

# **Church Street & Elm St Proposed All-way Stop Control (Ward 4)**

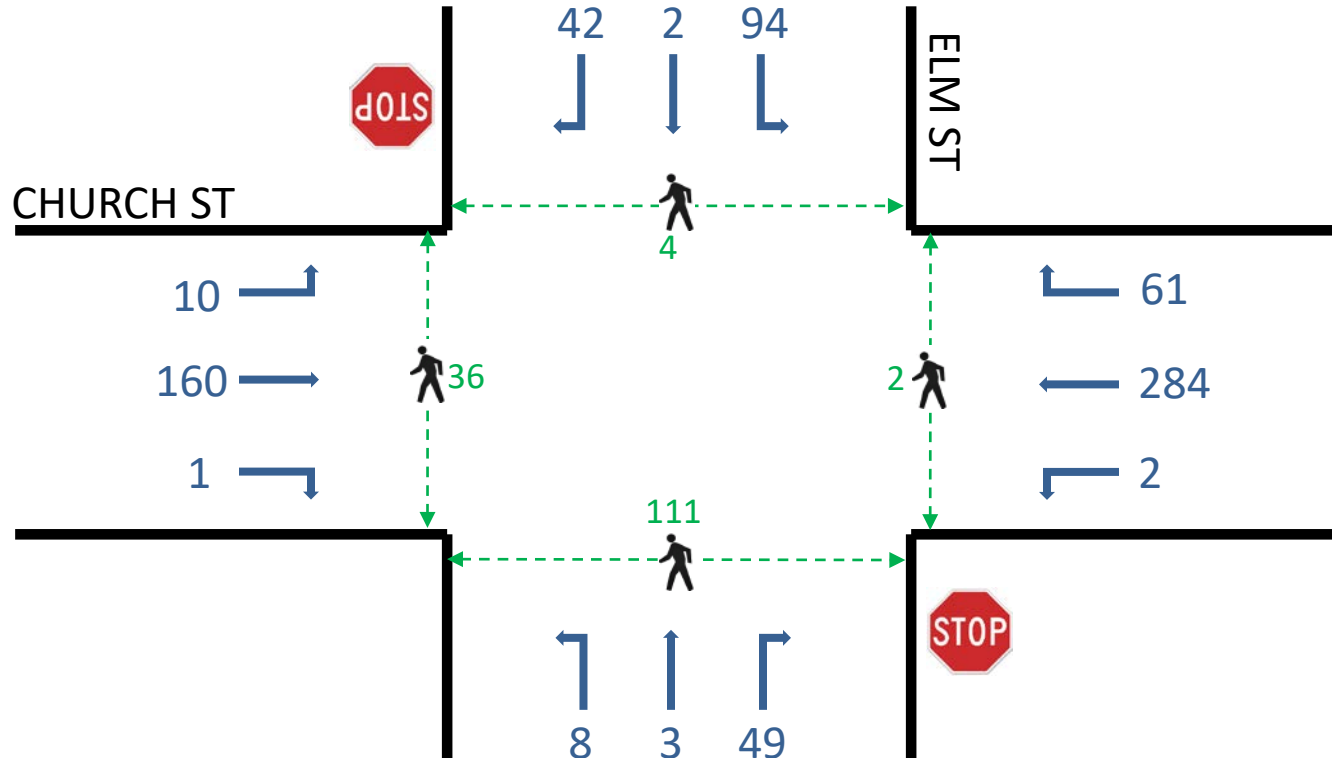
**Development Services Committee  
April 3, 2018**

## Background

- In 2017, Markham District High School requested City staff to determine if an all-way stop was warranted at the intersection of Church & Elm to address traffic and pedestrian safety concerns
- Multiple resident requests for an all-way stop have also been received
- At June 26, 2017 DSC, a staff report entitled “Church Street & Elm Street Proposed All-way Stop Control (Ward 4)” was deferred to September 11, 2017, DSC to allow the Ward Councillor to consult with local residents
  - Recommended that an all-way stop be implemented to address intersection safety concerns
  - Council requested that it be referred back to staff to investigate options available for a pedestrian crossing at the intersection



## Intersection Operations – AM Peak Hour

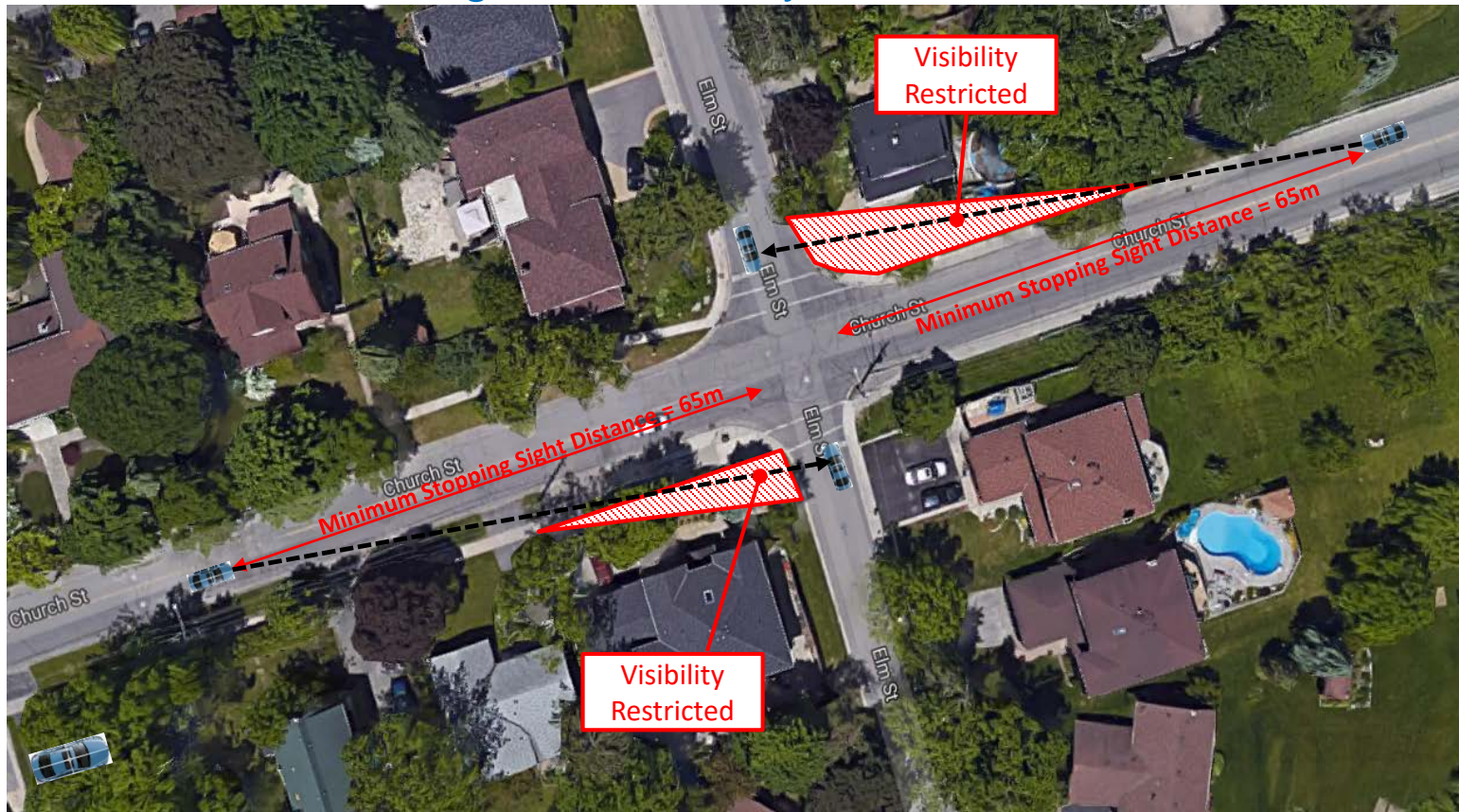


# Intersection Operations Concerns

- High traffic volume and pedestrian crossings during peak period
- Lack of safe opportunities (gaps in traffic) for pedestrians to cross Church Street
- Sightline visibility at the intersection is restricted
- Geometric design of the east approach adds to operational concerns



## Sightline Visibility Constraints





65 metre minimum  
stopping sight distance  
has not been achieved

Property Line

# Southbound Elm St. looking east on Church St.

Vehicle positioned at Stop Bar



65 metre minimum  
stopping sight distance  
has not been achieved

Property Line

# Southbound Elm St. looking east on Church St.

Vehicle positioned 1 metre beyond Stop Bar



Elm St

Property Line

65 metre minimum stopping sight distance achieved, subject to ongoing boulevard tree pruning

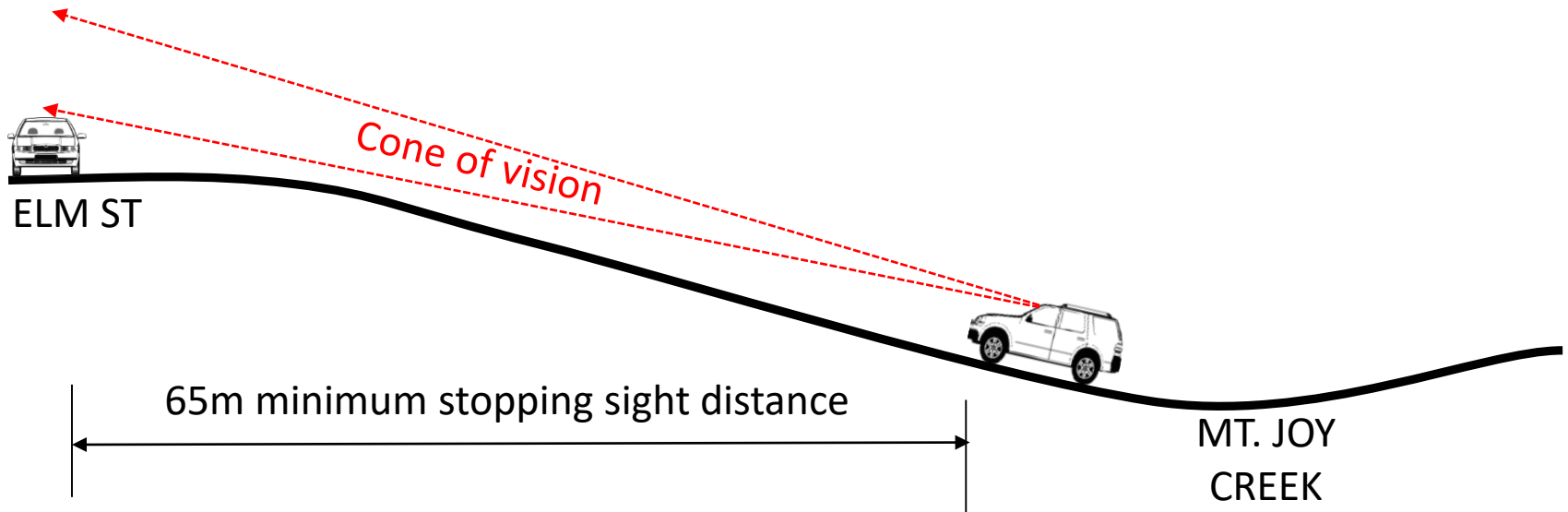
# Southbound Elm St. looking east on Church St.

Vehicle positioned to the maximum extent beyond Stop Bar





# Vertical Profile of Church St (east approach)



*\*Not to scale*

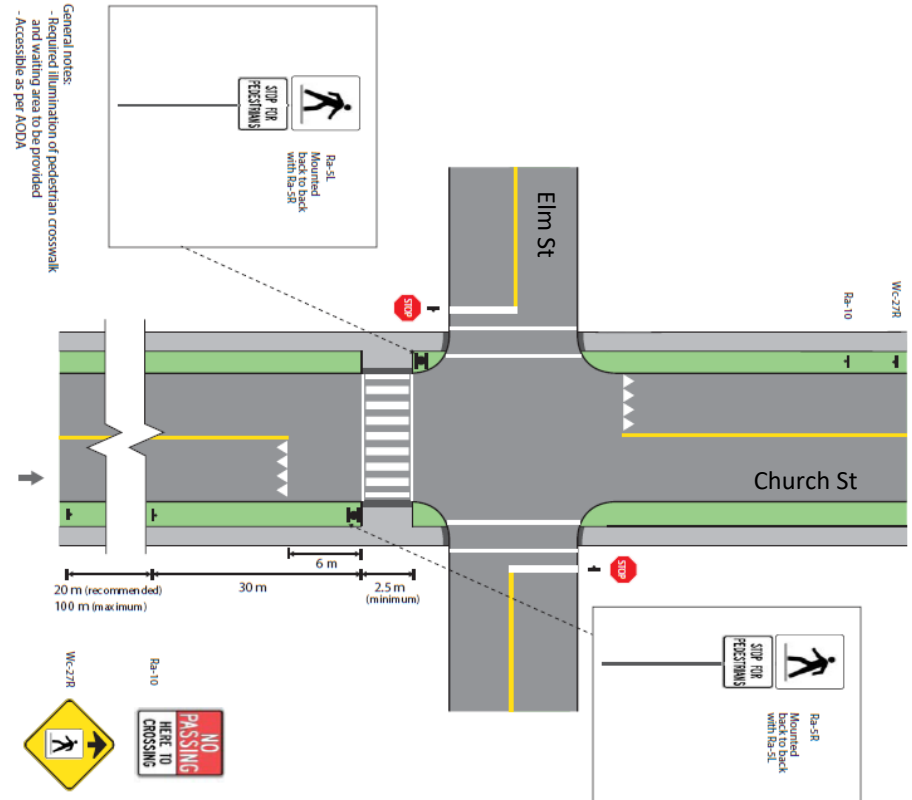
# All-way Stop Warrant

- Peak-Hour Volume
  - Total vehicle volume at the intersection for the peak hour  $\geq 350$ ; Actual = 716
  - Vehicle volume on the side street (Elm) must be  $\geq 35\%$ ; Actual = 28%
  - Volume warrant not satisfied
- Collision History
  - Intersection must have 4 right-angle or turning-type reported collisions per year, over a 3-year period
  - From 2015 - 2017, an average of 1.33 right-angle collisions per year has been reported
  - Collision warrant not satisfied

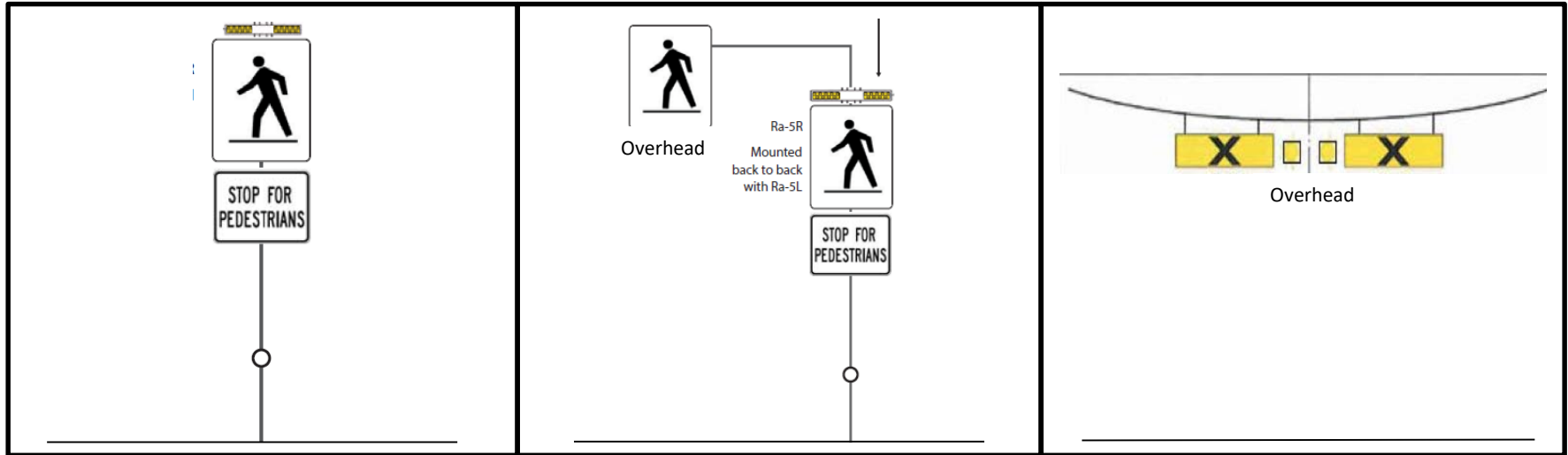
**OTM does not preclude Traffic Engineering practitioners from recommending an all-way stop on the basis of other qualitative data and professional judgement.**

# Pedestrian Cross-over (PXO)

- PXO - Level 2 “Type D”
  - Satisfies minimum warrant criteria
  - Does not address other operational concerns
  - Not recommended



# Pedestrian Cross-over (PXO)



Level 2 "Type C"

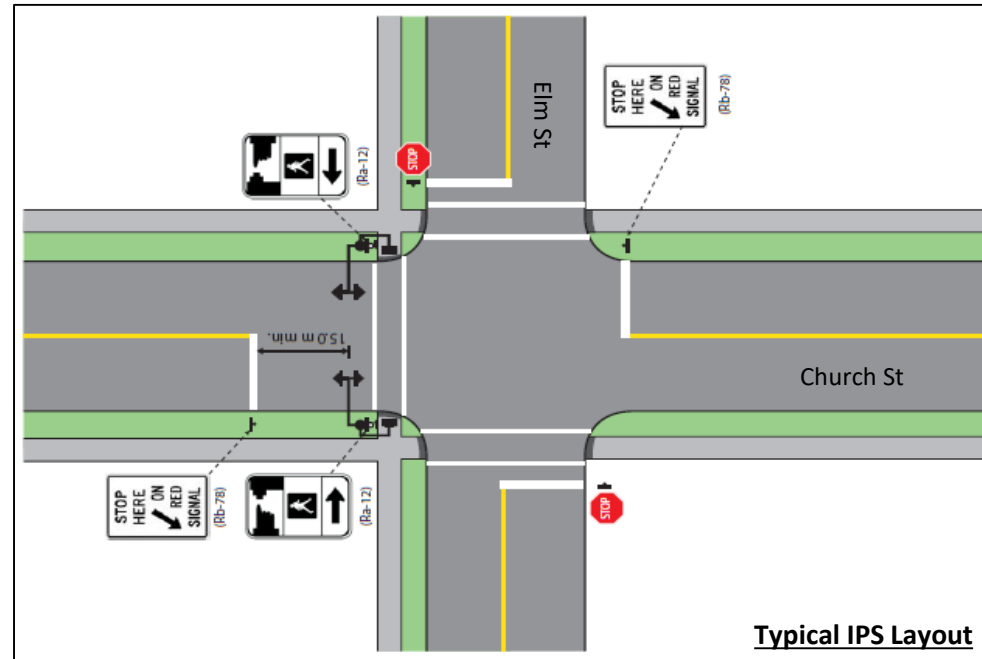
Level 2 "Type B"

Level 1 "Type A"

- Warrant criteria not satisfied for any of these types
- Not recommended

# Pedestrian Crossing Options – Traffic Signals

- Traffic signals are the highest form of traffic control that can be used
- Two types:
  - Intersection Pedestrian Signal (IPS)
  - Standard 4-way traffic signal
- Warrant criteria is strict and is not satisfied.
- Not recommended.



## Conclusions

- High traffic volume and pedestrian crossings during peak period
- Sightline visibility is restricted
- Lack of safe opportunities (gaps in traffic) for pedestrians to cross Church Street
- PXO's do not address operational safety concerns at the intersection
- All-way stop control is the most practical and cost-effective measure to address operational concerns

## Recommendations

1. That the September 11, 2017, DSC report, entitled “Church Street & Elm Street Proposed All-way Stop Control (Ward 4)”, and the staff powerpoint presentation dated April 3, 2018 be received;
2. And that Schedule 12 of Traffic By-law 106-71, pertaining to compulsory stops, be amended to include all approaches to the intersection of Church Street & Elm Street;
3. And that the Operations Department be directed to install the appropriate signs and pavement markings at the subject locations;
4. And that the cost of materials and installation for the traffic signs and pavement markings be funded from capital account # 083-5350-18056-005;
5. And that York Region Police be requested to enforce the all-way stop controls upon installation of these stop signs and passing of the By-law;
6. And that staff be authorized and directed to do all things necessary to give effect to this resolution.