



**CITY OF MONTCLAIR**  
**ENGINEERING AND TRAFFIC SURVEY**

**May 2011**

**PREPARED BY THE CITY OF MONTCLAIR DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION**

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## **General**

All 50 states base their speed regulations on the Basic Speed Law. In general, this law states:

No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property.

Under California law, the maximum speed limit in urban areas is 55 MPH on 2-lane undivided roads and 65 MPH on divided or multi-lane roads. All other speed limits are called prima facie limits, which are considered by law to be safe and prudent under normal conditions. Certain prima facie limits are established by state law and include the 25 MPH speed limit in business and residential districts; the 25 MPH speed limit in school zones when children are present; and the 15 MPH speed limit in alleys and at uncontrolled intersections and railroad crossings where visibility is very limited. These speed limits do not need to be posted to be enforced.

All other speed limits between 25 and 65 MPH are established on the basis of traffic engineering surveys and adopted by the City Council. These surveys include an analysis of roadway conditions, accident records, and a sampling of the prevailing speed of traffic. A safe and reasonable limit is set at or below the speed at which 85% of the drivers drive.

Traffic flowing at uniform speeds results in increased safety and fewer accidents. Drivers are less impatient, pass less often, and tailgate less, which reduces both head-on and rear-end collisions.

Most drivers can be relied upon to behave in a reasonable manner as they go about their daily driving routine. Many existing laws reflect observation of the way reasonable people behave under most circumstances. Traffic regulations are also based upon observations of the behavior of groups of motorists under various conditions. Generally speaking, traffic laws that reflect the behavior of the majority of motorists are found to be successful. Laws that arbitrarily restrict the majority of drivers tend to encourage disrespect, lack of public support, and other wholesale violations of the law. This is especially true when establishing speed limits. The posting of the appropriate speed limit also simplifies the job of traffic enforcement officers. Most of the traffic is voluntarily moving at or near the posted speed. Blatant speeders are easily spotted, safe drivers are not penalized, and patrol officers aren't asked to enforce and defend unrealistic and arbitrary speed limits.

Realistic speed limits are important in that they:

1. Satisfy requirements of state law for establishing prima facie speed limits on public roadways.
2. Invite compliance by conforming to the behavior of the majority of drivers.
3. Offer an effective enforcement tool to law enforcement officers by clearly separating the occasional violator from the reasonable majority.
4. Aid the motorist in adjusting his speed to the conditions of the road.
5. Facilitate the orderly movement of traffic in a reasonable and safe manner.
6. Alleviate bad accident records that are attributable to excessive speed as a result of hazards not readily apparent to drivers.

In accordance with the Vehicle Code, the 2011 Speed Zone Study for the City of Montclair was conducted. Radar speed checks were performed by Montclair Police Department personnel beginning September 2010 and completed March 2011.

The results of the speeds were tabulated and analyzed by staff in the Engineering Division of the Redevelopment/Public Works Department beginning in March 2011 and completed April 2011. This report updates and supersedes the previous Speed Zone Study completed in January 2004.

### **Terms**

The following terms are frequently used in traffic engineering surveys and are used in this report:

- **Speed Survey** – Also known as a traffic engineering survey. A survey of motorists' speeds on selected streets, generally using a radar or laser gun. Surveys are conducted using stealth devices or unmarked cars so as not to artificially influence the results. Surveys are also conducted during periods of free flow and contain a sampling of 100 vehicles. (In some instances there may be fewer than 100 vehicles available. The state traffic manual requires a sampling of at least 50 vehicles.) The purpose of the survey is to determine the speed that a vehicle will travel when not influenced by the presence of a police car or heavy traffic.
- **10 mph Pace Speed** - This is the ten-mile per hour range of speeds at which the largest number of motorists are traveling.
- **Maximum speed** - This is the highest speed registered by the speed survey.
- **85<sup>th</sup> percentile speed** - This is the speed at which 85 percent of all vehicles were traveling at or below. The 85<sup>th</sup> percentile speed is also called the critical speed.
- **Speed Trap** – The California Vehicle Code, in Section 40802, provides two definitions of a speed trap. One definition relates to calculating the speed of a vehicle by measuring the time necessary for that vehicle to travel a preset distance. The definition more relevant to speed surveys states as follows:

A particular section of a highway with a prima facie speed limit that is provided by this code or by local ordinance under subparagraph (A) of paragraph (2) of subdivision (a) of Section 22352, or established under Section 22354, 22357, 22358, or 22358.3, if that prima facie speed limit is not justified by an engineering and traffic survey conducted within five years prior to the date of the alleged violation, and enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects. This paragraph does not apply to a local street, road, or school zone.

### **Methods Used to Establish Speed Limits**

Realistic speed limits do not result from mere arbitrary viewing of traffic and emotional response. Major factors considered in establishing speed limits are summarized as follows:

1. Existing speeds which represent the majority of free-flowing traffic, unimpeded by traffic, traffic signals, stop signs, or any other restrictions interrupting normal flow.
2. Accident records, if any, are analyzed to determine factors contributing to these accidents.
3. Roadside conditions including the capacity of the roadway, restrictions, alignment, and points of access (driveways, intersections, etc.).

It is generally agreed that without traffic controls a driver will adopt the speed that he or she reasonably desires to travel under prevailing conditions. Studies made on driving habits have shown that fifteen percent of the drivers will drive faster than existing conditions permit. These studies have developed two characteristics that are of primary importance in the selection of a reasonable speed limit:

- Critical speed (the 85<sup>th</sup> percentile)
- Pace speed (or 10 mph pace)

The Vehicle Code provides for the establishment of speed limits starting with 25 miles per hour (mph) through 70 mph in 5 mph increments. According to the Manual on Uniform Traffic Control Devices, speed limits should be established at or near the 85<sup>th</sup> percentile. Normal mathematical rules apply in rounding up or down to the nearest 5 mph increment. The manual further states that engineering judgment may indicate the need for a further reduction of five miles per hour. Such judgment considers accident history and roadside conditions when making that reduction. The establishment of a speed limit of more than five miles per hour below the 85<sup>th</sup> percentile speed should be done with great care as this may make violators of a disproportionate number of the reasonable majority of drivers.

## **Field Procedure**

Montclair Police Department staff conducted speed surveys throughout the City of Montclair on all major, secondary, and collector streets. A total of 128 test areas were used with speeds checked on over 10,000 vehicles. The speeds of all automobiles passing a point were obtained using a radar unit placed on an unmarked vehicle. The radar unit made it possible to obtain very accurate traveling speeds of the sampled automobiles.

The results of the speeds were then tabulated and analyzed to determine the following statistical measures:

1. Critical speed (85<sup>th</sup> percentile).
2. Indicated speed (speed based on critical speed without any adjustments for accident history, sight distance, or other roadside conditions).
3. Recommended speed

Also indicated in the table are the dates the speed surveys were performed and the currently posted speeds.

Street	Segment	Date of Survey	85th %Tile (mph)	Posted Speed (mph)	Indicated Speed (mph)
Arrow Highway	West City Limit to Monte Vista Ave.	9/28/10	44	45	45
	Monte Vista Ave. to Central Ave.	9/28/10	46	45	45
	Central Ave. to Benson Ave.	10/13/11	46	45	45
	<b>Recommended Speed Limit: 45 mph</b> based on 85 <sup>th</sup> percentile speed.				
Benito Street	Mills Ave. to Monte Vista Ave.	11/23/11	40	35	40
	Monte Vista Ave. to Central Ave.	12/28/10	34	35	35
	Central Ave. to Vernon Ave.	12/15/10	40	35	40
	Vernon Ave. to Benson Ave.	12/16/10	39	35	40
	<b>Recommended Speed Limit: 35 mph.</b> While an 85 <sup>th</sup> percentile speed of 40 mph is indicated in some segments, development along both sides of this two-lane collector street is primarily residential with frequent driveways and parked cars limiting visibility. The presence of Montclair High School, Montclair Civic Center, Montclair post office, and a small amount of commercial development generate considerable foot traffic and pedestrian crossings.				
Benson Avenue	Metrolink Tracks to Moreno Ave.	9/30/10	42	35	40
	Moreno Ave. to UPRR Tracks	9/30/10	43	35	40
	<b>Recommended Speed Limit:</b> <b>Metrolink Tracks to Moreno Avenue-40 mph</b> based on 85 <sup>th</sup> percentile speed. <b>Moreno Avenue to Union Pacific Tracks-35 mph.</b> While an 85 <sup>th</sup> percentile speed of 40 mph is indicated, development along both sides of this street is residential with frequent driveways, pedestrian traffic associated with two elementary schools, and a City park. Parking is frequently heavy associated with softball activities at the park.				
Brooks Street	Monte Vista Ave. to Ramona Ave.	3/3/11	39	35	40
	Rose Ave. to Benson Ave.	2/24/11	39	35	40
	<b>Recommended Speed Limit: 40 mph</b> based on 85 <sup>th</sup> percentile speed.				
Central Avenue	Arrow Hwy. to Moreno Ave.	12/7/10	39	40	40
	Moreno Ave. to I-10 Freeway	1/24/11	41	40	40
	Palo Verde St. to San Bernardino St.	12/7/10	41	40	40
	San Bernardino St. to Benito St.	12/27/10	43	40	40
	Benito St. to Orchard St.	1/4/11	44	40	40
	Orchard St. to Kingsley St.	1/4/11	43	40	40
	Kingsley St. to Holt Blvd.	1/4/10	42	40	40
	Mission Blvd. to Phillips Blvd.	1/10/11	46	45	45
<b>Recommended Speed Limit:</b> <b>North City boundary to Mission Boulevard-40 mph</b> based on 85 <sup>th</sup> percentile. <b>Mission Boulevard to Phillips Boulevard-45 mph</b> based on 85 <sup>th</sup> percentile.					

Street	Segment	Date of Survey	85th %Tile (mph)	Posted Speed (mph)	Indicated Speed (mph)
Fremont Avenue	Arrow Hwy. to Moreno St.	2/7/11	39	35	40
	State St. to Mission Blvd.	3/7/11	34	NA	35
	Mission Blvd. to Phillips Blvd.	3/16/11	32	NA	30
	<b>Recommended Speed Limit:</b> <b>Arrow Highway to Moreno Street-40 mph</b> based on 85 <sup>th</sup> percentile. <b>State Street to Mission Boulevard-35 mph</b> based on 85 <sup>th</sup> percentile. <b>Mission Boulevard to Phillips Boulevard-30 mph</b> based on 85 <sup>th</sup> percentile.				
Holt Boulevard	Mills Ave. to Ramona Ave.	12/15/10	46	45	45
	Ramona Ave. to Monte Vista Ave.	12/15/10	46	45	45
	Monte Vista Ave. to Central Ave.	12/15/10	45	45	45
	Central Ave. to Benson Ave.	12/27/10	48	45	50
	<b>Recommended Speed Limit: 45 mph based on 85<sup>th</sup> percentile.</b> Note that the indicated speed for the segment from Central Avenue to Benson Avenue is 50 mph, but for continuity with the segments west of this segment and east of this segment in Ontario, the recommended speed limit is 45 mph.				
Kingsley Street	Mills Ave. to Monte Vista Ave.	10/12/10	40	35	40
	Monte Vista Ave. to Central Ave.	10/12/10	37	35	35
	Central Ave. to Benson Ave.	10/28/10	38	35	40
	<b>Recommended Speed Limit: 35 mph.</b> Kingsley Street is a 2-lane residential collector street throughout the City of Montclair. While an 85 <sup>th</sup> percentile speed of 40 mph is indicated, parking is permitted on both sides of the street, and is generally heavily parked. Each property has at least one drive approach providing access to the street. Two elementary schools and parks are also located on this street with a heavy volume of pedestrian traffic.				
Mills Avenue	Moreno St. to San José St.	10/28/10	42	40	40
	San José St. to San Bernardino St.	10/28/10	44	40	45
	San Bernardino St. to Holt Blvd.	10/28/10	43	40	45
	<b>Recommended Speed Limit:</b> <b>Moreno Street to San José Street-40 mph</b> based on 85 <sup>th</sup> percentile. <b>San José Street to Holt Boulevard-45 mph</b> based on 85 <sup>th</sup> percentile.				
Mission Boulevard	West City Limit to Pipeline Ave.	12/28/10	45	40	45
	Pipeline Ave. to Ramona Ave.	12/28/10	49	45	50
	Ramona Ave. to Monte Vista Ave.	12/28/10	47	45	45
	Monte Vista Ave. to Central Ave.	12/28/10	47	45	45
	<b>Recommended Speed Limit: 45 mph based on 85<sup>th</sup> percentile.</b> Note that the indicated speed for the segment between Pipeline Avenue and Ramona Avenue is 50 mph, but for continuity with the segments both east and west of this segment, the recommended speed limit is 45 mph.				

Street	Segment	Date of Survey	85th %Tile (mph)	Posted Speed (mph)	Indicated Speed (mph)
Monte Vista Avenue	North City Limit to Arrow Hwy.	12/27/10	46	45	45
	Arrow Hwy. to Moreno St.	10/26/10	41	35	40
	Moreno St. to I-10 Freeway	12/27/10	37	35	40
	I-10 Freeway to San Bernardino St.	12/29/10	41	35	40
	San Bernardino St. to Orchard St.	11/9/10	42	35	40
	Orchard St. to Holt Blvd.	12/28/10	41	35	40
	Holt Blvd. to Mission Blvd.	12/9/10	43	35	40
	Mission Blvd. to Phillips Blvd.	1/25/11	41	35	40
<p><b>Recommend Speed Limit:</b>  <b>North City boundary to Arrow Highway-45 mph</b> based on 85<sup>th</sup> percentile.  <b>Arrow Highway to San Bernardino Street-40 mph</b> based on 85<sup>th</sup> percentile.  <b>San Bernardino Street to Holt Boulevard-35 mph.</b> This segment of Monte Vista Avenue varies from two lanes to four lanes. While an 85<sup>th</sup> percentile speed of 40 mph is indicated, development on both sides of the street is residential with parking generally permitted on both sides. Occasional driveways with limited sight distance create hazards for motorists. There are also two elementary schools within this segment and associated playground activities.  <b>Holt Boulevard to Phillips Boulevard-40 mph</b> based on 85<sup>th</sup> percentile.</p>					
Moreno Street	Mills Ave. to Monte Vista Ave.	12/27/10	39	35	40
	Monte Vista Ave. to Central Ave.	11/9/10	42	35	40
	Central Ave. to Benson Ave.	10/14/10	46	40	45
	<p><b>Recommended Speed Limit:</b>  <b>Mills Avenue to Monte Vista Avenue-35 mph.</b> This segment of Moreno Street is primarily residential development with numerous driveways. Parking is permitted on both sides of the street, potentially creating sight distance issues for exiting residents. An elementary school is also located along this segment with considerable pedestrian traffic.  <b>Monte Vista Avenue to Benson Avenue-40 mph</b> based on 85<sup>th</sup> percentile. Note that the indicated speed for the segment between Central Avenue and Benson Avenue is 45 mph, but for continuity with the segments both west and east of this segment in Upland, the recommended speed limit is 40 mph.</p>				
Orchard Street	Mills Ave. to Monte Vista Ave.	10/12/10	42	35	40
	Monte Vista Ave. to Central Ave.	10/25/10	40	35	40
	Central Ave. to Benson Ave.	10/28/10	40	35	40
	<p><b>Recommended Speed Limit: 40 mph</b> based on the 85<sup>th</sup> percentile</p>				
Palo Verde Street	Mills Ave. to Helena Ave.	1/13/11	41	35	40
	Monte Vista Ave. to Central Ave.	12/28/10	41	35	40
	Central Ave. to Benson Ave.	1/13/11	37	35	35
	<p><b>Recommended Speed Limit:</b>  <b>Mills Avenue to Helena Avenue-40 mph</b> based on 85<sup>th</sup> percentile.  <b>Monte Vista Avenue to Central Avenue-40 mph</b> based on 85<sup>th</sup> percentile.  <b>Central Avenue to Benson Avenue-35 mph</b> based on 85<sup>th</sup> percentile.</p>				

Street	Segment	Date of Survey	85th %Tile (mph)	Posted Speed (mph)	Indicated Speed (mph)
Ramona Avenue	Palo Verde St. to San Bernardino St.	1/4/11	35	35	35
	San Bernardino St. to Orchard St.	1/4/11	37	35	35
	Orchard St. to Holt Blvd.	1/27/11	36	35	35
	Holt Blvd. to Mission Blvd.	2/14/11	46	35	40
	Mission Blvd. to Phillips Blvd.	2/24/11	41	35	40
	<b>Recommended Speed Limit:</b> <b>Palo Verde Street to Holt Boulevard-35 mph</b> based on 85 <sup>th</sup> percentile. <b>Holt Boulevard to Phillips Boulevard-40 mph</b> based on 85 <sup>th</sup> percentile.				
Richton Street	Monte Vista Ave. to Central Ave.	9/23/10	41	40	40
	<b>Recommended Speed Limit: 40 mph</b> based on 85 <sup>th</sup> percentile.				
San Bernardino Street	Mills Ave. to Ramona Ave.	11/20/10	40	40	40
	Ramona Ave. to Central Ave.	12/9/10	40	40	40
	Central Ave. to Benson Ave.	12/7/10	39	40	40
	<b>Recommended Speed Limit: 40 mph</b> based on 85 <sup>th</sup> percentile.				
San José Street	Mills Ave. to Monte Vista Ave.	12/27/10	42	35	40
	Central Ave. to Benson Ave.	12/27/10	38	35	40
	<b>Recommended Speed Limit: 35 mph.</b> While an 85 <sup>th</sup> percentile speed of 40 mph is indicated, site conditions warrant a reduction in speed by 5 mph. San José Street is a 2-lane residential collector street throughout the City of Montclair. Street Parking is permitted on both sides of the street, and in some areas is heavily parked. Each property has at least one drive approach providing access to the street. A middle school is located along one segment of San José Street.				
State Street	West City Limit to Monte Vista Ave.	9/30/10	48	35	50
	Monte Vista Ave. to Benson Ave.	9/29/10	48	35	50
	<b>Recommended Speed Limit: 45 mph.</b> While an 85 <sup>th</sup> percentile speed of 50 mph is indicated, site conditions warrant a reduction in speed by 5 mph. State Street is an industrial area with considerable truck traffic entering and exiting various properties. Side streets intersecting State Street generally have limited visibility.				