



CITY OF CAMBRIDGE
Traffic, Parking and Transportation

57 Inman Street,

Cambridge, Massachusetts 02139

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To The Honorable, the City Councillors (for Meeting of Jan. 24, 2000)
Susan E. Clippinger
Director

Administration 349-4700
Parking Violations 349-4705
Resident Parking 349-4701

From Co-Chairs of the Cambridgeport
Neighborhood Initiatives

Re: City's and City's Traffic Consultant's concerns with 784 Memorial
January 4 2000 Drive LLC's Traffic Study for revised project, and
proponent's reply via its consultant, especially
regarding traffic light at Memorial Drive and Pleasant St.

Rob Dickey
Spaulding & Slye
255 State Street
Boston, MA 02109

RE: 784 Memorial Drive II, IPOP Traffic Study

Dear Rob:

I have reviewed your traffic study for the new project at 784 Memorial Drive, which I received on December 14, 1999.

I have also asked Barry Pell of Rizzo Associates to prepare a peer review. His comments are attached.

In addition to his comments, I have the following comments.

You will have to do a new Parking and Transportation Demand Management Plan for the commercial part of the project since this is a new project. In your PTDM plan you can be more specific about your programs.

The proposals for Putnam and Pleasant fall short of what I expected. The centerline is offset through the intersection. There are trucks turning from Putnam into Pleasant. It seems that curb line changes to assist pedestrians while allowing trucks access is needed. Have you evaluated the feasibility of widening the sidewalk on Pleasant Street, which is narrow, and in poor condition?

In addition to the changes recommended by the Engineering group meetings as described in the report, there is also a recommendation to add walk signals on Memorial Drive at River and at Western, which the city strongly supports.

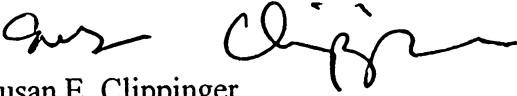
Figure 19 needs to be expanded to show trip redistribution throughout the study area with the signal at Memorial Drive and Pleasant. You need to show which residential street IPOP failures

are changed by the installation of the signal as well as what redistribution assumptions you have made and why.

And finally, I am unclear what you have assumed is the destination of the trips assigned to Chestnut Street. Where are they destined? BU bridge, Magazine Street either north or south, elsewhere?

If you have any questions, please feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read 'Susan E. Clippinger', written in a cursive style.

Susan E. Clippinger
Director

SEC:lb

cc: S. Rasmussen
B. Pell
D. DeBaie
S. Kaiser
S. Horowitz

Memorandum

To: Sue Clippinger, CTP&T
Fr: Barry M. Pell, P.E.
Re: **Transportation Impact Assessment**
784 Memorial Drive
Dt: December 21, 1999

Rizzo Associates, Inc. has reviewed the *Transportation Impact Assessment/IPOP Analysis* (Vanasse & Associates, Inc.; dated and received December 14, 1999) for the referenced project.

The proposed project, located north of Pleasant Street, between Memorial Drive and Putnam Avenue, is an office and residential development. The office component is 96,000 square feet (in two new buildings) with short-term office use and long-term use for Polaroid Headquarters expansion. Polaroid Corporate Headquarters currently occupies 63,000 square feet on the site. The residential component is 120 apartments (rental and/or condominium).

Proposed parking includes 199 additional spaces for the office space (with 90 existing spaces resulting in a total of 289 spaces) and 127 spaces for the residences.

Site access for the office parking is proposed on Pleasant Street west of the Florence Street intersection, as well as at the existing Pleasant Street curb cut. Site access for the residential parking is proposed at a relocated Putnam Avenue driveway, at a new curb cut opposite Chestnut Street and at an existing curb cut opposite Florence Street.

Rizzo Associates' comments and questions are as follows:

- 1. Project Trip Distribution (Office).** The trip distribution overestimates office site traffic that would depart from Pleasant Street onto Memorial Drive due to peak period congestion encountered on Memorial Drive. Vehicle movements turning left from Pleasant Street onto Memorial Drive are difficult, especially during peak hours, given the unsignalized control presently at the intersection. The 10 percent project traffic assignment on this movement should be reassigned to Florence Street, Chestnut Street and/or Putnam Avenue.

2. **Mode Split (Office).** It is noted that the auto access component (single occupant plus 1/2 carpool) from the U.S. Census data is 77 percent. The City's scoping letter requested use of 70 percent, including a PTDM reduction. The consultant uses 74 percent, which is somewhat higher and more conservative than the City's direction.
3. **Existing Traffic Volumes.** Three of the ATR counts requested to be redone by the City were not performed. These are (1) Memorial Drive (north of Pleasant Street), (2) Pleasant Street (west of Florence Street), and (3) Pleasant Street (east of Chestnut Street). The data reported in Table 1 is not the 1999 data but rather the 1997 data, and was also not adjusted to 1999 conditions. Redoing these counts and comparison with the 1997 data for the same locations would be useful to analyze background growth.
4. **Traffic Signal Warrant Analysis for Memorial Drive and Pleasant Street.** Figure 19 is missing from the report. This figure depicts the traffic volume networks redistributed with a traffic signal constructed at the Memorial Drive and Pleasant Street intersection.
5. **IPOP Analysis.** The IPOP Analysis (attached) indicates that the project will fail 9 of 84 data entries. The five failures of the residential street criterion are on Pleasant Street (Florence Street to Putnam Avenue) and on Putnam Avenue (River Street to Pleasant Street) during both peak hours, and on Putnam Avenue (Western Avenue to River Street) during the afternoon peak hour. The four failures of the accident criterion are at the intersections of Memorial Drive/River Street, Memorial Drive/Western Avenue, Putnam Avenue/Magazine Street, and Putnam Avenue/Western Avenue.



Transportation Engineers & Planners

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Ref: 2564

January 20, 2000

Ms. Susan E. Clippinger, Director
City of Cambridge
Traffic, Parking, and Transportation Department
57 Inman Street
Cambridge, MA 02139

Re: 784 Memorial Drive
Cambridge, Massachusetts

Dear Sue:

This letter is in response to your January 4, 2000 correspondence and the December 21, 1999 peer review letter from Mr. Barry Pell of Rizzo Associates attached thereto, regarding the 784 Memorial Drive office/residential development Interim Planning Overlay Petition (IPOP) traffic study. Ten questions were raised after a review of the study which are listed below followed by our response.

City's Letter

- Comment:** "You will have to do a new Parking and Transportation Department Management Plan for the commercial part of the project since this is a new project. In your PTDM plan, you can be more specific about your programs."
- Response:** The proponent recognizes the need to customize a Parking and Transportation Department Management Plan (PTDM) plan to the alternative development plan being proposed and in that regard, will amend the prior approved PTDM plan.
- Comment:** "...I am unclear what you have assumed is the destination of the trips assigned to Chestnut Street. Where are they destined? BU bridge, Magazine Street either north or south, elsewhere?"
- Response:** The office site traffic assigned to/from Chestnut Street is destined to/from the Boston University (BU) Bridge via Pearl Street, Granite Street, and/or Brookline Street. Some residential traffic is also expected to be attracted to areas in East Cambridge.
- Comment:** "Figure 19 needs to be expanded to show trip redistribution throughout the study area with the signal at Memorial Drive and Pleasant. You need to show which residential street IPOP failures are changed by the installation of the signal as well as what redistribution assumptions you have made and why."

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Response: Figures depicting the project-generated traffic-volume redistribution with a traffic signal constructed at the Memorial Drive and Pleasant Street intersection have been prepared to clearly show where adjustments in redistribution would occur. Reassignment assumptions are keyed to convenience. The accessibility of Memorial Drive with a traffic signal in place will attract vehicles that would have used Chestnut Street or Florence Street to access the BU Bridge and Memorial Drive (north). Residential work trips and some homebound office trips would be expected to/from this direction.

The IPOP criteria for traffic on residential streets has been re-evaluated with the proposed traffic signal at the intersection of Memorial Drive at Pleasant Street. Table 1 summarizes the project analysis and the IPOP indicators.

Table 1
TRAFFIC ON RESIDENTIAL STREETS - REVISED
(WITH TRAFFIC SIGNAL AT MEMORIAL DRIVE AND PLEASANT STREET)

Roadway Segment	Amount Residential	Current	Threshold	Additional Traffic			
				Morning		Evening	
				Volume	Indicator	Volume	Indicator
Pleasant Street (west) ^a	1/3 or less	<150	No max	109	Under	113	Under
Pleasant Street (east) ^b	1/2 or more	<150	20/30	43	Over	43	Over
Memorial Drive	1/3 or less	>400	No max	56	Under	59	Under
Putnam Avenue (north) ^c	1/2 or more	>400	40	24	Under	33	Under
Putnam Avenue (center) ^d	>1/3 but <1/2	>400	60	48	Under	38	Under
Putnam Avenue (south) ^e	>1/3 but <1/2	>400	60	0	Under	3	Under
River Street	1/3 or less	>400	No max	24	Under	8	Under
Western Avenue	1/3 or less	>400	No max	7	Under	25	Under
Chestnut Street	1/2 or more	<150	20/30	0	Under	0	Under
Florence Street	1/2 or more	<150	20/30	0	Under	0	Under

^aBetween Memorial Drive and Florence Street.

^bBetween Florence Street and Putnam Avenue.

^cBetween Western Avenue and River Street.

^dBetween River Street and Pleasant Street.

^eBetween Pleasant Street and Magazine Street.

^fMorning/evening threshold.

As shown with the installation of a traffic signal at the intersection of Memorial Drive at Pleasant Street and redistribution of project-generated traffic, 14 of the 20 indicators are satisfied and 2 indicators were exceeded along Pleasant Street east. Overall, traffic volumes on Pleasant Street (east) will remain relatively light. A portion of this traffic increment is attributed to the residential traffic from the site. As presented in the Traffic Impact Analysis (TIA)/IPOP Analysis, 11 of the 20 indicators were satisfied and 5 indicators were exceeded. With the construction of a traffic signal at the intersection of Memorial Drive at Pleasant Street, the IPOP criteria for traffic on residential streets improves and would then be satisfied along Putnam Avenue (north) during the weekday

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evening peak hour and along Putnam Avenue (center) as traffic would be redistributed to Pleasant Street.

Also shown is the expected resulting conditions on Chestnut Street and Florence Street.

Comment: "The proposals for Putnam and Pleasant fall short of what I expected. The centerline is offset through the intersection. There are trucks from Putnam into Pleasant. It seems that curb line changes to assist pedestrians while allowing trucks access is needed. Have you evaluated the feasibility of widening the sidewalk on Pleasant Street, which is narrow, and in poor condition?"

Response: Recognizing the City's interest in geometric modifications, the Putnam Avenue and Pleasant Street intersection street and site corner will be modified to better accommodate trucks and widening the Pleasant Street sidewalk will be explored along the frontage of the planned residences.

Comment: "In addition to the changes recommended by the Engineering group meetings as described in the report, there is also a recommendation to add walk signals on Memorial Drive at River Street and at Western Avenue, which the city strongly support."

Response: Through the course of the many meetings and discussions of the engineering group which involves privately funded traffic consultants active in this area of Cambridge, the City's traffic consultant and the City's traffic engineering staff, there has been significant time dedicated to identifying a means to accommodate pedestrians at the Metropolitan District Commission (MDC) controlled signalized intersections at River Street and at Western Avenue. The present pedestrian crossing conditions vary depending on the approach crossed but at each location, the absence of traffic signals has been recognized as an undesirable situation because no communication is offered to pedestrians. There are no WALK and DON'T WALK signals.

The project proponent for 784 Memorial Drive has been involved in these discussions through the participation of Vanasse & Associates, Inc. (VAI) and plans to continue to be involved. To facilitate the implementation of the pedestrian improvements, the project proponent is also willing to commit to fund the preparation of construction documents and eventual construction of pedestrian improvements on Memorial Drive at Western Avenue, River Street, and Putnam Avenue as identified by the engineering group and sponsored by the City in requesting the MDC approval of the work.

Rizzo Letter

Comment: "1. **Project Trip Distribution (Office).** The trip distribution overestimates office site traffic that would depart from Pleasant Street onto Memorial Drive due to peak period congestion encountered on Memorial Drive. Vehicle movements turning left from Pleasant Street onto Memorial Drive are difficult, especially during peak hours, given the unsignalized control presently at the intersection. The 10 percent project traffic assignment on this movement should be reassigned to Florence Street, Chestnut Street and/or Putnam Avenue."

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- Response:** The proposed site trip assignment associated with the office component has been revised. The 10 percent site trip assignment (12 vehicles) of exiting office trips from Pleasant Street left turns onto Memorial Drive southbound have been reassigned via Chestnut Street and Brookline Street (BU Bridge). In as much as all of this traffic is reassigned singly to Chestnut Street, a worse case analysis is provided.
- Comment:** "2. Mode Split (Office). It is noted that the auto access component (single occupant plus 1/2 carpool) from the U.S. Census data is 77 percent. The City's scoping letter requested use of 70 percent, including a PTDM reduction. The consultant uses 74 percent, which is somewhat higher and more conservative than the City's direction."
- Response:** The trip generation contained in the TIA/IPOP Analysis for the office component is more conservative (higher) than that asked by the City. This estimate accounts for future reduction in single-occupant vehicles (SOVs) exclusively through increased rideshare which results in a conservative analysis of resulting project volumes on area roadways.
- Comment:** "3. Existing Traffic Volumes. Three of the ATR counts requested to be redone by the City were not performed. These are (1) Memorial Drive (north of Pleasant Street), (2) Pleasant Street (west of Florence Street), and (3) Pleasant Street (east of Chestnut Street). The data reported in Table 1 is not the 1999 data but rather the 1997 data, and was also not adjusted to 1999 conditions. Redoing these counts and comparison with the 1997 data for the same locations would be useful to analyze background growth."
- Response:** The City's scoping letter requested automatic traffic recorder (ATR) counts be conducted at the six locations that were previously presented as a part of the original Traffic Review and Access Study (TRAS) for 784 Memorial Drive dated November 1997. In addition to the ATR count locations requested by the City, three additional locations were included for a total of nine locations. Six of the nine ATR counts were conducted in 1999 as presented in Table 1. The three remaining ATR counts have been annually adjusted by a compounded growth rate of 1.0 percent to account for background growth. This growth rate is consistent with that presented in the TIA/IPOP Analysis. Table 1R presents a revised 1999 Baseline traffic-volume summary.

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Table 1R
REVISED 1999 BASELINE TRAFFIC VOLUMES

Location	ADT ^a	Morning Peak Hour			Evening Peak Hour		
		Vehicles per Hour ^b	K Factor ^c	Directional Distribution	Vehicles per Hour ^b	K Factor	Directional Distribution
Memorial Drive, south of Pleasant Street	38,255	3,085	8.1	62% SB	3,000	7.8	53% NB
Memorial Drive, north of Pleasant Street	38,352 ^d	3,075	8.0	62% SB	3,021	7.9	53% NB
Pleasant Street, east of Memorial Drive	1,191	128	10.7	52% EB	63	5.3	51% EB
Pleasant Street, west of Florence Street	913 ^d	102	11.2	52% EB	219	24.0	62% EB
Florence Street, south of Pleasant Street	1,256	44	3.5	75% SB	179	14.2	60% NB
Pleasant Street, east of Chestnut Street	1,750 ^d	131	7.5	55% WB	259	14.8	64% EB
Pleasant Street, East of Putnam Avenue	812	43	5.3	100% EB	108	13.3	100% EB
Putnam Avenue, South of Pleasant Street	6,298	530	8.4	52% SB	748	11.9	71% NB
Putnam Avenue, North of Pleasant Street	7,447	597	8.0	55% SB	844	11.3	68% NB

^aAverage daily traffic in vehicles per hour - 1999 data.

^b1999 Baseline traffic volumes.

^cPercent of daily volume in peak hour.

^d1997 ATR count annually adjusted to 1999 Baseline traffic volumes.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

Comment: "4. Traffic Signal Warrant Analysis for Memorial Drive and Pleasant Street. Figure 19 is missing from the report. This figure depicts the traffic-volume networks redistributed with a traffic signal constructed at the Memorial Drive and Pleasant Street intersection."

Response: Figure 19 depicting the traffic-volume networks redistributed with a traffic signal constructed at the intersection of Memorial Drive at Pleasant Street during the weekday morning and evening peak hours was inadvertently omitted from some copies of the report. A series of figures (Figures 19A through 19D) have been prepared which illustrate the morning and evening peak-hour project-generated volume adjustments and

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redistribution with the traffic signal in place at the intersection of Memorial Drive and Pleasant Street. These figures are included in this memorandum.

The practical assumptions relating to percentage redistribution are summarized in Table 2.

Table 2
PERCENT DISTRIBUTION TO
MEMORIAL DRIVE AND PLEASANT STREET INTERSECTION

	Office		Residential	
	No Signal	Signal	No Signal	Signal
Access	60%	70%	60%	70%
Egress	20%	70%	3%	60%

In Table 3, an accounting is provided which totals the adjustment of project-generated office and residential trips during the morning and evening peak hours. Thirty-five and 70 vehicle trips during the morning and evening peak hours respectively are expected to be redistributed through the Memorial Drive and Pleasant Street intersection.

Table 3
PROJECT-GENERATED VEHICLE-TRIP ADJUSTMENTS TO
MEMORIAL DRIVE AND PLEASANT STREET INTERSECTION

	Morning		Evening	
	Office	Residential	Office	Residential
Access	12	1	2	3
Egress	7	15	58	7
Totals by Use	19	16	60	10
Total Adjusted	35		70	

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With respect to a traffic signal at Pleasant Street and Memorial Drive, much discussion has occurred by all interested parties. Engineering group discussions have included consideration for the installation of a traffic signal at the intersection of Memorial Drive and Pleasant Street. While the larger office proposal for 784 Memorial Drive was pending, a traffic signal warrants analysis was prepared. VAI concluded that while peak-hour warranting conditions were expected, a traffic signal was not recommended. At this time, a revised traffic signal warrant analysis has been prepared with a much reduced office project, and of course, the analysis again indicates that there is not a warranting condition through the day. The peak-hour condition would meet traffic signal warrant thresholds but it is our opinion that this warrant alone does not justify a traffic signal. VAI maintains their recommendation not to construct a traffic signal at Pleasant Street and Memorial Drive. We further maintain that installation of traffic signals must be done in the context of reviewing all possible options because traffic signals introduce accident potential (i.e., rear-end accidents) while enabling access.

The proposed development at 784 Memorial Drive has been significantly downsized as has the estimated project traffic volumes. The City of Cambridge currently conducts a development review process which focuses on project-generated traffic on residential streets. This criteria has not been intended as a substitute for a traffic signal warrant condition. It is interesting to note, however, that the project-generated traffic volume expected on Florence Street and Chestnut Street is less than the IPOP residential street traffic threshold. It should be noted that 1,560 vehicles travel northbound on Memorial Drive during the evening peak hour and introducing another traffic signal could result in additional diversion of Memorial Drive traffic into the neighborhood. Today, 100 vehicles are simultaneously observed on Florence Street and these vehicles are likely diversions from Memorial Drive. This short cutting route is probably prompted by the presence of a queue on Memorial Drive back from the River Street traffic signal. Given a traffic signal at Pleasant Street, the potential would seem to exist for greater inducement to divert from Memorial Drive to Putnam Avenue, and in so doing, introducing a volume easily equal to the project volume entering Memorial Drive at Pleasant Street via the traffic signal.

without a traffic light, nearly all commercial traffic will go through neighborhood streets

Comment:

*

"5. IPOP Analysis. The IPOP Analysis indicates that the project will fail 9 of 84 data entries. The five failures of the residential street criterion are on Pleasant Street (Florence Street to Putnam Avenue) and on Putnam Avenue (River Street to Pleasant Street) during both peak hours, and on Putnam Avenue (Western Avenue to River Street) during the afternoon peak hour. The four failures of the accident criterion are at the intersections of Memorial Drive/River Street, Memorial Drive/Western Avenue, Putnam Avenue/Magazine Street, and Putnam Avenue/Western Avenue."

Response:

VAI concurs with the comment and adds the following:

This recent proposal represents a significant downsizing of the project from the prior traffic levels. Overall, the traffic projections have been reduced in the peak direction by approximately 50 percent. In addition, supplemental IPOP analysis on Florence Street and Chestnut Street has been conducted which had previously not been included. As shown, these additional IPOP threshold conditions are not exceeded by the additional

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generated traffic. This analysis was done without consideration for a traffic signal at Memorial Drive and Pleasant Street

2) Traffic on Residential Streets (Supplemental Analysis)

Roadway Segment	Amount Residential	Current	Threshold	Additional Traffic ^a			
				Morning		Evening	
				Volume	Indicator	Volume	Indicator
Pleasant Street (east) ^b	1/2 or more	<150	20/30	8	Under	26	Under
Chestnut Street	1/3 or less	<150	20/30	9	Under	15	Under

^aWithout traffic signal at Memorial Drive and Pleasant Street.

^bBetween Pleasant Street and Magazine Street.

^cBetween Pleasant Street and Granite Street.

If you should have any further questions regarding the proposed project, or require any additional information in order to complete your review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.


David J. DeBate, P.E.
Associate

DJD/atg

cc: R. Dickey, D. Vickery – Spaulding & Slye
S. Kaiser, S. Horowitz – CNI
S. Rasmussen, L. Preston – City of Cambridge
B. Pell – Rizzo Associates
RDV, FGH, File

Consent Communication #11

195

A communication was received from
Co-Chairs of the Cambridgeport
Neighborhood Initiative, regarding
the City's Traffic consultant's
concerns with 784 Memorial Drive
LLC/s Traffic Study and regarding
the traffic light at Memorial Drive
and Pleasant Street.

3-19

In City Council January 24, 2000

PLACED ON FILE