

Design Standards for AT Facilities

All transportation projects have design standards that must be met for the facility to be safe and comfortable for the intended user. These design standards are sometimes called minimum thresholds. Several documents outline the various thresholds and design requirements for safe active transportation facilities and are contained in guidance and regulatory documents provided by national bodies such as the Transportation Association of Canada (TAC), National Association of City Transportation Officials (NACTO), and Federal Highway Administration (FHWA), as well as numerous other guides and best practices produced locally in communities.

To create cycling facilities that are comfortable for users of all ages and abilities there are certain minimum thresholds that must be met which will vary depending on the street characteristics. For example, for people riding bikes – no matter their age or ability – to be comfortable sharing the travel lane with vehicles, vehicle operating speeds should be 30 km/h or lower, and vehicle volumes should be 1,500 vehicles per day or lower. To meet these thresholds, traffic calming measures are designed to achieve the desired results for operating speeds and daily traffic volumes. Traffic calming measures may include median islands, curb extensions, traffic circles, and speed humps or raised crosswalks. The traffic conditions on the street prior to the installation of the bikeway will determine what level of treatment is required to achieve the desired targets. Streets with low vehicle volumes but high vehicle speeds will require horizontal and/or vertical traffic calming to reduce operating speeds. Streets with daily traffic volumes higher than 1,500 vehicles per day may require traffic diverters or directional closures to reduce volumes, or a separated cycling facility will need to be installed.

When traffic volumes and speeds are too high to create a comfortable and safe shared space, a protected cycling facility that is physically separated from vehicles is required. The physical separation, through both horizontal space and physical barriers is key to creating a safe and comfortable facility. The type of protected facility selected will depend on the street under review and can vary from street level protected bike lanes, raised cycle track, or multi-use paths. Minimum widths for the protected facility must be met, but wider facilities may be more desirable in busy locations. Generally, a minimum width of 1.8 m is required for a dedicated cycling lane, and a 0.5 m buffer is required if parking is adjacent to the bike lane. The buffer space is important to prevent injuries to people riding bikes in the bike lane from car doors opening into their path. The physical barriers can vary from temporary posts to permanent concrete.

These minimum thresholds and design standards vary depending on the street type as outlined above. For the minimum design, transportation facilities must include the design elements necessary to achieve the desired safety and comfort of the facility for all users. In retrofit situations, the minimum design may not be adequate to meet the community's expectations for their street. Additional design elements may be introduced to the AT facility and street to assist in meeting the needs of the neighbourhood and creating an inviting space for people, such as relocating curb, providing additional landscaping or urban design elements, selecting visually appealing materials, etc.