

### Key Impacts and Considerations

In addition to the many benefits associated with enhancing pedestrian through zones, there are several considerations that must be taken into account when selecting locations and designing pedestrian through zone enhancements as outlined below.

**Grades/Geometry:** To avoid potential for vehicle damage, vibration, loss of vehicle or cyclist control and maintenance issues, raised crossings should be avoided on roads with grades over eight per cent (Canadian Guide to Traffic Calming). Additional consideration should be given to placement on or near horizontal curves and to ensure good sight-lines. Mid-block crossings tend to have less complex grading around them, resulting in more consistent installation. Design around intersections is more complex due to multiple intersection crowns and curb returns. Raised crossings work best where the surrounding curb height is between 100-150 mm.

**Land Use Context:** The use of raised crossings must take into account land use context. Land use context influences how a street is used, influences travel speeds, traffic volumes, and how people move within and around an area. Enhanced pedestrian treatments are most appropriate in land use contexts supportive of increased pedestrian volumes, or areas where vulnerable populations may be present.

**Drainage:** Generally raised crossings require new drainage infrastructure on one or both sides of the crossing depending on incoming road grades. Proximity to drainage tie-ins should be considered to avoid excessive drainage costs. EPCOR is currently reviewing the impacts of adding vertical deflections as they contribute additional water flow into systems that are already strained (i.e. increased flooding risk).

**Operations:** Adding raised or continuous sidewalks requires consideration of snow removal or snow clearing requirements. Material selection and approach grades for crossings need to be considered such that a snow plow can traverse it without damaging the infrastructure while able to efficiently clear the snow. Snow storage also needs to be considered relative to existing drainage infrastructure to mitigate ponding during spring melts.

**Traffic Speeds:** Posted speed limit should be less than or equal to 50 km/hr. A target design speed should be identified to determine the appropriate profile. The recommended crosswalk profile may be steeper for roadways where the posted speed limit is less than or equal to 30 km/hr.

**Traffic Volumes:** Enhanced pedestrian through zone treatments are generally utilized across local and collector roads. Local streets provide access to residential properties, which typically receive up to 1,500 vehicles a day. Minor collector roads provide access to properties, accommodate traffic traveling to/from other

neighbourhood streets, and in some cases are bus routes. Minor collectors typically receive 1,500 to 10,000 vehicles a day.

**Traffic Calming:** Raised crossings have a traffic calming effect and should be integrated into any other nearby traffic calming plans.

**On-street Parking:** Raised crossings may increase the extent of parking and no-stopping limits around a pedestrian crossing and should be assessed to understand impact (if any).

**Emergency Response Routes:** Raised crossings can delay the response speeds of Emergency Services. Use of raised crossings near hospitals and fire stations should involve consultation with Emergency Medical Services and Fire Rescue Services. Removing raised crossings or adjusting to have gentler ramp grades and/or longer table tops may be considered.

**Transit:** Raised crossings may reduce service efficiency and have negative impacts on the longevity of transit vehicles as well as passenger safety and comfort. Locations with transit service should involve consultation with Edmonton Transit Service to evaluate and mitigate impacts. For example, removing raised crossings or adjusting to have gentler ramp grades and/or longer table tops may be considered.

**Heavy Vehicles:** Raised crossings may not be suitable for routes that are frequently used by heavy vehicles. Functional road classifications and traffic counts may be used to help identify these routes. For vertical deflections (i.e. continuous crossings, raised crosswalks), impacts to waste management and emergency services operations must be considered during the tradeoff and evaluation phase.

**Vehicle Control:** At intersections, raised crossings communicate right-of-way priority to road users and should only be used where vehicles are already expected to stop, ie. across intersection legs with stop controls unless being used as a speed control measure. At the interface of roadways with different functional classifications (eg. arterial/local or collector/local) continuous crossings should be used to clearly communicate roadway priority. When raised crossings are used as part of a speed control strategy they function as a speed hump when pedestrians are not present at pedestrian crossings (at midblock or intersections) or when through traffic has a green light at a signalized intersections. When used in this context, care should be taken to ensure the right of way of all road users is clear.

**Pedestrian and Cyclist Control:** Existing or planned pedestrian and cycling facilities should be identified and integrated into design of raised crossings. Additional connections to sidewalks and cycling facilities should be considered. Raised crossings communicate right of way priority to road users and should be used only when conditions (eg. sightlines, stop controls etc.) allow pedestrians and cyclists safe right of way over drivers. When used as part of a speed control strategy at a location where pedestrians and cyclists cannot safely take right of way, alternative designs

## Attachment 2

should be evaluated and mitigations such as sight-line improvements or additional controls (eg. stops, signals) to communicate right of way to pedestrians and cyclists should be considered. For additional visibility and reduced crossing distance of waiting pedestrians or cyclists, raised crosswalks should be combined with curb extensions where possible.