



City of Toronto Land Use Study: Development in Proximity to Rail Operations



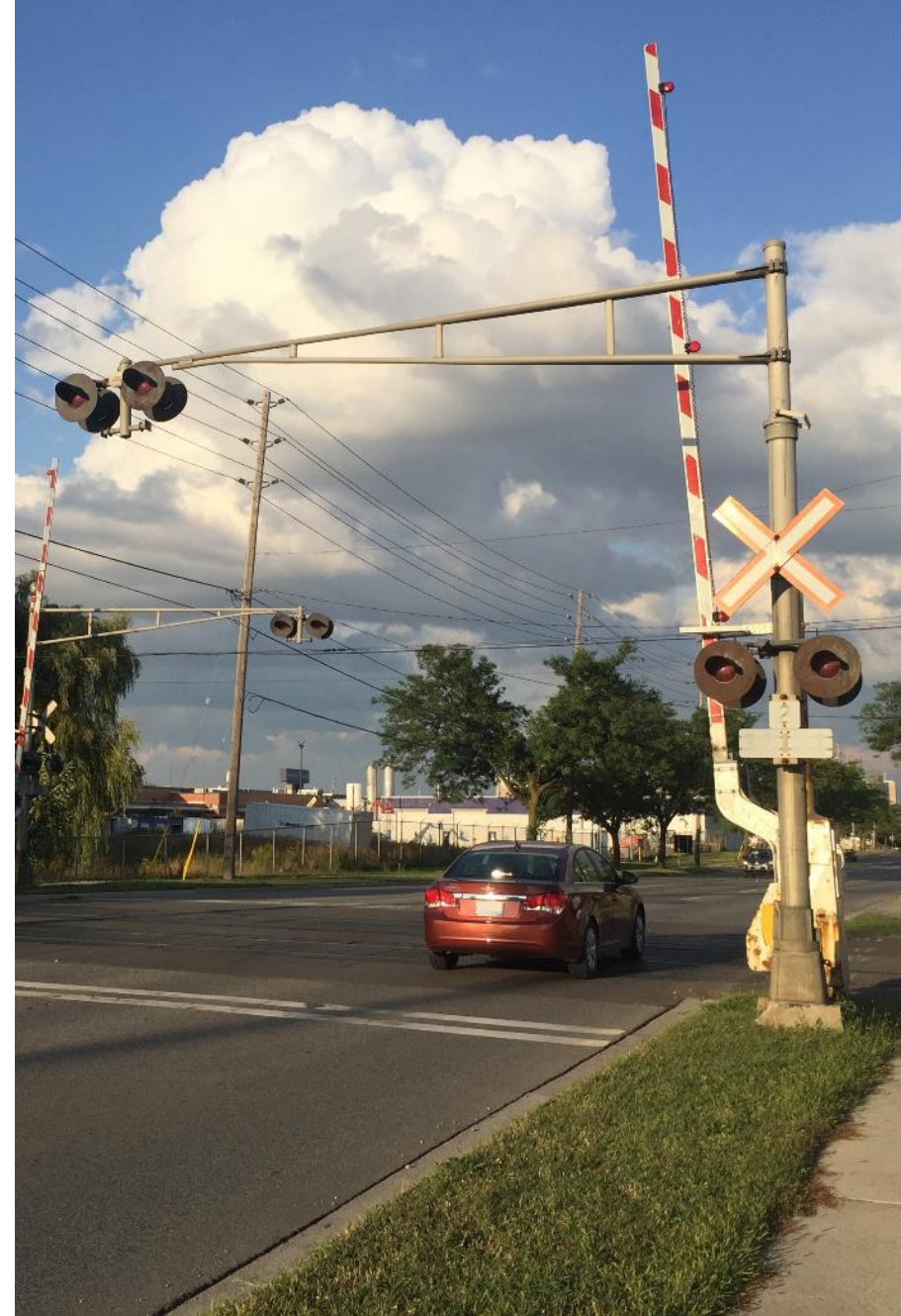
IBI GROUP AND STANTEC
November 2017

Agenda

- 7:00 – 7:15 Open House
- 7:15 – 7:45 Presentation
- 7:45 – 8:30 Break-out Session
- 8:30 – 8:45 Break-out Session Summary
- 8:45 – 9:00 Next Steps

Presentation Outline

1. Study Introduction
2. Background
3. Developing Rail Typologies
4. Proposed Mitigation Measures
5. Break-out Session
6. Summary
7. Next Steps



1. Study Introduction

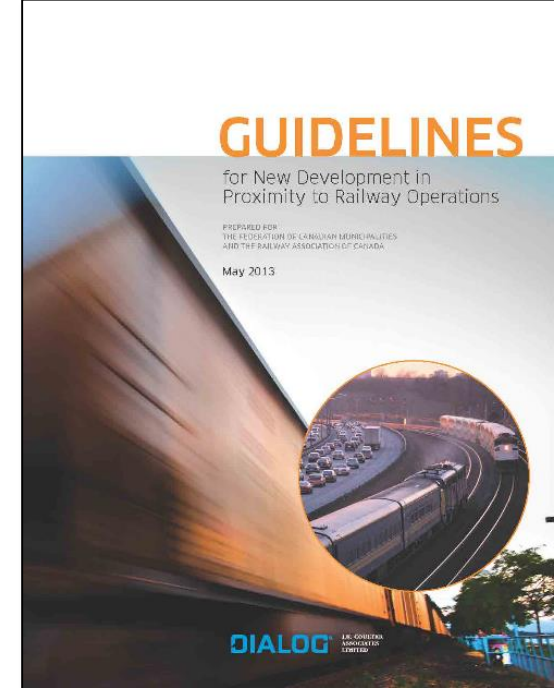
1. Study Introduction

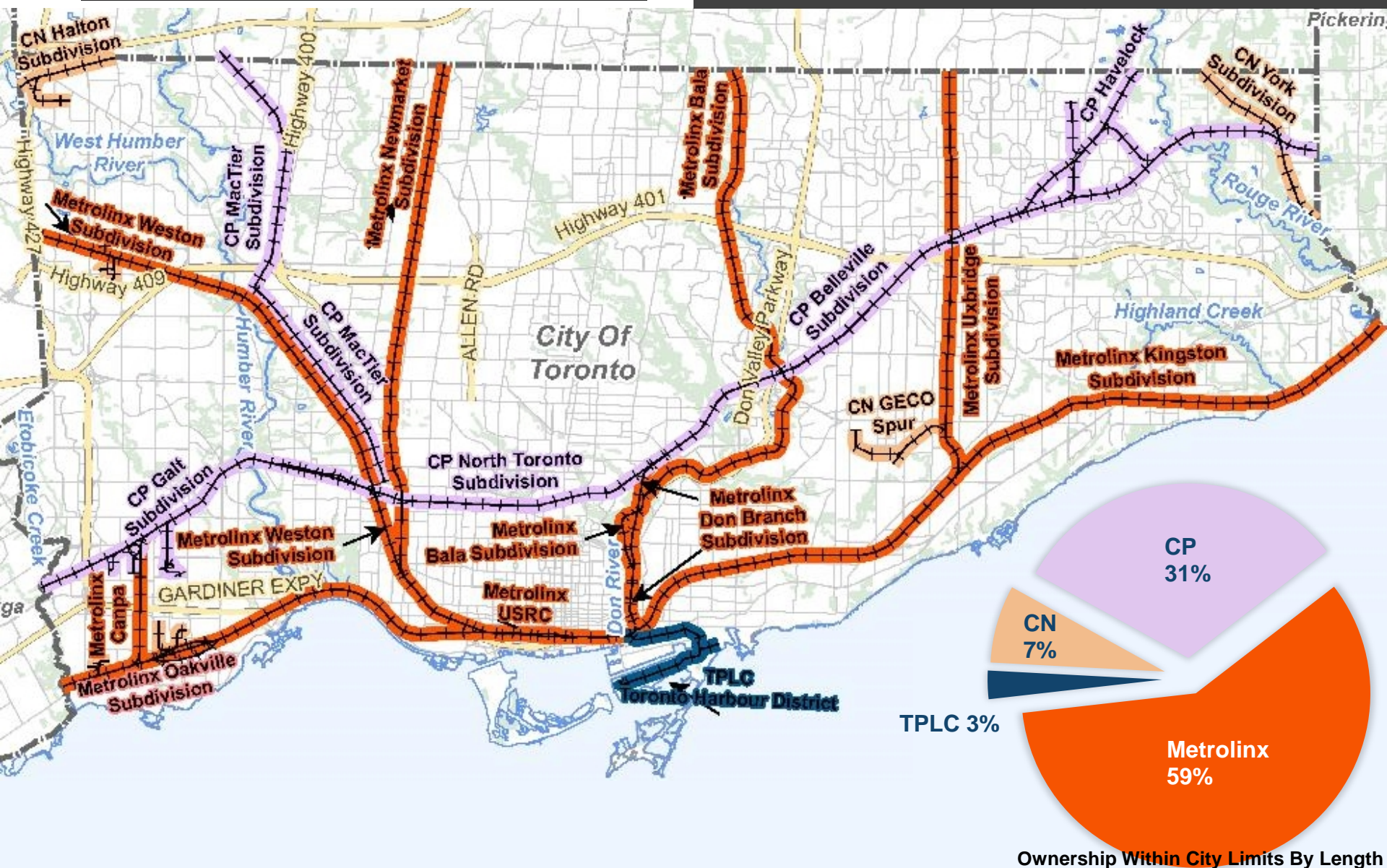
- Purpose of study is to review land use and regulations for new development in proximity to rail operations
- Significant demand for re-development in Toronto, including lands in proximity to rail operations
- Rail operations and land uses continue to evolve
- Many concerns when placing people in proximity to rail operations: safety, noise, vibration
- Recent rail events have brought concern regarding rail operations and safety to the fore
- Study seeks to strike balance between growth pressures and development viability

2. Background

2. Background

- Federation of Canadian Municipalities (FCM) and Railway Association of Canada (RAC) published “Guidelines for New Development in Proximity to Railway Operations” (FCM/RAC Guidelines 2013)
- FCM/RAC Guidelines strongly recommend proactive approach by municipalities
- City does not have jurisdiction regarding railway infrastructure or operations
- City does have jurisdiction regarding land use and zoning in proximity to rail operations, and emergency response







Halton Subdivision



Canpa Subdivision

Main Line

Branch Line



Humberline Spur



Willowbrook Yard

Spur

Yard

3. Developing Railway Typologies

Methodology

- Review existing rail corridor characteristics
- Review collision and derailment statistics

Considerations

- Not possible to predict future rail incidents
- City does not have jurisdiction over rail infrastructure or operations
- Focus on mitigating risk to adjacent land use
- Best practices from across Canada
- Future plans e.g. RER/SmartTrack



Map 3: Existing and In Delivery Regional Rail and Rapid Transit Projects



DRAFT FOR DISCUSSION PURPOSES ONLY

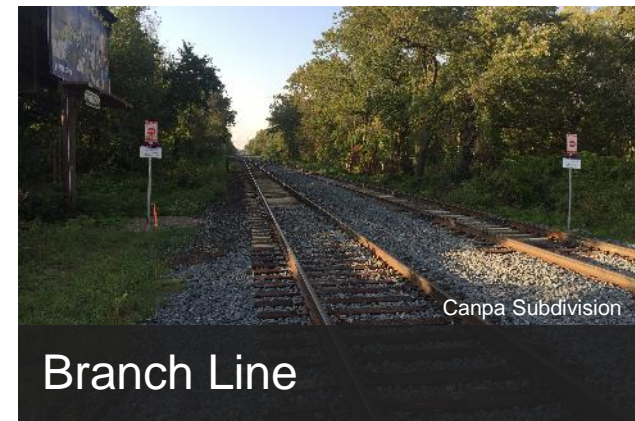
Metrolinx Draft 2041 Regional Transportation Plan
(September 2017)

FCM/RAC Sample Classification System

- **Main Line**
 - Volume generally exceeds 5 trains per day
 - High speeds, frequently exceeding 80 km/h
 - Crossings, gradients, etc. may increase normal railway noise and vibration
- **Branch Line**
 - Volume generally has less than 5 trains per day
 - Slower speeds usually limited to 50 km/h
 - Trains of light to moderate weight
- **Spur Line**
 - Unscheduled traffic on demand basis only
 - Slower speeds limited to 24 km/h
 - Short trains of light weight



Main Line



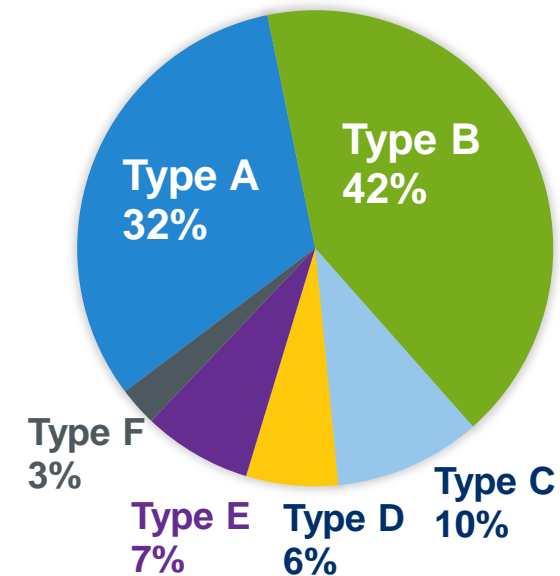
Branch Line

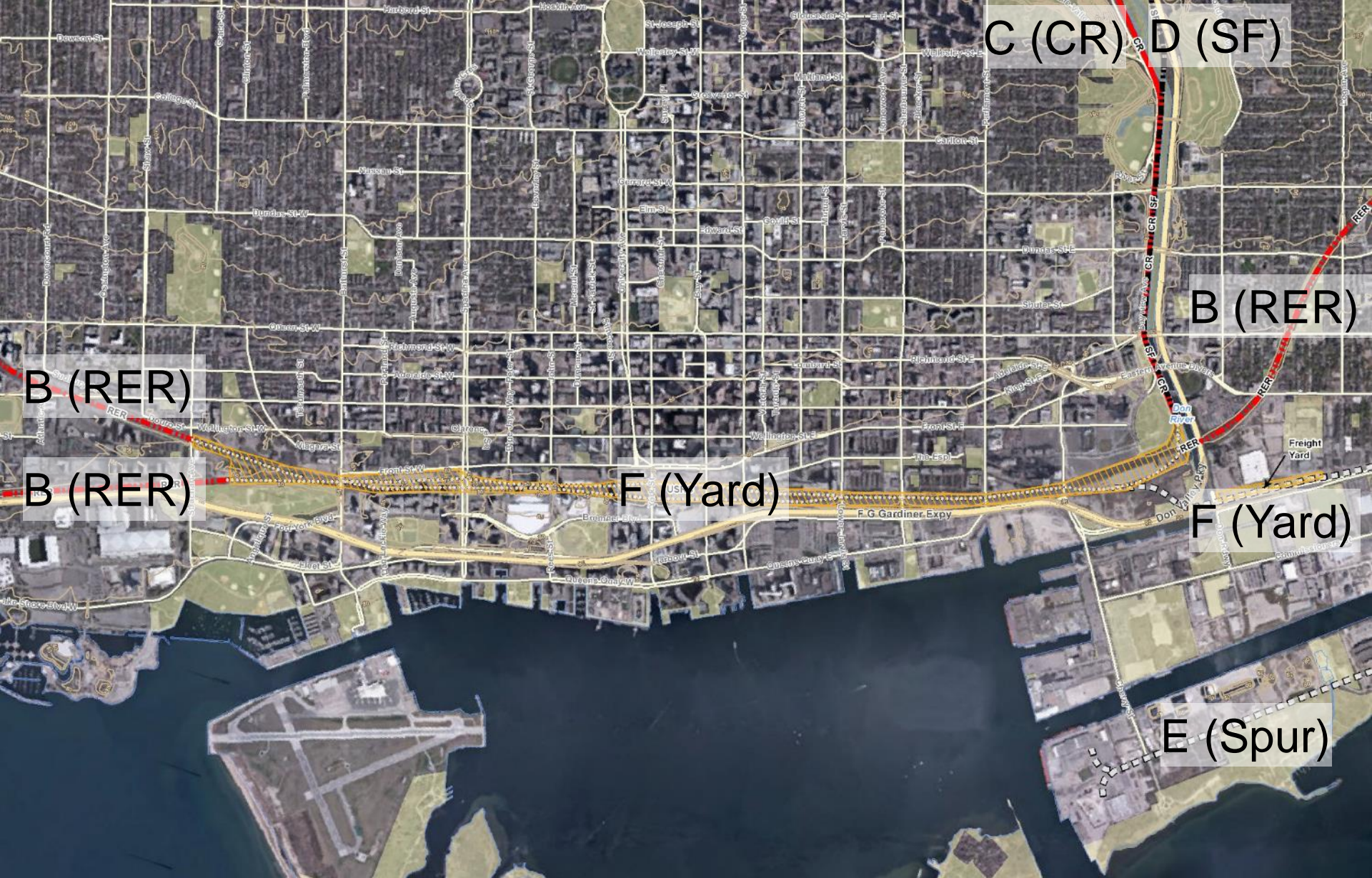


Spur Line

Proposed City of Toronto Typologies for Consultation

Type	Max. Operating Speeds km/h (mph)	Link to FCM/RAC sample typology	Total Length km (miles)
A – Principal Through Freight	Freight 100 (60) Passenger 130 (80)	Main Line	68.6 (42.6)
B – Regional Express Rail (Passenger)	Freight 100 (60) Passenger 160 (100)	Main Line	89.3 (55.5)
C – Commuter Rail (Passenger)	Freight 100 (60) Passenger 130 (80)	Main Line	21.4 (13.3)
D – Secondary Freight	Freight 65 (40) Passenger 100 (60)	Branch Line	13.4 (8.3)
E – Spurs	Freight 15 (10) Passenger 25 (15)	Spur Line	15.8 (9.8)
F – Yards	Freight 15 (10) Passenger 25 (15)	Freight Rail Yard	5.6 (3.5)

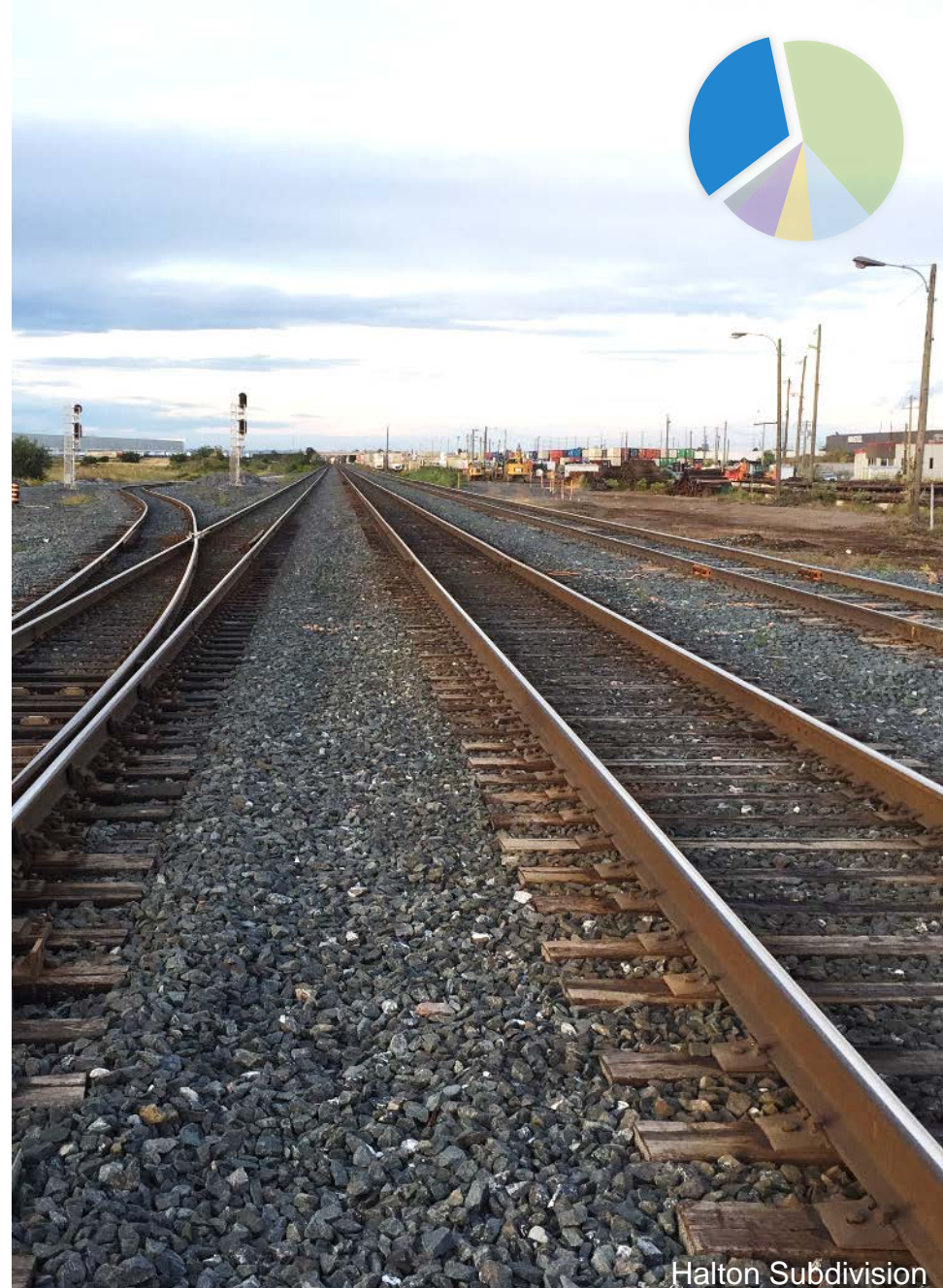




Sample of Typologies Map

Type A – Principal Through Freight

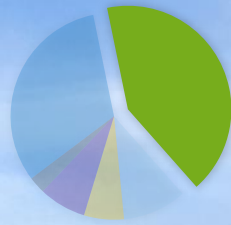
- Generally longer trains with heavier loads
- Higher operating speeds for freight and passenger
- Likely to carry dangerous goods with restricted speeds
- Should incident occur, outcome likely more severe compared to other types



Halton Subdivision

Type B – Regional Express Rail (Passenger)

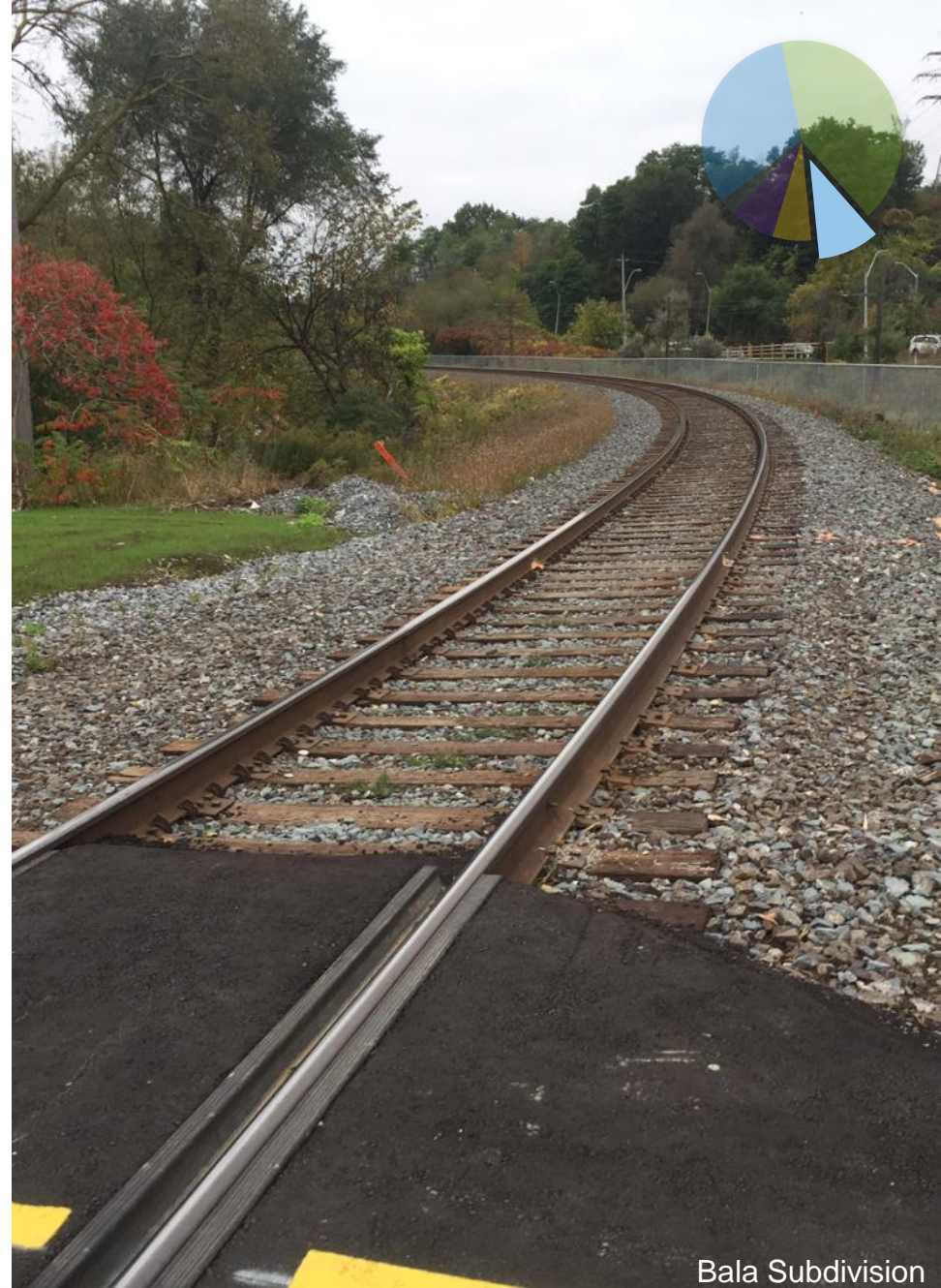
- Higher frequency passenger trains than Type A
- RER / SmartTrack corridors
- Passenger trains generally lighter and shorter than freight trains
- Planned electrification
- Potential to carry dangerous goods with restricted speeds
- Should incident occur, outcome likely less severe than Type A



Weston Subdivision

Type C – Commuter Rail

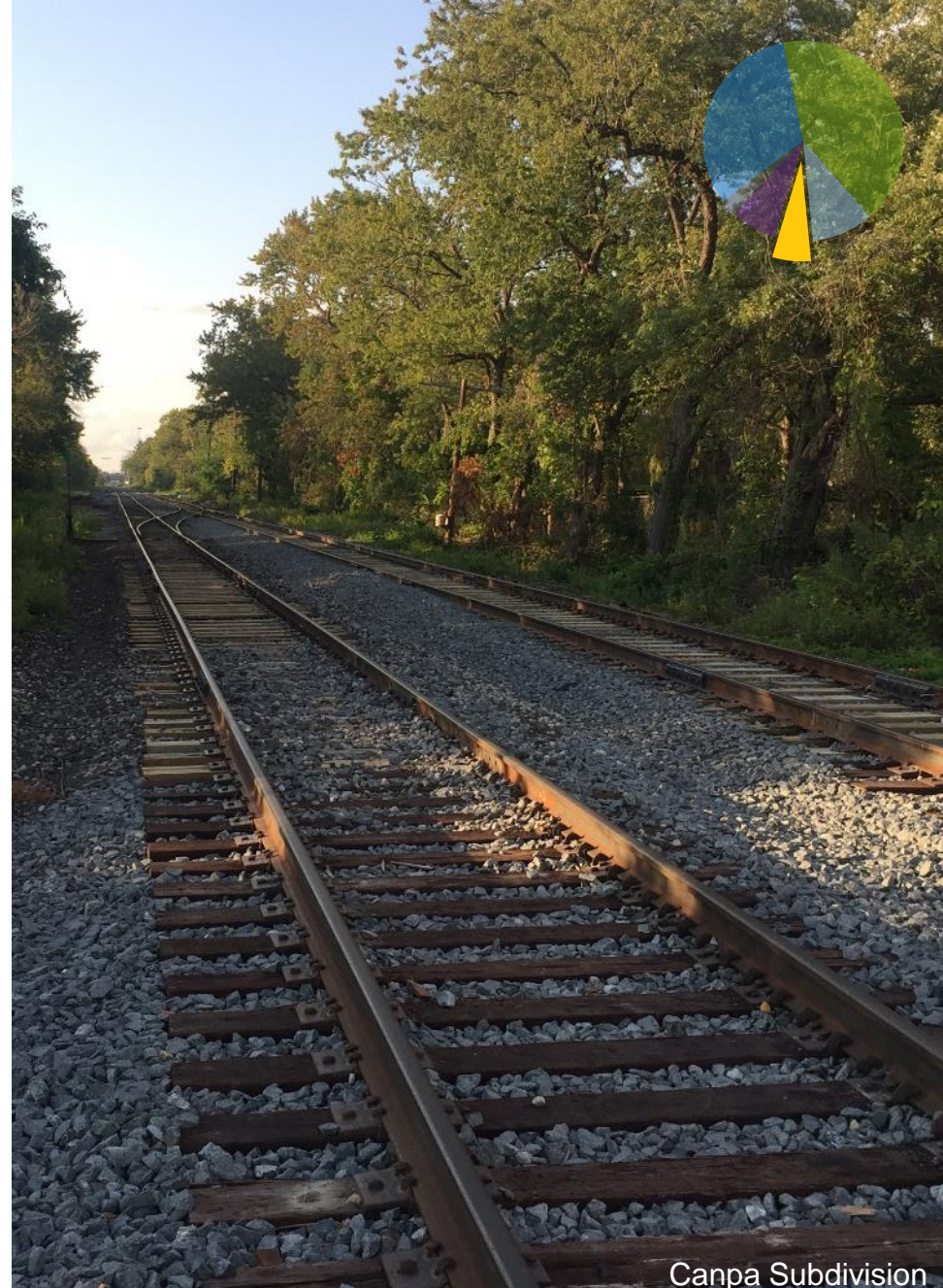
- Operated by Metrolinx/GO Transit
- Service varies by route and time of day; lower frequency than Type B
- Passenger trains generally lighter and shorter than freight trains
- Potential to carry dangerous goods with restricted speeds
- Potential for all day service with 10 minute headways during peak
- Should incident occur, outcome likely less severe than Type A or B



Bala Subdivision

Type D – Secondary Freight

- Typically low volumes, short trains <5 trains per day
- Low speeds
- Generally freight only
- May be used for car storage
- Potential to carry dangerous goods with restricted speeds
- Should incident occur, outcome likely less severe than Types A, B, C



Canpa Subdivision

Type E – Spur

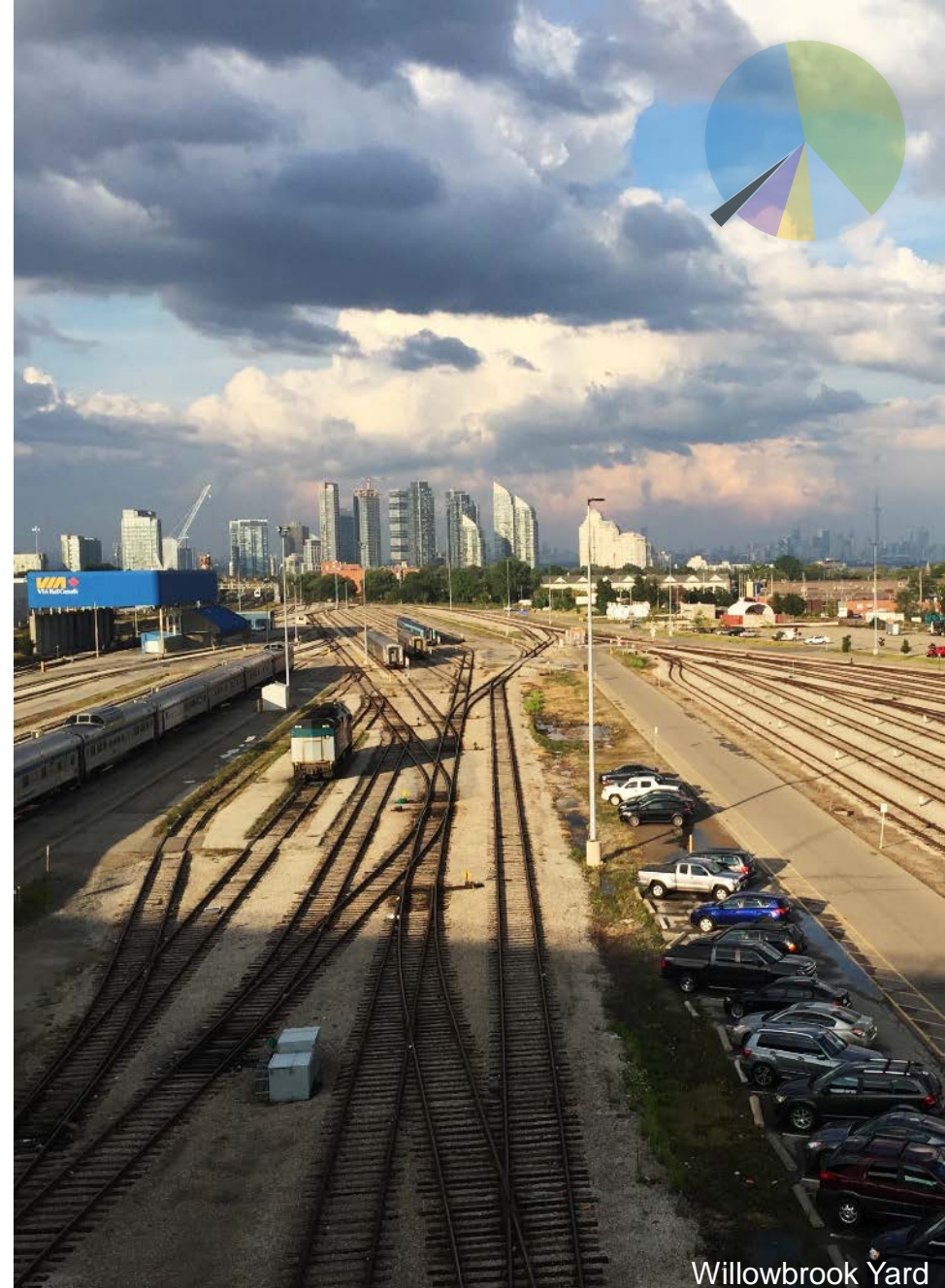
- Secondary track used to access industrial and commercial businesses, on demand
- Typically low volumes, short trains
- Typically freight only
- Potential to carry dangerous goods with restricted speeds
- Low speeds, generally less severe outcomes should incident occur



Humberline Spur

Type F – Rail Yard

- Can serve either or both passenger and freight
- Potential to carry dangerous goods at low speeds
- Operate 24 hours/day
- Noise and vibration
- Low speeds, generally less severe outcomes should incident occur

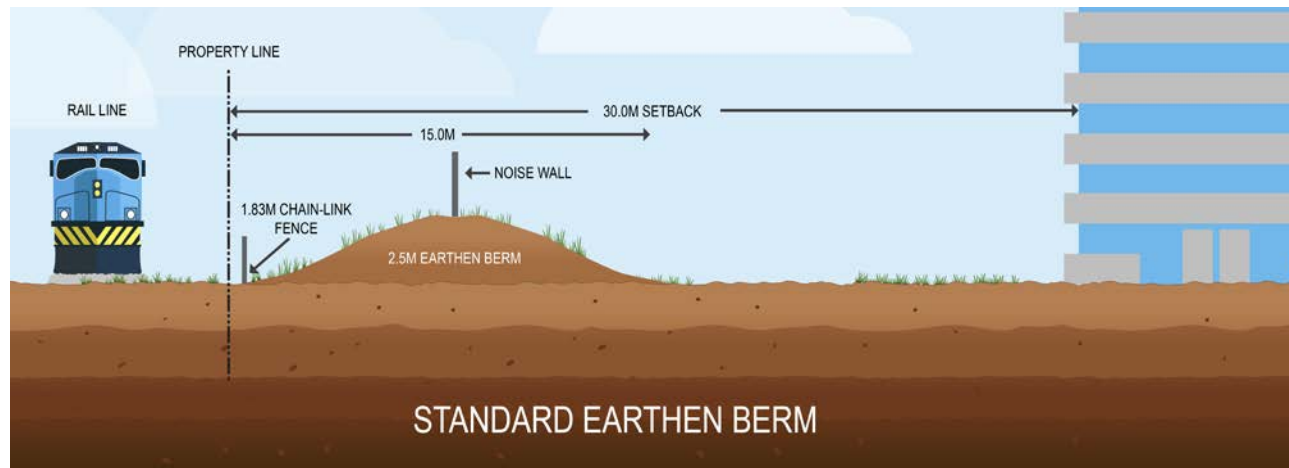


Willowbrook Yard

4. Proposed Preliminary Mitigation Measures for Discussion

Proposed Standard Mitigation Measures

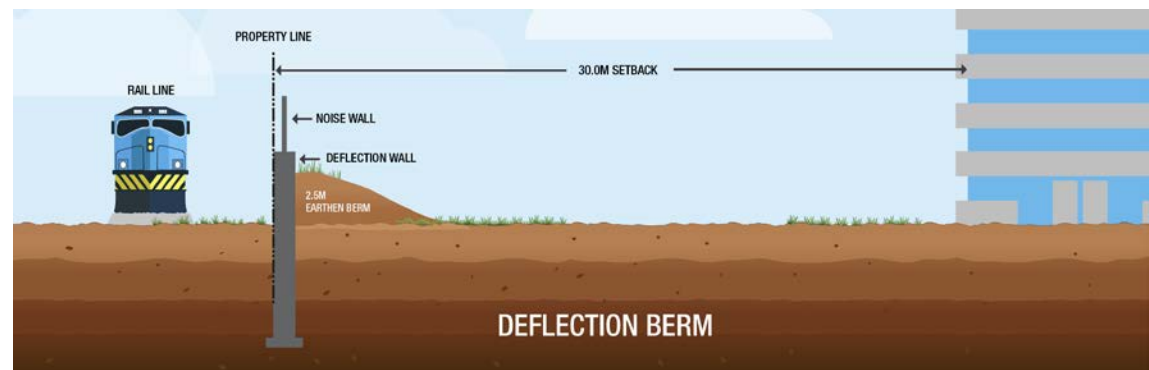
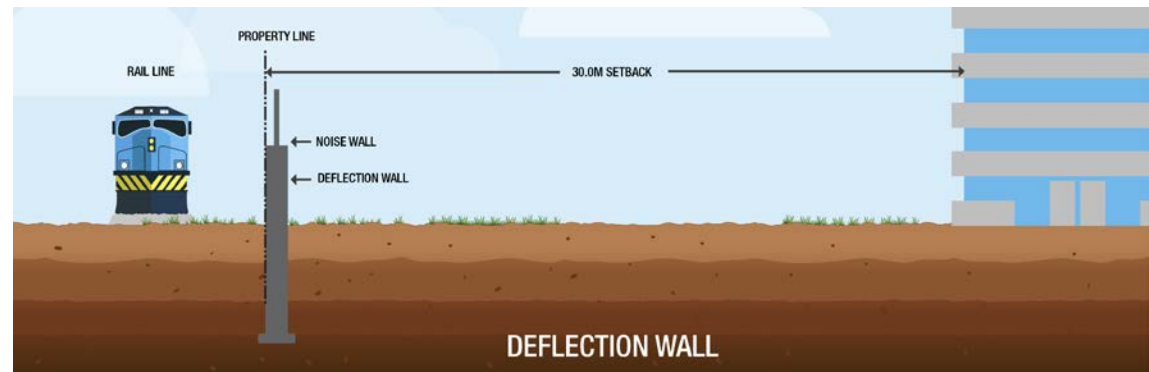
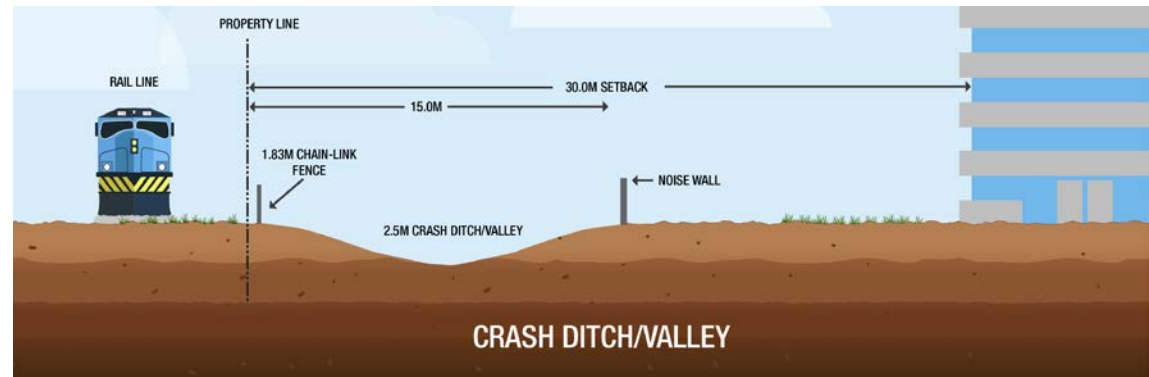
- Setback + berm
- Noise barrier
- Fencing



Type	Noise Influence Area (m)	Minimum Building Setback (m)
A – Principal Through Freight	300	30
B – Regional Express Rail (Passenger)	300	30
C – Commuter Rail (Passenger)	300	30
D – Secondary Freight	150	30
E – Spurs	75	15
F – Yards	1000	300

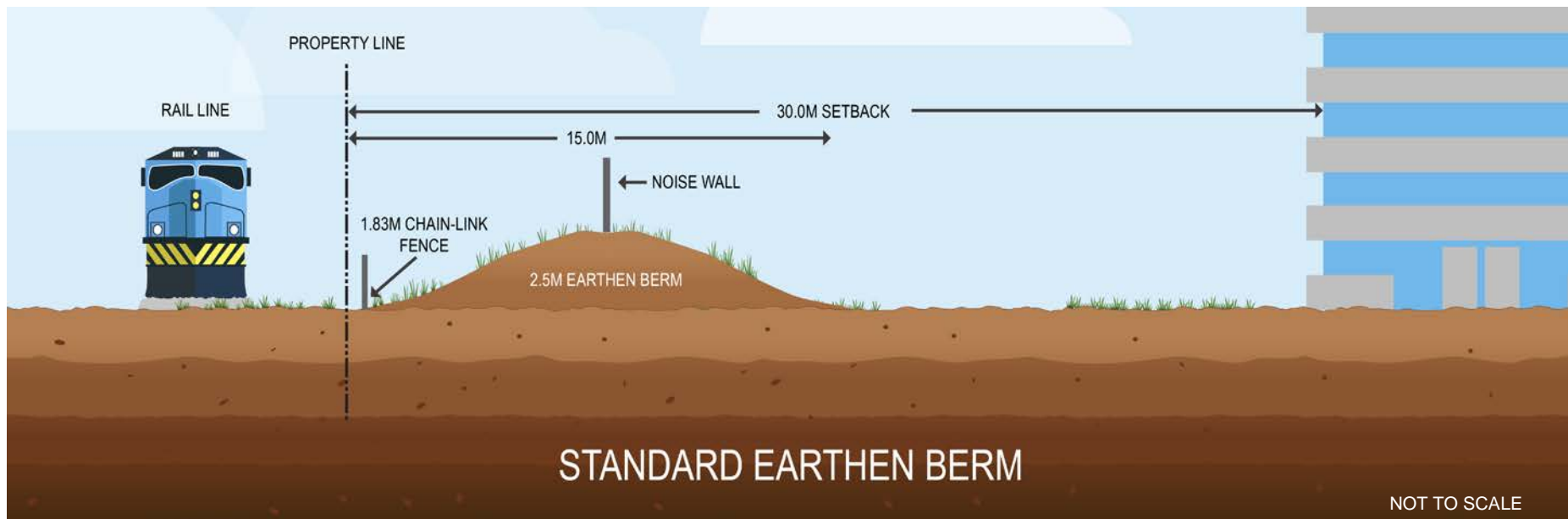
Potential Alternative Mitigation Measures (FCM/RAC Guidelines)

- If standard mitigation measures not technically or practically feasible
- Conduct Development Viability Assessment and recommend alternative safety measures, such as deflection walls or deflection berms, also called “crash walls” or “crash berms”



Process Development for Toronto

- Standard mitigation measures and influence areas
- Toronto-specific development assessment process
- Requires proponent to conduct studies to identify site specific risks and mitigation strategies for safety, noise, vibration, etc.
- Consider modification to Zoning By-Law 569-2013 (site-specific)



5. Break-out Session

Break-out Session

1. What types of land use controls should be in place for future development to reduce the potential risks associated with development in proximity to rail operations?
Should land use controls be different for different rail corridor types?



2. What other issues should be considered in the guidelines for development in proximity to rail infrastructure?
(could include: built form, building set-backs, types of uses, arrangement of uses within a building, measures designed to address noise, vibration, light, etc.)

6. Break-out Session Summary

7. Next Steps

7. Next Steps

- Summarize what we've heard at the five public consultation events
- Identify other areas of study
- Refine proposed typologies and mitigations based on public, stakeholder and City input
- Consider amendments to by-laws and/or modifications to the official plan
- Report to Council – if required



Thank you!