



Agenda Item #: _____

Staff Report

City of Manhattan Beach

TO: Honorable Mayor Ward and Members of the City Council

THROUGH: Richard Thompson, Interim City Manager

FROM: Laurie Jester, Acting Director of Community Development
Nhung Madrid, Management Analyst
Erik Zandvliet, Traffic Engineer

DATE: March 2, 2010

SUBJECT: Consideration of an Ordinance to Amend Citywide Speed Limits Pursuant to the 2009 Engineering and Traffic Survey

RECOMMENDATION:

Staff recommends that the City Council WAIVE FURTHER READING AND INTRODUCE Ordinance No. 2133 to amend speed limits on certain street segments within the City pursuant to the 2009 Citywide Engineering and Traffic Survey report.

FISCAL IMPLICATION:

Implementation of the identified speed limit changes will require modification of existing signs. These speed limit sign changes will be funded through existing Public Works Department operating budgets.

BACKGROUND:

The City's 2009-2010 Budget includes a work item to update the Citywide Engineering and Traffic Survey (ETS). The last ETS was conducted in 2003, seven years ago. Pursuant to California laws, an update to the ETS is due to re-establish or update speed limits in order for the Police Department to use electronic speed measurement devices (Radar or Laser) for speed enforcement on certain City streets.

In March 2009, the City published a Request for Proposals from traffic consulting firms to provide a Citywide ETS update for 57 street segments in the City. Three firms were short listed and invited to an interview. After interviews and negotiation, the City selected Minagar & Associates to complete the ETS.

DISCUSSION:

Engineering and Traffic Surveys (ETS) are intended to serve as the basis for the establishment, revision and enforcement of speed limits for street segments throughout the State of California. Engineering and Traffic Surveys are required by the State to establish intermediate speed limits on

local streets and to enforce those limits using radar or other speed measuring devices. These surveys must be updated every five, seven, or ten years to ensure the speeds reflect current conditions as dictated by the California Vehicle Code (CVC). Specifically, an ETS update can be extended to seven years if the enforcing officer is currently certified in the use of the speed measuring device. It can be extended to ten years if the City Traffic Engineer certifies there have been no significant changes to the roadway segment(s). The CVC also requires that the surveys be conducted based on the methodology required by the Manual on Uniform Traffic Control Devices (MUTCD) dated 2003 and the 2006 California MUTCD.

An ETS is necessary on certain designated streets within the City in order to properly enforce the posted speed limits and to enable the Police Department to utilize radar or other electronic speed measuring devices for speed enforcement. CVC Sections 40801 and 40802 require Engineering and Traffic Surveys that verify the prima facie speed limit before enforcement by such a device is legal.

Methodology

Speed zones are primarily established to protect the public from the unreasonable behavior of reckless or dangerous drivers. Speed limits are generally established at or near the 85th percentile speed, which is defined as the speed at or below which 85 percent of the traffic is moving. Statistically, the 85th percentile speed captures the majority of motorists driving similar speeds, and the remaining 15 percent are distributed farther away from the mean speed. This value is used in many professional fields to determine the limits of a statistically relevant group of data points. When applied to vehicle speeds, this number represents the upper range of reasonable driving by the majority of motorists. Speed limits established on this basis conform to the general consensus that within a civilized society, most motorists drive on roadways at a reasonable and prudent speed. If speed limits were to be established too low, then it would make violators out of a large percentage of reasonable drivers.

A significant change in the methodology for establishing speed limits was adopted by the US Department of Transportation in 2004 after the City's 2003 ETS was completed. Whereas the previous MUTCD stated that speed limits should be established at the first five (5) mile an hour increment below the 85th percentile speed, the 2006 California MUTCD states that the speed limit should be established at the nearest five (5) mile an hour increment to the 85th percentile speed of free-flowing traffic. This has the effect of raising some recommended speed limits when rounding to the nearest five (5) mile an hour increment. For example, if the 85th percentile speed is calculated at 33 mph, the recommended speed limit must be 35mph, not 30mph.

If there are special factors such as pedestrian or bicycle activity or conditions that are not readily apparent to the typical driver, the MUTCD allows for a five (5) mile an hour reduction below the baseline recommended speed limit if so determined by engineering judgment in the ETS. For example, if a street segment has an 85th percentile speed of 33 mph, the baseline speed limit would be 35 mph, however, if there are conditions that are not readily apparent, the posted speed could be set at 30 mph. This provision has been incorporated into the study analysis and recommendations whenever applicable, and are noted in the study.

Recommended Speed Limits

The Draft Engineering and Traffic Survey Report has been completed. A summary table of all recommended speed limits attached to this report indicates there are 39 street segments that were found to have special conditions that justify a reduction below the first five mile per hour increment nearest to the 85th percentile speed due to conditions not readily apparent to the driver. The table also indicates one (1) segment to be lowered 5 miles per hour from the existing posted speed limit, seven (7) segments to be raised by 5 miles per hour, and one (1) segment that is currently split 25/30 miles per hour, and the 30 miles per hour segment to be lowered 5 miles per hour from the existing posted speed limit.

The following speed limit changes have been recommended, all other street segment speed limits will remain the same.

	STREET SEGMENT	POSTED SPEED LIMIT	PROPOSED SPEED LIMIT	85th PERCENTILE SPEED LIMIT
1	Ardmore Avenue between 19th Street and Pacific Avenue	30 mph	35 mph	39.6 mph
2	Highland Avenue between Homer Street and 9 th Street	25 mph	30 mph	32.0 mph
3	Manhattan Avenue between Homer Street and 9 th Street	30 mph	25 mph	31.7 mph
4	Manhattan Beach Boulevard between Valley Drive and Pacific Avenue	25 mph	30 mph	34.1 mph
5	Marine Avenue between Ardmore Avenue and Sepulveda Boulevard	25 mph	30 mph	33.1 mph
6	Pacific Avenue between Manhattan Beach Boulevard and 17 th Street	25 mph	30 mph	34.9 mph
7	Pacific Avenue between 17 th Street and Marine Avenue	25 mph	30 mph	33.5 mph
8	2 nd Street between Sepulveda Boulevard and Peck Avenue	25 mph	30 mph	33.2 mph
9	Valley Drive between 10 th Street and 13 th Street	25/30 mph	25 mph	29.7 mph

In conclusion, the City Traffic Engineer has confirmed the 2009 Engineering and Traffic Survey was conducted in accordance with procedures outlined in the MUTCD, the 2006 California MUTCD and as required by Section 627 of the CVC. The speed limits established in compliance with these requirements allow the Police Department to enforce reasonable speeds on City streets with electronic monitoring devices. The Court system also relies on the validity of this document in upholding citations issued by law enforcement. Upon adoption of the Ordinance updating citywide speed limits, posted signs will be revised as necessary and any changes will become effective 30 days after adoption.

Alternatives:

1. Waive further reading and introduce Ordinance No. 2133 and to amend speed limits on certain street segments within the City pursuant to the 2009 Citywide Engineering and Traffic Survey report.
2. Defer introduction of ordinance and provide staff with direction.

CONCLUSION:

It is recommended that City Council waive further reading and introduce Ordinance No. 2133 to amend speed limits on certain street segments within the City pursuant to the 2009 Citywide Engineering and Traffic Survey report.

Eshibits:

- A. Draft Ordinance No. 2133
- B. Speed Zone Analysis Summary
- C. Speed Zoning Map

ORDINANCE NO. 2133

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MANHATTAN BEACH AMENDING SECTION 14.56.010 OF CHAPTER 56, TITLE 14 OF THE MANHATTAN BEACH MUNICIPAL CODE RELATING TO SPECIAL SPEED ZONES.

THE CITY COUNCIL OF THE CITY OF MANHATTAN BEACH, CALIFORNIA, DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. The City Council of the City of Manhattan Beach, California does hereby find, determine and declare as follows:

WHEREAS, Section 40802 (b) of the California Vehicle Code (CVC) states that speed limits for streets, other than a local street, must be justified by an Engineering and Traffic Survey conducted less than five, seven or ten years with conditions, prior to enforcement of that speed limit, if it is to be enforced by the use of radar; and,

WHEREAS, the most recent Engineering and Traffic Survey was last completed in 2003; and,

WHEREAS, the City Council of the City of Manhattan Beach wishes to ensure that traffic speeds throughout the community are kept at a safe level given the conditions that exist on certain streets; and,

WHEREAS, the City Council of the City of Manhattan Beach wishes to use electronic speed measurement equipment for speed enforcement on these certain streets; and,

WHEREAS, the Ordinance establishing speed limits must be amended if any changes in speed limits are to be established following the completion of the Engineering and Traffic Survey; and,

WHEREAS, the California Manual of Traffic Control Devices describes the policy to be used in the State of California for setting speed limits, which requires that the posted speed be established at the nearest 10km/h (5mph) increment of the 85th-percentile speed of free-flowing traffic; and,

WHEREAS, the City Council of the City of Manhattan Beach recognizes that the California Manual of Traffic Control Devices also allows the posted speed limit to be reduced by 10km/h (5mph) from the nearest 10km/h (5mph) increment of the 85th-percentile speed, in compliance with CVC Sections 627 and 22358.5, if the Engineering and Traffic Survey documents the special conditions and justification for the lower speed limit and is approved by a registered Civil or Traffic Engineer; and,

WHEREAS, the enforcement of speed limits by the use of radar is necessary in order to protect the safety of the residents of the City of Manhattan Beach;

SECTION 2. The City Council of the City of Manhattan Beach hereby amends Section 14.56.010, "Increasing state speed limit in certain zones", of Chapter 56 of Title 14 of the Manhattan Beach Municipal Code is hereby amended to read as follows: as follows:

<u>Street</u>	<u>Speed Limit Prima Facie</u>
1. Ardmore Avenue between 19th Street and Pacific Avenue	35 miles per hour
2. Highland Avenue between Homer Street and 9 th Street	30 miles per hour
3. Manhattan Avenue between Homer Street and 9 th Street	25 miles per hour
4. Manhattan Beach Boulevard between Valley Drive and Pacific Avenue	30 miles per hour
5. Marine Avenue between Ardmore Avenue and Sepulveda Boulevard	30 miles per hour
6. Pacific Avenue between Manhattan Beach Boulevard and 17 th Street	30 miles per hour

- 7. Pacific Avenue between 17th Street and Marine Avenue 30 miles per hour
- 8. 2nd Street between Sepulveda Boulevard and Peck Avenue 30 miles per hour
- 9. Valley Drive between 10th Street and 13th Street 25 miles per hour

SECTION 3. The "2009 Citywide Engineering and Traffic Survey" report, dated February 2010, containing the findings and determinations of the Registered Engineer, incorporated herein and on file in the Office of the City Clerk, shall be the official Engineering and Traffic Survey of the City, a certified copy of which shall be disseminated to the County of Los Angeles Municipal and Superior Courts.

SECTION 4. All other provisions of the City of Manhattan Beach Municipal Code shall remain unchanged and continue in full force and effect.

SECTION 5. Any provisions of the Manhattan Beach Municipal Code, or appendices thereto, or any other resolution of the City, to the extent that they are inconsistent with this ordinance, and no further, are hereby repealed.

SECTION 6. If any section, subsection, sentence, clause, phrase or portion of this ordinance is for any reason held to be unconstitutional or otherwise invalid, by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this resolution. The City Council hereby declares that it would have adopted this ordinance and each section, subsection, sentence, clause, phrase or portion thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases or portion be declared unconstitutional or otherwise invalid.

SECTION 7. This ordinance shall go into effect and be in full force and operation from and after thirty (30) days after its final passage and adoption.

SECTION 8. The City Clerk shall certify to the passage and adoption of this ordinance shall enter the same in the book of original ordinances of said City; shall make a minute of the passage and adoption thereof in the records of the proceedings of the City Council of said City in the minutes of the meeting of said Council at which the same is passed and adopted; and shall within fifteen (15) days after the passage and adoption thereof cause the same to be published once in a weekly newspaper of general circulation, printed, published and circulated within the City of Manhattan Beach, California and which is hereby designated for that purpose.

PASSED, APPROVED AND ADOPTED this 2nd day of March, 2010.

AYES:
 NOES:
 ABSENT:
 ABSTAIN:

 Mayor of the City of Manhattan Beach, California

ATTEST:

 City Clerk

APPROVED AS TO FORM:

By 

 City Attorney

**Table 1 - Speed Zoning Analysis Summary
2009 ENGINEERING AND TRAFFIC SURVEY**

Street	ROADWAY INFORMATION					SPEED ZONING ANALYSIS							
	Segment Limits		Description			10-mi Pace (mph)	% in 10-mi Pace	50th %-ile (mph)	85th %-ile (mph)	Speed Limit		Justification	
	From	To	Dist. (mi.)	Type	Land Use					Posted (mph)	Rec. (mph)		
ARDMORE Avenue	1	Boundary Pl.	Manhattan Beach Bl.	0.70	MA	O/R	28-37	79%	31.4	36.1	30	30	Residential zone, peds, on-street parking, horizontal curvature
	2	Manhattan Beach Bl.	19th St.	0.38	MA	O/R	29-38	77%	31.9	37.3	30	30	Residential zone, peds, on-street parking, horizontal curvature
	3	19th St.	Pacific Ave.	0.41	MA	O/R	29-38	71%	34.3	39.6	30	35	▲ Res. driveways, on-street parking, curves, 22% over pace
	4	Pacific Ave.	33rd St.	0.46	MA	O/R	29-38	83%	31.0	36.5	30	30	Residential zone, on-street parking, horizontal curvature
ARTESIA Boulevard	5	Sepulveda Bl.	Peck Ave.	0.45	PA	C/P/R/S	37-46	79%	31.9	44.6	40	40	Residential/commercial driveways with low visibility and hills
	6	Peck Ave.	Aviation Way	0.33	PA	C/R	36-45	83%	40.1	43.6	40	40	On-street parking, adjacent school, vertical curvature
AVIATION Boulevard	7	Artesia Bl.	2nd St.	0.51	PA	C/P/R	36-45	79%	39.6	44.3	40	40	Res. driveways, curvature, limited visibility of side street traffic
	8	2nd St.	Manhattan Beach Bl.	0.51	PA	C/P/R	35-45	86%	39.8	43.5	40	40	Unexpected comm. D/Ws, limited visibility of side street traffic
	9	Manhattan Beach Bl.	Marine Ave.	0.50	PA	C/R	36-45	87%	39.9	43.8	40	40	Pedestrian traffic, adjacent park activity, 26 accidents
	10	Marine Ave.	Rosecrans Ave.	0.50	PA	C/O/P	35-44	89%	39.4	42.4	40	40	85th percentile speed
BLANCHE Road	11	Valley Dr.	24th St.	0.15	LO/CO	R	23-32	83%	27.2	31.5	25	25	Residential zone, heavy on-street parking, FAU Local Street
	12	24th St.	Rosecrans Ave.	0.51	CO	O/P/R	23-32	81%	27.0	31.2	25	25	Residential zone, heavy on-street parking
HIGHLAND Avenue	13	Homer St.	9th St.	0.39	MA	R	24-33	86%	28.2	32.0	25	30	▲ 85th percentile speed
	14	9th St.	15th St.	0.32	MA/PA	C/P/R	17-26	68%	17.7	21.6	25	25	Continuity of adjacent speed zones
	15	15th St.	Marine Ave.	0.31	PA	C/R	23-32	90%	25.3	28.1	25	25	On-street parking, residential driveways with limited visibility
	16	Marine Ave.	Rosecrans Ave.	0.67	PA	C/O/R	23-32	83%	28.3	31.9	25	25	High coll. rate, heavy on-street pkg., peds, mid-block x-walks
	17	Rosecrans Ave.	45th St.	0.36	PA	C/R	28-37	82%	31.5	35.9	30	30	Closely-spaced commercial driveways with limited visibility
MANHATTAN Avenue	18	Homer St./35th St.	9th St.	0.42	CO	C/R	24-33	83%	27.7	31.7	30	25	▼ Closely-spaced D/Ws, on-st. pkg., mid-blk. x-walks, peds
	19	9th St.	15th St.	0.33	CO	C/R	22-31	86%	26.5	29.9	N/P	25	High coll. rate, angled on-street parking, high peds/bikes
	20	Marine Ave.	27th St.	0.23	CO	O/P/R	23-32	84%	26.8	30.9	25	25	Adj. open park, peds, residential driveways with low visibility
	21	27th St.	Rosecrans Ave.	0.45	CO	R	21-30	82%	25.6	29.8	25	25	High ped traffic and residential driveways with low visibility
MANHATTAN BEACH Boulevard	22	Ocean Dr.	Highland Ave.	0.10	LO/PA	C	17-26	90%	22.0	25.0	25	25	85th percentile speed
	23	Highland Ave.	Valley Dr.	0.12	PA	C	19-28	92%	23.0	25.7	25	25	85th percentile speed
	24	Valley Dr.	Pacific Ave.	0.27	PA	R	26-35	76%	29.2	34.1	25	30	▲ Business district, high peds/bikes, on-street parking
	25	Pacific Ave.	Sepulveda Blvd	0.41	PA	C/P	31-40	87%	35.1	38.7	35	35	Closely-spaced commercial driveways, on-street pkg., hills
	26	Sepulveda Bl.	Peck Ave.	0.48	PA	C/P/R	32-41	86%	35.9	39.9	35	35	Unexpected res. driveways, high on-street pkg., school x-ings
	27	Peck Ave.	Aviation Bl.	0.50	PA	C/O/P/R	31-40	81%	35.5	39.8	35	35	High collision rate, on-street parking, adjacent park area, peds



**Table 1 - Speed Zoning Analysis Summary
2009 ENGINEERING AND TRAFFIC SURVEY**

Street	ROADWAY INFORMATION										SPEED ZONING ANALYSIS				
	Segment Limits		Description			10-mi Pace (mph)	% in 10-mi Pace	50th %-ile (mph)	85th %-ile (mph)	Speed Limit		Justification			
	From	To	Dist. (mi.)	Type	Land Use					Posted (mph)	Rec. (mph)				
No.															
MARINE Avenue	28	Ocean Dr.	Highland Dr.	0.09	CO	C/R	17-26	87%	20.7	24.6	25	25	Establish per 85th percentile speed On-street parking, residential driveways, pedestrian traffic ▲ Low residential driveway visibility, vertical curvature Limited side street traffic visibility due to vertical profile Residential driveways, on-street parking, hills, adjacent park		
	29	Highland Ave.	Valley Blvd.	0.53	CO	C/R	23-32	83%	26.6	30.8	25	25			
	30	Ardmore/Pacific Ave.	Sepuveda Bl.	0.42	MA	C/R	24-33	83%	28.8	33.1	25	30			
	31	Sepuveda Bl.	Meadows Ave.	0.35	MA	C/R	32-41	83%	35.6	39.7	35	35			
	32	Meadows Ave.	Aviation Bl.	0.74	MA	C/O/R	31-40	83%	35.1	39.2	35	35			
MEADOWS Avenue	33	Artesia Bl.	2nd St.	0.50	CO	P/R	23-32	80%	27.4	32.0	25	25	Residential driveways, pedestrian traffic, school crossings On-street parking, residential driveways, vertical curvature Narrow roadway, high coll. rate, on-street pkg., res. driveways		
	34	2nd St.	Manhattan Beach Bl.	0.50	CO	R	23-32	81%	26.9	31.7	25	25			
	35	Manhattan Beach Bl.	Marine Ave.	0.50	CO	P/R	23-32	88%	27.0	30.3	25	25			
PACIFIC Avenue	36	5th St.	Manhattan Beach Bl.	0.36	CO	C/R	23-32	85%	26.1	30.5	25	25	High coll. rate, on-street parking, limited res. driveway visibility ▲ High peds, school x-ing, res. driveways, angled on-st. pkg. ▲ High collision rate, on-street parking, peds, res. driveways Visibility constraints due to on-street parking and vertical profile		
	37	Manhattan Beach Bl.	17th St.	0.20	CO	P/R	26-35	74%	30.0	34.9	25	30			
	38	17th St.	Marine Ave.	0.29	CO	R	24-33	77%	28.4	33.5	25	30			
	39	Valley Dr.	Rosecrans Ave.	0.47	CO	R	23-32	82%	26.0	30.7	25	25			
PECK Avenue	40	Artesia Bl.	2nd St.	0.50	CO	P/R	22-31	80%	24.6	28.7	25	25	High pedestrians/school x-ings, vertical curvature, res. DWs Limited residential driveways visibility, steep vertical profile 85th percentile speed Narrow roadway, on-street parking, residential driveways		
	41	2nd St.	Manhattan Beach Bl.	0.50	CO	R	23-32	79%	27.4	32.1	25	25			
	42	Manhattan Beach Bl.	12th St.	0.05	CO	O/P/R	16-25	90%	19.0	22.9	25	25			
	43	18th St.	Marine Ave.	0.25	CO	P/R	22-31	84%	26.0	30.5	25	25			
REDONDO Avenue	44	Artesia Bl.	2nd St.	0.50	CO	C/R	24-33	87%	27.8	31.6	25	25	On-street pkg., residential driveways, light hills, frequent stops On-street pkg., residential driveways, light hills, frequent stops Adj. open park, school peds, on-street parking, res. driveways		
	45	2nd St.	Manhattan Beach Bl.	0.50	CO	C/O/R	23-32	82%	27.3	31.9	25	25			
	46	Manhattan Beach Bl.	Marine Ave.	0.50	CO	O/P/R	23-32	83%	26.4	30.7	25	25			
ROSECRANS Avenue	47	Ocean Dr.	Highland Ave.	0.10	LO	C/R	20-29	88%	24.4	27.8	25	25	High collision rate, on-street parking, FAU Local Street Horiz. curves and on-street parking, limited driveway visibility 85th percentile speed Commercial driveways, truck traffic, continuity of adj. speeds 85th percentile speed		
	48	Highland Ave.	Blanche Rd.	0.47	PA	C/R	33-42	82%	36.6	41.4	35	35			
	49	Blanche Rd.	Sepuveda Bl.	0.77	PA	C/R	34-43	84%	38.9	41.9	40	40			
	50	Sepuveda Bl.	Market Pl.	0.55	PA	C/I/P	35-44	76%	39.0	43.8	40	40			
	51	Market Pl.	Aviation Bl.	0.44	PA	I/P	33-42	77%	36.5	41.4	40	40			
2ND Street	52	Sepuveda Bl.	Peck Ave.	0.48	CO	C/P/R	25-34	84%	28.7	33.2	25	30	▲ Narrow roadway, on-street parking, res. driveways, hills Narrow roadway, on-street pkg., limited res. driveway visibility		
	53	Peck Ave.	Aviation Bl.	0.50	CO	R	24-33	87%	27.4	31.5	25	25			



**Table 1 - Speed Zoning Analysis Summary
2009 ENGINEERING AND TRAFFIC SURVEY**

Street	ROADWAY INFORMATION				SPEED ZONING ANALYSIS							
	No.	Segment Limits		Description	10-mi Pace (mph)	% in 10-mi Pace	50th %-ile (mph)	85th %-ile (mph)	Speed Limit		Justification	
		From	To						Dist. (mi.)	Land Use		Posted (mph)
VALLEY Drive	54	Boundary Pl.	10th St.	MA	0.58	R	27-36	84%	30.9	34.9	30	Residential zone, on-street parking, horizontal curvature
	55	10th St.	13th St.	MA	0.19	C/O/R	22-31	85%	25.5	29.7	25/30	Residential zone, peds, on-street parking, horizontal curvature
	56	13th St.	Blanche Rd.	MA	0.47	O/P/R	24-33	79%	26.8	31.9	25	Residential zone, high pedestrian traffic, horizontal curvature
	57	Blanche Rd.	Sepulveda Bl.	MA	0.88	C/O/R	27-36	79%	31.4	37.1	30	Residential driveways, on-street parking, horizontal curvature

KEY:

Dist. = Distance of segment
 PA = Principal Arterial
 MA = Minor Arterial
 CO = Collector
 LO = Local Street
 R = Residential Type
 C = Commercial Type
 O = Open Space
 P = Public Area
 PI = Planned Development
 I = Industrial Type
 S = School Zone

Speed %-ile = Percentile
 mph = Miles per hour
 NP = Posted Speed Not Available
 Rec. = Recommended
 ▲ = Increase Posted Speed Limit
 ▼ = Decrease Posted Speed Limit

DEFINITIONS:

10-mi. Pace: 10-MPH Pace. Equals the 10-mile per hour range in which the largest number of vehicles were observed to be traveling

% in 10-mi. Pace: Percent in 10-MPH Pace. The percentage of total surveyed vehicles observed to be traveling in the 10-MPH Pace range

50th %-ile: 50th Percentile Speed. The speed at which half (50%) of the surveyed vehicles were observed as traveling below or above

85th %-ile: 85th Percentile Speed. The speed at or below which 85% of the observed vehicles were observed to be traveling



MINGAR & ASSOCIATES, INC.

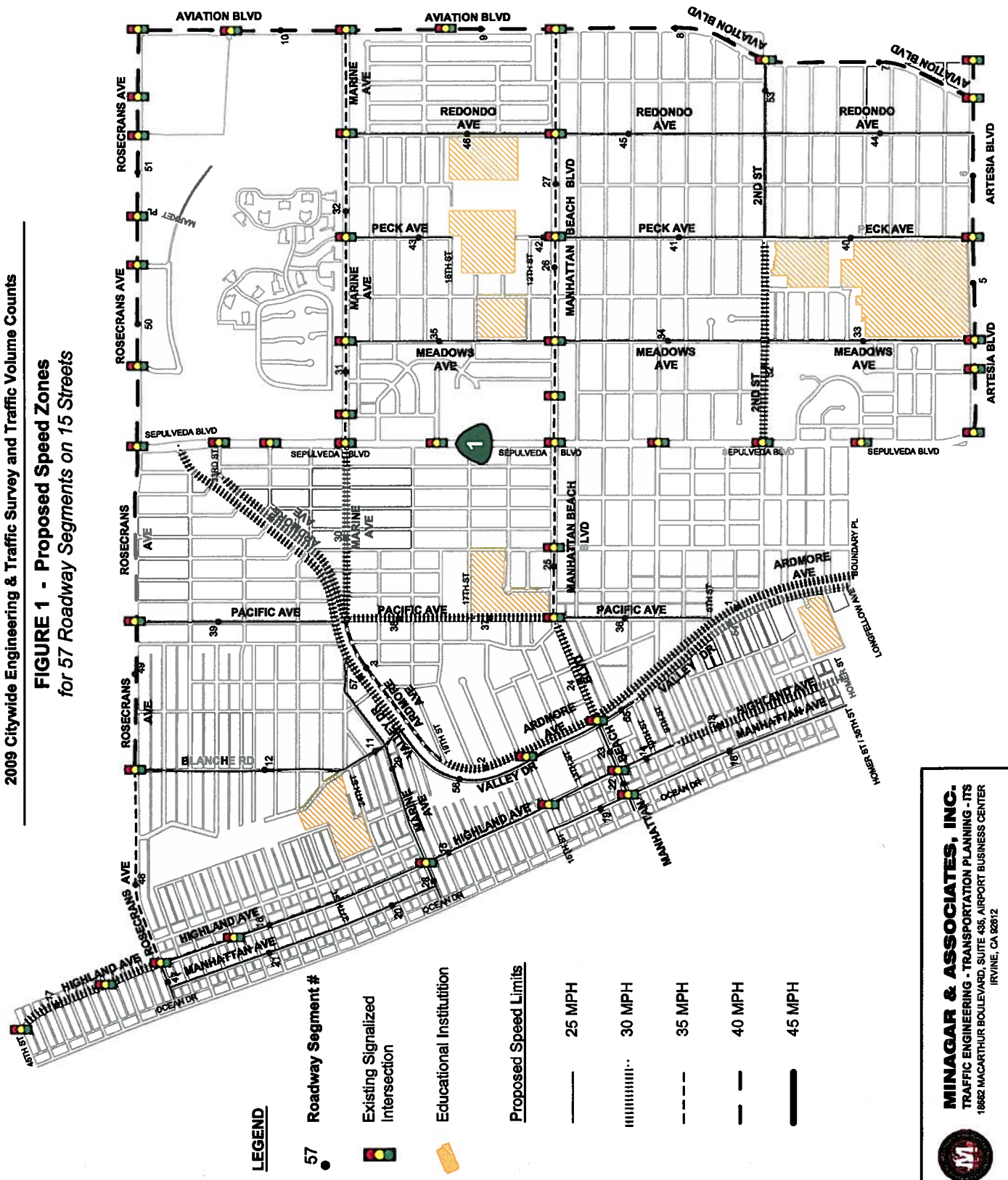


**CITY OF
MANHATTAN BEACH**



CITY OF MANHATTAN BEACH
2009 Citywide Engineering & Traffic Survey and Traffic Volume Counts

FIGURE 1 - Proposed Speed Zones
for 57 Roadway Segments on 15 Streets



LEGEND

57 Roadway Segment #

Existing Signalized Intersection

Educational Institution

Proposed Speed Limits

25 MPH

30 MPH

35 MPH

40 MPH

45 MPH

MINAGAR & ASSOCIATES, INC.
TRAFFIC ENGINEERING - TRANSPORTATION PLANNING - ITS
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