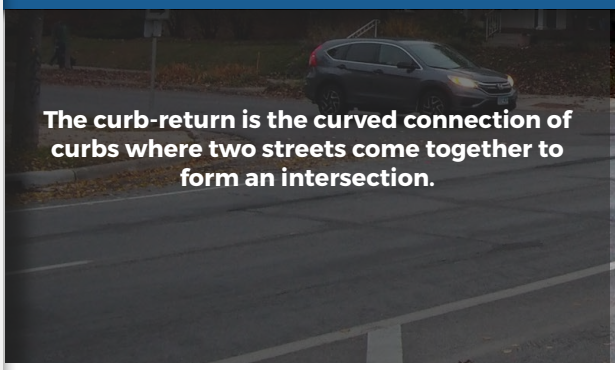
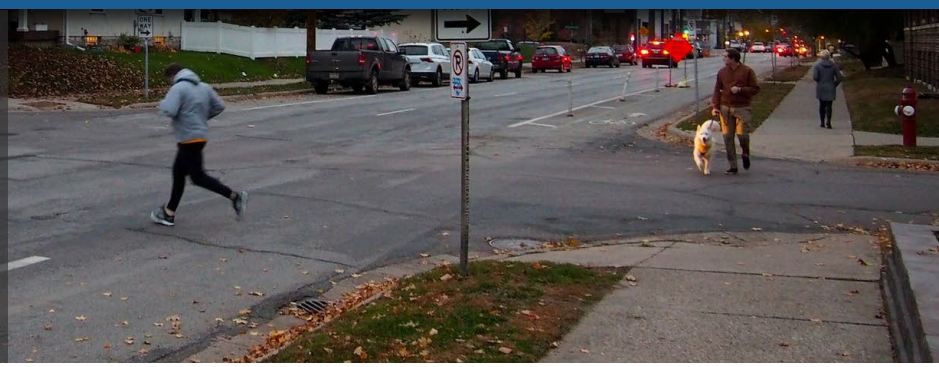
3.7C Curb-return radii



The curb-return is the curved connection of curbs where two streets come together to form an intersection.



INTRODUCTION

The curb-return is the curved connection of curbs where two streets come together to form an intersection. The purpose of the curb-return is to guide vehicles in turning corners and to separate vehicular traffic from pedestrian areas at intersection corners. The curb-return radius refers to the curvature of the curb line when two streets come together.

Figure 3.7C.1:
Curb-return radii

Street Type	Curb-Return Radius (ft)
Intersection with a commercial street	18*
Intersections with a residential street	15*
Street where turns are prohibitted (e.g. one-way streets)	5
Alley	5

* Note that radii assumptions for commercial and residential streets predates our current street typologies and may be updated in future revisions to the Street Design Guide.

a This table represents typical curb radius assumptions based on street type and configuration. Note that deviations from this table are commonly anticipated to accomodate unique intersection geometry or necessary design/control vehicles.

DESIGN CONSIDERATIONS

A. Use smallest practical radius

The smallest practical curb-return radius should be used at all intersections to manage the speed of turning vehicles, shorten the length of pedestrian crosswalks, and provide adequate space at the corner for properly aligned curb ramps. It is important to choose a practical radius as selecting design and control vehicles smaller than appropriate can compromise the safety of people biking and walking, as large vehicles may be required to frequently mount the curb to complete a turn. Extra attention should be paid to tightening curb-return radii where:

- There are adjacent or nearby trip generators where high pedestrian volumes are observed or anticipated;
- Turning vehicles will cross a protected bike lane, shared use path, or trail;
- There is no existing or anticipated future need to regularly accommodate large turning transit buses or trucks; and
- Where adjacent parking lanes, on-street bike lanes, or striped shoulders create a larger effective radius.

B. Use design and control vehicle guidance

The design and control vehicles identified for an intersection inform the curb radii that should be used.

C. Where turns are prohibited

Where turning movements are prohibited, such as at one-way streets, a 5' corner radius should be used.

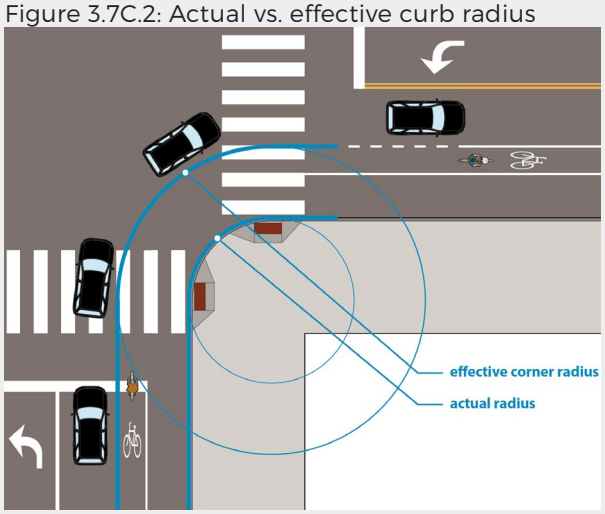
D. Alleys

A 5' corner radius is typically used for alleys.

E. Actual vs. effective radius

The actual curb-return radius may differ from the effective radius when on-street parking, an on-street bike facility, or a striped shoulder is adjacent to the outside travel lane (see Figure 3.7C.2). AutoTurn movements should consider the effective radius and a tighter actual radius should be implemented whenever practical.

Figure 3.7C.2: Actual vs. effective curb radius



F. Strategies to tighten radii

To achieve the smallest practical curb-return radii, the following design strategies may be considered:

- Implementing a compound radius so that the radius is smaller as drivers approach the crosswalk and larger as they continue through the intersection to complete the turn;
- Implementing an advanced stop bar so control vehicles can encroach into the opposing or adjacent travel lane to complete a turn; and
- Implement an access or turning restriction depending on adjacent land use and traffic network needs.