City of Rio Rancho
Mid-block Crossing Policy

2021

Mid-block Crossing Policy
The City of Rio Rancho
3200 Civic Center Circle NE
Rio Rancho, NM 87144

Purpose

The purpose of this policy is to outline the conditions and process for determining where mid-block pedestrian crossings may be installed within the City of Rio Rancho (CoRR). The objective of this policy is to provide safe and efficient pedestrian crossing facilities at appropriate locations that may reduce vehicle trips to traffic generators such as schools, parks, multi-use trails, commercial centers, etc.

Definitions

This section includes the definitions of some of the common technical terms used in this document. the retro-reflectivity requirements for overhead guide signs and all street name signs.

ADA (The Americans with Disabilities Act)
The Americans with Disabilities Act became law in 1990. The ADA is a civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public. The purpose of the law is to make sure that people with disabilities have the same rights and opportunities as everyone else. The ADA gives civil rights protections to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications.

Public Rights of Way Accessibility Guidelines (PROWAG)
The U.S. Access Board has developed proposed guidelines under the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA) that address access to sidewalks and streets, crosswalks, curb ramps, pedestrian signals, on-street parking, and other components of public rights-of-way known as PROWAG. These guidelines also review shared use paths, which are designed primarily for use by bicyclists and pedestrians for transportation and recreation purposes. The Board is in the process of finalizing the guidelines however they have already been implemented by The City of Rio Rancho and many other entities as a design standard within public rights of way.

Average Daily Traffic (ADT)
The volume of traffic passing a point or segment of a roadway, in both directions, during a period of time, divided by the number of days in that period which is factored to represent an estimate of traffic volume for an average day of the year.

Average Annual Week Day Traffic (AAWDT)
The volume of traffic passing a point or segment of a roadway, in both directions, for Monday - Thursday of traffic volumes adjusted to represent the annual average for a weekday. This data is compiled annually by the Mid Region Council of Governments for roadways with a functional classification of collector and above.

Controlled Pedestrian Crossing
A pedestrian crossing where motorists are required to stop at intersections by a stop sign or traffic signal.

Curb Extensions (Bulb Out)
A roadway edge treatment where a curb line is bulged out towards the roadway to narrow the width of the street. Curb extensions are often used at the location of a pedestrian crosswalk to minimize the distance and time that a crossing pedestrian must be in the roadway.

Gap in Traffic
A gap in traffic is the space between approaching vehicles and the pedestrian crossing. Gaps are typically measured in seconds, not distance, as it is the length of the gap in time that a pedestrian must be able to cross. If there is no median refuge at the crossing, a pedestrian will need to find an acceptable gap in traffic approaching from two directions at once. This is much more challenging than finding a gap in each approach direction separately.

Marked Crosswalk
A pedestrian crossing that is delineated by white crosswalk pavement markings. Marked crosswalks are also typically delineated by a variety of traffic signs. Marked crosswalks would also have curb ramps if there is curb and gutter in an area.

Median Refuge
An area in the middle of a roadway where a crossing pedestrian can take shelter from approaching traffic in either direction. In the context of these guidelines, the median refuge must include a raised median of a minimum of 5 ft in width (per PROWAG guidelines) A median refuge allows a pedestrian to cross each direction of approaching traffic in a separate step. By using the refuge, the pedestrian must only find an acceptable gap in traffic for one approach direction at a time.

Mid-Block Crossing
A marked pedestrian crossing that does not include a traffic signal or a stop sign, but does require motor vehicles to stop before entering the crosswalk. These typically occur at locations between signalized intersection, controlled pedestrian crossings, and include a variety of pavement marking and/or signing features.

Minimum Pedestrian Volume Threshold
The minimum amount of pedestrian crossing traffic (typically in a one-hour period) that must be present to “warrant” the installation of a pedestrian crossing treatment.

Multi-Use Trail Crossing
A location where a trail designated as a multi-use trail intersects a roadway at-grade, and the path extends on both sides of the roadway.

Raised Median
An area in the middle of a roadway, commonly separating vehicles traveling in opposite directions, that is surrounded by curb and gutter and is physically raised above the surrounding pavement where vehicles travel. Raised medians often contain landscaped areas. See Median Refuge for additional details.

Rectangular Rapid Flash Beacons (RRFBs)
RRFBs are small rectangular yellow flashing lights that are deployed with mid-block pedestrian crossing warning signs. They are typically actuated by a pedestrian push button and flash for a predetermined amount of time, to allow a pedestrian to cross the roadway, before going dark. RRFBs are warning devices and do not themselves create a legal requirement for a vehicle to stop when they are flashing. RRFBs are not installed at intersections already controlled by stop signs or traffic signals.

Background

The Manual on Uniform Traffic Control Devices (MUTCD) states the following regarding installation of pedestrian crosswalks at mid-block locations:

> *Crosswalk lines should not be used indiscriminately. An engineering study should be performed before a marked crosswalk is installed at a location away from a traffic control signal or an approach controlled by a STOP or YIELD sign. The engineering study should consider the number of lanes, the presence of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting, and other appropriate factors.*

Any mid-block pedestrian crossing proposed for installation under this policy must first undergo an engineering review to ensure that the proposed crossing complies with the requirements of this policy as well as general traffic safety standards

Avoiding the Overuse of Crossings and Treatments

Although these treatments may be effective at individual locations, overuse of these treatments Citywide may lead to a decrease in their value as drivers become desensitized to them; therefore, minimum pedestrian and vehicle volume criteria shall be followed for their installation and removal.

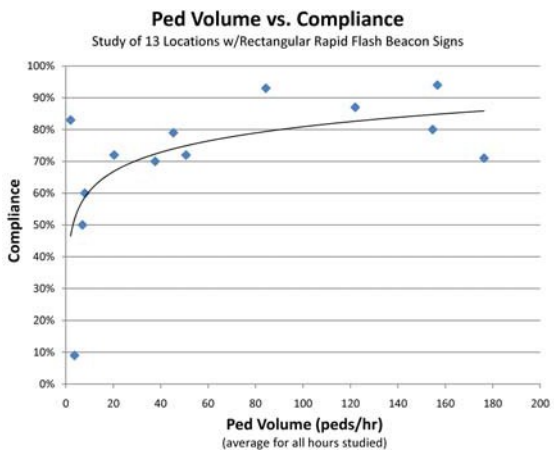
The following are reasons to avoid the overuse of pedestrian crossings and treatments:

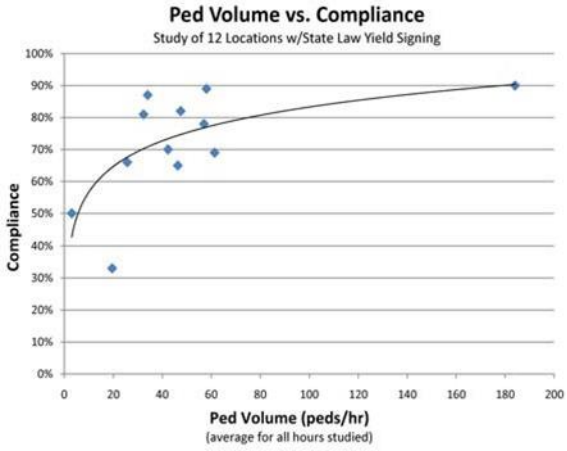
- The MUTCD (2009 edition) recommends against indiscriminate use of crosswalks.
- Research by FHWA and other sources suggests that overuse of crosswalks and treatments can lead to reduced compliance, effectiveness, and safety.
- Crosswalks and treatments at locations with low pedestrian levels lose their effectiveness and become less safe, as drivers rarely see pedestrians and ignore the treatments.
- Installation and maintenance of unnecessary crossings and treatments is an inefficient use of limited City resources.
- Inappropriate crossings and treatments may increase the risk of liability.

Minimum Pedestrian Volume for Treatments at Uncontrolled Crossing Locations

In a study completed by the City of Boulder, crosswalk enhancements were evaluated at uncontrolled crossing locations over several years. The City determined that there was a clear relationship between driver compliance (yielding) and the pedestrian and/or bicycle crossing volume. Data collected at Boulder crosswalks where rectangular rapid flash beacon signs (RRFBs) or State Law-Yield signs were installed shows that driver compliance typically increased with higher crossing volumes. It is theorized that the primary reason for this relationship is that drivers tend to ignore enhanced crossing treatments over time at locations where they infrequently see pedestrians crossing.

The following graphs illustrate this relationship:





The above data also illustrates that, below roughly 20 pedestrians per hour, driver compliance decreases significantly. Thus, the base threshold for consideration of an enhanced crossing treatment at an uncontrolled location is 20 pedestrians per hour. This threshold is consistent with recent national guidance and policies adopted by other states and cities, as determined through literature research.

Differential Vehicle Queue Lengths and Pedestrian Safety

A pedestrian crossing of a roadway with two or more lanes in a single direction has the potential for "multiple threat" type accidents. A multiple threat accident is when one lane of traffic stops for a pedestrian and obscures the view of the crossing pedestrian to a motorist in the adjacent travel lane. The result is that a pedestrian can step in front of a vehicle that is approaching too fast to stop. This condition is exacerbated when there are vehicle queues that back across the pedestrian crossing. If the queue in one lane backs into the crossing and is much longer than the queue in the adjacent lane, a motorist would commonly assume that the stopped traffic in one lane is the result of the queuing (which may usually be the case). Now if a vehicle in one lane stops for a pedestrian, instead of the queue, there is an even greater chance for a multiple threat accident.

Therefore, the engineer should be aware of the formation of queues to and across the pedestrian crossing from a downstream intersection as well as routine occurrence of one queue longer than the other across the pedestrian crossing.

When deciding to install an uncontrolled crossing treatment, the engineer should consider if differential vehicle queue lengths is an issue, and if so, can they be mitigated (say by signal timing adjustments at the downstream intersection). If differential queues cannot be minimized, then the installation of an unprotected crossing treatment (such as Type A, B, or C) shall be denied.

General Conditions

The following general criteria are to be satisfied in addition to the warrant criteria when considering installation of mid-block pedestrian crossings:

1. Crossings must connect to established sidewalks or a multi-use trail at both ends, or construction of such facilities must be included as part of the crossing installation.

2. Accessible ramps per PROWAG guidelines shall be included at both ends of a crossing installation.

3. If applicable, street parking must be restricted adjacent to crossings to allow for adequate sight lines for both the motorists and the pedestrians. The length of the parking restriction shall be based on an engineering study.

Warrants

All of the following warrants must be satisfied for a mid-block pedestrian crossing location to be considered for approval:

a. **Minimum Pedestrian Volume Threshold** - Crosswalks at locations with low pedestrian levels lose their effectiveness and become less safe as drivers rarely see pedestrians and ignore the warning signage. The Minimum Pedestrian Volume Thresholds are as follows:

Minimum Pedestrian Volumes	
Threshold	**Duration in Hours**
20* pedestrians	1
18* pedestrians	2
15* pedestrians	3
10** student pedestrians	1

* Young, elderly, and disabled pedestrians count 2x towards volume thresholds
**School Crossing defined as a crossing location where ten or more student pedestrians per hour are crossing

b. **Minimum Vehicular Volume for Installation of Crossings** - Gaps in traffic on streets with low traffic volumes normally allow pedestrians to cross the street safely and quickly without marked crosswalks; therefore, mid-block pedestrian crossings should only be installed at locations where the average daily traffic (ADT) or average annual weekday traffic (AAWDT) is at least 1,500 vehicles per day (vpd). Crossings can also be installed if hourly vehicle traffic exceeds 10% of required ADT during a peak hour of activity when pedestrian volumes also exceed their minimum threshold.

c. **Maximum Vehicular Volume for Installation of Crossings** - Due to safety concerns, installation of mid-block pedestrian crossings is not appropriate on high traffic volume roads. Therefore, mid-block pedestrian crossings shall not be installed at locations where the average daily traffic (ADT) or average annual weekday traffic (AAWDT) is greater than 15,000 vehicles per day (vpd) or on state highways.

d. **Vehicle Queue** - Due to safety concerns, installation of mid-block pedestrian crossings are not appropriate on multi-lane roadways that have potential for “multi threat” crashes where vehicle queues could extend beyond the crossing from a downstream intersection.

e. **Posted Speed Warrant** - The posted speed limit must be equal to or lower than 40 MPH.

f. **Nearest Controlled Crossing** - The proposed location must be farther than 350 feet from the nearest controlled pedestrian crossing (measured from the nearest edge of the proposed marked crosswalk to the closest edge of the controlled crossing).

g. **Visibility Warrant** - The motorist must have an unrestricted view of all pedestrians at the proposed location for a distance required by the following table (stopping sight distance is to be interpolated when 85th percentile speed is between five mph increments):

Posted Speed Limit (mph)	Stopping Sight Distance (ft)
25	155
30	200
35	250
40	305

h. **Illumination Warrant** - The proposed location must have existing street lighting sufficient to adequately illuminate the proposed crossing location or such street lighting must be planned as part of the crossing installation.

i. **Accessibility Warrant** - The proposed location must have existing accessibility to disabled pedestrians or have accessibility improvements programmed at the time of mid-block crossing installation.

Multi-Use Trail Crossings

Roadway crossings on multi-use trails often create barriers for pedestrians and bicyclists. Therefore, minimum pedestrian volume criteria may be waived at locations where crossings would connect a multi-use trail on each side of a roadway.

Crossing Location Evaluation Procedures and Considerations

Evaluation of an individual crossing location for potential crossing treatments in the City of Rio Rancho should include the following four basic steps:

Step 1: Request for Consideration

The consideration for installation of a mid-block pedestrian crossing shall be initiated by contacting the Department of Public Works' Traffic Section. Upon request, the Traffic Section will review the roadway and perform a mid-block crossing analysis study. Roadways will not be studied more than once per 36-month period unless drastic changes have been made that increase traffic flow.
Upon completion of the data collection period, the data will be reviewed by the Traffic Section and a comparison with requirements above will be performed. During this step, it will be determined if a mid-block crossing is recommended. If the mid-block crossing warrant requirements are not met, the requestor will be notified, and no further action will take place.

For any mid-block crossing locations approved by the Public Works Department, a design will be completed based on the mid-block crossing study to determine the appropriate type of mid-block crossing and improvements required.

Step 2: Physical Data Collection

Upon receipt of a request, the City will first conduct a physical review of the location to determine whether it meets the applicable warrant criteria. This review will:

a. Document the posted speed along the major street at the crossing location.

b. Identify the existing traffic control (if any) and any existing crossing treatments (signs, markings, etc.).

c. Document the presence or absence of street lighting.

d. Document the presence or absence of sidewalks or multi-use trails connecting both ends of the proposed crossing location.

e. Document the presence or absence of appropriate curb ramps and any other ADA related facilities adjacent to the proposed crossing location.

f. Determine the existing roadway configuration including the number of lanes and the presence of painted or raised medians at the crossing location.

g. Identify the nearest marked or protected crossing and measure the distance to this crossing.

h. Measure the stopping sight distance on all vehicular approaches to the crossing.

i. Identify any other physical features such as horizontal or vertical curves that could impact the safety of the proposed crossing.

j. Observe the presence of queues extending from downstream signals or intersections back into the crossing location.

If, based on the results of the data collected in Step 2, it is determined that the proposed location does not meet the physical criteria established by this policy, the request shall be denied, and the requestor will be notified.

Step 3: Traffic Data Collection and Operational Observations

If the information gathered in Step 2 meets all the required crossing warrants, the City will proceed with gathering required traffic and operational data. This will include:

a. Collect pedestrian crossing volumes during the peak hours of use. This will typically involve AM, mid-day, and PM peak hours. Locations near schools may only require two hours of data collection (AM and PM peak hours corresponding to school opening and closing times). All pedestrian volumes should include and differentiate between pedestrians and bicyclists and should note separately the number of children/student pedestrians.

b. Whenever possible, pedestrian and bicycle volumes should be collected during warm weather months and during fair weather conditions to represent peak crossing activity (i.e.: no snow, rain, or high winds). Counts should be scheduled at a time when nearby businesses are open or on school days when classes are in session. Given the potential fluctuation in pedestrian traffic from day to day, it

may be necessary to collect up to three days of data to determine if a mid-block pedestrian crossing is warranted under this policy.

c. Collect average daily traffic (ADT) volumes and 85th percentile speed data for automobile traffic along the major roadway at the crossing location. A one-day sample should be adequate, with hourly volumes collected during the same hour as the peak pedestrian crossing volumes.

Step 4: Apply Data to Warrant Criteria

The data collected in Step 2 and Step 3 shall be applied to the warrant criteria established in this policy to determine if a mid-block pedestrian crossing is appropriate. A summary report shall be prepared to document the results of the analysis completed in Step 2 and Step 3.

Prioritization and Installation

Requests will be evaluated by staff in the order received. Locations that meet the basic mid-block crossing warrants will be prioritized based on crossing activity, conflicting vehicle activity and construction cost. Engineering analysis will determine the required signing, pavement markings, and infrastructure improvements for an approved mid-block pedestrian.

Construction is subject to available funds and resources as provided through the normal budgeting process. Whenever possible, mid-block crossing evaluations within the limits of Street Rehabilitation or other City of Rio Rancho projects will occur during the planning phases of the project to allow treatments to be installed with the project.

Removal of Treatments

Conditions that contribute to the need for a crosswalk or crossing treatments may change over time, and an existing crosswalk or treatment may no longer be required. If the use of a crosswalk is less than half of that which would be required for it to be warranted based on the criteria established in these guidelines for a new installation, the crosswalk should be removed when:

1. Roadway construction or resurfacing is done, or

2. Crosswalk markings or other treatments have reached the end of their life.

In such cases, notices will be visibly posted for 30 days prior at the crossing location to inform the public of the intent to remove them. City contact information will be provided on these and notices. Should concerns arise from the public as a result of the notices at the crosswalk, staff may then begin a more a substantial public process with concerned parties.

Bibliography

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