



# MEDIANS

A median divides lanes of traffic. Medians are generally in the center of the right-of-way, dividing opposing directions of traffic. They may also be located on the side, separating local access or special purpose lanes such as dedicated travel-ways. Medians increase safety and enhance roadway operations by reducing vehicular movement conflicts, limiting turning movements, and providing a refuge for pedestrians crossing the street.

## USE

- City environments may limit opportunities to incorporate medians into the street. Medians are generally applied to arterial streets as a means to reduce turning movement conflicts and facilitate flow while providing an attractive streetscape environment.
- Medians may be used as an access management tool, a means to limit vehicle conflicts on a corridor to facilitate traffic flow and safety. Medians may

also be used for traffic calming and beautification.

- Used in isolation, roadway medians do not have a significant impact in reducing vehicle speeds. For the purpose of slowing traffic, medians are generally used in conjunction with other traffic calming measures, such as bulb-outs or roadway lane narrowing.
- Center turn lanes provide an opportunity as redevelopment adjusts driveway entryways and alleyways; medians can be installed in places between intersections.

## DESIGN

- Medians may be flush with the pavement and consist of painted markings, a space protected with bollards, or a raised curb. Striped or painted medians may precede more permanent improvements, providing localities an opportunity to test travel behaviors before making a significant capital investment. Raised medians within the travel zone provide opportunities for landscaping, street trees, and two-stage pedestrian crossings.
- Medians should be a minimum of six feet wide to provide adequate width for pedestrians crossing with strollers, bicycles or wheelchairs.
- Medians must be at least 10 feet wide if they are to provide turn pockets at intersections.

- Where a six foot median width cannot be provided, a narrower raised median (a minimum 4 feet) can still improve crossing safety. In these instances, signals should be timed so that pedestrians can cross in one signal phase.
- Wider medians may also be needed if the crossing accommodates frequent bicycle traffic like at a multi-use trail crossing.
- The median opening or passage for pedestrians (and bicyclists) sometimes can be skewed to the right to provide deeper storage space as well as point the person crossing to look at oncoming traffic.
- Crosswalks should cross medians at street level. The resulting cut-through should equal the width of the crosswalk and be wide enough to accommodate snow removal.
- Provide a median nub at crosswalks to buffer and protect pedestrians from turning traffic in the intersection. This also allows pedestrians to cross a street in either one- or two-stages.
- Design plantings to avoid blocking sight lines for pedestrian, bicyclists, and motorists near intersections and crossings.

 Landscaping medians reduces the impervious surface area in the roadway, allowing stormwater infiltration or retention in the exposed soil. Curbed medians more than 4.5 feet wide should be landscaped and used for stormwater management where possible. To support street trees, medians should be at least six feet in width and a minimum of 15 feet in length per tree, and should conform with soil volume requirements. However, planters adjacent to pedestrian crossings and travel lanes shall keep horizontal and vertical clearances to as to not obscure visibility.

 Providing vegetation helps motorists identify medians. Varying the types of plantings or trees can give motorists a clue to the type of environment they are passing through, leading them to adjust their behavior and speed accordingly. Street trees located within the intersection should avoid blocking sight lines to ensure safety.

## SPECIAL CONSIDERATIONS

- Medians provide an important refuge for pedestrian crossings, particularly for families and older adults who might not make it across the entire street in one light cycle phase. However, medians can also add to the overall width of the roadway unless lanes are reconfigured and the median utilizes existing space. While providing a median can shorten each leg of a crossing, a wide median increases the total street crossing distance, which adds time to the signal sequence and causes traffic delay.
- Do not remove or narrow sidewalks or bicycle facilities to provide medians or pedestrian refuges. Medians should not compromise the ability to accommodate other street uses. It may not be possible to add medians to streets with narrow driveways.
- Do not locate utilities below planted medians, as plantings may affect utility lines and repair or replacement is challenging. Utilities under striped, painted, or paved medians are easier to access with minimum disruption to roadway operations.
- Provide a taper on the leading edge of the median to extend the life of the infrastructure.
- Medians may also provide additional opportunities for placemaking and public art.

## OPERATIONS AND MAINTENANCE

- Medians should be designed with snow removal in mind. Medians can be used for snow storage when necessary, although this may negatively impact planted materials, can block sight lines along the roadway if snow is piled too high, and can trap pedestrians trying to cross at unmarked locations.
- Medians should allow adequate width in the adjacent travel lane to accommodate snow removal vehicles, as well as turn radii that facilitates snow clearing and removal.
- Medians should also be designed for maintenance of the plantings and vegetation. Water trucks or installed water infrastructure may be required.

## REFERENCES

- NACTO: Urban Bikeway Design Guide, Second Edition, 2014
  - Intersection Treatments: Median Refuge Island <http://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/median-refuge-island/>
- AASHTO: Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004
  - Section 3.3.2: Crossing Distance Considerations
  - Section 3.3.3: Turning Movements
- AASHTO: A Policy on Geometric Design of Highways and Streets (Green Book), 2011
  - Section 7.3.3: Cross-Sectional Elements
- ITE Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, 2010
  - Chapter 9. Traveled Way Design Guidelines: Medians <http://library.ite.org/pub/e1cff43c-2354-d714-51d9-d82b39d4dbad>
- ITE/FHWA: Traffic Calming: State of the Practice, 1999
  - Chapter 3: Toolbox of Traffic Calming Measures
  - Vertical Control Measures <http://library.ite.org/pub/48b037de-a555-47f5-2651-bb412d17bab5>
- MMUTCD, 2011
  - Part 2 Signs: Chapter 2B. Regulatory Signs, Barricades, and Gates [http://mdotcf.state.mi.us/public/tands/Details\\_Web/mmutcdpart2b\\_2011.pdf](http://mdotcf.state.mi.us/public/tands/Details_Web/mmutcdpart2b_2011.pdf)
  - Part 2 Signs: Chapter 2C. Warning Signs [http://mdotcf.state.mi.us/public/tands/Details\\_Web/mmutcdpart2c\\_2011.pdf](http://mdotcf.state.mi.us/public/tands/Details_Web/mmutcdpart2c_2011.pdf)
  - Part 3 Markings: Chapter 3I. Islands [http://mdotcf.state.mi.us/public/tands/Details\\_Web/mmutcdpart3\\_2011.pdf](http://mdotcf.state.mi.us/public/tands/Details_Web/mmutcdpart3_2011.pdf)

## DETAILS

- MDOT Standard Highway Signs
  - SHS-E01-REG “R” Regulatory Signs [http://mdotcf.state.mi.us/public/tands/Details\\_Web/mdot\\_signs\\_e01\\_regulatory.pdf](http://mdotcf.state.mi.us/public/tands/Details_Web/mdot_signs_e01_regulatory.pdf)
  - SHS-E02-WARN “W” Warning Signs [http://mdotcf.state.mi.us/public/tands/Details\\_Web/mdot\\_signs\\_e02\\_warning.pdf](http://mdotcf.state.mi.us/public/tands/Details_Web/mdot_signs_e02_warning.pdf)

