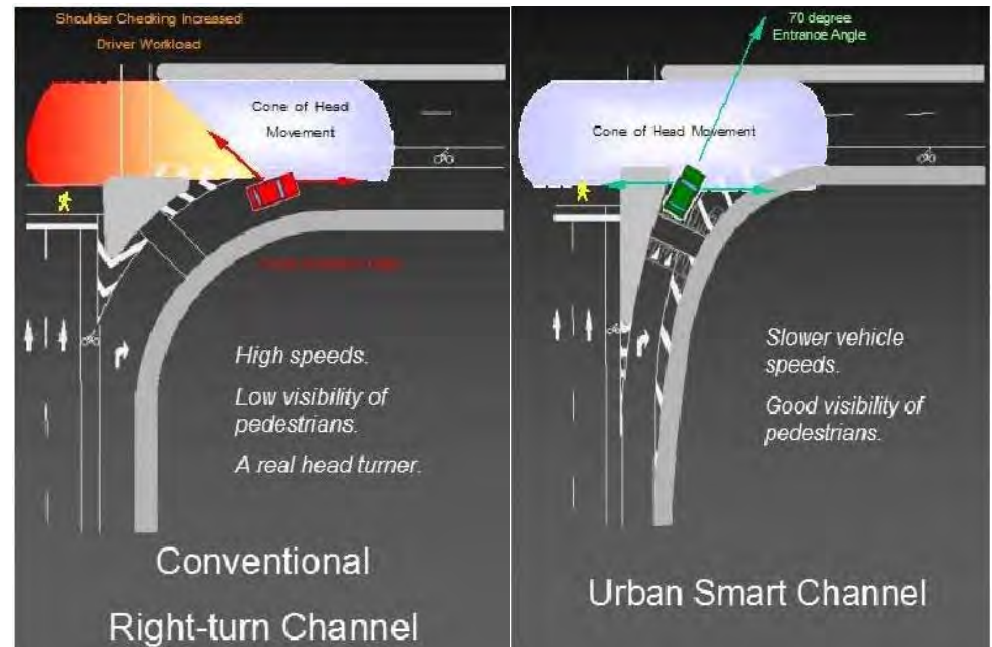
- access improvements for Erindale Secondary School - change of the existing right-in/right-out restricted access to a full moves access with a signalized pedestrian crossing
- addition of sidewalk in existing 'gap' areas on the north-east side in front of the school and beyond
- upgrade of existing 1.5m sidewalk to a 3.0m multi-use trail on the west side

21 COMMITMENTS

(continued)

Burnhamthorpe Road

- removal of the existing pedestrian refuge islands and replacement with a Smart Right Turn Channel (safer for pedestrians)
- addition of a right-turn lane from Burnhamthorpe to southbound Erin Mills Parkway
- a dedicated 'bus only' lane from Burnhamthorpe to northbound Erin Mills Parkway (for buses leaving the transit hub on the s/w corner at South Common Mall)
- a dual left-turn lane from Burnhamthorpe to southbound Erin Mills Parkway
- upgrade of the existing 1.5m sidewalk to 3.0m multi-use trail on the south-west side of the study area



Source: City of Ottawa



Constructed Smart Channel

22 ACCESSIBILITY Improvements



Accessibility Standards for the Built Environment are in place to remove access barriers to public spaces and buildings for people with disabilities, seniors and families.

All new Regional construction will comply with the Accessibility Standards for the Built Environment for exterior spaces. Exterior space elements include:

- exterior curb ramps
- pedestrian crossings
- pedestrian crossing signals; and
- street furniture

Curb ramps (area between the sidewalk and the road) will take into account the needs of people with different disabilities. The technical requirements cover the measurements, surfaces, steepness, sides and level changes.

23 Have Questions? Ask us.....

You can review the boards on our website:

<http://www.peelregion.ca/pw/transportation/environ-assess/erin-mills-int-impro.htm>

and if you have questions/comments, please contact the Project Manager directly.



Sally Rook, C.Tech, PMP
Region of Peel, Transportation Division
10 Peel Centre Drive, Suite B, 4th Floor
Brampton, ON L6T 4B9

Tel: 905-791-7800 ext. 7842

Fax: 905-791-1442

Email: sally.rook@peelregion.ca