

Median Barrier Guidelines

Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads

- A median barrier is recommended on high-speed, fully controlled-access roadways for locations where the median is 10 metres wide or less and the average daily traffic (ADT) is greater than 20,000 vehicles per day.
- For locations where the median is narrower than 15 metres and where the ADT is less than 20,000 vehicles per day, median barrier is optional. However, the facility should be designed to facilitate future placement if there are significant increases in ADT and/or a history of cross-median collision.
- For locations where median widths are greater than 10 metres but less than 15 metres, and where the ADT is greater than 20,000 vehicles per day, a benefit-cost analysis or an engineering study evaluation considering various factors (e.g., traffic volumes, vehicle classifications, median crossover history, collision incidents, vertical and horizontal alignment relationships, and median/terrain configurations) may be conducted to determine the appropriate application for median barrier installations.
- For locations with median widths equal or greater than 15 metres, a barrier is not normally considered except in special circumstances such as a location with significant history of cross-median collisions.
- The use of median barrier has a potential disadvantage: since the recovery area available to errant vehicles is reduced, the total number of collisions may increase, even though overall severities are decreased.
- As with all barriers, a median barrier should only be installed if striking the barrier is likely to be less severe than the consequences that would result if the barrier did not exist. Cost-effectiveness analysis techniques can be applied to the median barrier problem as they are in the case of roadside barriers. This approach is generally recommended, provided a reasonable data base for developing encroachment models is available.
- Median barriers, when used on high-volume, non-access controlled facilities, are difficult to terminate safely and may create sight distance problems at intersections and in tight curves. Where designers consider using median barriers in such an application, they should carefully consider these two issues.
- In some instances, divided roads have their directions at distinctly different elevations. In these cases, the ability of a driver to recover safely and return to their lane decreases as the difference in elevation increases, thus increasing the potential for cross median collisions. In such cases, clear zone criteria and cost-

effectiveness analysis techniques should be used as guides to establishing barrier need.

American Association of State Highway and Transportation Officials (AASHTO)
Roadside Design Guide

- The increased use of median barriers has some disadvantages:
 - The initial costs of installing a barrier can be significant.
 - The installation of a barrier will generally increase the number of reported crashes as it reduces the recovery area available. As a result, there could be increased maintenance costs to repair the barrier as well as increased exposure to the maintenance crews completing the repairs.
 - It will limit the options of maintenance and the repairs.
 - It will limit the options of maintenance and emergency service vehicles to cross the median.
 - In snowy climates, a median barrier also may affect the ability to store snow in the median.
 - There may be other environmental impacts depending on the grading needed to install the barrier.

- For locations where the median is 9.1 metres in width or less and the average daily traffic (ADT) is greater than 20,000 vehicles per day (vpd), a median barrier is recommended.

- For locations with median widths less than 15.2 metres and where the ADT is less than 20,000 vpd, a median barrier is optional. However, the facility should be designed to facilitate future barrier placement if there are significant increases in ADT or a rise in the number cross-median crashes occurs.

- For locations where median widths are greater than 9.1 metres but less than 15.2 metres and where the ADT is greater than 20,000 vpd, a cost/benefit analysis or an engineering study may be conducted at the discretion of the transportation agency to determine the appropriate application for median barrier applications. The analysis should include the following factors in the evaluation: traffic volumes, vehicle classifications, median crossover history, crash incidents, vertical and horizontal alignment relationships, and median-terrain configurations.

- For locations with median widths equal to or greater than 15.2 metres, a barrier is not normally considered except in special circumstances, such as a location with a significant history of cross-median crashes. In some cases, it may be determined that a median barrier is only necessary at locations where there are concentrations of cross-median crashes.

- Special consideration should be given to barrier needs for medians separating roadways at different elevations. The ability of an errant driver leaving the higher roadway to return to the road or to stop diminishes as the difference in elevation increases. Thus, the potential for crossover crashes increases.