

# DESIGN MEMO 6.05

To: Designers, Contractors, and City Departments  
Date: January 10, 2023  
Subject: Pedestrian Refuge and Median Islands  
Category: Pedestrian and Bicycle Facilities

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## 1 Purpose

Median islands are islands in the center of a street that physically separate the directional flow of traffic and provide traffic calming by narrowing the street. Pedestrian refuge islands are a type of median island that provide protected space in the center of the street to facilitate pedestrian crossings, particularly when there are multiple lanes of traffic. Pedestrian refuge islands simplify the crossing by allowing pedestrians to focus on one direction of traffic at a time. Pedestrian refuge islands are effective at slowing left turn traffic when located at intersections by reducing the effective turning radius. These design features are typically constructed with curbs but can be designated with crashworthy vertical elements and paint in interim conditions.

Typically provided at intersections, pedestrian refuge islands may be implemented at mid-block locations where high pedestrian activity is documented or anticipated. They may be coupled with other traffic calming features, such as curb extensions at mid-block and intersection locations. See City of Columbus Design Memo 6.04: Curb Extensions.

## 2 Applicability

Until further notice, this direction will be used for scoping, design, and construction of median islands and pedestrian refuge islands within the City of Columbus right-of-way. Pedestrian refuge islands and median islands can be installed on any street which have two or more travel lanes (one per direction), provided the roadway has sufficient width for a pedestrian refuge island or median island to be installed.

Pedestrian refuge islands and median islands should be considered based on the criteria in City of Columbus Design Memo 6.41: Crosswalks.

## 3 Definitions

Definitions of key terms in this memo are provided below. Additional definitions that may be relevant to other design memos are provided in City of Columbus Design Memo 1.00: Introduction.

**Median:** The portion of a roadway separating opposing directions of the traveled way.

**Median Island:** An island in the center of a street that physically separates the directional flow of traffic.

**Pedestrian Cut-Through:** A pedestrian access route through a median island at the level of the roadway surface. Where median islands with pedestrian cut-throughs are 6 feet or greater in width, they may serve as pedestrian refuge islands.

**Pedestrian Refuge Island:** A median island with a refuge area that is intended to help protect pedestrians who are crossing a multilane road. To function as a refuge, the median island shall be at least 6 feet wide.

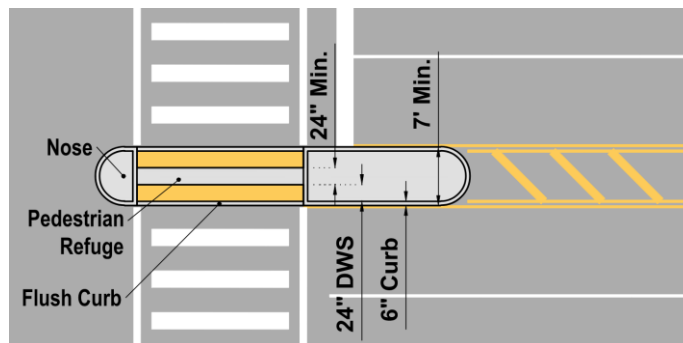
## 4 Design Guidance

### 4.1 Pedestrian Refuge Islands

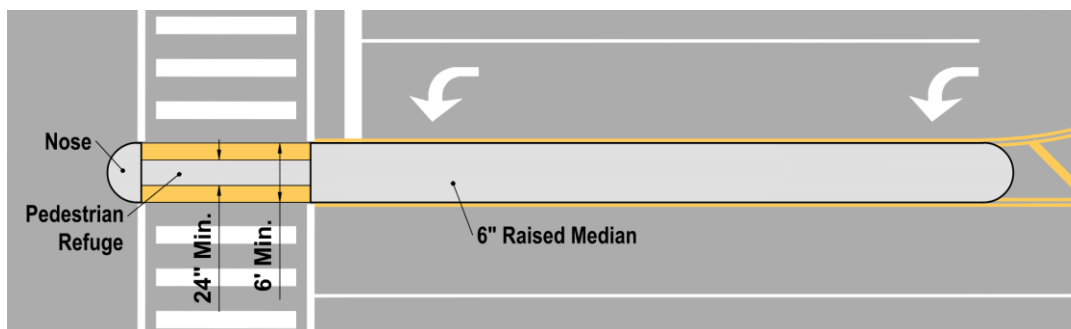
The minimum width for a pedestrian refuge island shall be 6 feet, measured from the outside edge of the detectable warning surfaces (DWS). This is necessary to provide the minimum distance of 24 inches between detectable warning surfaces (see Section 5). Where pedestrian islands are constructed using curbing and the detectable warnings are placed at the back of curb, the minimum width of the island shall be 7 feet, measured from curb face to curb face. **Figure 1** illustrates a pedestrian refuge island with



curbing where the detectable warning surface is placed at the back of the flush curb in the pedestrian refuge area. **Figure 2** illustrates a pedestrian refuge island with a 6-foot width where detectable warning surfaces are placed in line with the median island face to meet accessibility requirements.



**Figure 1: Pedestrian Refuge Island - Detectable Warning Surface Placed at Back of Flush Curb**



**Figure 2: Pedestrian Refuge Island - Detectable Warning Surface Placed in Line with Island Face**

Pedestrian refuge island widths of 8 to 10 feet are preferred where pedestrian volumes are high, where people with mobility devices cross, or where bicyclists cross.

Pedestrian refuge islands shall be designed to ensure a curb-to-curb clear pavement width of 14 feet to allow for snowplows to clear the travel lanes.

Cut-through openings shall match the width of the corresponding crosswalk. The crosswalk width is measured from the center of the crosswalk transverse lines.

A “nose” that extends past the crosswalk toward the intersection shall be provided to separate people waiting on the pedestrian island from motorists and to slow turning motorists. See **Figure 1** and **Figure 2**. Necessary turning radii shall be assessed early in design to ensure feasibility of ramp and island placement. The designer shall ensure placement of the “nose” accommodates left-turns by the design vehicle and check vehicle. See City of Columbus Design Memo 9.04: Turning Radii.

The minimum length of the “nose” on the intersection side of the pedestrian island shall be 4 feet. The minimum length of the island on the non-intersection side of the pedestrian island shall be 8 feet. The nose height shall taper from 2 inches to the full height of 6 inches over a length of 10 feet (or the length of the nose/island if less than 10 feet). See City of Columbus Standard Drawing 2331.

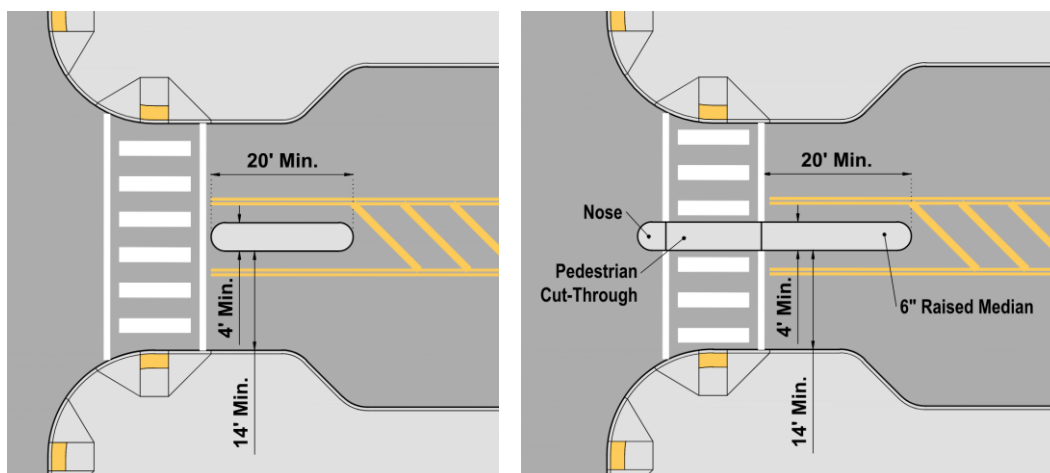
Traffic control equipment, vegetation, and other aesthetic treatments may be incorporated, but shall not obscure pedestrian visibility.



## 4.2 Median Islands

In retrofit projects where existing pavement widths are insufficient to provide a pedestrian refuge island with a 14-foot curb-to-curb clear width, a median island may be used to provide traffic calming benefits. See **Figure 3**. Where appropriate, the use of curb extensions should be considered in conjunction with median islands to provide further traffic calming. When used as part of crosswalk improvements, the median island may be placed adjacent to the crosswalk or may be placed through the crosswalk with a pedestrian cut-through. Pedestrian cut-throughs in median islands less than 6 feet wide shall not have detectable warnings.

The minimum width of median islands shall be 4 feet to provide the necessary width for signs. The minimum length of median islands shall be 20 feet.



**Figure 3: Median Island Adjacent to Crosswalk (Left) and Median Island with Pedestrian Cut-Through (Right)**

## 4.3 Interim Treatments

Interim treatments may be used to provide similar traffic calming benefits until permanent improvements can be made. Interim materials shall include crashworthy vertical elements with retroreflective features (e.g., flexible delineator posts, longitudinal channelizers, or plastic bollards) combined with yellow paint in the median of the roadway. The vertical elements shall be placed to ensure a clear space of 14 feet between the vertical element and the curb. The vertical elements shall be placed no greater than 5 feet apart, except for the opening for pedestrians, which shall match the width of the crosswalk. Tighter spacing should be used along the radius at either end to clearly establish the island.

## 4.4 Signage and Pavement Markings

### 4.4.1 Pedestrian Refuge Islands

The standard signage application within pedestrian refuge islands at uncontrolled crosswalks at intersections and at mid-block locations shall be crosswalk warning signs (W11-2) with diagonal arrow plaques (W16-7P). These signs should be fluorescent yellow-green. Crosswalk warning signs should be installed back-to-back within the pedestrian refuge island instead of two separate sign installations within the island. Additional signage varies based on length and is shown in **Figure 4** and described below:



- Where pedestrian refuge islands extend less than 10 feet from the pedestrian pass-through, additional signs, such as KEEP RIGHT signs (R4-7), shall not be used within the pedestrian refuge island. Yellow flexible delineator posts or other crashworthy vertical elements with retroreflective materials shall be installed at ends of pedestrian refuge islands that do not feature KEEP RIGHT signs (R4-7) or object markers to increase visibility.
- If the pedestrian refuge island extends between 10 feet and 50 feet from the pedestrian pass-through, a yellow object marker (OM1-3) mounted at a height of 4 feet shall be placed at the beginning of the median island in addition to the crosswalk warning signs placed at the crosswalk.
- If the pedestrian refuge island extends 50 feet or more from the pedestrian pass-through, a KEEP RIGHT sign (R4-7) with a yellow diagonal object marker (OM1-3) shall be placed at the beginning of the median island in addition to the crosswalk warning signs placed at the crosswalk.

At trail crossings, trail warning signs (W11-15) shall be used instead of crosswalk warning signs (W11-2).

At signalized intersections, crosswalk warning signs shall not be used in the pedestrian refuge island. KEEP RIGHT signs (R4-7) with a yellow diagonal object marker (OM1-3) shall be placed at either end of the pedestrian refuge island.

See City of Columbus Design Memo 6.41: Crosswalks for information on crosswalk markings and signs along the edge of the roadway.

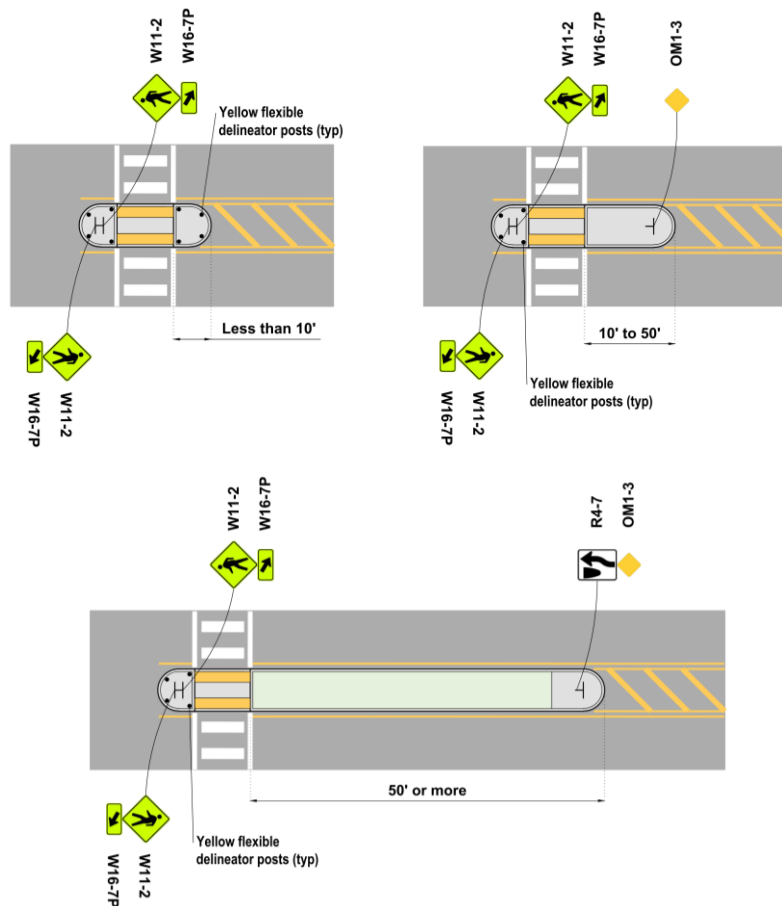


Figure 4: Typical Signage Applications at Pedestrian Refuge Islands



#### 4.4.2 Median Islands

The standard signage application within median islands that do not provide pedestrian refuge shall be KEEP RIGHT signs (R4-7) with a yellow diagonal object marker (OM1-3). These shall be placed at either end of the median island.

See City of Columbus Design Memo 6.41: Crosswalks for information on crosswalk markings and signs.

## 5 Accessibility Considerations

Median islands must be a minimum of 6 feet in width to be considered a pedestrian refuge that meets accessibility requirements. Detectable warning surfaces shall be provided at each entrance to the street when the median island is 6 feet or greater in width. There shall be a minimum of 24 inches between the detectable warning surfaces.

Where median islands with a pedestrian cut-through are less than 6 feet wide, detectable warning surfaces shall not be provided. Installing detectable warning surfaces at pedestrian cut-throughs in median islands that are less than 6 feet wide compromises the effectiveness of detectable warning surfaces.

Where the pedestrian cut-through opening is at the roadway surface, the running slope of the pedestrian cut-through shall be a minimum of 1% and a maximum of 5%. The maximum cross slope of the pedestrian cut-through shall be 1.56%. The width of the pedestrian cut-through shall match the width of the crosswalk.

Curb ramps and landings are required if the pedestrian refuge island has a pedestrian refuge area that is raised above the grade of the roadway surface.

## 6 Signalized Intersection Considerations

It is preferable for pedestrians to cross the entire street in one movement at signalized intersections. Pedestrian signal heads shall not be provided within the pedestrian refuge island when there is sufficient pedestrian clearance time to allow pedestrians to cross in one phase.

At signalized locations where pedestrians are expected to cross in two stages by waiting in a pedestrian refuge island and the signal is timed accordingly, the pedestrian refuge island shall be at least 6 feet in width. Pedestrian signal heads within the pedestrian refuge island shall be provided. Pedestrian pushbuttons shall be provided within the island where the approach is not on pedestrian recall.

A median island less than 6 feet wide is not considered a pedestrian refuge. On such crossings, the pedestrian clearance time shall be sufficient to allow for full crossing of the roadway in a single phase.

Pedestrian pushbuttons shall be located in accordance with the City of Columbus *ADA Rules and Regulations* and the City of Columbus *Traffic Signal Design Manual*.

## 7 Maintenance Considerations

The median island space outside of the pedestrian crossing and queuing zone may be landscaped or hardscaped. Where plantings are used, they should be native plants or drought resistant species. Trees planted shall be from the list of approved tree species in City of Columbus Executive Order 2015-01. Plantings shall be located to not encroach onto travel lanes or reduce motorist and pedestrian visibility.



Planting, trees, signs, or other obstructions within the median island shall not inhibit intersection sight distances by ensuring a clear zone of visibility between 30 inches to 84 inches high from the ground. Trees planted in a median island shall be planted no closer than 20 feet from the crosswalk and are not considered intersection sight distance obstructions if they are maintained to ensure a clear zone of visibility and will achieve an eventual mature vertical clearance of 14 feet between the ground and lowest branch. Care shall be taken to ensure that plantings and trees do not impact block visibility of signage.

Vertical elements such as planter boxes shall not be located within median islands.

Any plantings or non-standard/decorative pavement within a pedestrian refuge island or median island shall require Department of Public Service approval and a separate maintenance agreement to be executed with the Department of Public Service.

