

**CITY OF KIRKLAND**  
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**DEPARTMENT OF PUBLIC WORKS  
PRE-APPROVED PLANS POLICY**

**Policy R-42 Clear Zone and Horizontal Clearance**

**Section 1. Objective**

The objective of this policy is to establish clear zone and horizontal clearance requirements within the public right-of-way for the safety of the traveling public in alignment with [Kirkland's Vision Zero goal](#) and the Federal Highway Administration's (FHWA) [Safe System Approach](#).

The fact that clear zone requirements and mitigation guidance is presented in this policy does not mean that the City of Kirkland is required to modify or upgrade existing locations to meet current criteria. This policy is intended for use with public and private new construction and alterations to the City's existing infrastructure, excluding regular maintenance activities.

It is incumbent on the design engineer to study this policy, perform the required analyses and provide calculations and construction plans that comply with this policy. City staff will provide review comments during the course of permitting / plan review; however, it is not incumbent on City staff to ensure the design is completely free of errors and omissions as it relates to this or any other policies, or in any way provide quality assurance for the design engineer's work product.

**Section 2. Definition of Terms**

Term	Definition
Clear zone	The total roadside border area, available for use by errant vehicles, starting at the edge of the traveled way (defined below) and oriented from the outside or inside shoulder (in median applications) as applicable. This area may consist of a shoulder, a recoverable slope, a nonrecoverable slope, and/or a clear run-out area. The clear zone cannot contain a critical fill slope (steeper than 3H:1V), fixed objects, or water deeper than 2 feet. (See <b>Figure 1</b> below.)
Breakaway object	Objects that are generally the same size as or smaller than a 4-inch by 4-inch wood post. Additionally, certain objects have specific breakaway design features to lessen the likelihood of injury during a crash with an errant vehicle. Example of breakaway objects include sign posts, mailboxes, fire hydrants, and pedestrian pushbutton posts.
Edge of Traveled Way	The edge of traveled way is defined by the edge stripe adjacent to the vehicle through lane, or by the face of curb if no stripe is present. The traveled way is the portion of the roadway intended for the movement

Term	Definition
	of vehicles and does not include shoulders, parking lanes, turning lanes, storage for turning lanes, or bike lanes.
Fixed object	Objects that are generally larger than a 4-inch by 4-inch wood post. Fixed objects do not have the ability to break apart or otherwise absorb the energy of a crash with an errant vehicle. Some examples of fixed objects include large timber utility poles, large trees, large traffic signal poles, and stormwater drainage elements such as culvert and pipe ends.
Horizontal clearance or operational offset	<p>Used in lower speed urban environments. Horizontal clearance is the distance measured from the face of the curb to the face of an object. The minimum horizontal clearance to objects behind curbs specified in the AASHTO Green Book is a minimum standard offset that allows for normal traffic operations, including mirror clearance for larger vehicles.</p> <p>Because curbs do not contain or deter errant vehicles from leaving the traveled way, the minimum horizontal clearance does not provide a clear zone sufficient to accommodate errant vehicles. The recommended clear zones in the AASHTO Roadside Design Guide (RDG) are based on the design speed of the facility and the slope of the roadside and are not affected by the presence of curbs. It is recognized that providing a clear zone as recommended in the RDG may not be practical in low-speed curbed facilities because of right-of-way constraints and other realities of the built environment.</p>
Operating speed	The speed at which drivers are observed operating their vehicles during free flow conditions. The 85 <sup>th</sup> percentile speed, or the speed at which 85 percent of drivers are documented as traveling at or below, is commonly used as the operating speed.
Posted Speed	The maximum legal speed as posted on a section of roadway using regulatory signs.
Roadside hazard	A fixed object, sideslope, or water more than 2 feet deep that, when struck, can result in impact forces on a vehicle's occupants that may result in injury or place the occupants in a situation that has a high likelihood of injury. A roadside hazard can be either constructed or natural.

### **Section 3. Where Requirements Apply**

The clear zone requirements listed in Section 4 and horizontal clearance requirements shown in Section 5 shall apply to all transportation projects on arterial street facilities within the public right-of-way. Clear zone and horizontal clearance requirements apply to both public and private projects that construct new infrastructure or alter existing infrastructure, excluding regular maintenance activities.

Clear zone requirements apply to arterial roadways and do not apply to streets functionally classified as neighborhood access streets, local streets, or collector streets since those facilities typically have lower operating speeds. Functional classifications are defined in [Kirkland's Transportation Strategic Plan](#).

Clear zone requirements apply to both new construction and alteration of existing transportation infrastructure, including but not limited to roadway widening, realignment of a roadway (vertical or horizontal), realignment of a roadway curb, sidewalk improvements, traffic signal installation or retrofit, bridge replacement, or raised channelization.

The following situations are typically authorized exceptions to clear zone requirements, which must be reviewed and approved by Public Works Transportation or Development Engineering staff. Staff are not obligated to grant exceptions; however, exceptions may be granted based on the following project conditions:

- A. Maintenance projects (e.g., spot pavement repair, slurry sealing, grind and overlay paving projects that do not move the curb line or otherwise require additional frontage improvements, utility work, lane restriping, etc.)
- B. Where the cost of the mitigation exceeds 50% of the overall project or frontage improvement within the right-of-way
- C. Where landmark trees as defined by [Kirkland Zoning Code \(KZC\) Chapter 95](#) meet the following conditions:
  - a. The trees would otherwise not be removed by the project's construction activities
  - b. There is no history of fixed object vehicle crashes along the subject road facility involving fixed objects in the last five years within 1,000 feet of the tree
- D. Where breakaway objects comply with federal, state, or local requirements.
- E. Where mitigation requires modifying or relocating transmission utility poles that otherwise would not be impacted by the underlying project and/or frontage improvements; and any situation that may contradict with the Director's ability to enter into a "Local Improvement District - No Protest Agreement" with a private developer per KZC 110.60.7.

#### **Section 4. Clear Zone Requirements**

New or existing roadside hazards intended to remain in place after project completion along a roadside or median that **do not** have Type A curb ([City of Kirkland Pre-Approved Plan No. CK-R.17](#)), concrete vertical curb ([City of Kirkland Pre-Approved Plan No. CK-R.17C](#)), or median curb (for median applications only, [City of Kirkland Pre-Approved Plan No. CK-R.19A](#)) shall meet the requirements below.

- A. Locate new fixed objects or roadside hazards as close to the right-of-way line as practical, within the right-of-way.
- B. The minimum clear zone distance from the face of the roadside hazard to the edge of the vehicle traveled way shall be **10 feet**, as shown in Error! Reference source not found..
- C. New or existing roadside hazards shall not be located or allowed to remain closer than **10 feet** to the edge of a residential or commercial driveway. New or existing roadside hazards shall not be located or allowed to remain if in violation of the vehicle and pedestrian sight distance requirements in [City of Kirkland Policy R-13](#).
- D. Existing fixed objects or roadside hazards within project construction limits should follow the guidance of this section to the maximum extent possible. The most common examples of existing roadside hazards in Kirkland are timber utility poles, critical sideslopes (3H:1V or steeper), and large trees.
- E. Construction projects shall not allow roadside hazards to remain in locations that violate the clear zone requirements above without mitigating the potential safety impacts as approved by City staff. It is understood that existing fixed objects or roadside hazards cannot always be relocated outside of the clear zone area. For those circumstances, refer to the Mitigation Guidance in Section 6.

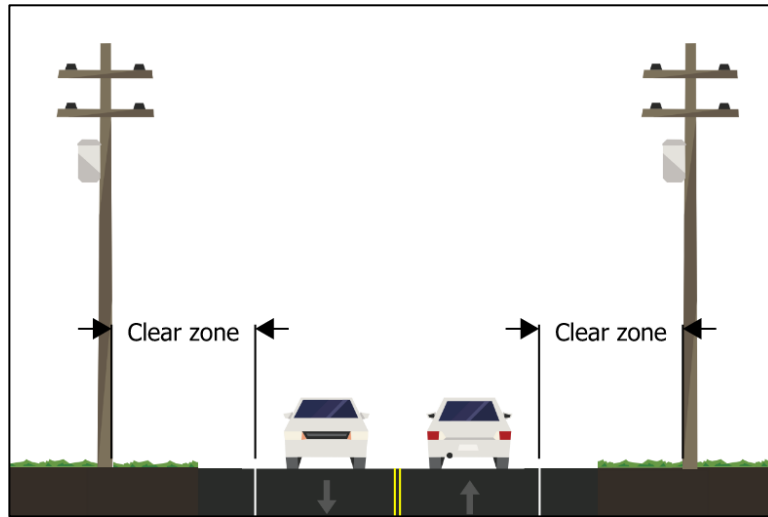


Figure 1. Standard Clear Zone

### Section 5. Horizontal Clearance Requirements

To the maximum extent feasible, all new or substantial rehabilitation projects should provide clear zone as stated in the requirements in Section 4 of this policy; however, it is recognized that this is not always practical in urban environments with curbs, constrained right-of-way, and the built environment. When placing new roadside hazards along a roadside or median with a traffic curb, the designer must attempt to select locations with the least likelihood of an impact by an errant vehicle and shall always meet the minimum horizontal clearance defined below.

New or existing roadside hazards and breakaway objects intended to remain in place after project completion along a roadside with Type A curb ([City of Kirkland Pre-Approved Plan No. CK-R.17](#)), concrete vertical curb ([City of Kirkland Pre-Approved Plan No. CK-R.17C](#)), or median curb (for median applications only, [City of Kirkland Pre-Approved Plan No. CK-R.19A](#)) shall meet the requirements below. Horizontal Clearance is indicated in **Figure 2**.

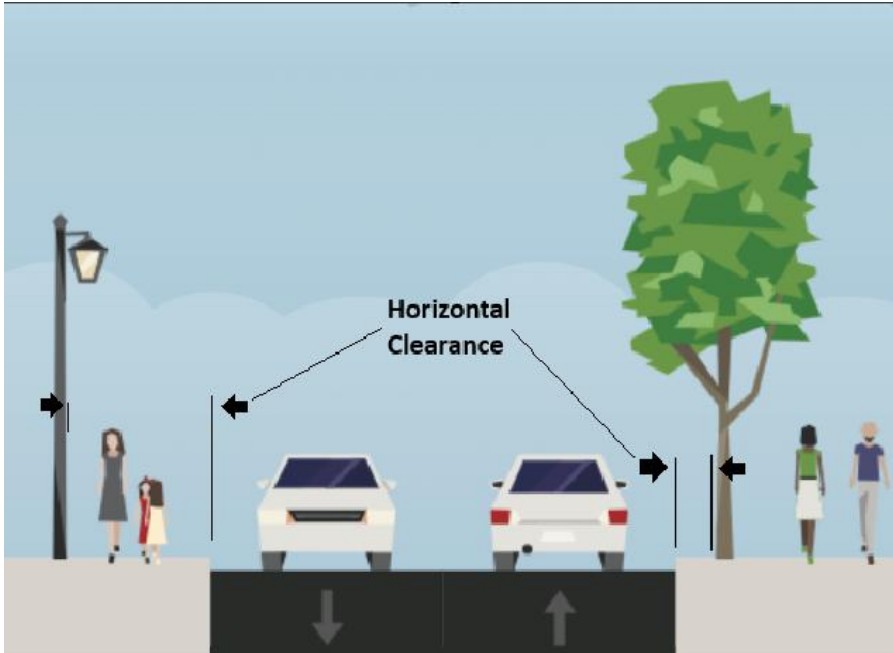


Figure 2. Horizontal clearance.

1. Locate new fixed objects or roadside hazards as close to the right-of-way line as practical, within the right-of-way.
2. The minimum horizontal clearance for **fixed objects** from the face of curb to the face of the object shall be **3 feet**, *except* where the clear zone requirement from the edge of traveled way to the face of the object have been met. If the clear zone requirement has been met, the minimum horizontal clearance for fixed objects from the face of curb to the face of the object may be reduced to 1.5 feet. This clearance is indicated in **Figure 2**.

*(Example: if a bike lane and parking lane are present adjacent to the vehicle through lane on a 30-mph roadway, and a fixed object is more than 10 feet from edge of traveled way, then the minimum horizontal clearance for fixed objects may be reduced to 1.5 feet.)*

3. The minimum horizontal clearance for **breakaway objects** from the face of curb to the face of the object shall be **1.5 feet**, unless otherwise noted.
4. The minimum horizontal clearance from the face of the curb to the face of any **traffic signal equipment or street/pedestrian light poles** shall be **3 feet**.

## Section 6. Mitigation Guidance

The goal of this policy is to increase the safety of the traveling public. It is acknowledged that sometimes it is not feasible to follow each requirement in a constrained design environment. When it is not possible to achieve the minimum values in Section 4 and Section 5 for new or existing (to remain) roadside hazards, the following mitigation measures may be considered:

- i. Remove the fixed objects or roadside hazard from the clear zone;
- ii. Relocate the fixed objects or roadside hazard outside of the clear zone;
- iii. Redesign a fixed object using breakaway features, or otherwise make the fixed object traversable;
- iv. Shield the roadside hazard with crashworthy traffic barrier, such as those identified in subsection C; or
- v. Delineate the roadside hazard appropriately with signing and markings as approved by Public Works Transportation staff.

Special consideration should be given to breakaway objects that may pose a safety risk to people walking, rolling, and bicycling. The designer should consider tradeoffs, risks, and benefits to breakaway objects. As an example, if a breakaway pedestrian light pole would fall onto a highly used shared-use path or sidewalk area, the designer may decide to instead relocate the pole.

- A. Engineering judgement should be used for each object to be mitigated. The following conditions shall be considered:
  - Crash history
  - Frequency of use by people walking, rolling, and bicycling
  - 85<sup>th</sup> percentile vehicle operating speeds
  - Areas around playgrounds, schools, parks, transit centers, community centers, or other similar locations
- B. Factors for selecting a mitigation method include, but are not limited to:
  - Crash severity potential
  - Maintenance needs
  - Lifecycle cost
- C. Examples of crashworthy traffic barrier include, but are not limited to, beam guardrail, cable barrier, and concrete barrier. Refer to WSDOT Design Manual [Chapter 1600 Roadside Safety](#), [Chapter 1610 Traffic Barriers](#), and [Chapter 1620 Impact Attenuator Systems](#) for additional considerations and design guidance.
- D. Curbs are now generally recognized as having no significant containment or redirection capability for errant vehicles. Therefore, extruded curb ([City of Kirkland Pre-Approved](#)

[Plan No. CK-R.19](#)) shall **not** be used to mitigate clear zone requirements to protect a fixed object or roadside hazard where curb otherwise is not present.

- E. Mitigation measures for new and existing roadside hazards will be reviewed on a case-by-case basis by Public Works Transportation Staff. Concurrence and approval are required from all involved Divisions of Public Works (Development, CIP, etc.) before mitigation measures can be deemed appropriate for use.

## **Section 7. Exceptions**

It is incumbent on the design engineer to justify exceptions to the clear zone and horizontal clearance requirements *without* any further mitigation. Design exceptions to the requirements of this policy require written justification stamped and signed by a licensed Professional Engineer in the State of Washington with experience in civil, roadway, or transportation design. Requests for design exceptions to clear zone requirements shall include the following:

1. Description of the physical characteristics of the roadway
2. Description of the operational characteristics of the roadway (i.e., functional classification, surrounding land-use context, vehicle volumes, etc.)
3. Description of circumstances and why the roadside hazard cannot be mitigated to the satisfaction of the requirements of this policy
4. Comparison of the posted speed limit of the roadway with 85<sup>th</sup> percentile vehicle operating speeds
5. Five-year crash history along roadway segment location (minimum 1,000 feet of roadway segment length centered on roadside hazard required)
6. Discussion of risk of future crashes
7. Formal recommendation from the project's Engineer of Record (EOR) that the design exception is justified and in the best public interest

Design exceptions to the requirements of this policy shall be reviewed on a case-by-case basis by City of Kirkland Transportation Staff. Approval is required before the project can proceed with a design exception.

## Section 8. References

1. American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (aka the "Green Book"), 7th Edition (2018). <https://store.transportation.org/item/collectiondetail/180>
2. AASHTO Roadside Design Guide, 4<sup>th</sup> Edition (2011). <https://store.transportation.org/Item/CollectionDetail?ID=105>
3. Washington State Department of Transportation (WSDOT), Design Manual M 22-01 (2023). <https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/manuals/design-manual>
4. City of Kirkland Public Works Pre-Approved Plans (2025). <https://www.kirklandwa.gov/Government/Departments/Development-Services-Center/Tools-and-Resources/Pre-Approved-Plans>