CITY OF MANHATTAN BEACH
DEPARTMENT OF COMMUNITY DEVELOPMENT

TO:	Parking and Public Improvements Commission
FROM:	Richard Thompson, Director of Community Development Rosemary Lackow, Senior Planner
BY:	Erik Zandvliet, Traffic Engineer
DATE:	May 24, 2007
SUBJECT:	**Petition Request for Protected Left Turn Arrows at the Intersection of Manhattan Beach Boulevard and Redondo Avenue**

RECOMMENDATION:

That the Commission pass a motion to approve a staff recommendation to install "Pedestrian Countdown Signal" indications in all directions at the intersection of Manhattan Beach Boulevard at Redondo Avenue.

BACKGROUND:

In February 2007, Mr. Marc Reede, a resident on Curtis Street, submitted a petition requesting that the City install fully protected left turn arrows in the eastbound and westbound directions on Manhattan Beach Boulevard and Redondo Avenue and prohibit U-turns at the same intersection. The petition states that vehicles in the westbound direction are speeding, and are being cut-off by drivers making the eastbound to northbound movement at an intersection with high student pedestrian crossing volumes. The petition is supported by the Mr. John Jackson, Principal of Manhattan Beach Middle School, and is signed by 136 parents.

On January 15, 2002, the City Council approved the installation of "protected-permissive" left turn arrows in the eastbound and westbound directions at the intersection as the result of a serious traffic collision and a request from several MBMS parents. The project was funded and the traffic signal was modified in 2003 to provide protected left turn arrow phasing followed by a green "ball" to allow left turns to be made during normal gaps in traffic in the eastbound and westbound directions.

DISCUSSION:

Mr. Reede initially contacted the City over a year ago, expressing concerns about speeding and the operation of the traffic signal at Manhattan Beach Boulevard near Redondo Avenue. Mr. Reede suggested flashing warning signs, changing the pedestrian walk/don't walk times, and a red-light delay between green lights in opposing directions. Pursuant to his request, the City included this intersection in its analysis of the Northeast Area Neighborhood Traffic Management Program (NTMP).

In September 2006, the City Traffic Engineer and Police Department met with Mr. Reede at the intersection, and the following additional measures were implemented. These measures are consistent with the recommendations made in the Northeast Area NTMP as well as subsequent investigations and the site meeting with Mr. Reede.

1. Regular deployment of a radar speed awareness trailer on Manhattan Beach Boulevard near Redondo Avenue.

2. Increased speed enforcement on Manhattan Beach Boulevard during school hours.

3. "NO RIGHT TURN ON RED WHILE PEDESTRIANS ARE PRESENT" signs have been posted in the northbound and southbound directions.

4. One (1) second of "all red" timing has been inserted at the end of each direction's green phase to prevent vehicles and pedestrians from entering the intersection before vehicles in the other direction have passed through.

5. Yellow lines have been painted at each corner to assist the crossing guard indicate where pedestrians should wait before crossing.

6. A "WAIT BEHIND LINE" stencil has been added to the yellow pedestrian lines.

7. High visibility "School Ahead" signs have been posted in the eastbound and westbound directions.

EXISTING CONDITIONS

Manhattan Beach Boulevard is an east-west major arterial street with two lanes in each direction separated by a raised center median and left turn lanes. Manhattan Beach Boulevard has a traffic volume of approximately 30,000 vehicles per day and a speed limit of 35 mph. Parking is permitted on Manhattan Beach Boulevard in the immediate vicinity of Redondo Avenue with some sections of "No Stopping Any Time" signs and/or red curb. Separate left-turn lanes and protected-permissive left-turn signal phasing are provided for eastbound and westbound traffic.

Redondo Avenue is a two-lane major local street that intersects Manhattan Beach Boulevard. Redondo Avenue has a traffic volume of approximately 8,000 vehicles per day and a posted speed limit of 25 mph. Parking is allowed on Redondo Avenue north of Manhattan Beach Boulevard except on the west side during certain hours to allow for southbound right turn traffic. Manhattan Beach Middle School contributes significant traffic volume through the intersection in the morning and afternoon pick-up/drop-off hours.

The intersection of Manhattan Beach Boulevard is located in a generally residential area, with Polliwog Park on the northwest corner and Manhattan Beach Middle School located north of the park. Manhattan Heights Tennis Courts are located on the southwest corner and a private pre-school is located on the southeast corner. The intersection is signed and marked with yellow school crosswalks. The intersection experiences a high number of student crossings during school arrival

and dismissal times. There is an adult school crossing guard assigned to this location. The intersection has good visibility in all directions.

The reported accident history was reviewed for a 3-year period from January 1, 2004 to December 31, 2006. This data was then used to determine if a recent 12-month period experienced five or more left-turn accidents on either street. The reported accident history for the period analyzed is shown as Table 1 at the end of this report.

Turning movement counts were collected on May 10, 2007 in all directions, during morning and evening peak hours between 7 to 9 a.m. and 2 to 6 p.m. on a normal school day. These hourly traffic volumes are used to determine the volume of left turning traffic as well as the amount of delay or difficulty in making the turning movements. The turning movement count data is shown as Table 2 at the end of this report.

ANALYSIS

The guidelines provided in the California Manual of Traffic Control Devices and the data collected for this study were used to perform the protected left-turn phasing analysis of Manhattan Beach Boulevard and Redondo Avenue.

The California Department of Transportation (Caltrans) and the United States Department of Transportation (USDOT) provide guidelines to determine if protected left-turn phasing is warranted at signalized intersections. Protected left-turn phasing is recommended when one or more of the following conditions exist:

1. Accidents. Five or more left-turn accidents for a particular left-turn movement during a recent 12-month period.

2. Delay. Left-turn delay of one or more vehicles which were waiting at the beginning of the green interval and are still remaining in the left-turn lane after at least 80 percent of the total number of cycles for 1 hour.

3. Volume. At new intersections where only estimated volumes are available, the following criteria may be used: For a pre-timed signal or a background-cycle-controlled actuated signal, a left-turn volume of more than two vehicles per approach per cycle for a peak hour; or for a traffic-actuated signal, 50 or more left-turning vehicles per hour in one direction with the product of the turning and conflicting through traffic during the peak hour of 100,000 or more.

4. Miscellaneous. Other factors that might be considered include, but are not limited to: impaired sight distance due to horizontal or vertical road curvature, or where there are a large percentage of buses and trucks.

The Manual further states that "alternate means of handling left turn conflicts should be considered first" before the implementation of left turn phases.

COLLISION GUIDELINE

This guideline requires a minimum of five or more collisions for a particular left-turn movement in a recent 12-month period. The recent three-year collision history between January 1, 2004 and December 31, 2006 does not identify five or more left-turn collisions in a particular direction during the study period that would be addressed with protected-only left turn signal phasing. Therefore, this guideline is not met in any direction. Table 1 summarizes the left-turn accident data for each direction.

DELAY GUIDELINE

This guideline requires that 80 percent of the total number of cycles for any one hour must experience a left-turn delay to be justified. The existing conditions do not indicate a significant number of left turn vehicles being delayed at this intersection. During the four hour PM peak period between 2pm and 6pm, the highest percentage of delay during one peak hour was between 4:00 p.m. and 5:00 p.m. The delay guideline is one percent (1%) satisfied for eastbound direction and the delay guideline is five percent (5%) satisfied for the westbound direction during the peak hour. Therefore, this guideline is NOT met in either direction.

Field observation made at the intersection indicated good visibility in the eastbound and westbound left-turn pockets. It should be noted that the vast majority of drivers made left turns during the protected left turn arrow, however, the analysis also observed occasional drivers waiting for the clearance phase of the signal cycle before performing left-turn movements if they arrived after the protected portion of the left turn phase.

VOLUME GUIDELINE

This guideline is met for new or proposed intersections if the product of the left-turning vehicles versus the opposing through and right turns in the AM or PM peak hour meets or exceeds 100,000, and there are 50 or more left turning vehicles per hour in one direction. Table 3 summarizes the results of the volume guideline analysis.

Between 8am and 9am school hours, the peak left turn volume in the eastbound direction is 117 vehicles per hour in the eastbound direction and 70 vehicles in the westbound direction. Between 2:30pm and 3:30pm, there are 48 vehicles per hour in the eastbound direction and 78 vehicles in westbound direction. At 4pm to 5pm, there are 30 vehicles per hour in the eastbound direction and 66 vehicles in westbound direction.

When comparing the actual traffic volume at this intersection with the estimated traffic guideline, the product of the westbound left-turn movement versus the eastbound conflicting movement was 127,540 during the 8am to 9am school peak hour, 73,320 during the 2:30pm to 3:30pm school peak hour and 69,664 in the 4pm to 5pm peak hour. Therefore, this guideline is met in the AM peak period for the westbound left-turn.

The product of the eastbound left-turn movement versus the westbound conflicting movement was 109,629 during the 8am to 9am school peak hour, 51,024 during the 2:30pm to 3:30pm school peak hour and 32,857 in the 4pm to 5pm peak hour. Therefore, this guideline is met in the AM peak period for the eastbound left-turn.

While the above analysis indicates that the volume guideline is met in the AM peak hour in the eastbound and westbound directions, the estimated volume guideline should only be used when actual delay information is not available, and where protected-permissive signal phasing has not yet been implemented. This intersection has protected-permissive signal phasing to address the peak volume periods. Further, based on the field observations of approximately 90 cycles per hour, neither left turn volume satisfies the criteria of having and average of "more than two vehicles per approach per cycle for the peak hour."

MISCELLANEOUS CONDITIONS GUIDELINE

The field observations noted that there are raised center medians on Manhattan Beach Boulevard at Redondo Avenue. These medians help separate opposing lanes of traffic that can help improve overall intersection safety. There is good visibility in the eastbound and westbound directions due to the downward slopes approaching the intersection. While there is a high volume of pedestrians during school times, the City employs a trained adult school crossing guard to assist students crossing the intersection.

One of the petition requests is to prohibit U-turns in the eastbound and westbound directions. Upon investigation, staff found that this movement is rare, but is important to some drivers wishing to reach locations on the opposite side of the street because the center median prohibits left turns between intersections. Also, the street is wide enough to complete U-turns safely, especially during the protected portion of the signal phase.

In his investigation, the City Traffic Engineer found that a large number of school pedestrians enter the crosswalk too late, or do not follow the pedestrian signal indications. This leads to a higher potential for vehicle-pedestrian conflicts, especially at the end of the green vehicle phase. The Traffic Engineer believes that installation of "countdown pedestrian heads" would greatly help improve the compliance of pedestrians and assist the crossing guard in regulating pedestrian flow. These devices replace standard pedestrian signals with Walk/Don't Walk indications with a timer displaying the remaining time left to cross. The Traffic Engineer also found that left turn phasing is not necessary during most of the day, and causes left turning drivers to wait excessively for the next signal cycle instead of making the left turn when appropriate gaps in traffic occur.

RECOMMENDATION:

Based on the findings of this study, eastbound and westbound protected-only left turn signal phasing is not recommended at this time. Staff recommends the installation of "Pedestrian Countdown Signal" indications in all directions at the intersection of Manhattan Beach Boulevard at Redondo Avenue to improve pedestrian crossing safety.

Attachments:

- Aerial Photo
- Diagram – MBB/Redondo Curb Ramp Markings
- Marc Reede Parent Petition
- Correspondence to Mr. Reede

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TABLE 1

CITY OF MANHATTAN BEACH

PROTECTED LEFT-TURN PHASING ACCIDENT GUIDELINE SUMMARY

Manhattan Beach Boulevard and Redondo Avenue
January 1, 2004 to December 31, 2006

DATE	TIME	DIRECTION	TYPE	REASON
6/28/06	10:05	WB TURN VS. WB THRU	SIDESWIPE	UNSAFE MOVEMENT
2/1/05	17:11	EB THRU VS. EB THRU	SIDESWIPE	UNSAFE PASSING
11/19/04	15:34	EB THRU VS WB LEFT*	BROADSIDE	UNSAFE TURN
10/26/04	11:12	EB LEFT VS. WB THRU*	BROADSIDE	UNSAFE TURN
10/12/04	18:03	NB THRU VS. EB THRU	BROADSIDE	ROW VIOLATION
6/5/04	21:15	EB THRU VS. FIXED OBJ.	BROADSIDE	DUI-HIT TREE
4/8/04	18:33	NB LEFT VS. EB THRU	BROADSIDE	UNSAFE TURN
3/20/04	11:52	EB THRU VS NB THRU	BROADSIDE	ROW VIOLATION

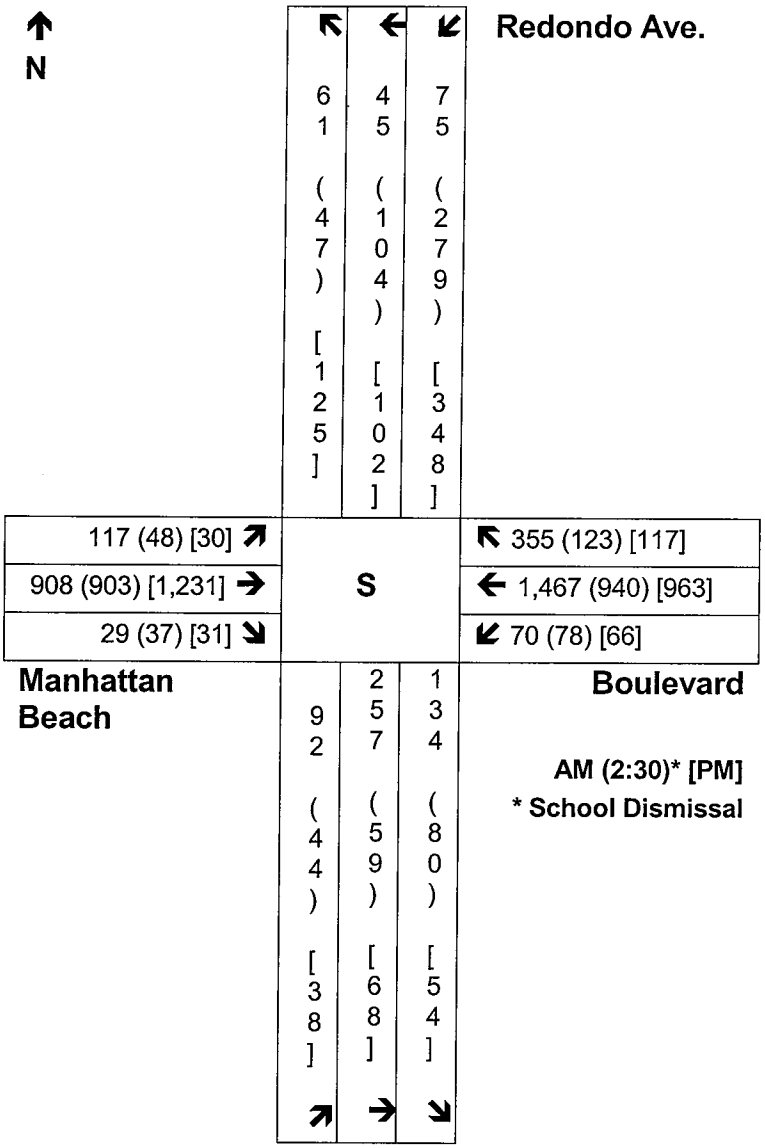
* - Left turn violation

TABLE 2

CITY OF MANHATTAN BEACH

PROTECTED LEFT-TURN PHASING VOLUME GUIDELINE SUMMARY

Manhattan Beach Boulevard and Redondo Avenue
5/10/07

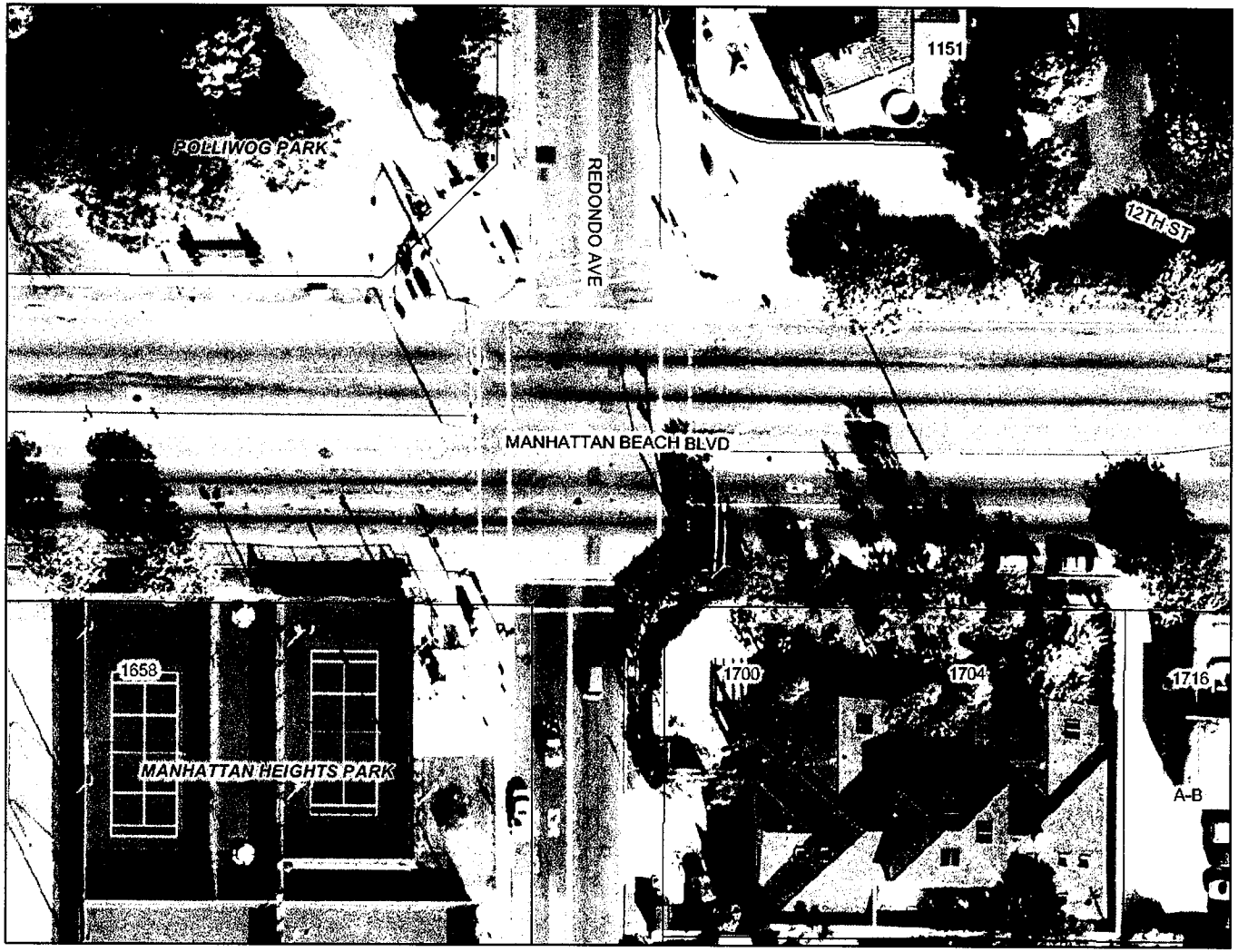


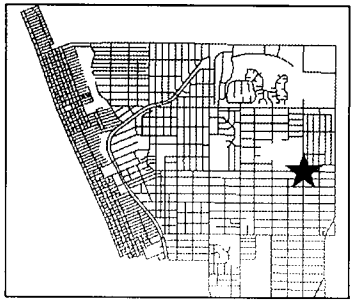
CONFLICTING MOVEMENTS CALCULATION

DIRECTION	7:30-8:30am	2:30 to 2:30 pm	4 to 5 pm
WESTBOUND LEFT	127,540	73,320	69,664
EASTBOUND LEFT	109,629	51,024	32,857

Meets guideline

Manhattan Beach Blvd. at Redondo Ave.



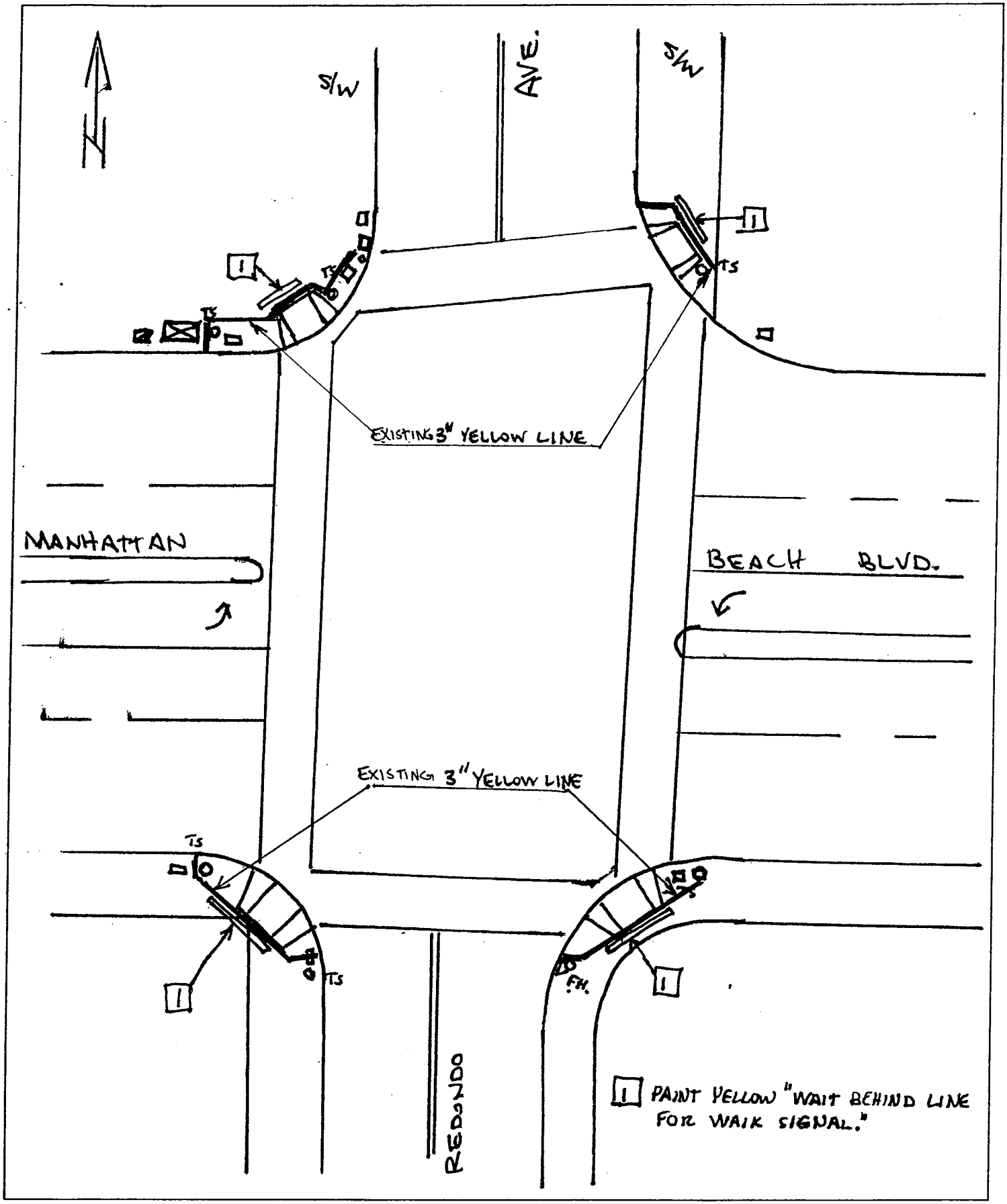


Legend

- Addresses
- Parcels
- 2006 4in color Basemap
- BEACH
- BLOCK
- DEADEND
- PARK
- PIER
- PRIVATE STREET
- SCHOOL
- STREET
- WALK STREET

0 60 120 180 ft.

Scale: 1:609



City of Manhattan Beach
Department of Community Development

MANHATTAN BEACH BOULEVARD
AT REDONDO AVENUE
Curb Ramp Markings

MBMS SAFETY PETITION

The corner of Manhattan Beach Blvd. and Redondo Avenue is extremely dangerous to *hundreds* of MBMS students who cross at that corner daily. The City of Manhattan Beach Traffic Engineers do not see the danger to our children at this corner, and we must do something about it. Cars traveling Westbound on Manhattan Beach Blvd at high rates of speed are constantly being "cut-off" by drivers turning Northbound onto Redondo Ave. from Manhattan Beach Blvd. The NW corner of these two streets—where our kids stand to cross the street before and after school—is a TARGET, and YOU can help to make this safer for them. Your signature on this petition will help our city to understand the need for:

1. A "protected-permissive" left-turn arrow (an arrow that turns RED after being GREEN) for cars traveling East and Westbound on Manhattan Beach Blvd., and

2. A "NO U-TURN" sign for that same traffic pattern (since many drivers currently make U-Turns DIRECTLY INTO THE PATH of children walking in the crosswalk).

Jill DeForest	374-4901
Steve DeForest	374-4915
Michele Rehm Groz [illegible]	545 7582
Otis Groz [illegible]	545-7582
Todd Bedingfield	318-0181
Karen Roseman	545-8176
Marcia Whistler	546-2087
Debbie Horn	545-8832
John Wendel	310-374-6034
Penny Knofler	310 374 6034
The Bhakta Family ♡	(310)937-9542
Jackie McGough	(310) 546-1507
[illegible] Delgado	310 545-9484
Elizabeth [illegible]	(310) 379-9638
Dana Meier	310 372-6606
Kim Lemoine	(310) 937-4025
Linda Bair	310-545.5060
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Debbie Busby	310.546.4235
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Rachel S. Shomer	310-722-6962
Nate Hubbard	310 545-4632
GARY KLOUS	310.545-3525
Kathleen Burns	310-546-6147
Jennifer A. Souder	310-545-4878 x4105
Catherine Shump	(310) 546-9424
Hans Vandenberg	310-545-2134
Rachel Vandenberg	310-545-2134
Tara Brown	310-406-0900.
Karen Mohen	310-379-4122
Mary Anthony	310 376-1370
[illegible]	310.545.8589
[illegible]	310-318-9373
[illegible]	(310)545-3083
[illegible]	(310) 939-1610
Lisa Baird	(310) 545-6205
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Cindy Ellenberg	(310) 798-7121

Stephenie Olson	310-546-5573
Albert R Olson	310-944 0698
Julie Greenwald	310 798 7797
Maria O'Brien	310-545 8563
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Lisa Silver	310 937-8690
Rick Silver	310 937-8690
Pat Goode	310.318.2161
Scott Greenwald	310 798 7797
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Diane Henkle	310-379-5736
Michelle Erickson	310 545 3049
[illegible] Bell	310.939.7749
Alison Guenero	310 546-1662
Noguchi Family ♡	310 374-4041
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Ann [illegible]	310-802-1123
[illegible]	(310) 546-3337
[illegible]	(310) 318-0977
Bart Haw[illegible]	(310) 372-6100
Marie Lamb	310-379-8949

Jennifer Agliozzo	310-345-2250
Ramyar Tabatabaian	310-372-0920
[illegible]	310 374-4578
Janine Madrid	310 376-1897
[illegible]	310·540·7237
Paula Buege	310·798·6370
Amy Howell	310·798·5270
Heather Donalishen	310-606-0027
Gail Betts	310-318-1972
Christine Mirick	310 546-5333
Brigitte Pratt	310 546 9090
[illegible]	310-546-1303
Deig Zagarzazu	310 697 3142
Loli Ramezani / Kareem Mazha	310-798-1962
Heather Hoffman	310-545-3307
[illegible] Ellers	310-798-7121
Amy Waddell	310 753-0770
[illegible] Curley	310 200-8331
Jodie Schlossberg	310·798·5927
Carolyn Phillips	(310)372-7693
[illegible]	310-376-1907

Kristin Trost	318-3730
[redacted]	[redacted]
[redacted]	372-3782
[redacted]	[redacted] 540-5225
Debra Walker	545-7018
Donna Duffy	545 2895
Richard Hernandez	546-7693

Sandy Sarnoff	1161 5th ST. MB, Ca. 90266
Robin Von Bergen	401 Anderson St MB CA 90266
Don Livornese	1436 5th ST MB 90266
Jeri. Oszeck	1038 9th Street MB 90266
Melinda Hawkins	2314 Ocean Dr MB 90266
Jan Rosenfeld	625 9th St 90266
Lisa Silver	404 8th St 90266
Cheryl Brandin	860 14th St 90266
Danielle Ramirez	808 Duncan Av 90266
	1001 8th St 90265
Susan Sampson	224 4th ST MB, CA 90266
	905 Manhattan Beach Blvd 90266
	1520 9th ST MB 90266
Juliet Smith	5116 Killdee St 90808
Yvette Doke	1727 Voorhees MB 90266
Donna Gilroy	1633 1st Street, MB 90266
Kathy Bassreiter	1146 3rd St MB 90266
Marla Hagedorn	701 Anderson St. MB 90266

Karen Powell 26 Malaga Pl E. MB 90266

Edith [illegible]

[illegible]

Diane Gallas 204 Manhattan Ave, MB

[illegible]

Phyllis Prescott

[illegible]

[illegible]

[illegible] Salk 1501 Magnolia Ave, MB

Karen Scott

Kevin Dempsey 3600 Flournoy Rd MB

[illegible]

Melissa Coffey 657 19th St, MB

Barbara Clark 1540 Nelson MB

Lisa Moyel 719 11th St. MB

[illegible]

1- Virginia E. Kelly 1623 8th Street M.B. 90266

Robert Kelly 1311 10th St.

2 [illegible] 1560 5th St Manhattan Beach CA 90266

3) Cindy Hoag 864 11th, MB, Ca 90266

4) Lisa Pola 606 9th MB Ca 90266

5) [illegible] Rosenfeld 621 9th St MB CA 90266

6 Laura [illegible] 1623 Curtis ave MB Ca

[illegible] 401 Anderson St MB

[illegible] 825 N Dianthus 90266 MB

J Goodrich 1740 mathews man-Bch 90266.

Jami Booth 1521 8th St MB 90266

JEFF BROTHERS " " 90266

Beth Allen 1555 8th St. MB 90266

Left message
3/22 to Mr. Reede
informing of 4/26/07
PPIC hearing date

February 21, 2007

Rob Osborne
City of Manhattan Beach

Dear Mr. Osborne,

The attached petition has been signed by parents of Manhattan Beach Middle School students who are extremely concerned for the safety of their children. At issue is the corner of Redondo Avenue and Manhattan Beach Blvd., where our City has in recent months realized the dangers that speeding vehicles at this intersection pose to our children as they cross these streets. It is our stance that a young person's life may be saved at this intersection with the installation of a left-turn arrow that turns red (as is currently in place at the intersection of Redondo Avenue and Marine), as well as "No U-Turn" signs between specific before-and-after school hours.

Please let me know the next step in this important process.

Thank you,

Marc Reede
1601 Curtis Avenue
Manhattan Beach
310-937-2388