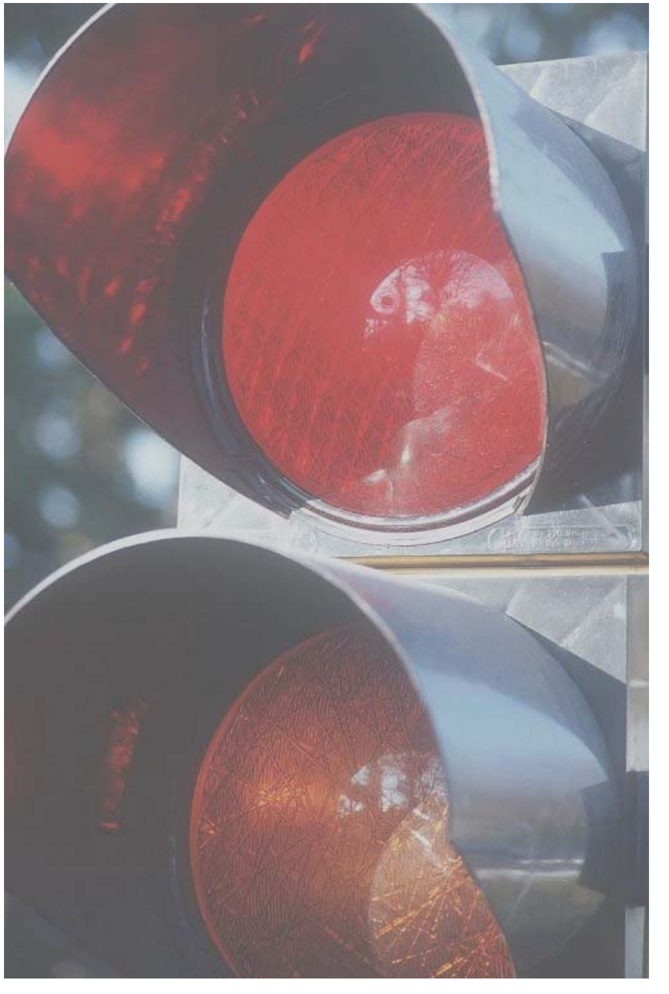
Traffic Signal Warrants and Funding of Signals

Transportation and Works Committee
June 11, 2008

- Outline
  - Part 1 – Traffic Signal Warrants
  - Part 2 – Funding of signals

Part 1
Traffic Signal Warrants



York Region

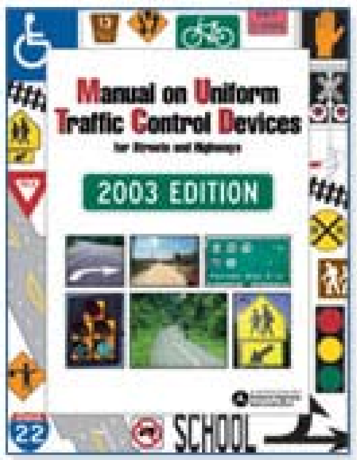
- Purpose of Traffic Signals
  - Assign right-of-way
  - Mobility, accessibility and safety
  - Trade-offs
    - Major road delay vs. Minor road delay
    - Increase in rear end collisions
    - Decrease in right angle collisions

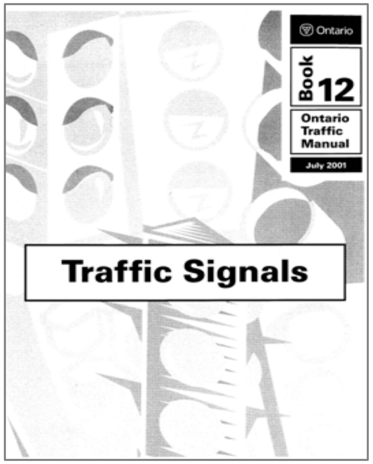
- Why traffic signal warrants ?
  - Identify locations where traffic signals are likely to achieve a
    - net reduction in overall delay
    - net reduction in overall collisions
  - Promote uniformity and consistency
    - Driver expectations

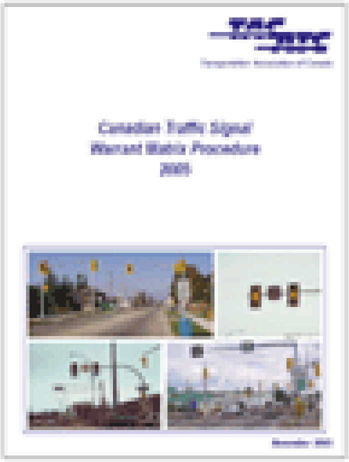


York Region

- Traffic Signal Warrants
  - US MUTCD (Manual for Uniform Traffic Control Devices)
  - Ontario Traffic Manual (OTM Book 12)
  - Canadian MUTCD (TAC Guideline)







York Region Traffic Signal Warrants

- Current Regional warrants -
  - Traffic volumes – based on actual 8hr counts
  - Delay experienced by side-road vehicles - 1hr count
  - 3 Year collision history
  - Pedestrian volumes
- OTM Book update – Nov. 2007
  - New warrant - highest 4-hours of the day

York Region Traffic Signal Warrants

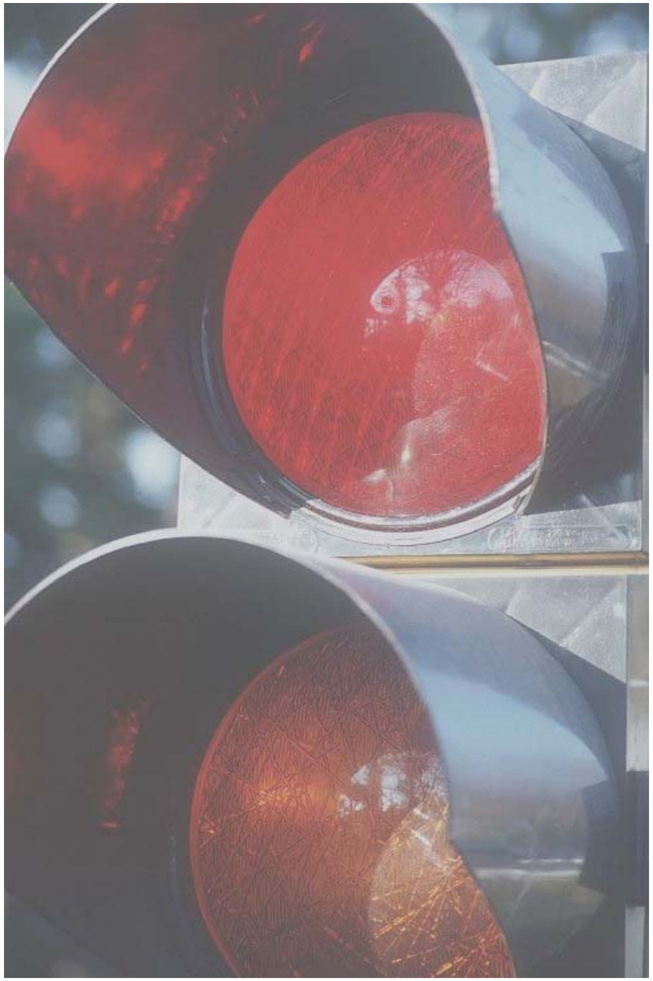
- Current Regional warrants -
  - Lower threshold volumes for rural intersections

		URBAN Threshold (veh/h)	RURAL Threshold (veh/h)
1A	All Approaches	900	600
1B	Total Minor Road	170	120
2A	Total Major Road	900	600
2B	Total crossing major road	75	50

- Conclusion
  - Regional warrants -
    - Based on North American best practice
    - Consider traffic volumes, side road delay, collisions, pedestrians and area (urban vs. rural)
    - Lower thresholds for rural intersections

Part 2 -

Funding of signals



Current Funding Practice

- When a signal is warranted at an intersection with a local or Regional road the Region pays
- Typically the Region does not pay for unwarranted signals
  - The local municipality pays for a signal if the warrants are 70% met
  - Region reimburses local municipality when full warrants are met (80/80% or 100%)
- Owner/Developer pays for signals at private/commercial entrances

- Council may decide on a different balance of priorities
  - Very high and short duration peaks in traffic
  - Low speed urban conditions
    - ie. Yonge Street @ St. Andrews College

York Region

Funding Options

1. York Region pays 100%
2. Local municipality pays 100%
3. Cost sharing between Region and Local Municipality

Potential factors for cost sharing consideration based on ability to pay

- Municipal tax revenues ?
- Area municipal population ?
- Size of the local road system i.e. number of lane kilometres ?
- Percent of tax allocated to roads ?
- Growth ?
- Traffic Volume ?
- Tax revenue per lane kilometre ?
- Population per lane kilometre ?
- Local growth compared to Regional growth ?
- Traffic volume on side street vs. main street volume ?

York Region

❑ Potential basis for cost-sharing formula ?

Municipality	Taxes (millions)	Lane-km	Ratio (1000's)	% Paid by Region?
Vaughan	100	1300	76.9	?
Aurora	22.9	333	68.8	?
Newmarket	35.2	520	67.7	?
Richmond Hill	67.4	1026	65.7	?
Markham	105	1620	64.8	?

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Newmarket	35.2	520	67.7	?
Richmond Hill	67.4	1026	65.7	?
Markham	105	1620	64.8	?
Georgina	23.7	640	37.0	?
Whitchurch-Stouffville	10.1	337	29.9	?
East Gwillimbury	10.2	366	27.9	?
King	13.1	596	21.9	?

Conclusions

- Signals should continue to be subject to warrants
- Situations do occur where Council can decide on a different balance (ie. St. Andrews College)
- Multiple funding options could consider various criteria
- Seeking Committee’s guidance