# City of Palo Alto (ID # 2587)

## City Council Staff Report

**Report Type: Consent Calendar** **Meeting Date: 4/9/2012**

**Summary Title: College Terrace Traffic Calming Plan Approval**

**Title: Approval of Permanent Traffic Calming Plan for College Terrace Neighborhood**

**From: City Manager**

**Lead Department: Planning and Community Environment**

## Recommendation

Staff recommends that Council approve the permanent installation of the College Terrace Traffic Calming Plan in College Terrace, as shown on Attachment A.

## Background

College Terrace is a predominantly residential area bound by El Camino Real on the east side, California Avenue on the south side, Amherst Street on the west side, and Stanford Avenue on the north side with a small amount of commercial uses along El Camino Real. Surrounding land uses adjacent to College Terrace include Stanford University and the Stanford Research Park to the north and south respectively.

In 2003, the City began a traffic calming program in College Terrace in response to traffic intrusion and speeding concerns of the community. In 2006 following City Council approval, a series of trial traffic calming treatments were implemented including: traffic circles, speed tables and other traffic management measures were installed along the border and interior streets of the College Terrace neighborhood.

In 2008, the traffic calming trial was completed and a follow up evaluation was initiated by the City. Although the traffic calming measures performed as generally expected, there was still mixed support for some of the features.

Following a Planning & Transportation Commission recommendation in July 2009 a Modified Traffic Calming Plan was implemented for another trial.

## Discussion

The final trial of the traffic calming plan in College Terrace Plan is now complete. An evaluation that assesses the effectiveness of the traffic calming measures, both in terms of traffic management as well as meeting neighborhood expectations has been completed with input by the College Terrace residents.

To measure the effectiveness of the modified traffic calming plan before and after speed and volume data was obtained and compared. Critical vehicle speeds (85-percential speeds) in nearly all of the project locations were reduced to as little as 23 MPH in the interior streets such as on College Avenue and to 26-31 MPH on peripheral streets such as California Avenue. The 85th percentile speed is the speed at or below which 85 percent of the motorists drive on a given road unaffected by slower traffic or poor weather. This speed indicates the speed that most motorists on the road consider safe and reasonable under ideal conditions.

In summary, the number of vehicles traveling over 25 MPH on nearly all streets within College Terrace has decreased along with vehicle volumes, based on available before and after data.

### Neighborhood Survey Process

In March, 2011, a detailed letter and a neighborhood survey postcard were mailed to the all households in College Terrace. Out of the 900 postcards sent, approximately 27% (243) of the survey postcards were returned. Based on the replies received, a workable community consensus (estimated 80% of responses) has been reached in favor of the permanent retention of the current plan.

### College Terrace Community Input

A Project Advisory Committee (PAC) made up of 8 residents appointed by the College Terrace Resident's Association (CTRA) Board and City staff began meeting in September 2010 to review the effectiveness of the traffic calming plan. The PAC participated in analyzing data, reviewing survey forms, and in helping to ensure neighborhood participation in the review of the project so that final recommendations for retention of the project could be made.

Overall, the College Terrace neighborhood has noted a positive impact as a result of the traffic calming plan and there is concurrence that the traffic calming improvements are effective and should be maintained permanently. Like all

traffic calming studies though, there remains additional input and concerns outside of the scope of the original study. Some of the additional comments and concerns heard from the PAC included the request for additional traffic calming measures in upper College Avenue near Bowdoin Street to address cars travelling in the eastbound direction because of the number of pedestrian activity in that area and the request for landscaping of traffic circle facilities. In response to these concerns, additional pedestrian warning signs will be installed in April 2012. An effective traffic calming plan does not provide measure on every block segment of a neighborhood but instead helps to reduce overall vehicle speeds and volumes within a community to help preserve quality of life. The pedestrian warning signs to be installed near the intersections of College Avenue & Columbia Street and College Avenue & Oberlin Street, and College & Bowdoin in response to the final concerns will be helpful in providing awareness of pedestrian activity without creating additional restrictions within the neighborhood. "Cross Traffic Does Not Stop" placards are also being installed at intersections where only two of four approaches of an intersection are STOP-controlled. These signs should help the unfamiliar driver in College-Terrace to recognize driving patterns in the neighborhood. Lastly, paint along the curbs of the traffic calming improvements and roadway markings within College Terrace will be updated as needed.

The CTRA Board had requested that the two traffic circles on Yale Avenue at College Avenue and Cambridge Avenue be landscaped. The City no longer provides landscaping for traffic circles due to operations and maintenance impacts and high initial capital improvement costs. The City had initially proposed that the traffic circles be hardscaped and filled in with colored/stamped concrete or other decorative finishes. In response to the College-Terrace request, the City has agreed to leave the circles in place as is and to pursue public-private partnership opportunities for potential landscape improvements. The City has also with worked with the College Terrace working group to allow residents to landscape and maintain the curb extensions installed as part of the project. The curb extensions are located close to the sidewalk and do not require residents to be in the roadway to plant and water the landscaping.

The College Terrace Board has expressed its complete support for the plan. With the support of the College Terrace PAC, staff recommends Council approve the permanent retention of the following traffic calming treatments as noted on Attachment A:

- All existing speed tables on Stanford Avenue and California Avenue.

- Small center median islands with stop signs on College Avenue at Columbia Street, Hanover Street and Oberlin Street.
- Four (4) speed humps on College Avenue
- Two (2) traffic circles on Yale Street at College Avenue and Cambridge Avenue and curb extensions

Commission Review and Recommendations

Staff presented the proposal for the permanent installation of the College Terrace Traffic Calming Plan to the Planning & Transportation Commission on October 12, 2011.

Three residents attended the Planning Commission meeting and expressed their support for the permanent retention of the current traffic calming measures placed in the neighborhood. At this meeting, the residents requested that staff not move forward with the hardscaping of the two traffic circles on Yale and that they remain unfilled to anticipate potential private/public funding opportunities for landscaping. The Commission concurred with the staff recommendation and residents' request, and agreed that staff should work with the residents to develop and recommend suitable planting materials for the bulbouts.

With the exception of Commission member, Greg Tanaka, who recused himself from this item because he lives in College Terrace, and Commission member Lippert, who abstained, the Planning and Transportation Commission recommended the permanent retention of the College Terrace Traffic Calming Plan. The Staff Report and minutes of the Commission's meeting are provided under Attachments B and C.

## Timeline

The College-Terrace Traffic Calming project is complete with the exception of final pedestrian warning signs to be installed in April.

## Resource Impact

Funds for the additional signing and striping required for the traffic calming measures are available in CIP project PL-05003, College Terrace Traffic Calming Project.

## Policy Implications

The proposed traffic calming plan is consistent with the City's Comprehensive Plan T-34: "Implement traffic calming measures to slow traffic on local and collector streets and prioritize these measures over congestion management. Include traffic circles and other traffic calming devices among these measures." In general, the initiation, planning and recommendation of the College Terrace Traffic Calming Plan are consistent with the City's Neighborhood Traffic Calming Program that addresses spot treatment on a residential street.

Staff believes there are no other substantive policy implications.

## Environmental Review

The permanent retention of the Current traffic calming plan complies with all the requirements and mitigations stated in the project's original Mitigated Negative Declaration prepared in September 2004.

**Attachments:**

- Attachment A: College Terrace Traffic Calming Plan (PDF)
- Attachment B: P&TC Staff Report and Attachments dated October 12, 2011 (PDF)
- Attachment C: P&TC Meeting Minutes of October 12, 2011 (PDF)

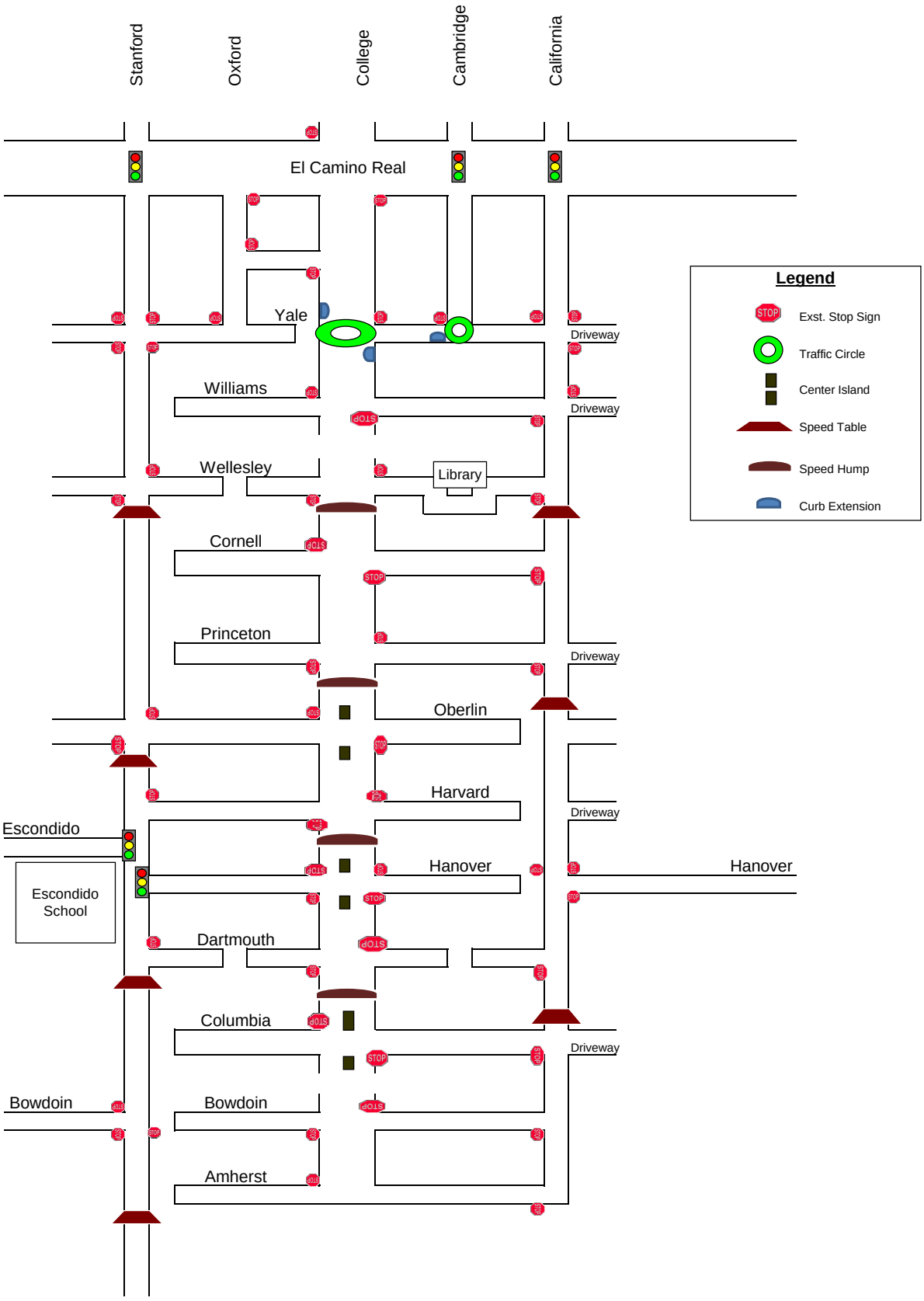
Prepared By: Shahla Yazdy, Traffic Engineer

Department Head: Curtis Williams, Director

City Manager Approval: James Keene, City Manager

Attachment A

# College Terrace Neighborhood Traffic Calming Plan



Attachment B

# *PLANNING &TRANSPORTATION DIVISION*

## STAFF REPORT

**TO:** PLANNING & TRANSPORTATION COMMISSION

**FROM:** Shahla Yazdy **DEPARTMENT:** Planning and Community Environment

**AGENDA DATE:** October 12, 2011

**SUBJECT:** **COLLEGE TERRACE TRAFFIC CALMING PLAN APPROVAL**

**RECOMMENDATION:**

Staff recommends that the Planning and Transportation Commission recommend that the City Council approve the permanent installation of the Traffic Calming Plan in College Terrace as shown in Attachment A.

**BACKGROUND**

College Terrace is a predominantly residential area bound by El Camino Real on the east side, California Avenue on the south side, Amherst Street on the west side, and Stanford Avenue on the north side with a small amount of commercial uses along El Camino Real.. Surrounding land uses adjacent to College Terrace include Stanford University and the Stanford Research Park to the north and south respectively.

In 2003, the City began a traffic calming program in College Terrace in response to traffic intrusion and speeding concerns of the community. With consultant help the City initiated the College Terrace Neighborhood Traffic Management Plan. In 2006 following City Council approval, a series of trial traffic calming treatments were implemented including: traffic circles, speed tables and other traffic management measures were installed along the border and interior streets of the College Terrace neighborhood.

In 2008, the traffic calming trail was completed and a follow up evaluation was initiated by the City. Although the traffic calming measures performed as generally expected, there was still mixed support for some of the features. Following a Planning & Transportation Commission

recommendation in July 2009 a Modified Traffic Calming Plan was implemented that includes (see map on Attachment A for locations):

- Installation of Speed Table on upper California Avenue.
- Removal of traffic circles at Columbia Street and Oberlin Street.
- Installation of small center median islands with stop signs on College Avenue at Columbia Street, Hanover Street and Oberlin Street.
- Installation of 4 speed humps on College Avenue
- Addition of Curb Extensions to traffic circles on Yale Street at College Avenue and Yale Street at Cambridge Avenue

The curb extensions are semi-circular in shape and extend from the curb roughly the width of a parked car.

## DISCUSSION

College Terrace Project Trial Evaluation

The final trial of the modified traffic calming plan in College Terrace Plan is now complete. An evaluation that assesses the effectiveness of the traffic calming measures, both in terms of traffic management as well as meeting neighborhood expectations is also complete and has been completed with input by the College Terrace residents.

In summary, the number of vehicles traveling over 25 MPH on nearly all streets within College Terrace has decreased along with vehicle volumes, based on available before and after data.

## ANALYSIS

To measure the effectiveness of the modified traffic calming plan before and after speed and volume data was obtained and compared. Attachments B shows the speed and volume data obtained in 2010 compared against data from 2007. Critical vehicle speeds (85-percential speeds) in nearly all of the project locations were reduced to as little as 23 MPH in the interior streets such as on College Avenue and to 26-31 MPH on peripheral streets such as California Avenue. The only streets that showed a minor increase in vehicle speeds are Princeton Street and Columbia Street with critical speeds of 26 MPH and 27 MPH respectively; these speeds are still considered reasonable for the neighborhood. The 85th percentile speed is the speed at or below which 85 percent of the motorists drive on a given road unaffected by slower traffic or poor weather. This speed indicates the speed that most motorists on the road consider safe and reasonable under ideal conditions.

Neighborhood Survey Process

On March 16, 2011, a detailed letter and a neighborhood survey postcard (Attachment C) was mailed to the approximate 900 households in College Terrace The survey letter included a description of the modified traffic calming plan and the results of the speed and volume results of the traffic calming elements that were proposed as part of the plan. Three (3) speed tables on Stanford Avenue and two (2) on California Avenue were previously approved for permanent retention in 2009 and were not included in the current vote.

The survey asked residents to vote on whether they support: (1) permanent retention of the

"Current Plan" or (2) removal of the "Current Plan" and return to original conditions. Residents were given 3 ½ weeks to respond and send back their postcards. Out of the 900 postcards sent, approximately 27 % (243) of the survey postcards were returned. Based on the replies received and as shown in Table 1 below, a workable community consensus (estimated 80% of responses) has been reached in favor of the permanent retention of the current plan.

**Table 1: Survey Results for the College Terrace Traffic Calming Plan**

| Replies | | Support Permanent Retention of the Current Plan | | | |
|---|---|---|---|---|---|
| # | % of Houses | # Yes | % of Responses | # No | % of Responses |
| 243 | 27 | 195 | **80** | 48 | 20 |

College Terrace Review Board

A Project Advisory Committee (PAC) made up of 8 residents appointed by the College Terrace Resident's Association (CTRA) Board and City began meeting in September 2010 to review the effectiveness of the modified traffic calming plan. Staff met regularly with the PAC and CTRA to evaluate the modified traffic calming plan and establish evaluation thresholds. The PAC participated in analyzing data, reviewing survey forms, and in helping to ensure neighborhood participation in the review of the project so that final recommendations for retention of the project could be made.

College Terrance Community Input

Overall, the College Terrace neighborhood has noted a positive impact as a result of the modified traffic calming plan and there is concurrence that the traffic calming improvements are effective and should be maintained permanently. Like all traffic calming studies though, there remains additional input and concerns outside of the scope of the original study. Some of the additional comments and concerns heard from the PAC include:

- Additional traffic calming measures are still required in upper College Avenue near Bowdoin Street to address cars travelling in the eastbound direction because of the number of pedestrian activity in that area.
- Request for landscaping of traffic circle facilities

The concern was raised by newer residents along the western periphery of College Terrace (Attachment D). In response to the concern, additional pedestrian warning signs are being installed. An effective traffic calming plan does not provide measure on every block segment of a neighborhood but instead helps to reduce overall vehicle speeds and volumes within a community to help preserve quality of life. Pedestrian warning signs are also being installed near the intersections of Columbia Street & College Avenue and Oberlin Street & College Avenue. "Cross Traffic Does Not Stop" placards are also being installed at intersections where only two of four approaches of an intersection are STOP-controlled. These signs should help the unfamiliar driver in College-Terrace to recognizing driving patterns in the neighborhood. Lastly, paint along the curbs of the traffic calming improvements and roadway markings within College Terrace will be updated as needed this Fall.

A letter from the CTRA Board (Attachment E) was received in July 19, 2011 requesting that the two traffic circles on Yale Avenue at College Avenue and Cambridge Avenue be landscaped. The City is no longer landscaping traffic circles due to operations & maintenance impacts and high initial capital improvement costs. The City is proposing that the traffic circles be hardscaped, filled in with colored/stamped concrete or other decorative finishes. The cost for landscaping of the traffic circles would cost up to $25,000 to accommodate concrete work and irrigation with an additional $4,500 recurring annual maintenance costs versus hardscape treatments that cost $10,000 with no recurring maintenance costs. Staff explored the option of allowing residents to maintain traffic circles but recommended against this practice to protect city liability.

The City has agreed though to allow residents to landscape and maintain curb extensions. The curb extensions are located close to the sidewalk and do not require for residents to be in the roadway to plant and water the landscaping.

Hardscape treatments at traffic circles is proposed for installation as part of the 2011-12 Sidewalk, Curb & Gutter Rehabilitation project.

Traffic Calming Plan recommendation for permanent retention:
Staff and the PAC feel that the current modified traffic calming plan option addresses the majority of the neighborhood concerns. The College Terrace Board has also expressed its complete support for the plan. With the support of the College Terrace PAC, staff recommends retention of the following traffic calming treatments as noted on Attachment A:

- All existing speed tables on Stanford Avenue and California Avenue.
- Small center median islands with stop signs on College Avenue at Columbia Street, Hanover Street and Oberlin Street.
- Four (4) speed humps on College Avenue
- Two (2) traffic circles on Yale Street at College Avenue and Cambridge Avenue and curb extensions

Department Comments
Fire Station 2 is located in close proximity of the College Terrace area. The Fire department was consulted with regard to the proposed traffic calming features as recommended in the Current Plan. In February 2009, a field test was scheduled with the Fire Department's apparatus (truck and engine) to drive through and around the proposed median islands and curb extensions. Staff modified the design of the features to address the fire departments comments. Response times of emergency services would not be compromised by the College Terrace Traffic Calming Plan.

**POLICY IMPLICATIONS:**
The proposed traffic calming plan is consistent with the City's Comprehensive Plan T-34: "Implement traffic calming measures to slow traffic on local and collector streets and prioritize these measures over congestion management. Include traffic circles and other traffic calming devices among these measures."

In general, the initiation, planning and recommendation of the College Terrace Traffic Calming Plan are consistent with the City's Neighborhood Traffic Calming Program that addresses spot treatment on a residential street.

Staff believes there are no other substantive policy implications.

**RESOURCE IMPACT:**
Funds for the additional signing and striping required for the traffic calming measures are available in the CIP project PL-05003, College Terrace Traffic Calming Project.

**TIMELINE**

Next Steps
The Commission's recommendations will be considered by City Council as a Consent Calendar item. Once Council approves permanent installation of the plan, the additional modifications will be completed in the Fall 2011 and the traffic circles would be hardscaped in early 2012.

**ENVIRONMENTAL REVIEW:**
The permanent retention of the Current traffic calming plan complies with all the requirements and mitigations stated in the project's original Mitigated Negative Declaration prepared in September 2004 and included as an attachment in the July 22, 2009 Staff Report (Attachment F).

**ATTACHMENTS:**
A. College Terrace Traffic Calming Plan
B. Before/After Speed and Volume Results
C. Letter to Residents, March 16, 2011
D. Letter from CTRA
E. Landscaping letter from CTRA Board
F. July 22, 2009 Planning and Transportation Commission Staff Report and Minutes

**COURTESY COPIES:**
College Terrace Residents Association Board
College Terrace Project Advisory Committee

PREPARED BY: Shahla Yazdy, Transportation Engineer

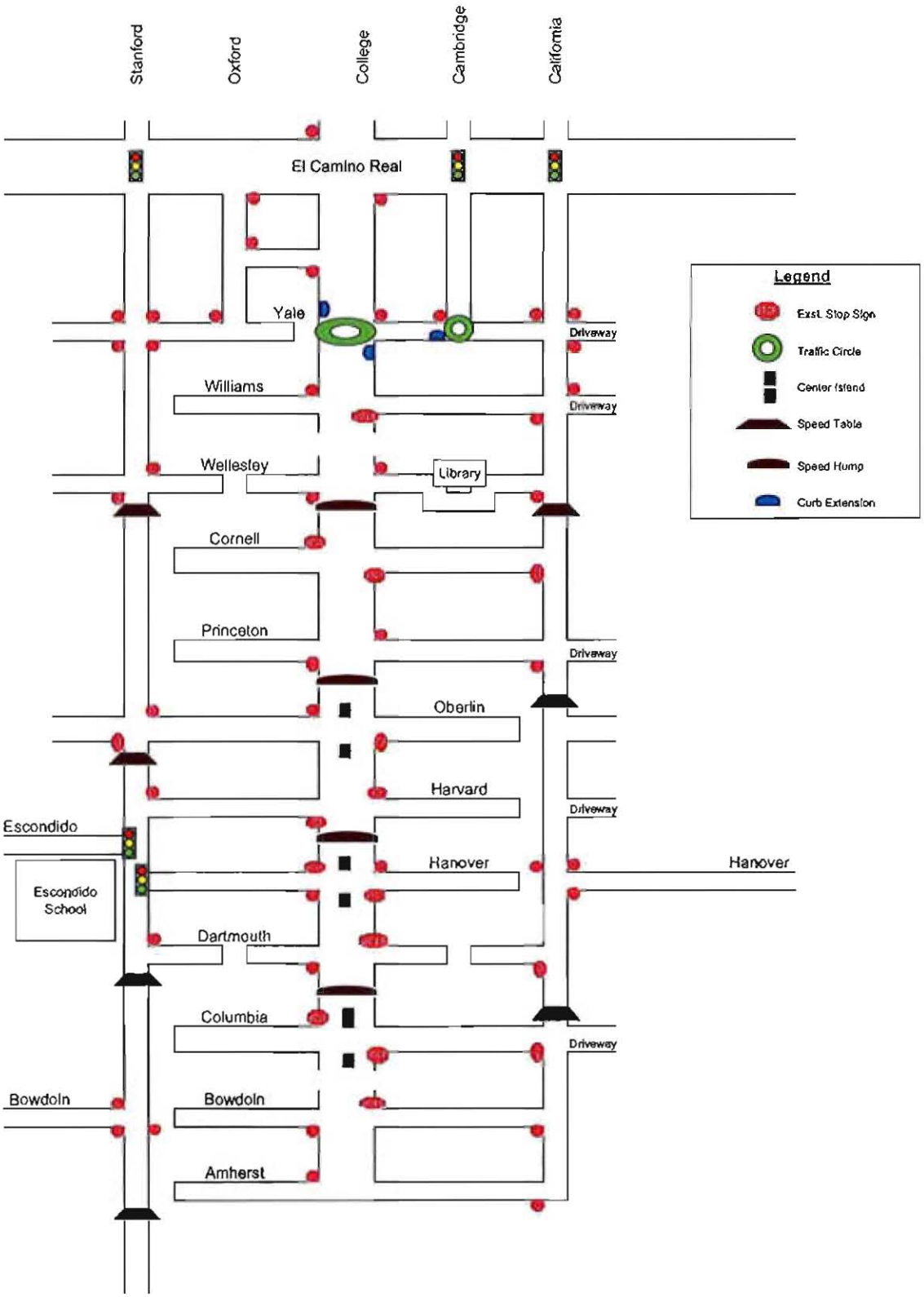
REVIEWED BY: Jaime Rodriguez, Chief Transportation Official

DEPARTMENT/DIVISION HEAD APPROVAL: Curtis Williams

**Curtis Williams, Director**

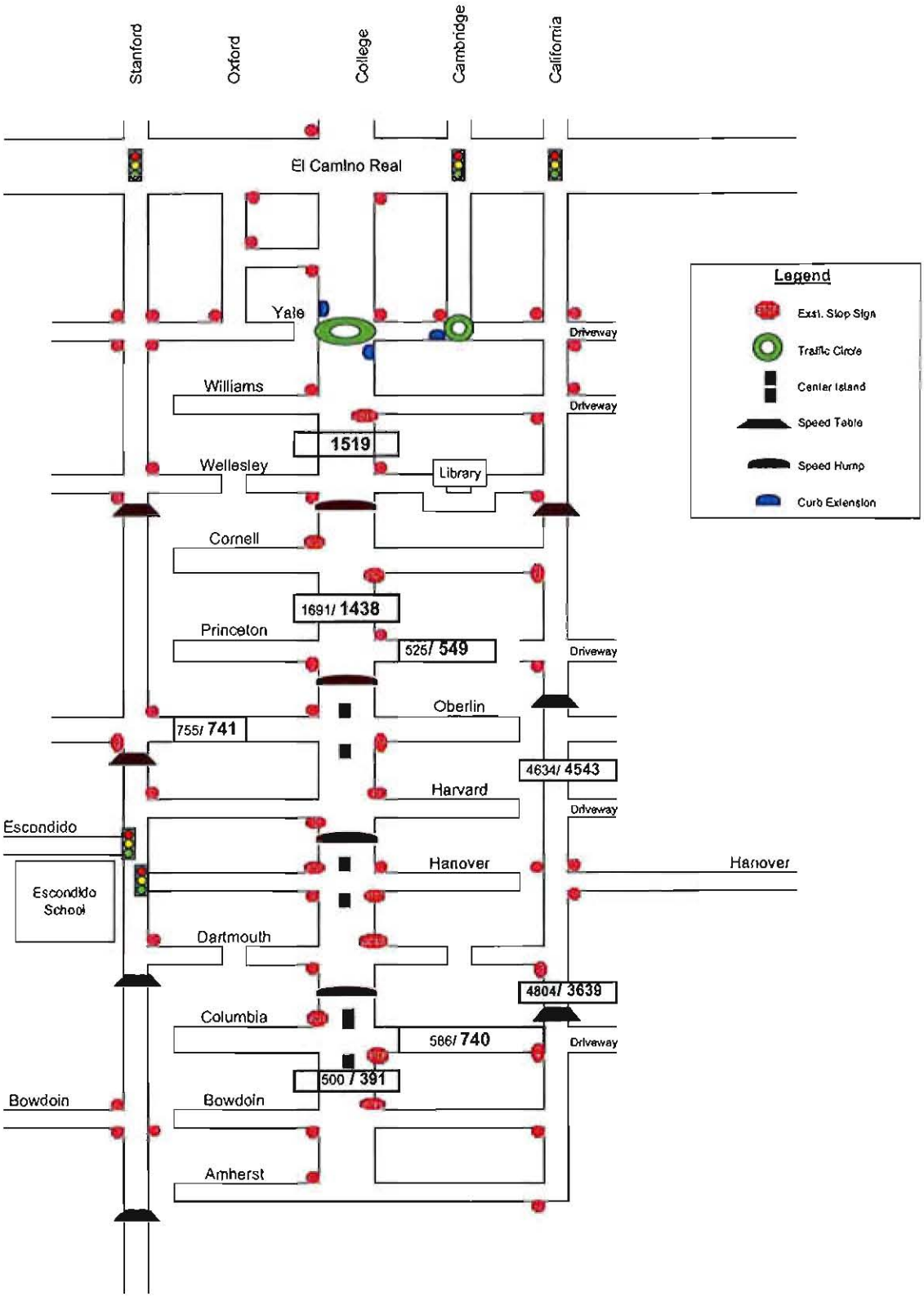
Attachment A

## College Terrace Neighborhood Traffic Calming Plan
### CURRENT PLAN



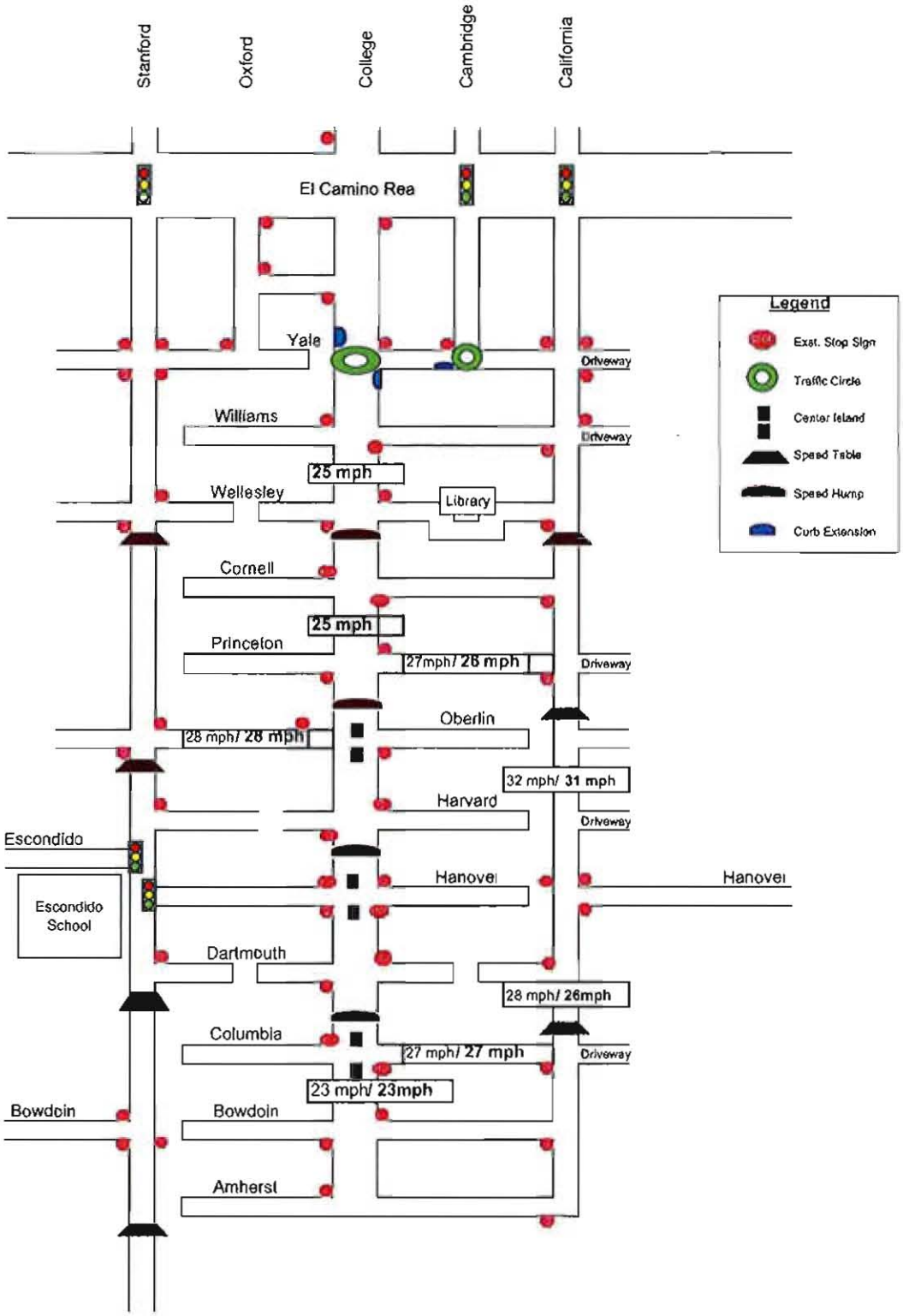
Attachment B-1

# College Terrace Neighborhood Traffic Calming Plan
## CHANGE IN VOLUME
## (2007/2010)



Attachment B-2

# College Terrace Neighborhood Traffic Calming Plan
## CHANGE IN SPEED - 85%
## (2007/2010)



**Attachment C**

March 16, 2011

SUBJECT: COLLEGE TERRACE TRAFFIC CALMING – NEIGHBORHOOD VOTE

Dear Resident,

Staff has been working closely with the College Terrace Resident's Association Board and a committee consisting of College Terrace residents, to evaluate the existing plan to make sure that it has achieved the goals for traffic safety and speed and traffic volume reductions while addressing neighborhood concerns.

In 2009, three (3) speed tables on Stanford Avenue and two (2) on California Avenue were approved for permanent retention and are not included in this current vote. Before and after data taken on May and September 2010 has shown that overall speeds and traffic volumes in the neighborhood have been noticeably reduced. A summary of the completed technical evaluation, speed and volume data and description of the traffic calming measures is posted on the project website (see website address below).

**This vote is for the permanent retention of the Current Plan (Exhibit A) which includes the following elements:**

**CURRENT PLAN** **:

- 3 pairs (6) small center median islands with stop signs on College at Columbia, Hanover and Oberlin.
- 4 speed humps to control speeds on College (see map on Exhibit A for locations)
- 2 traffic circles on Yale at College and Cambridge and the 3 curb extensions to approaches.
- 1 speed table on upper California Avenue (between Columbia and Dartmouth)

** If approved, staff will be updating the paint/striping/signing to enhance the traffic calming features.

**Postcard Vote:** Enclosed is a postcard to vote on whether you (1) support the permanent retention of the Current Plan, or (2) support the removal of the Current Plan. Please ***fill out the enclosed survey card and mail it no later than April 8, 2011.*** Please note that only one survey card per household is permitted.

In order for the "Current Plan" option to be approved for permanent retention, it must receive a vote from a majority (50+) percent of survey respondents. If supported by the neighborhood survey, this plan will be recommended to the Planning and Transportation Commission and City Council for final approval

Additional detailed information on the history and background of the project can be found at the project website: http://www.cityofpaloalto.org/knowzone/city_projects/transportation/college_terrace.asp. If you have any questions please email Shahla.yazdy@cityofpaloalto.org or call (650) 617-3151.

Shahla Yazdy
Transportation Engineer

Attachment D

College Terrace Residents' Association
2331 Amherst Street, Palo Alto, CA 94306
June 27, 2011

To: Shahla Yazdy, Transportation Engineer, City of Palo Alto

From: Brent Barker, President, CTRA Board of Directors

Subject: Traffic Calming Measure at Bowdoin and College

Dear Shahla:

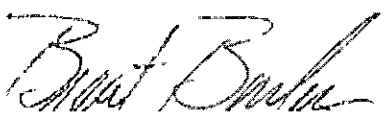
Now that the traffic calming trials have come to a close, we would like to express our appreciation to you and other members of the city staff for your patience, thoughtfulness, and engagement with the residents of College Terrace over many years and through numerous trials. The recent city-conducted neighborhood vote showed overwhelming support for installation of the latest round of calming measures.

We are writing specifically to request an additional traffic calming measure, one that would mean a great deal to our neighbors with very young children in the vicinity of College and Bowdoin, and one that we believe would take little additional time, effort, and expense on the part of the city when implementation begins. Bowdoin is the only interior street crossing College that has no calming measure in place or planned – a stop sign, speed bump, or something comparable. We would like to see a speed warning sign of some type that asks the drivers on the downhill side to slow down, pay attention, or conform to a designated speed. The particular problem with that corner is that cars turning down the hill from Amherst street (one block up) invariably accelerate because of the grade. The city took measurements of both volume and speed and found that less than 15% go above the speed limit, which is the cutoff criteria for whether a calming measure is warranted. We believe the statistics fail to capture the nature of the problem, or the anxiety felt by parents who fear their child will be struck by a driver coming out of blind turn from Amherst onto College and accelerating downhill without sufficient time to see or react to a slow moving child crossing the street.

Given the high level of concern with that particular intersection, and the relatively easy and inexpensive installation of a measure that would help remedy the problem, the College Terrace Board of Directors has voted unanimously to support our neighbors efforts to have such a sign installed. For us, it is a critical matter of safety because of the inordinate number of small children we have in the vicinity of Bowdoin and College. There are 15 children in that immediate area who are continuously running to each others' houses across the street.

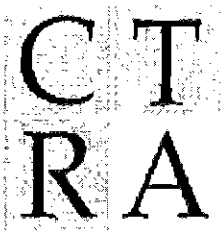
We thank you for your consideration. We would be pleased to discuss this at greater length. We have additional information and background to support our position.

Sincerely



Brent Barker, President

Attachment E




College Terrace Residents' Association

2331 Amherst Street, Palo Alto, California 94306

July 19, 2011

Dear City Council,

The residents of College Terrace have approved the traffic-calming plan, which will be coming before you in the near future. When it does, we urge the City Council to stipulate that the two traffic circles in College Terrace be landscaped rather than hardscaped. We appreciate the city's current financial hardships, and yet strongly support this expenditure, for the following reasons:

1. Landscaping was part of the original traffic calming plan presented by the city and agreed to *by a vote* of College Terrace residents. According to Joe Kott, *"Should residents wish to make the traffic circles proposed in Plan A permanent, the Transportation Division is committed to working with other city departments and residents to ensure that they are landscaped in an attractive yet affordable manner.*
(p. 31 http://www.cityofpaloalto.org/civica/filebank/blobdload.asp?BlobID=7454)

2. Whereas the original proposal budgeted for five traffic circles, only two traffic circles remain, resulting in a significant reduction in costs.

3. According to city website, the cost difference between hardscaping with concrete ($25,000) and landscaping ($30,000) is only 20%, or $5000 per circle. The cost differential has been more than offset by the $70-90k savings from eliminating three of the five original circles.
http://www.cityofpaloalto.org/civica/filebank/blobdload.asp?BlobID=7450

4. The aesthetic advantage of landscaping over hardscaping is extremely important to many residents of College Terrace. The circles reside at the "entrance" into the residential areas of College Terrace from El Camino, and thus provide a visual bridge and statement.

5. The aesthetics of the circles would reflect in spirit and principle the future streetscape upgrades on California Avenue, contributing to a sense of "place making" and community.

6. Residents of College Terrace would be delighted to work together with city workers on planting and maintenance in return for the benefits provided by "greener" circles.

Thank you for considering our request.

Brent Barker, President
CTRA Board of Directors

Attachment F

**Planning and Transportation Commission**
**Verbatim Minutes**
**July 22, 2009**

**EXCERPT**

**College Terrace Traffic Calming Plan Trial Evaluation –** Recommendation to City Council Regarding the trial evaluation of the College Terrace Traffic Calming Plan.

Ms. Caporgno: Thank you Vice-Chair Tuma. This is a recommendation to Staff primarily. Just to give you a little bit of how we got here. The City has established guidelines for traffic calming process for the trials on traffic calming. What they entail is that the trials are referred to the Planning and Transportation Commission for major collectors, and for local streets Staff can just initiate the traffic calming projects. In this particular case because even though these streets are local they were referred to the Planning Commission because of the significance of this area. The Planning Commission had originally referred the trial itself to Staff to undertake and it was undertaken. Now we are back to readjusting the trial in particular on College Avenue. So that is why we brought it back to the Planning Commission for that referral. We also wanted you to be aware of where we were with this process so you had a better understanding. We are anticipating coming back to you shortly after the beginning of the year, after this six-month extension occurs, to recommend approval on the entire traffic calming program. Then that would go to Council. So Shahla Yazdy, our Transportation Engineer, has worked on the traffic calming trial and she is here to introduce our consultant, Jim West from Kimley- Horn who prepared the analysis. The two of them will give you a presentation. Thank you.

Ms. Shahla Yazdy, Transportation Engineer: Thank you. Good evening Commissioners. I will be going over the College Terrace Traffic Calming Plan Trial Evaluation. As Julie had mentioned the one-year trial is now complete and Staff with consultants has put together or conducted over a year long process with project advisory committee and the College Terrace Board along with the consultants. Tonight we are recommending that the Planning and Transportation Commission implement and recommend the traffic calming features as shown on the modified plan to extend the trial for another six months, and also to request Staff to report on the effectiveness of the modified plan trial within six months of implementation.

I would like to introduce our consultant Jim West and he will be continuing with the presentation.

Vice-Chair Tuma: Thank you. Welcome Mr. West.

Mr. Jim West, Kimley-Horn and Associates: thank you very much. I am very happy to be here to talk about the College Terrace plan. Because some of you and some in the audience may not have participated in the earlier traffic calming work I wanted to take just a moment to talk about a little of the history of the traffic calming plan, then present some information on the before and after results, discuss briefly some of the comments that we got from residents of the

neighborhood, discuss some of the alternatives that are being proposed and how we want to move forward, and then next steps of the project.

As you know the College Terrace is in the green overlay area located between Stanford University and the Stanford Research Park. Many, many years ago several of the streets were closed to try to help protect the neighborhood from traffic cutting through the neighborhood. However, over that period of time those volumes have grown which prompted the traffic calming plan, which we worked on a few years back. That plan was worked in development with a project advisory committee, the neighborhood leadership, residents, and the City. That plan was supported by a survey in which 71 percent of the respondents supported that plan. It was approved by the Council in November of 2004 and following design those features were installed on a trial basis in 2006. This figure shows those improvements which were implemented that included four speed tables on Stanford Avenue, two speed tables on California, four traffic circles on College, another traffic circle at the intersection of Cambridge and Yale, and then there were a couple of minor stop sign changes.

In order to be able to assess the effect of that traffic calming plan data was collected before the implementation of those features and then it was collected a couple of times after. The results of that are summarized in this slide. Basically the number of speeders over 25 miles per hour, which is the posted speed limit on all the streets in College Terrace, went down based on the available data that we had. The number of speeders over 35 miles per hour went down on Stanford and California. We had mixed results interior to the neighborhood. That was really a result of the fact that people in the neighborhood generally travel between 25 and 30 so we really didn't have very much data over 35 or above. So therefore it is kind of inconclusive what happened with those. We had a volume drop on all but two streets. The exceptions were California where traffic was actually diverted out of the neighborhood and pushed out onto California where it is more appropriately located. So we saw a segment of California go up. Then there was a one-block segment of Princeton that went up by about 17 cars, so not much of a change on that. All the other streets saw a volume drop. In total we saw a drop of about 1,100 vehicles cutting through the north-south streets of the neighborhood. So we felt like the program was effective of what we were trying to do which was to really reduce both speeding and volume in the neighborhood.

In summary, we had general support particularly for the speed tables on California and Stanford. I think people really felt they did the job they were intended to do addressing speed and volume as well as making it easier to cross the street, particular for Stanford, which is very difficult to cross at the un-signalized locations. There were mixed opinions on the traffic circles along College. Even though they did reduce volume and speed there were concerns that were raised after the implementation regarding safety for pedestrians and bicyclists just because of the way the vehicles have to drive around the circle. There was some confusion as to who had the right-of-way when they approached the circle. As a result of that there was a petition circulated through the neighborhood where a number of or quite a few people signed that petition to ask for the removal of the circles.

In response the City removed the traffic circle at College and Hanover and restored the stop signs as they were previously to the implementation. That was the location that people seemed to

comment on the most. Stop signed were reversed back to the original conditions at College and Columbia. In the meantime process was initiated to work with a project advisory committee to take a look at what else could be done to enhance the traffic calming program. The objectives of that plan were to retain the speed and volume benefits that we had already achieved and then try to enhance those if possible, then also to focus on improved mobility and safety for the pedestrians and bicyclists. One of the first comments that we got was can't we just use stop signs to address all of our traffic calming needs? Stop signs are a regulatory device and are not intended for traffic calming. There are certain thresholds that need to be followed before those are implemented. Within Palo Alto these are the thresholds that the City follows. It could be used as a precursor to a traffic signal or if you have a very high accident location, the number of accidents in a 12 month period, or if you have very high volumes or delays at a particular intersection. In each of those locations where we had traffic circles it didn't meet any of these, did really even come close to any of these, to be able to justify the use of adding more stop signs in the neighborhood.

So we looked at other alternatives of what could be done. Working with the project advisory committee as well as the leadership of the neighborhood this was the plan that was developed. It went through a number of different iterations on this but the recommendation was to retain the speed tables on Stanford and California, and then add an additional speed table on upper California, to remove the traffic circles at Columbia and Oberlin recognizing that the Hanover one had previously been removed, install median island and speed humps on College. Let me comment just briefly on that. The median islands would be located basically where the traffic circles were removed. The purpose of those islands would be twofold. One is to provide a refuge for pedestrians who are crossing College, and the second is that on some of those side street traffic does not have to stop. In the past one of the comments we got was if there is no stop sign for that particular movement drivers tend to cut the corner, not slow down, and kind of fly through there at risk to the pedestrians. So this feature actually requires the vehicles to slow down and go around it so that they have to go very slow, and again provides a refuge for pedestrians. The speed humps would be located as close as possible to halfway between the stop signs on College. Those would help slow traffic and minimize and reduce some of the cut-through traffic in the neighborhood. The last one would be to add curb extensions to the remaining two traffic circles on Yale. What we found was that when there are not parked cars near the circles vehicles can actually kind of run in the gutter and zip around those. So the effect is not as great as intended. When cars are parked there they basically work as expected but this would make them work 24 hours a day regardless of whether or not there were any parked cars in the vicinity.

There was a survey sent out to the neighborhood to gauge interest both in retaining the tables on Stanford and California as well as whether or not the neighborhood wanted to pursue a modified plan or perhaps just keep it as it is, or perhaps just take off all the traffic circles all together. The results are shown here. Surveys were sent out to all the household in the neighborhood, 274 responded which is 30 percent of the neighbors. Eighty-three percent of those who responded wanted to retain the speed tables. So there was very wide support for that. For the modified plan we had two-thirds of the neighborhood supporting that. A much smaller number said let's keep it as it or let's just take those circles back out completely.

So the recommendation based on the neighborhood survey would be to modify the plan and go back out for another six months. Then at the conclusion of the trial period would be to collect some additional after data to see how those modifications performed and then come back to you and the City Council with those results. That concludes my presentation and I would happy to answer any questions I can.

Ms. Caporgno: I just wanted to correct something I said. I had mentioned that we don't have to come to Planning Commission for local streets and I implied that all three streets are local. The only local street of these three is College and that is where the modified extension or trial is going to be taken. So that is why we were saying that there isn't – we came to the Commission anyway because we wanted to get your input.

I wanted to also let you know that at the conclusion of the six-month trial we will go back out to the College residents and they will have an opportunity to vote on whether or not they felt that the extension and the modified plan work. Then with that information we will be bringing back the entire plan to the Planning Commission and Council.

The final comment I wanted to make is we did receive questions from Commissioner Keller and we responded to those and they were provided at places. I don't know if you want us to walk through those or if you have had an opportunity to review them but we could go through them if that is the Commission's desire.

Vice-Chair Tuma: Commissioners, my sense is that the questions here and the answers are very short. I think we can digest them. I do know that Commissioner Keller had a follow up question to one of those answers. So in the absence of hearing any desire to have each of these gone through maybe we will just have that one follow up question and then we will go to the public.

Commissioner Keller: Thank you. With respect to question two regarding curb extensions I am not sure I understand the answer about street sweeping because according to Attachment G, page 2, it says the curb extensions are separated from the gutter. So I am not sure how street sweepers would sweep the section between the curb extension and the gutter, which might well get clogged with leaves in the season when leaves fall. So I am not sure that that response actually responded to the question as I intended it.

Mr. West: You are correct because it does not connect to the curb the sweeper can't get in that one small area to sweep behind the curb extension. The sweeper can sweep out in front of it but you are correct that there may be occasions where the leaves will collect in there. One of the reasons that this particular style of curb extension was recommended is just simply a budgetary issue. If they are connected to the curb the cost of that extension grows significantly because often times you have to modify the curb to connect it, then you end up with a drainage issue and a lot of times you have to install a drainage inlet, and obviously that is a lot more money. Because of the budget that the neighborhood had available for the program that is why we have that recommendation. You are correct there may be a collection of leaves there.

Commissioner Keller: The other half of that question which I am not sure I understood the answer was the issue of bicyclists. It was mentioned that if there are no cars parked on the – then

the idea was to divert cars so that they don't go straight through they have to go into the middle of the street and sort of zigzag back and forth. However, if there are no cars there bicyclists also have to be diverted and I am wondering if that poses a threat to bicyclists or whether it – I am not sure whether this makes sense or not but if the distance between the curb extension and the curb were slightly wider so that the bicyclist can go through then they wouldn't have to zigzag and be exposed to traffic in that direction causing a narrowing. I am not sure whether that makes sense. It might be worthwhile considering for that. I am not sure that means that drivers might try to go in between. I have seen that happen on various speed bumps and speed humps too. Do you have any comments on that?

Ms. Yazdy: Well, the curb extensions would be as wide as if a car would be parked along the curb. So basically my comment or my response about the curb extensions not impacting the traveled ways, as bicyclist would pretty much share the road with the cars traveling in whatever direction. So the curb extensions wouldn't come out any further than a parked car would.

As far as whether a bicyclist would want to go around between the gutter and the edge of the sidewalk that is something I am sure you could do but that is something that we can't control.

Commissioner Keller: Okay, I just want that considered because one of the issues is that if there are no cars parked there then the bicyclists is usually going to be on the far extreme of the road and you are asking for the bicycles and the cars to merge in order to go past the curb extension into that. So I don't know whether you would consider that causes a hazard for bicyclists or not.

Mr. West: We can certainly take a look at it. Because they only stick out about seven feet from the curb, which means that the extension is probably about six feet wide, and then there is about a foot or so between the end of the feature and the face of the curb. If we were to make that opening larger essentially that curb extension would become fairly narrow which can actually create a safety hazard for vehicles in that it becomes very hard to see at night because it just doesn't really have enough target value as the drivers drive down the street. They don't see any parked cars, sees the circle, starts to kind of head for the gutter, and then oh my gosh there is something in the road. So there is a tradeoff we have to deal with. If it were a much larger feature, maybe stuck out about ten feet or something like that, if the road was wider and we could get a ten footer and then we shaved four feet off of that we certainly could accommodate that. It becomes a little trickier when it is a much smaller feature like we are talking about.

Commissioner Keller: Thank you. Perhaps reflective paint might be helpful here but thank you for your comments.

Vice-Chair Tuma: We are going to go to members of the public. I have five cards. Each speaker will have three minutes. The first speaker is Greg Tanaka followed by Andrew Feiter. Welcome.

Mr. Greg Tanaka, Palo Alto: Thank you. Dear Commissioners, good evening. I am President of the College Terrace Residents Association speaking on behalf of the CTRA Board of Directors and the CTRA Traffic Calming Implementation Committee. Thank you for the opportunity to speak.

Some of you may not have been here when the initial traffic calming efforts were first started. The neighborhood effort started ten years ago to this month to consider alternative solutions to the speeding, safety, and cut-through traffic that affected our neighborhood during the height of the dot.com boom. Cut-through traffic was especially heavy because the neighborhood is in between Stanford University on one side, the Stanford Research Park on another, and the El Camino Real on yet another.

We are submitting this _____ to encourage implementation. There are several reasons for this request. Quantitatively as indicated by the Staff Report the College Terrace voted in a neighborhood-wide City run survey by over a two to one margin for implementation of this modified plan. This was based on a relatively high survey postcard return rate. While the initial traffic calming trial helped as expected especially on California and Stanford Avenue, on College Avenue some of the traffic circles were not as effective and seemed to cause safety issues. The modified plan will address these issues. Qualitatively based on many neighborhood meetings and numerous resident feedbacks both in person and by email the overall College Terrace opinion closely aligns with the quantitative survey results to be working. Only minor tuning is needed which the modified plan will be implementing.

Finally, CTRA Traffic Calming Advisory Committee spend numerous meetings over the course of many months brainstorming, evaluating, and debating the causes of the issues with the original trial and possible new solutions with City Staff and the Traffic Engineer. Nearly half a dozen plans were developed and debated before the modified plan was finally unanimously agreed upon by the committee. The committee members represented a diverse group of residents throughout College Terrace who are interested and committed to finding a solution. While the modified plan is unlikely to be completely flawless the plan does _____ and implement the modified plan. Thank you for your time.

Vice-Chair Tuma: Thank you. Andrew Feiter followed by Jeff Justice.

Mr. Andrew Feiter, Palo Alto: Good evening. As a College Terrace resident and member of the traffic calming committee with four children, two currently at the elementary school at Escondido, and two more on their way, I encourage you to approve the modified plan trial that was before you today in the slideshow.

From the slides you saw that the CTRA Board, which Greg represents, the CTRA Committee, which I am a member of, and there are other members here, and two-thirds majority of the residents who returned their survey voted for the modified plan in spite of the fact that there were three choices on the ballot. We still got two-thirds vote even though there were three choices. We have City Staff and hired consultant also supports the modified plan. Through numerous meetings, input, and feedback we have come to the compromise of the modified plan. Although I would prefer more extreme traffic calming measures I think the modified plan is a reasonable plan worthy of implementation to make our neighborhood a safer place. Thank you.

Vice-Chair Tuma: Thank you. Jeff Justice followed by Don Fidler.

Mr. Jeff Justice, Palo Alto: I live in College Terrace. The problem is that we are a residential neighborhood sandwiched between a very large university and a very large industrial park. To keep our neighborhood walkable we put a lot of effort on traffic calming. When the plan that is currently in place went into effect we were really happy that it did reduce speeds on Stanford and California but we were upset that we actually got a reduction in safety on College with cars swinging into the pedestrian lanes. So for almost a year now we have been talking about ways to fix that. We came up with the modified plan. There were a million other ways to do it but that is the one that we came up with. It may have a few problems like the bulb outs but there are a million plans we went through and that is the one that we have right now. Thank you.

Vice-Chair Tuma: Thank you. Don Fidler followed by Steven Woodward.

Mr. Don Fidler, Stanford: Thank you. I brought some handouts. I brought ten copies if someone could pass them around so I can refer to a couple of attachments. I think it would be helpful if you saw those.

Thank you for having me here. I live on Cottrell Way, which is off of Raimundo, which is off of Stanford Avenue. I live in the Stanford Faculty Staff Housing section. The goal of traffic calming is to reduce injury accidents and yet there is no information in this report coming before you on what the before and after accident rate has been. In addition traffic calming has a negative aspect and that is that it increases emergency response times, which is another public safety issue. Emergency vehicles are most affected when they have to cross over multiple traffic calming devices to get to their destination. If you look on Attachment 1, which is just the original map, you see that from Fire Station 2, which I wrote on there almost anywhere you go to get across or through Stanford College Terrace one has to cross in many cases multiple traffic calming. Yet in tonight's report and in the report before you there is no mention of traffic calming, there is no before or after statistics about response time, and there is no before and after statistics about what has changed with response time. As you mentioned earlier Stanford Avenue itself is a collector road and many cities ban traffic calming on collector roads because they serve other communities. So look at the map on page 2, which is just a Google map of our area, and yes indeed our Stanford residential community lives right up the road off of Stanford Avenue. Stanford Avenue is our principle avenue for coming and going into this community, which we also live and work. I pointed this out to Gayle Likens two and a half years ago and strongly recommended that our residential homeowners association, the Stanford Campus Residential Leaseholders Association, be included in tonight's report with input as to how this traffic calming is going. I had hoped that we would see some response time data but our Director told me that there has been no contact at all whatsoever.

Our fire department serves both of our communities. In fact you probably know that we at Stanford pay extra through our ground rent for fire department services. I would hope that we would have a say in response time as it affects us.

On Attachment 3 you see the mitigation that was offered at the beginning yet that hasn't been followed up. What is a substantial increase? What is within and near? If they can get there in four minutes is that good enough? It doesn't seem like it if you live down the street.

I knew I wouldn't quite get through all of this. The next attachment is very important to you because it shows that response times citywide have gone up by a minute over the past year. One of the reasons for this is traffic calming devices. I thank you for the volunteer work you do in our community. You are needed to look into this more carefully and get a balanced viewpoint from police and fire so that we make the right balance between traffic calming and response times. I am sorry I couldn't quite hit the highlights I wanted to.

Vice-Chair Tuma: Thank you. The final speaker will be Steven Woodward.

Mr. Steven Woodward, Palo Alto: Thank you for the opportunity to speak. I got involved in this issue after watching my daughter try to cross Stanford Avenue to attend Escondido School, something she had to do approximately 200 days a year. She is now a sophomore at Paly and I am gratified that we are getting to this point before she actually graduates out the Palo Alto schools. I think I am very comfortable saying that it is a safer situation for children crossing Stanford Avenue in particular and that the extension of this work to the internal streets of College Terrace will benefit students in the interior of the community as well. Thank you.

Vice-Chair Tuma: Thank you. I want to ask Staff if they have any responses to the materials from the previous speaker but before we do that Commissioner Keller had a follow up question for Mr. Fidler if you could possibly come back up to the microphone.

Commissioner Keller: Thank you Mr. Fidler. You said that you live on Cottrell Way I believe.

Mr. Fidler: Yes.

Commissioner Keller: Thank you for the map here. Do you know whether Cottrell Way is served by the station on Hanover or served by the station off of Campus Drive on Bonaire Siding?

Mr. Fidler: I was told by the people at the Hanover Station that they serve my neighborhood. I am told that Page Mill Road is the obvious quicker way to get to my neighborhood but we all know that at rush hour every evening Page Mill Road is impassible and therefore going through College Terrace to Stanford Avenue is the shortest way to get to my neighborhood. However, I must say it is the fire department that needs to say what they really do not me.

Commissioner Keller: Thank you. I know that on Peter Coots Road which presumably would be the route the fire department would take from Hanover Station along Page Mill Road I am wondering if you are aware of the intersection of Peter Coots Road and Stanford Avenue?

Mr. Fidler: Of course.

Commissioner Keller: Approximately ten or 15 years ago Stanford University created a traffic calming measure to prevent free right turns at that intersection from Peter Coots Road onto Stanford Avenue.

Mr. Fidler: I remember they were there.

Commissioner Keller: Yes, did you have a say about that traffic calming measure being done on Peter Coots Road right turn onto Stanford Avenue?

Mr. Fidler: No I did not.

Commissioner Keller: Do think any of the College Terrace neighbors had any say on that right turn?

Mr. Fidler: I have no idea.

Commissioner Keller: So I just think that in some sense we are giving you a lot more input into this process of the traffic calming for the City of Palo Alto measures than was afforded by Stanford University to even their own residents nearby that were impacted by that traffic calming. Thank you sir.

Vice-Chair Tuma: Okay, Julie do you have some comments on the issues that were raised by Mr. Fidler?

Ms. Caporgno: Yes. During the six-month period as we extend this trial we would have an opportunity to discuss further with police and fire any of the issues that were raised. I don't know if Shahla or Jim have anything to add to that. This would give us an opportunity and when we come back for approval of the permanent traffic calming program then you would have that information.

Ms. Yazdy: I did want to make one comment. The fire department was involved in implementation of each of these devices including the circles that are currently out there right now, and also the design of the median islands and the curb extensions. So we actually did a run through with their devices for the placement of these measures.

Vice-Chair Tuma: Okay, great. Thanks very much. So with that we will bring it back to Commissioners for questions. Just to remind ourselves about what we are looking at here there are sort of three directions we could go. One is to recommend that the measures that are currently in place stay in place. Number two would be to take out what is there. Number three would be to implement the modified plan as proposed. So with that as a backdrop let's go to Commissioners. The first light I have is from Commissioner Fineberg followed by Commissioner Lippert.

Commissioner Fineberg: I would like to start by saying that I appreciate that Staff has brought this to the Commission. If I could follow up a little bit more on why it is coming back to the Commission. I am still confused about the action we are being asked to take. In the recommendation in the Staff Report it says Staff recommends that the Planning Commission implement the measures and evaluate and request Staff to report on the effectiveness. I was under the impression that we can't ask Staff or direct Staff to do anything that takes more than an hour. So how can we actually implement the Staff recommendation? Is this just courtesy feedback and so it is a two-way courtesy? What is our action?

Ms. Caporgno: The two of you may want to correct me on this but my understanding is that we have traffic calming trial guidelines and the guidelines indicate that we bring to the Commission initiation of these traffic calming measures to the Commission, and you authorize them, and then they are implemented. So this is not something that would take us more than the hour. It is a process in order to enable the public to provide feedback too. So it is coming to you, you authorize it, then the program will be implemented for six months, and then it comes back to for a recommendation to Council. So that is really what we are asking you to do tonight.

Vice-Chair Tuma: I just want to clarify that. We did talk about this is pre-Commission and really the function here tonight primarily is to have a public hearing to give the public an opportunity to comment on the proposed plan. I think Staff had also encouraged comments from Commission. Theoretically if we had a real problem with this we would recommend that they not move forward and go with one of the other alternatives. So those are on the table. Primarily this is to give the public an opportunity to have a hearing on these modifications that are going to go forward. That was the explanation that we talked about the other day.

Commissioner Fineberg: Okay. I absolutely value that opportunity for the public to have input and have a place where their voice can be heard and heard openly. Julie, you mentioned that there are traffic calming guidelines. I have been on the Commission for a year so I am still very much learning. Are those something that are publicly available? Is that something that was in our Staff Report and I missed it? Where might I get them?

Ms. Yazdy: The traffic calming program guideline was developed in 2001 and Council did approve the program, which are the guidelines that we use to apply traffic calming measures in our neighborhood streets. This is available online for anyone including the public. This was the group – we did look at this. It is more like a procedural step-by-step and what the options for the traffic calming features are. It is available on the City website.

Commissioner Fineberg: Okay, because I would have preferred if that exists that I read that before this meeting but I can go catch up on this now. Okay.

I am hearing terms like speed humps, speed bumps, speed tables and I can't say that I understand all the subtle differences, and frankly I am not sure if I want to. The impression that I am getting is that a lot of this is an art and not a science and as we do experiments we learn from what we do what works, what doesn't work, and then you have to kind of layer into it the fact that people are not predictable, and people that drive or ride bicycles may not follow all the rules so they won't behave predictably.

So I am wondering if the results of other experiments with humps and bumps and lumps and tables are available to Staff and our consultant. Specifically I am thinking about some of the trials that were done on Louis Road. The first implementation part of it was a failure. It created more dangerous considerations and I can't tell you whether they went from lumps to bumps or what they were but they caused people to veer into the gaps for the fire truck wheels. They caused drivers that were normal law-abiding citizens to drive up on the sidewalks. There were numerous people including myself who were calling the police saying this is a crazy situation,

fix something. So are the results of those trials, are the learnings from those trials available to you? Are those lessons being applied in what we are doing in College Terrace?

Ms. Yazdy: Well, I am not really familiar with what specifically was placed on Louis Road but I know that each one of our traffic calming features we do collect before/after data and all that is available and we do consult. I personally as far as speed tables and speed humps and the effectiveness and the before and the safety features but a lot of these measures like you said is really on a trial basis. Traffic circles that were placed in this neighborhood we realized that they are not working. We heard from the residents, we removed one of the features and then we kept on trying to come up with alternative measures. So data is available and I think there is more technical information as far as what would be best suited for what kind of neighborhood. Some features would address cut-through traffic. Some features are specifically for reducing speeds and volumes so all that is taken into consideration when we do propose a traffic calming plan for a neighborhood.

Commissioner Fineberg: Thank you. So I guess from what you are saying I would encourage some mechanism that there be retention of institutional knowledge. On Louis specifically, I may not have the right technical word, but they were wide really harsh bumps and then there were gaps for the fire truck wheels. So what was happening is if you went over it at anything over five or ten miles an hour it was so harsh that you slowed down way below what the rate of travel on the road was. I don't mean a five or ten percent decrease but people were slowing down to five and ten miles an hour so as not to have these bone jarring crashes over the humps or tables. What was happening is cars behind them were slamming on brakes, tailgating, road raging, passing in the other direction of travel, driving onto the sidewalk. It was creating dangerous situations. People were driving with their left wheel in the gap and the right wheel up on the sidewalk. I know that is all documented. I know it is on a different trial but if those learnings could be applied so as you are doing subsequent trials we retain that institutional knowledge I think that would be valuable.

Then onto some of the questions that Mr. Fidler raised. The modified proposal, has there been any comment from police or fire on that or that comment will be solicited as you go into the modified program?

Ms. Yazdy: Well we did consult them as far as the design of the new features for the program. Also, once we have finalized or at least recommendation for a permanent installation is where we are going to get the data as far as the delay in response times.

Commissioner Fineberg: Can you characterize the nature of their preliminary comments?

Ms. Yazdy: I will have Jim respond to that since he was part of the first installation of the traffic circles.

Mr. West: We actually had police and fire attend several of the neighborhood meetings when the initial plan was being developed. Obviously emergency response is their big item. The response we got back was there are some features that are very difficult for us to deal with and they actually were, if you can be supportive of a traffic calming feature, they actually were happy that

we were recommending these speed tables which are a lot gentler for a fire truck to travel over. The typical increase in response time for traffic calming features is commonly between five and ten seconds. I will point out that although there are several features within the neighborhood and some of the streets are actually closed the height of the fire truck actually allows them to drive through the diverters whereas everybody else would have to go around. So when making an emergency response they don't necessarily have to go through all those features they can cut right through the closure and perhaps hit one or two or maybe less depending on which way they are traveling. That is a little bit more information on that.

Commissioner Fineberg: Okay. My last question. Are there any before and after the trial accident statistics? Do we have any way of knowing whether the trial that has finished has worsened the accident rate or improved it?

Mr. West: We don't have that data and the reason it wasn't collected is that typically on very low volume residential streets the number of accidents or collisions is so low that you can't really tell a trend. So you might have one one-year and then not another one for another three years or something like that. So it is very difficult to even come to any kind of conclusion. So we had to rely more on the speed and volume data, which was sufficient to be able to draw some conclusions.

Commissioner Fineberg: Is there any expectation that with new development in the area the volume will change dramatically or the accident rate out of total trips will still be statistically insignificant?

Mr. West: I don't believe that the volume would go up particularly in the neighborhood sufficiently to change that.

Commissioner Fineberg: Thank you.

Vice-Chair Tuma: Commissioner Lippert followed by Commissioner Holman.

Commissioner Lippert: I just want to make a couple of comments and then I think I am going to make a motion on this.

First of all, on the original plan I was not a big proponent of the traffic circles to begin with. I think I asked a lot of questions about them. I have them in my neighborhood and I don't think they work particularly well. In fact, maybe it is just centrifugal force but I feel as though people speed up when they get to a curve. Maybe it is just something that is more in the mind than in reality but I don't think that they work particularly well at intersections. I have had a couple of close calls where people have pulled up to a stop sign where we have a traffic circle and in some respects we have to yield to them and let those people go through the stop sign because they are blocking the intersection, and they don't want back up at the stop sign. So I think in terms of facilitating traffic through the neighborhood at a slower speed that what is being proposed here in the modified plan is a lot better solution than what was proposed originally with the traffic circles.

**MOTION**

So with that I will make a motion that the Planning and Transportation Commission recommend the Staff recommendations to implement the traffic calming measures as shown in the modified plan, Figure 4, and extend the trial for another six months. I think the six-month timeline is great in terms of being able to gauge and see how well these measures work. Evaluate and request Staff to report on the effectiveness of the modified plan within six months of its implementation. I just want to add one other thing there. I think perhaps we should add to that Mr. Fidler's concerns and maybe have some data also presented at the same time on emergency response times and see if that has been affected at all by these new measures.

Vice-Chair Tuma: That last section, are you making it a formal part of the motion?

**SECOND**

Commissioner Keller: Second.

Commissioner Lippert: Yes I will make it part of the motion.

Vice-Chair Tuma: Would the maker of the motion like to speak any more to it?

Commissioner Lippert: Recently I returned from Guatemala and the one thing that rally stood out in my mind is that there are lots of stone streets, and where there aren't stone streets there are lots of pot holes, and where there aren't pot holes and calm traffic the other alternative of course is to put in cobblestone streets and lots of pot holes.

Vice-Chair Tuma: Commissioner Keller, as the seconder would you like to speak to your second?

Commissioner Keller: Yes thank you. First I would like to offer some friendly amendments to the maker of the motion. First I would like part of the motion to involve a reconsideration of speed tables versus speed humps.

Before I get there let me first give some nomenclature. Speed tables are gradual traffic calming measures that essentially involve a rise, a flat area, and a decent in shape and are much more narrow. What were originally placed on Louis Road were speed bumps however, rather than being the speed bumps placed in terms of asphalt on the road there were actually some rubber kind of thing that was actually screwed into the pavement. They didn't extend full width of the pavement they was stuff on the sides. I believe that was not for fire trucks I believe that was for bicycles. Because the speed bumps were so severe in their height....

Vice-Chair Tuma: Commissioner Keller, if I may, it might be helpful if you could run through your proposed friendly amendments first. It might be easier for the rest of us to just track what those are and then you can speak to each of those. It might be easier just to have that list first.

Commissioner Keller: The reason I went through this nomenclature first is so that I could explain my amendment. My first amendment is to reconsider speed tables versus speed humps as part of the traffic calming measure. I can go into more reasons why but that is my first amendment.

Commissioner Lippert: Do you have multiple amendments?

Commissioner Keller: Yes I do.

Commissioner Lippert: Why don't you make them all.

Commissioner Keller: Okay, so the first amendment is to reconsider speed tables as opposed to speed humps on College Avenue. The second amendment is to consider the curb extensions and the impacts on street sweepers and bicyclists. It is not clear to me that that analysis is complete. The third amendment is to have the street resurfacing follow the finalization of the traffic calming plan and not occur in the middle of the traffic calming plan in case we make a third iteration to it there are negative impacts on street resurfacing done as with what happened on Louis Road. They put the rubber things down, they put the street resurfacing in, they removed the rubber things, and now what you have are gaps in the surface. So that's why my third amendment is to request the street resurfacing follow the finalization of the traffic calming plan.

Commissioner Lippert: I will accept the third amendment. All that this is is a modified plan and it is not meant to be finalized. It is only a – we are basically testing it out and seeing if it works. So your third amendment there makes a lot of sense not to resurface the street until after we have gone through the trial and we have evaluated it.

The other two, I think that they have a plan here, I am supporting the plan. If they want to use speed humps and they say that speed humps are going to work let's do the speed humps, and see if they work or not, and if they don't then go to the speed tables. There is a very specific rationale and reasoning behind what is being proposed here. So I am not inclined to accept the first two amendments.

Vice-Chair Tuma: Staff, do you have some comments on these?

Ms. Caporgno: I just wanted to clarify one thing. As far as a resurfacing of the street it is my understanding that if we don't resurface the street now we lose the funding. So that is why the street was going to be resurfaced in the next few months. Given what is out there right now no changes to the program have to be made in order to resurface the street. On the two streets, Stanford and California, the neighborhood seems to be satisfied with that. In fact, we consider that to be the permanent plan it just needs to come to you for recommendation and Council for approval. The area in question still is the College portion of it where this modified trial will take place. I think that if the Commission recommends against resurfacing now we are just not going to be able to resurface now or in the future, but it is not going to be that we will have funding available in the future.

Vice-Chair Tuma: Did you want to make any comments on the other two recommendations that Commissioner Keller had put forth? Those were to reconsider speed tables versus humps and to consider curb extensions and the impacts on bicycles and pedestrians.

Ms. Caporgno: As far as to consider the impacts of the curb extensions that would be something we could come back with at the conclusion of the trial if the two of you agree to that. I would defer to you as far as the difference between the tables and humps and what the implications of that would be.

Mr. West: If we were to do speed tables they would be just like the ones on California and on Stanford which are 22 feet across. Speed humps are typically 12 feet across so about half that distance. Certainly we could interchange those the only possible problem that might crop up is just trying to locate the larger feature without interfering with drivers. We try to kind of put them in between where people are not backing out of their driveway right on the feature. It is not a really big deal but it is preferable. So sometimes it is a little trickier to miss all the manhole covers, and water valve covers, and things like that on the street if you have a bigger feature.

Commissioner Keller: Excuse me do you mean 22 feet or 22 inches in width in terms of front to back as opposed to the width across the street? I am confused.

Mr. West: From front to back 22 feet on a speed table, 12 feet on a speed hump.

Commissioner Keller: Twenty-two feet?

Mr. West: Yes, they are pretty big.

Commissioner Fineberg: Two car lengths?

Vice-Chair Tuma: Excuse me Commissioners. If we could let's take this in order and please ask to be recognized.

Commissioner Keller: Looking at the ones on Stanford Avenue and California Avenue I am confused as to really whether 22 feet, which would be essentially a car length or so, that these things don't appear to be that wide but I am surprised.

I am not suggesting that we are directing, in terms of my amendments, Staff to make these changes. I am suggesting that Staff consider these changes particularly in light of what Commissioner Fineberg mentioned of the lessons learned from Louis Road where speed humps where put in and because those were unsatisfactory those had to replaced by speed tables. Essentially they were unworkable. My intent in having these two amendments to the motion is for that Staff consideration. It is not a direction to make a change it is a direction to actually do a consideration and evaluate that prior to implementation. That is entirely for Staff's discretion in working with the consultant.

So I will offer my first and second amendments again with respect to the street resurfacing I guess we should withdraw that. I am not sure why the street resurfacing money goes away that

is kind of weird. It must be some money from somewhere else I am not sure why it has a limited life.

Ms. Yazdy: I would like to just comment. Public Works is actually the department that is actually working on the street resurfacing project for College Terrace area. We were actually very lucky to kind of put these elements of this project as part of their bid package where they gave us an estimate of how much it would cost. So if we were to go back – well basically they are paving the project and we incorporating whatever elements that we agree upon after tonight's meeting as part of that project. So I am afraid that they have funding that they need to use up for the project and I think the resurfacing project would move forward with or without these traffic calming measures.

Commissioner Keller: Based on my hearing from Staff I withdraw my comment about street resurfacing following finalization for this particular project. However, I do think it is bad practice in the future. So make a note for the future that don't bid out street resurfacing while traffic calming is in process until the traffic calming program is completed because you are going to have to extra rework.

Vice-Chair Tuma: There are some Commissioners that have not had an opportunity to speak yet so if we could move on to.

Commissioner Keller: I would like to offer my amendments and if the maker of the motion doesn't accept them as a friendly amendment I will offer them as a formal amendment for seconding.

Vice-Chair Tuma: Maker?

Commissioner Lippert: No, I don't accept any of the amendments.

**AMENDMENT**

Commissioner Keller: In that case I offer these amendments as formal amendments to the motion.

**SECOND**

Commissioner Fineberg: I will second it for discussion purposes.

Vice-Chair Tuma: Okay. Next to speak will be Commissioner Holman. Sorry, one second. City Attorney, with the amendments that have been offered do we now need to have the maker and seconder speak to those before we continue on with discussion?

Mr. Larkin: That has been the Commission's practice but it is the discretion of the Chair.

Vice-Chair Tuma: Okay. If we could be brief.

Commissioner Keller: I have already spoken to the rationale for my motion but I would suggest that the discussion that happens be particular to the amendment and then we come back to the discussion in general.

Vice-Chair Tuma: Seconder.

Commissioner Fineberg: I seconded this because I don't know enough right now to know whether Staff has firm reasons to believe that the humps are better than the tables. They might know that but it has not been articulated. So if we can allow, if the Chair would recognize Staff so they can comment. In my mind if Staff has analysis, has reasons that the humps are better that they put that forward, then I would defer to that. The second reason I seconded the motion is what happens with our recommendation to Staff if partway through the trial they figure out the humps are a horrible trial? Do they need to come back to us or can you pull the humps and change to tables mid stream? Is our recommendation binding or can you do what is best on the fly?

Ms. Yazdy: I will go ahead and respond to your questions. I just want to clarify your concerns about the speed humps on Louis they were different kinds of speed humps. I am sorry I can't recall the name right now, but there are two speed humps placed side by side with a gap in the middle. I can easily say that we no longer recommend or use those speed humps. The speed humps that we are proposing for College are actually used in a lot of our neighboring streets, local streets, in the city and residents have been very happy with them. We recently put some in on Lincoln Avenue and the trial is almost over and I have only been hearing positive comments. We have speed humps on Indian and Moreno and that is already made permanent. So the speed humps that we have recommended have a positive reception from the residents in the area and they have been very effective.

Ms. Caporgno: I want to say about the process, if in fact these didn't work and we wanted to modify them during this trial as I mentioned before since this is a local street our guidelines don't require we come back to the Planning Commission. So we would be able to make those changes. We just came for this extension and modified version because we wanted to bring you up to speed as to where we were and we wanted public input.

Vice-Chair Tuma: Okay. Commissioner Holman.

Commissioner Holman: Also I want to thank Staff and the neighborhood for all the due diligence and for bringing this to the Commission.

If wishes were horses, I am not trying to design this, but the reason College Avenue is so difficult with speeding is because it is so wide. So I was just wondering if there was any consideration of – well, two questions. Is there any maximum dimension for parking strips? Was there any consideration of increasing the dimension of the parking strips so there would be room to plant more trees and to narrow the street? Was that given any consideration at all? If so, was that a cost consideration that kicked it out or what?

Mr. West: We did look at a number of things including bringing the curbs out farther into the street and narrowing the street. That in itself really got kicked out pretty early just based on cost. There was a budget established that we were instructed to work within and we could tell that you might be able to do a block or so of that but you would probably spend all of your budget.

Commissioner Holman: That is really a shame, really a shame, but appreciate your looking at it.

I have concerns that I have raised before but just to kind of get them back on the table too for the traffic circles that are remaining how to make them vegetated, whether it is native plantings that are water sensitive or what. My uneducated just intuitive and experiential opinion is that some of the traffic circles that don't work they don't work because they are so ugly people don't consider them and they just run over them. So there is that aspect of it. Then the other aspect of it, understanding that these are temporary one, but if they are not vegetated or not well designed in some fashion or other they are just almost a visual blight as they remain. So what is going to happen in the long-term about getting traffic circles vegetated? I am going to ask two things at once. Also, the medians, it is a little bit hard to tell from the description if they are raised or if they are painted at grade. It is a little bit hard to tell from what is written in here what the description is. If they are raised what about the vegetation aspect of those? So if you would address both at once I would appreciate it.

Mr. West: As far as the medians the raised part is about five feet by five feet. That particular style is used in other locations around the city. Then there is some striping that goes with it to help direct cars to go around it and not run into it. Because it is pretty small generally those have not been – I don't believe that any of those have typically been landscaped in the city. With regard to the circles themselves I know that the neighborhood from the very beginning has said that it would be their desire to have those landscaped at some point in time and we have encouraged the same thing. I agree with your point that sometimes people's objections to the traffic circle are as much aesthetic as it is functional, so rather than having it be perhaps something unsightly for the neighborhood it could really become a real neighborhood asset. So we would certainly recommend that if it is possible to do that some time in the future.

Commissioner Holman: Would you be able to comment on the effectiveness of traffic circles, of whether they are something to behold as opposed to just a thing plopped on the pavement? What I am looking for is if there is a way to get stronger argument to get some additional funding to make them more effective by getting them landscaped.

Mr. West: It depends on a bit on the community. I will say Seattle is probably the best example of a lot of traffic circles and the style that we have in College Terrace is the Seattle style circle. They are fairly low cost to implement but they can be landscaped. In Seattle a large share of those are landscaped. The policy that they have in that city is they allow the neighbors essentially to care for the landscaping. The neighbors basically get a permit to go out there and water them and weed them on low volume streets. If for some reason the neighbors fail to maintain it and it turns out to be a weed collection location then the agreement with the neighborhood is that the city will come back and essentially fill it in with hardscape, some sort of concrete or stamped concrete or something like that. So there is a fairly good motivation for people to take care of it. I know in previous discussions with the neighborhood they have

expressed interest that they would be happy to walk out there and water those and maintain those. That is just an example of how one community deals with it and again I think Seattle probably has somewhere in the neighborhood of several thousand traffic circles in their community.

Commissioner Holman: Probably if this community, not this neighborhood, but this community can care for a couple of donkeys on an ongoing basis we can care for some traffic circles. I am not sure what the agreement is or if there is one or if the City maintains the traffic circles south of Castro, but south of Castro in Mountain View there are some really beautiful traffic circles.

The medians, is there any opportunity for those to be large enough to be planting opportunities?

Mr. West: I don't believe so unless we removed quite a bit of on street parking. When we brought the fire trucks out the fire department brought there – get around them at a reasonable speed. So we had to keep those basically as I described otherwise we would have to pull a lot of on street parking. Because parking is a premium in the neighborhood as you know we didn't necessarily want to go in that direction either.

Commissioner Holman: Probably my last question. Well, one comment, I appreciate that not only that you couldn't but you didn't go with stop signs. I am not a fan of stop signs. They are not good traffic calming measures plus environmentally they have implications to air quality that is not very positive.

There was another question here. Is there any longer-term vision or opportunity that can just be kept kind of as a record that narrowing the street would be a good traffic calming measure understanding there is not funding to do it now? Is there any way to kind of keep track of that as a possibility going forward? Was it presented to the neighborhood that should they – sometimes there are improvements to neighborhoods that the neighbors are willing to kick in to implement. So was that considered?

Ms. Yazdy: Certainly narrowing of the roads is part of the traffic calming measures and options that any neighborhood would have. I think as Jim mentioned the cost is really a big factor, but that is certainly something that we could look into in the future if funding does become available.

Commissioner Holman: Also, I don't know if this was part of your discussion or not but if the neighbors would be interested in potentially raising their own funds to help implement some of this. It would probably be a property value enhancement. Those are all of my questions.

Vice-Chair Tuma: Okay, I have just a couple of comments. First, thanks to Staff for bringing this to us. I know it is not something that had to happen but I think having the opportunity particularly for the public to participate is terrific. Also, thanks to the members of the neighborhood who have participated not only in the initial trial but in developing the proposed modifications. I am quite pleased to hear that on two of the three streets we have kind of gotten it right and now we have the opportunity to tweak things a bit and see if we can get the third one right. So it sounds like the process has gone well and I am glad that we were able to look at things that didn't go well and take a shot at adjusting those.

As far as the proposed amendments go I am not going to be able to support those. I believe that we need to leave this to the experts. I am perfectly comfortable with us making comments and throwing out ideas, should you look at the speed tables versus the humps, should you consider these sorts of things as comments or ideas but to make them as direction or part of the motion I am uncomfortable with. I don't think we should be getting into micromanaging the professionals on these types of issues. So I am not going to be supporting the amendments however I am very supportive of the underlying motion. So I do not have any additional lights at this point.

**AMENDMENT FAILS** (1-4-2-0, Commissioner Keller for, Commissioners Tuma, Lippert, Holman, and Fineberg against, Commissioners Garber and Rosati absent)

As I understand it there were two amendments that were being offered which were to reconsider speed bump tables versus humps and also to consider curb extensions and how they impact bicyclists and street cleaners. So all those in favor of those two items being added as a formal amendment say aye. (aye) All those opposed? (nays) That fails on a vote of four to one, Commissioner Keller in support and Commissioners Lippert, Fineberg, Holman, and Tuma not.

So with that we are back to the original motion, which was essentially the Staff recommendation modified with an accepted amendment dealing – sorry, that was withdrawn about the resurfacing. So essentially the motion that is before us now is the Staff recommendation. Commissioner Keller, did you have one comment before we vote on that?

Commissioner Keller: I actually spent most of my time on the primary comments basically talking about the amendments as a midcourse correction to it as opposed to directing Staff to spend lots of time on a task. So I think that is an important distinction.

Secondly, with respect to the comment that was made on one of the slides with respect to the speeds over 35 miles an hour which are interior to the neighborhood my understanding with respect to interior to the neighborhood the amount of speeds over 35 miles an hour were relatively negligible and therefore essentially the changes there were in the range of relative error so were not significant. So they are saying that they are mixed really is not meaningful.

The third thing is I think that one thing to consider is the greenhouse gas impacts of speed humps versus speed tables. Considering that speed humps require slowing down and then speeding up while speed tables essentially don't require that much slowing down so people can go at a constant speed. That slowing down and speeding up is an interesting effect as to the implication of that for greenhouse gases and there is also implication of that for the fact that people tend to speed up more between features that cause them to stop or slow down dramatically than they do when something allows them to go at a constant speed. I am not sure that was thought of clearly.

It is also ironic that we have warrants that essentially mean that we cannot create stop signs except for very stringent warrants and yet we have even though you can't put a stop sign in which seems to be a scalpel we have the ability to put traffic calming guidelines which essentially is more like a bludgeon, a big heavy thing that you are putting in, very large measures

that we are putting in and the warrants for those exist while the warrants for stop signs don't. I find that very ironic.

So the final thing is with respect to the raised medians at the College Avenue intersections please reflect the lessons learned from the raised median on Maybell and I believe it was Coulombe where essentially cars were running over that raised median when they were making left turns. So I would suggest that the shape of that raised median be adjusted to reflect to the ones on Maybell and Coulombe where they were rounded in order to avoid cars running over them. There were various other considerations that actually were a lesson learned from that. So I will support the motion. I would encourage Staff to consider those issues independent of whether they are made a formal part of the motion or not. Thank you.

Vice-Chair Tuma: A brief comment from Commissioner Holman and then we will vote.

Commissioner Holman: I am certainly not going to try this as a friendly amendment but I just can't overstress the importance of the vegetation. Again, with College Avenue being this wide I guess one suggestion with the proposed modification visually there is going to be an impact that won't be the most pleasant, it won't be awful, but it won't be the most pleasant. So the vegetation of the two remaining traffic circles is going to be really, really important going forward. I don't want the neighborhood to lose sight of that or Staff to lose sight of that. Even as a possibility if the neighborhood would take this on perhaps to vegetate the three traffic circles that are being proposed to take out before being taken out and see if there is any difference in result or response by traffic. That is for you all to decide.

**MOTION PASSED** (5-0-2-0, Commissioners Garber and Rosati absent)

Vice-Chair Tuma: Okay. With that I think we are ready to vote. All those in favor of the motion, which was essentially the Staff recommendation, say aye. (ayes) Opposed? That passes unanimously.

With that we will close item two.

Attachment F

2

# *PLANNING &TRANSPORTATION DIVISION*

## STAFF REPORT

**TO:** PLANNING & TRANSPORTATION COMMISSION

**FROM:** Shahla Yazdy **DEPARTMENT:** Planning and Community Environment

**AGENDA DATE:** July 22, 2009

**SUBJECT:** **College Terrace Traffic Calming Plan Trial Evaluation**

**RECOMMENDATION:**
Staff recommends that the Planning and Transportation Commission:

1. Implement the traffic calming measures as shown on the Modified Plan (Figure 4) and extend the trial for another six months.
2. Evaluate and request staff to report on the effectiveness of the Modified Plan within six months of its implementation.

**BACKGROUND**
College Terrace area is bounded by El Camino Real on the east side, California Avenue on the south side, Amherst Street on the west side, and Stanford Avenue on the north side. The area predominantly contains single-family residences except for a small amount of commercial uses along El- Camino Real. Main land uses surrounding College Terrace area consist of Stanford University on the north and west sides, and Stanford Research Park on the south side. The project study area, along with the existing traffic control devices and street closures are shown on Attachment A.

The College Terrace neighborhood has historically been affected by cut-through traffic and speeding for more than 20 years. In an effort to request assistance from the City to address speeding and traffic volume concerns, over 225 College Terrace residents signed a petition to the City Council in September 1999. College Terrace residents identified improved traffic management and mitigation as important neighborhood issues. Preparation of a traffic management study was also part of the mitigation requested by the City and ultimately included in Santa Clara County's list of mitigations required of Stanford University for its December 2000 General Use Permit.

In 2003, Consultant Kimley-Horn was retained by the City of Palo Alto to undertake the College Terrace Neighborhood Traffic Management Plan (NTMP). The plan was to identify solutions for

the traffic impacts using traffic data collection in the neighborhood as well as the residents' experience.

The residents of College Terrace were surveyed on their approval of the preferred Traffic Calming Plan option (See Figure 1) which had a response rate of 41%, with more than 71% of those respondents accepting the preferred plan.

Following Council approval, traffic circles, speed tables and other traffic calming measures were installed in late 2006 on the border and interior streets of the College Terrace neighborhood. A description of the traffic calming measures placed is listed below:

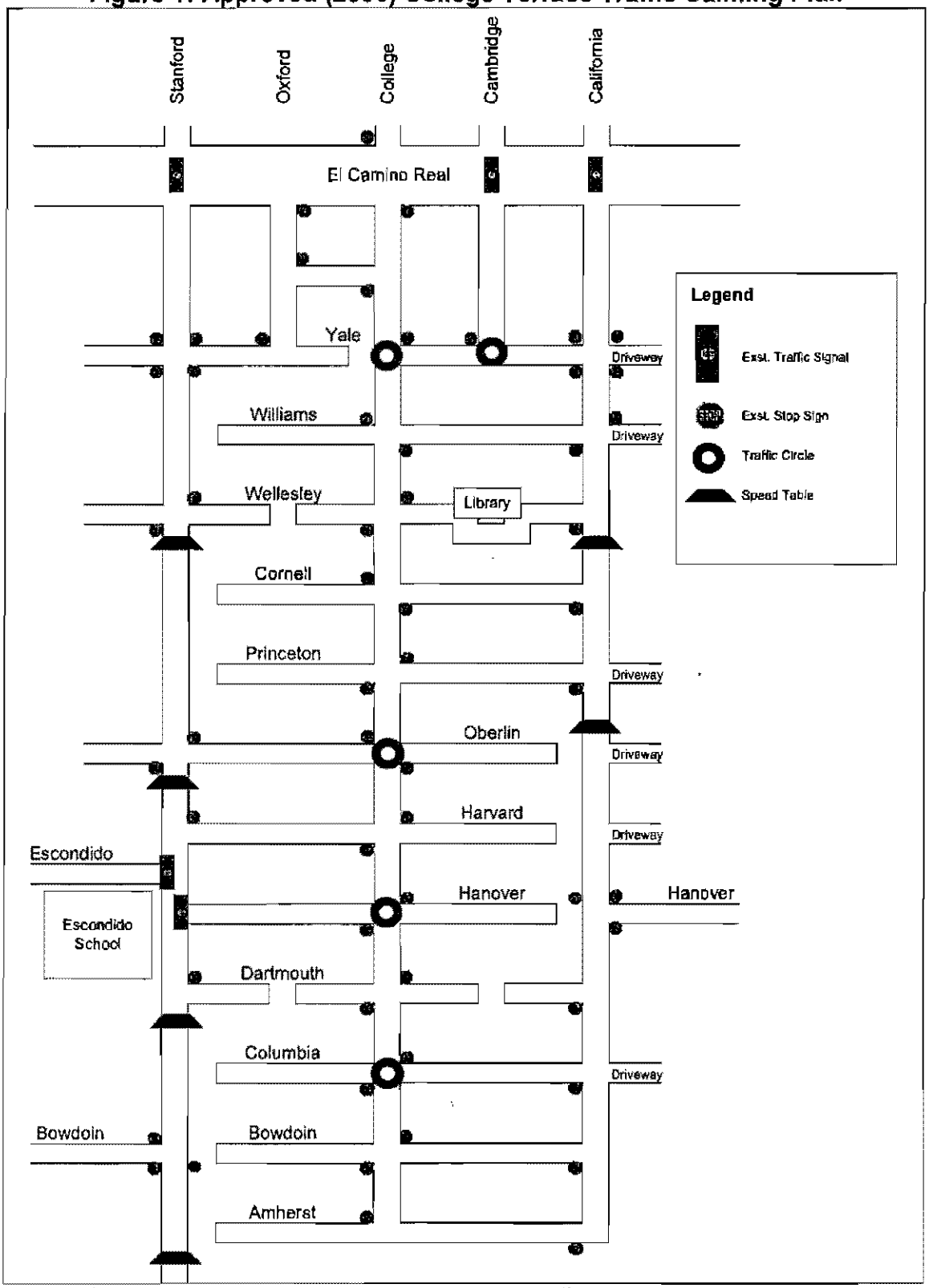
**Stanford Avenue:** Four (4) speed tables placed west of Wellesley Street, Oberlin Street, Amherst Street and Dartmouth Street.

**College Avenue:** Four (4) traffic circles were placed at the intersections of College Avenue with Yale Street, Oberlin Street, Hanover Street, and Columbia Street.

**Cambridge Avenue:** A traffic circle was placed at the intersection of Cambridge Avenue/Yale Street.

**California Avenue:** Two (2) speed tables were placed at the west side of Wellesley Street and west of Princeton Street.

## Figure 1: Approved (2006) College Terrace Traffic Calming Plan




Source: College Terrace Traffic Calming After Study, Kimley Horn – April 2008

College Terrace Project Trial Evaluation

The initial trial of the College Terrace Traffic Calming Plan was completed in 2008, including assessing the effectiveness of the traffic calming measures, both in terms of traffic management as well as meeting neighborhood expectations. The evaluation of the traffic calming measures compared before and after data, observed field observations, included a survey and analysis of all households to ascertain the level of support for the traffic calming plan and preparation of a final project recommendations report (see Attachment B).

The goal of the second phase of this project is to conduct a follow up evaluation of the original traffic calming measures. Staff has worked closely with the Project Advisory Committee (PAC) and College Terrace Residents' Association (CTRA) to evaluate the existing plan and to develop the modifications to the project that would achieve the same goals for traffic safety and speed and traffic volume reductions, while addressing neighborhood concerns about the original plan. As a result of the evaluation, the traffic calming measures were modified along College Avenue.

Data Collection

To establish before and after speed data for the neighborhood, vehicular traffic speeds (and volumes) were collected in May 2005 and May 2006 for the traffic calming installation, and then in May 2007 and October 2007 after the features were installed. The 2005 and 2006 data was combined to represent a larger number of locations where changes may occur after the installation of the traffic calming features.

Traffic Speed and Volume Results

The results of the before and after speed and volume data are shown in Figures 1 and 2 in Attachment C and in Table B below. Results of the speed data were evaluated using the 85th percentile speed. The 85th percentile speed is the speed at or below which 85 percent of the motorists drive on a given road. This speed indicates that most motorists on the road consider safe and reasonable under ideal conditions.

**Table B:** COLLEGE TERRACE SPEED AND VOLUME DATA

| Street | From | To | Before Volume (2005/6) | After Volume (2007) | % Change Volume | Before 85th Speed (2005/6) | After 85th Speed (2007) | % Change 85th Speed |
|---|---|---|---|---|---|---|---|---|
| Stanford | El Camino Real | Yale | 9963 | 8852 | -13% | NA | 28.5 | NA |
| Stanford | Wellesley | Oberlin | 8842 | 8233 | -7% | 33.5 | 31.0 | -8% |
| Stanford | Dartmouth | Bowdoin | 8687 | 7733 | -12% | 32.0 | 29.0 | -10% |
| Cambridge | El Camino Real | Yale | 1369 | 1441 | 5% | 24.0 | 23.8 | -1% |
| California | El Camino Real | Yale | 5154 | 6237 | 17% | 24.5 | 24.0 | -2% |
| California | Oberlin | Harvard | 4158 | 4634 | 10% | 34.0 | 31.5 | -8% |
| California | Dartmouth | Columbia | 1724 | 1641 | -5% | NA | 27.5 | NA |
| California | Cornell | Princeton | 4006 | 4292 | 7% | 34.0 | 31.0 | -10% |
| Yale | California | Cambridge | 1456 | 912 | -60% | 24.0 | 23.0 | -4% |
| Princeton | College | California | 508 | 525 | 3% | NA | 27.3 | NA |
| Oberlin | Stanford | College | 703 | 755 | 7% | 28.5 | 27.8 | -3% |
| Harvard | Stanford | College | 387 | 304 | -27% | NA | 26.8 | NA |
| Hanover | Stanford | College | 1012 | 960 | -5% | 26.5 | 26.3 | -1% |
| Columbia | College | California | 518 | 586 | 12% | 27.5 | 26.8 | -3% |
| Bowdoin | College | California | 210 | 193 | -9% | NA | 24.8 | NA |
| Amherst | College | California | 232 | 210 | -11% | NA | 24.0 | NA |
| College | Yale | Williams | 2155 | 1744 | -24% | 26.0 | 24.0 | -8% |
| College | Princeton | Oberlin | 1716 | 1691 | -2% | 27.5 | 26.0 | -6% |
| College | Hanover | Columbia | 932 | 871 | -7% | 24.5 | 25.5 | 4% |

Summary of Speed/Volume Data:

- Number of speeders over 25 mph down on all streets.
- Volume drops on nearly all streets except for segment of California and Princeton.
- More than 1100 fewer vehicles cutting thru N/S streets.

Before and after data has shown that overall speeds in the neighborhood have been reduced by 10% and cut through traffic has been reduced by more than 1100 vehicles/day.

Resident Input:

Resident input on the traffic calming measures has been collected by both the PAC and the CTRA. Although the traffic calming measures performed as generally expected, there was still mixed support for some of the features.

Overall feedback on the speed tables on Stanford Avenue and California Avenue has been very positive and these measures are recommended for permanent retention.

The City has also become aware that there are neighborhood-wide reservations about the design and effectiveness of the traffic circles on College Avenue. Some of the concerns with the circles are the reduced visibility at night, unsafe vehicle speeds and cars taking short-cuts by using the wrong lane of traffic. In March 2008, staff received a petition that was prepared by one of the PAC members that conducted an independent survey of resident's opinions regarding whether or not the traffic circles should be made permanent (See Attachment D). Over 200 residents signed the petition to express their concerns over the safety of the traffic circles and to encourage staff to work with the PAC and CTRA to develop a modified traffic calming plan to replace the circles on College and Yale. Some of the concerns stated were the ambiguity of the circles, unsafe vehicle speeds around the circle, vehicles taking shortcuts through the circles and encroaching into the pedestrian crosswalks as they try to maneuver around the circle, reduced visibility, pedestrian/bicycle safety, lost parking spaces, and aesthetics.

In August 2008, because the intersection of Hanover and College is used by many children who cross this intersection to go to Escondido School, the PAC and CTRA requested that the City to remove the traffic circle at Hanover/College and restore the original 4-way stop sign and also to reverse the stop signs at Columbia/College Avenue to their original locations.
This interim measure was to provide a short term solution while the PAC continued to work with staff to develop a feasible alternative for College Avenue. A letter was sent out to the residents (see Attachment E) informing them of this change while staff continued to work with the PAC to develop alternatives for College Terrace. This work was done during the week of August 18th, 2008 prior to the start of school.

Project Advisory Committee (PAC) Project Evaluation

Staff worked extensively with the PAC and Consultants to review the before and after data collected and to come up with an alternative plan for College Avenue that would satisfy the goal of the project without sacrificing the safety of the pedestrians and drivers.

During the evaluation of the project, there were many inquiries/requests about placing 4-way stop signs at all of the intersections on College Avenue. Intersections on College do not qualify for 4-way stop signs. In order for an intersection to qualify for a 4-way stop sign, it would have to satisfy the requirements of a Multiway ( 4-way) Stop Sign Evaluation (see Attachment F) that lists the criteria/warrants required in order for a 4-way stop signs to be placed at intersections.

The speed tables on Stanford and California Avenue have been very successful in reducing vehicle speeds in the neighborhood. Overall consensus from the PAC was to move forward with a neighborhood vote to make the three (3) speed tables on Stanford Avenue and the two (2) speed tables on California Avenue a permanent traffic calming feature. Staff also recommended permanent retention of the speed tables on Stanford and California.

The two traffic circles on Yale (at College and Cambridge) have also been very successful in reducing speed by 4% and volume by 60%. Residents in this area have been very supportive of keeping these circles as part of the plan and they were therefore included in the additional options that were developed.

Additional Alternatives Considered

Staff continued to work with the PAC to study additional options/alternatives for a traffic calming plan on College Avenue that would achieve the same goals for traffic safety and speed and traffic volume reductions, while addressing neighborhood concerns about the existing plan. After reviewing a variety of traffic calming options on College, two options were recommended by the PAC for further study and development and to present at the neighborhood meeting.

Neighborhood Meeting

A neighborhood meeting was held on November 19, 2008 to discuss the traffic calming plan. Comments received at the meeting included support for the two traffic circles on Yale, request to add stops signs on all intersections of College and support to remove the existing traffic circles on upper College Avenue.

Staff also clearly explained the next steps for the completion of the current traffic calming trail: 1) Remove features and go back to previous conditions; 2) Keep the current plan and make all the features permanent and 3) Modify the plan and start 2nd trial.

Modified Plan

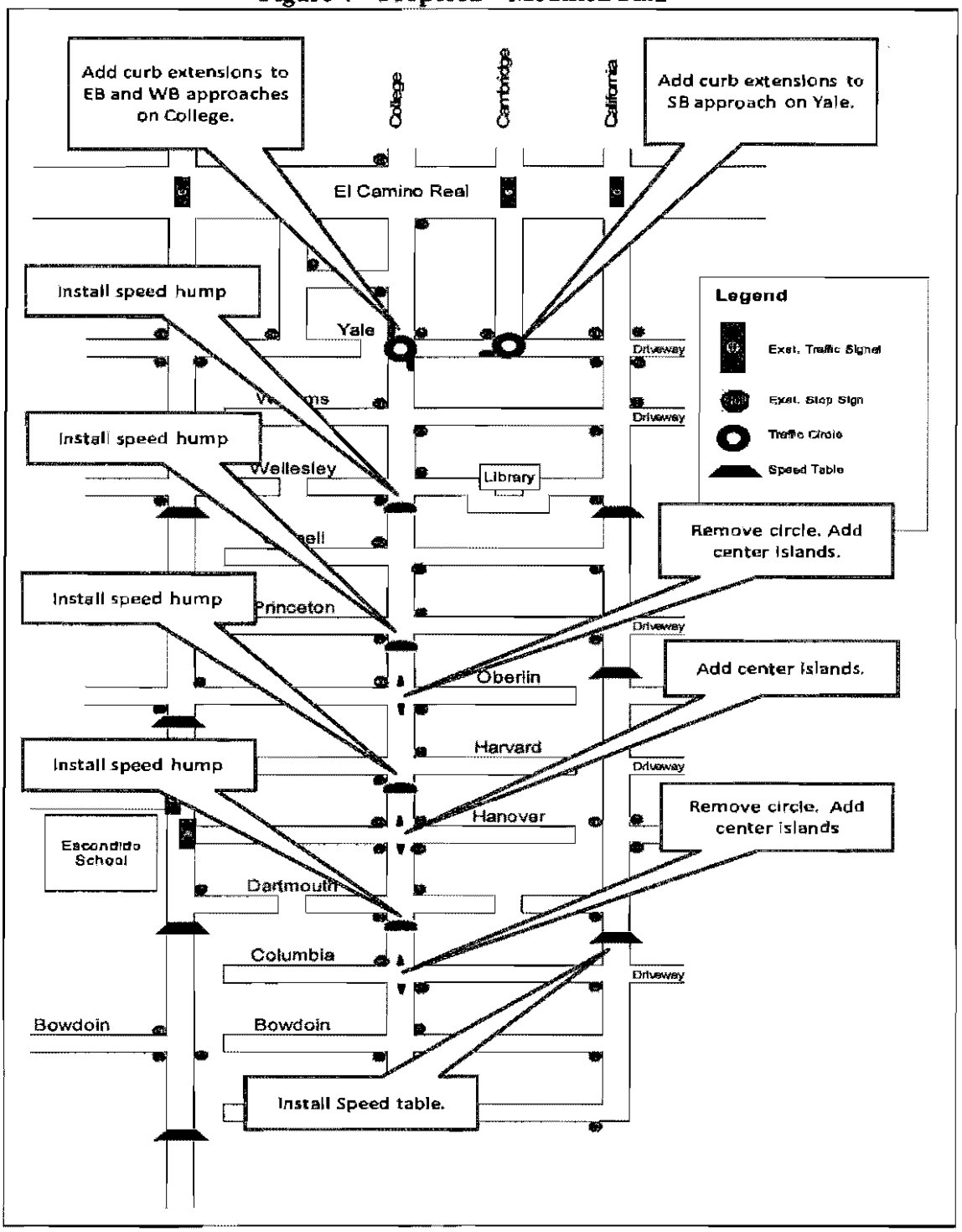
After hearing all the comments and concerns from the neighborhood about the traffic calming measures in the interior of the neighborhood, City staff, Project Advisory Committee, CTRA and the engineering consultants proposed a combination of the two options that were presented at the neighborhood meeting and referred to it as the "Modified Plan". This alternative would address most of the neighborhood's concern about the current plan while achieving the same traffic safety and traffic calming goals of the trial project. The elements of the Modified Plan (as depicted on Figure 4) are:

- Retain existing speed tables on Stanford Avenue and California Avenue.

- Add a new speed table on upper California Avenue.
- Remove existing traffic circles at Columbia and Oberlin.
- Install small center median islands with stop signs on College at Columbia, Hanover and Oberlin.
- Install 4 speed humps to control speeds on College (see map on Figure 4 for general locations). Keep the traffic circles on Yale at College and Cambridge and add curb extensions to approaches.

Detailed descriptions and figures of all proposed traffic calming measures are included in Attachment G.

**Figure 4 – Proposed "Modified Plan"**



Neighborhood Survey Process

In May 2009, a detailed letter and a neighborhood survey postcard (see Attachment H) were mailed to about 900 households in College Terrace. The survey letter included a description of the Modified Plan and a detailed description of the proposed traffic calming elements that were proposed as part of the Modified Plan. If the neighborhood supported the Modified Plan with the new traffic calming features, staff would then work with the neighborhood after the 6 month trial is over, to expeditiously evaluate the results of the trial. Residents were given 3 ½ weeks to send back their postcards. During this time the CTRA also circulated a newsletter (See Attachment I) expressing their recommendation and support for the six-month trial of the Modified Plan.

In order for the "Modified Plan" option to be approved for a short 6-month trial, the vote required a (50+) percent majority of survey respondents to vote in support (yes) for the plan. If supported by the neighborhood survey, this plan would be implemented in conjunction with Public Work's street resurfacing project later this summer and the trial would end in Spring 2010.

Survey Results

Out of the 900 postcards sent, approximately 30 % (274) of the survey postcards were returned. Based on the replies received and as shown in the table below, a workable community consensus (estimated 67% of responses) has been reached in favor of the trial extension with the "Modified Plan". Also, as shown below, 83% of the total responses received voted in support for the permanent installation of the speed tables on Stanford and College Avenue.

**Table C: Survey Results for College Terrace Traffic Calming Plan**

| Replies | | Support Speed Tables on Stanford/California | | | | Modified Plan | | Retain Existing Features | | Remove All Features | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| # | % of Houses | # Yes | % of Responses | # No | % of Responses | # Yes | % of Responses | # | % of Responses | # | % of Responses |
| 274 | 30 | 228 | **83** | 36 | 13 | 183 | **67** | 38 | 14 | 49 | 27 |

**POLICY IMPLICATIONS:**

The proposed traffic calming plan is consistent with the City's Comprehensive Plan T-34: "Implement traffic calming measures to slow traffic on local and collector streets and prioritize these measures over congestion management. Include traffic circles and other traffic calming devices among these measures."

In general, the initiation, planning and recommendation of the College Terrace Traffic Calming Plan are consistent with the City's Neighborhood Traffic Calming Program (NTCP) that addresses spot treatment on a residential street

Staff believes there are no other substantive policy implications.

**RESOURCE IMPACT:**

Installation/removal of the traffic calming measures will take place as part of Public Work's College Terrace Resurfacing Project. The cost of this project is estimated at approximately $35,000 and is available as part of the CIP project PL- 05003, College Terrace Traffic Calming Project.

**TIMELINE:**

Next Steps

Continuation of the project and approval process involves the following steps:

1. Review of the Planning and Transportation Commission and recommendation of trial plan implementation of the recommended "Modified Plan" for 6 months.
2. Conduct trail evaluation of the "Modified Plan" and work with neighborhood to evaluate the results of the trial and seek resident input with regard to the permanent retention of the new traffic calming measures.
3. Planning and Transportation Commission and City Council review of the results of trial plan, including community input and decision on the permanent installation of the plan.

**ENVIRONMENTAL REVIEW:**

The extension of a six month trial of the Modified Plan complies with all the requirements and mitigations stated in the project's original Mitigated Negative Declaration (Attachment J), prepared in September 2004:

"The action of removal of one or more traffic calming devices, replacement with alternative devices, and installation of additional traffic calming elements will not alter the environmental analysis contained in the initial study nor cause additional significant impact."

**ATTACHMENTS:**

A. Existing Traffic Control Devices - Project Area Map
B. Traffic Calming Before and After Study Report and Recommendations
C. Before/After Speed and Volume Results
D. College Terrace Traffic Circles Petition
E. Letter to Residents, August 18, 2008
F. Multi Way Stop Sign Evaluation Form
G. Description of Modified Plan
H. Letter to Residents – Postcard Survey
I. CTRA Newsletter
J. Mitigated Negative Declaration, September 2004
K. Public Correspondence

**COURTESY COPIES:**

College Terrace Residents Association Board
College Terrace Project Advisory Committee

Prepared by: Shahla Yazdy, Transportation Engineer

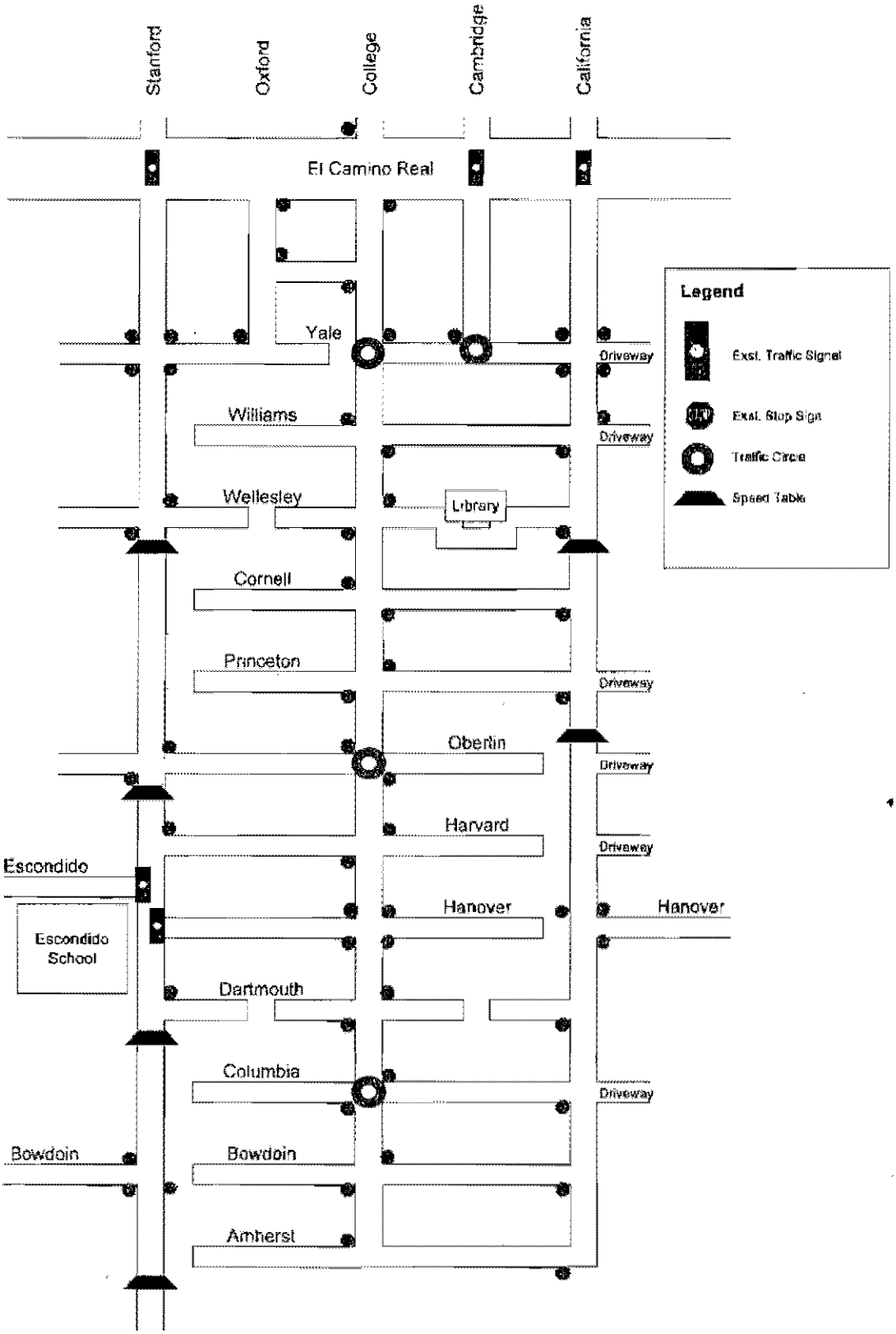
Reviewed by: Julie Caporgno, Chief Planning and Transportation Commission

Department/Division Head Approval: _____

**Curtis Williams, Interim Director**

**ATTACHMENT A**

## College Terrace Neighborhood Traffic Calming Plan
## Existing Traffic Calming Measures



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ATTACHMENT B

*Memorandum*

Suite 410
2000 Crow Canyon Place
San Ramon, California
94583

Ph. 925-543-0840
Fax 925-543-0839

To: Shahla Yazdy
Transportation Engineer
City of Palo Alto
250 Hamilton Avenue
PO Box 10250
Palo Alto, CA 94303
From: Jim West
Date: 6 July 2009
Re: College Terrace Before and After Study Report and Recommendations

**BACKGROUND**

The College Terrace neighborhood, located between Stanford University and Stanford Research Park, has historically been affected by cut-through traffic and speeding for more than 20 years. The area consists primarily of residential housing except for a small amount of commercial uses bordering El Camino Real.

Unlike neighboring streets with curvilinear alignments or disconnected superblocks, College Terrace has a grid street layout with long straight roadways interrupted by stop signs. Consequently, many drivers use the neighborhood as a cut-through route, and residents and non-residents exceed the posted speed limits. Past efforts to manage traffic included street closures that were effective for the treated streets, but resulted in traffic shifts and additional impacts on adjacent routes. Over the years, particularly after 1999, traffic has increased noticeably, thus placing further pressures on the remaining streets open to traffic.

In an effort to request assistance from the City to address speeding and traffic volume concerns, over 225 College Terrace residents signed a petition to the City Council in September 1999. College Terrace residents identified improved traffic management and mitigation as important neighborhood issues. Preparation of a traffic management study was also part of the mitigation requested by the City and ultimately included in

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Santa Clara County's list of mitigations required of Stanford University for its December 2000 General Use Permit.

In 2003, Kimley-Horn was retained by the City of Palo Alto to undertake the College Terrace Neighborhood Traffic Management Plan (NTMP) to identify solutions for the traffic impacts identified through traffic data collection in the neighborhood as well as the residents' experience. Improvements were focused on enhancing traffic safety, fostering travel within, and to/from the neighborhood by bicycle and on foot, and reducing excessive motor vehicle speeds, cut through motor vehicle travel, and traffic noise. The intent of the College Terrace Neighborhood Traffic Management Plan was to tailor solutions to specific locations and to help residents and non-residents recognize that a comprehensive traffic management plan can benefit everybody through improved safety and livability. Throughout the development of the NTMP, meetings were held at critical project stages with a Project Advisory Committee. Three public meetings were held at Escondido Elementary School with the neighborhood to develop a preferred NTMP. The residents of College Terrace were surveyed on their approval of the preferred NTMP option and 71% of those respondents supported the preferred plan. **Figure 1** illustrates the approved NTMP program for the College Terrace neighborhood.

Following Council approval, traffic circles, speed tables and other traffic management measures were installed in late 2006 on the border and interior streets of the College Terrace neighborhood. The one-year trial of the College Terrace Plan is complete, and this "after" study was commissioned by the City to assess the effectiveness of the measures, both in terms of traffic management as well as meeting neighborhood expectations.

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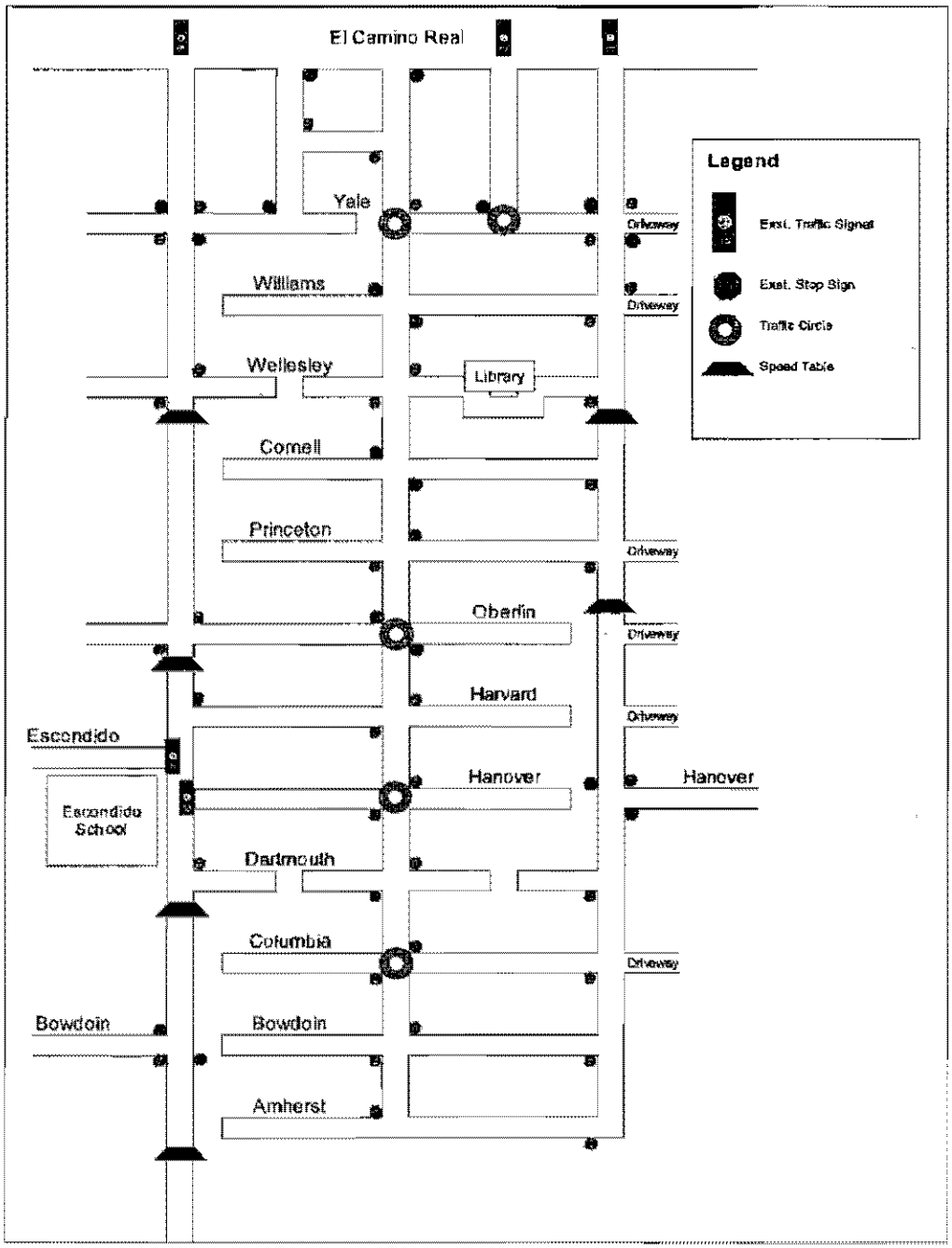
**Figure 1 - Approved NTMP for College Terrace**



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## BEFORE AND AFTER STUDY DATA

A key element of assessing the effectiveness of the measures is the evaluation of "before" and "after" traffic data.

Kimley-Horn received before study and after study vehicle speed and volume information from the City of Palo Alto for use in this evaluation. The data utilized for this analysis were collected at the following locations, which are also shown in **Figure 2**.

- Stanford between El Camino Real and Yale
- Stanford between Wellesley and Oberlin
- Stanford between Dartmouth and Bowdoin
- College between Yale and Williams
- College between Princeton and Harvard
- Cambridge between El Camino Real and Yale
- California between El Camino Real and Yale
- California between Dartmouth and Columbia
- Yale between Cambridge and California
- Princeton between College and California
- Oberlin between Stanford and College
- Harvard between Stanford and College
- Hanover between Stanford and College
- Columbia between College and California
- Bowdoin between College and California
- Amherst between College and California

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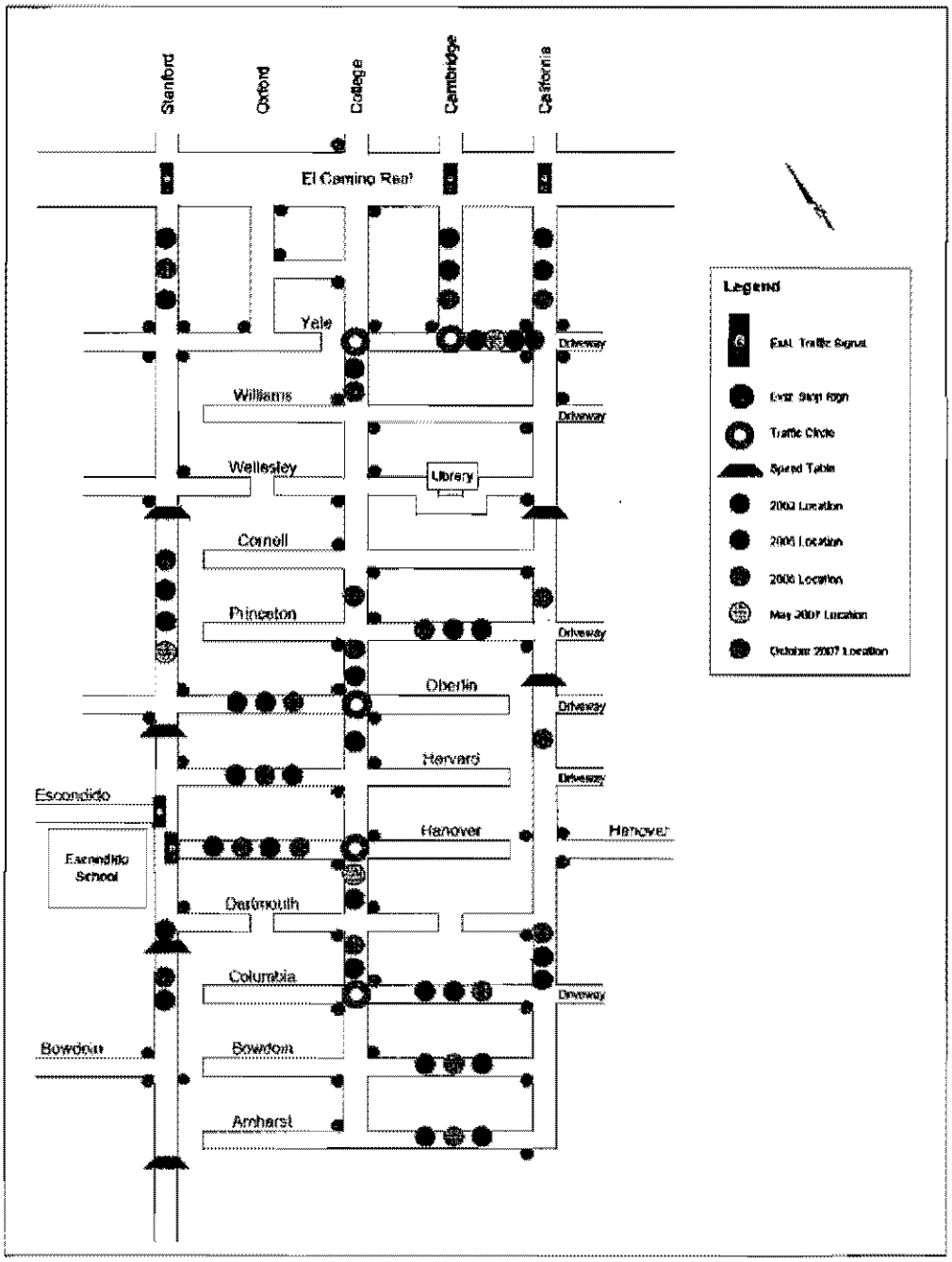
## Figure 2 - Location of Traffic Before and After Counts



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## TRAFFIC SPEED RESULTS

All streets within College Terrace are posted at 25 miles per hour. To establish before and after speed data for the neighborhood, vehicular traffic speeds (and volumes) were collected in May 2005 and May 2006 for the traffic calming installation, and then in May 2007 and October 2007 after the features were installed. The 2005 and 2006 data was combined to represent a larger number of locations where changes may occur after the installation of the traffic calming features. The locations were selected to provide the best layout of mechanical tubes to permit vehicles to travel over the tubes at a consistent and moderate speed. This methodology was used to minimize the errors in the data collection by mechanical tubes which increase when vehicles are accelerating, decelerating, or traveling at a slow travel speed over the tubes.

Results of the speed data were evaluated three ways:

- Vehicles exceeding the 25 mph speed limit
- Vehicles traveling 10 mph or more over the speed limit (i.e. over 35 mph)
- 85$^{th}$ percentile speed[1]

The percentages of vehicles exceeding 25 mph (the posted speed limit through College Terrace) and 35 mph were calculated for each of the locations shown in **Figure 3**.

As noted in the figure, the greatest reduction in vehicles exceeding the 25 mph or 35 mph thresholds was on the streets bordering the neighborhood (i.e. Stanford and California). Reduction in speeds interior to the neighborhood was less, principally because drivers generally did not drive more than 3 to 4 miles per hour over the speed limit even before the traffic calming measures were installed.

[1] The 85th percentile speed is the speed at or below which 85 percent of the motorists drive on a given road unaffected by slower traffic or poor weather. This speed indicates the speed that most motorists on the road consider safe and reasonable under ideal conditions.

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## Figure 3 - Before and After Speed Results

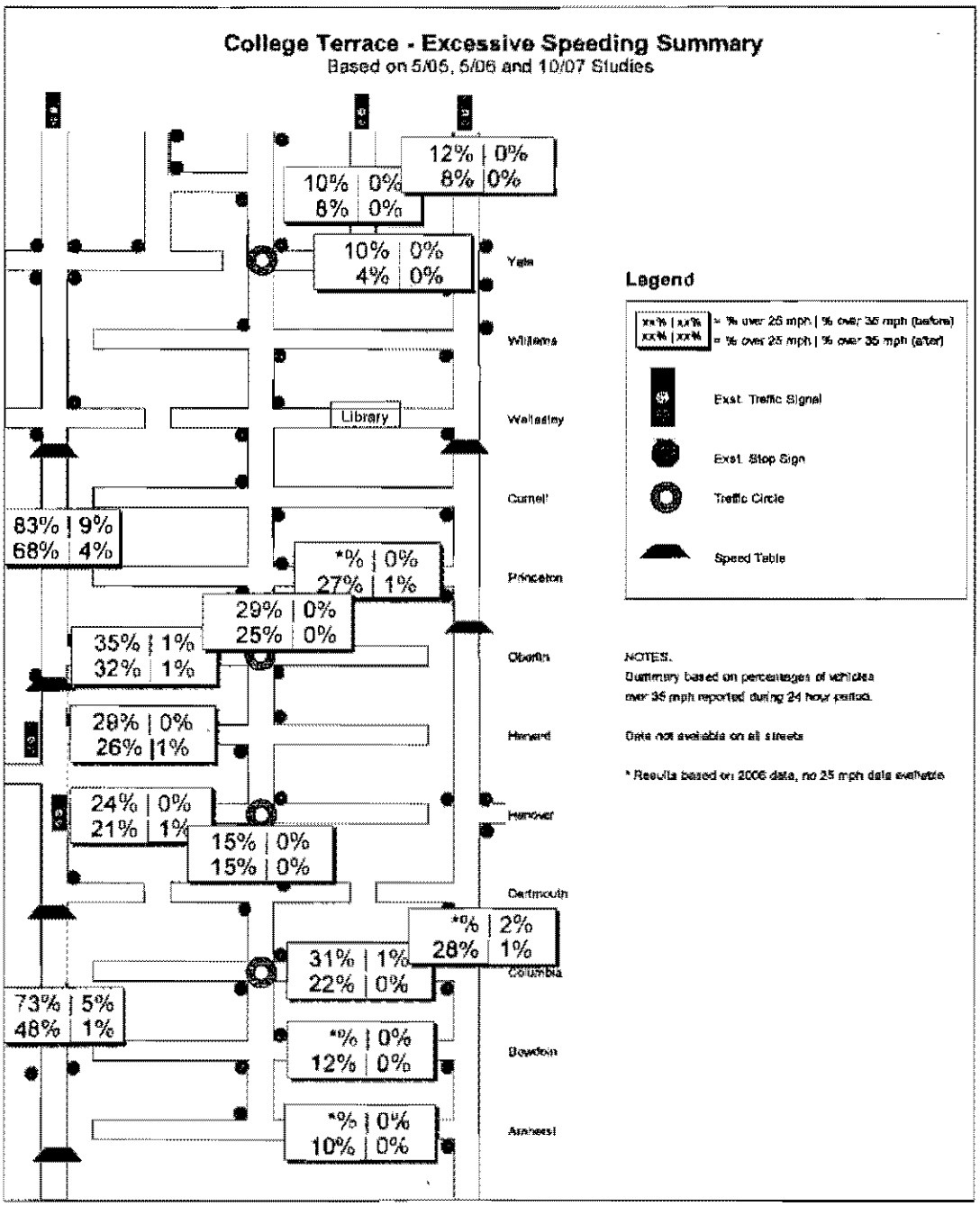

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**Table 1** summarizes the results of the 85th percentile speed before and after the traffic calming installation.

**Table 1 - 85th Percentile Before and After Speed Results**

| Roadway Segment | Limit 1 | Limit 2 | Direction | Before 85% Speed (2005-2006) | After 85% Speed October 2007 | Difference in 85% Speed (2005-2007) | % Change in 85% Speed (2005-2007) |
|---|---|---|---|---|---|---|---|
| Stanford | El Camino Real | Yale | Both | | 28.5 | | |
| Stanford | Wellesley | Oberlin | Both | 33.5 | 31.0 | -2.5 | -8.1% |
| Stanford | Dartmouth | Bowdoin | Both | 32.0 | 29.0 | -3.0 | -10.3% |
| Cambridge | El Camino Real | Yale | Both | 24.0 | 23.8 | -0.3 | -1.1% |
| California | El Camino Real | Yale | Both | 24.5 | 24.0 | -0.5 | -2.1% |
| California | Oberlin | Harvard | Both | 34.0 | 31.5 | -2.5 | -7.9% |
| California | Dartmouth | Columbia | Both | | 27.5 | | |
| California | Cornell | Princeton | Both | 34.0 | 31.0 | -3.0 | -9.7% |
| Yale | California | Cambridge | Both | 24.0 | 23.0 | -1.0 | -4.3% |
| Princeton | College | California | Both | | 27.3 | | |
| Oberlin | Stanford | College | Both | 28.5 | 27.8 | -0.8 | -2.7% |
| Harvard | Stanford | College | Both | | 26.8 | | |
| Hanover | Stanford | College | Both | 26.5 | 26.3 | -0.3 | -1.0% |
| Columbia | College | California | Both | 27.5 | 26.8 | -0.8 | -2.8% |
| Bowdoin | College | California | Both | | 24.8 | | |
| Amherst | College | California | Both | | 24.0 | | |
| College | Yale | Williams | Both | 26.0 | 24.0 | -2.0 | -8.3% |
| College | Princeton | Oberlin | Both | 27.5 | 26.0 | -1.5 | -6.8% |
| College | Hanover | Columbia | Both | 24.5 | 25.5 | 1.0 | 3.9% |

As noted in the table, all but one street segment surveyed showed a reduction in the 85th percentile speed following the installation of the traffic calming measures. The greatest reduction in the 85th percentile speed was on the streets bordering the neighborhood.

At the time the project was approved by City Council, speed reductions were projected for College Terrace including 7-16 percent reductions for Stanford, 6-10 percent reduction for California, 3-5 percent reductions for College, and 4-7 percent reduction for other open streets interior to the neighborhood. Actual traffic speed reductions are generally within the ranges projected.

## TRAFFIC VOLUME RESULTS

Average daily volumes for each direction in 2007 were compared to the data collected in 2005 and 2006. The volumes observed at the study locations are listed in **Table 2**.

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**Table 2 - Before and After Volume Results**

| Roadway Segment | Limit 1 | Limit 2 | Direction | Before Volumes (2005-2006) | After Volumes October 2007 | Difference in Before/After Volume | % Change in Before/After Volume |
|---|---|---|---|---|---|---|---|
| Stanford | El Camino Real | Yale | Both | 9983 | 8852 | -1111 | -12.6% |
| Stanford | Wellesley | Oberlin | Both | 8842 | 8233 | -609 | -7.4% |
| Stanford | Dartmouth | Bowdoin | Both | 8687 | 7733 | -954 | -12.3% |
| Cambridge | El Camino Real | Yale | Both | 1889 | 1441 | -448 | -31.1% |
| California | El Camino Real | Yale | Both | 5154 | 6237 | 1083 | 17.4% |
| California | Oberlin | Harvard | Both | 4158 | 4634 | 476 | 10.3% |
| California | Dartmouth | Columbia | Both | 1724 | 1641 | -83 | -5.1% |
| California | Cornell | Princeton | Both | 4006 | 4292 | 286 | 6.7% |
| Yale | California | Cambridge | Both | 1456 | 912 | -544 | -59.6% |
| Princeton | College | California | Both | 508 | 525 | 17 | 3.2% |
| Oberlin | Stanford | College | Both | 965 | 755 | -210 | -27.8% |
| Harvard | Stanford | College | Both | 387 | 304 | -83 | -27.3% |
| Hanover | Stanford | College | Both | 1012 | 960 | -52 | -5.4% |
| Columbia | College | California | Both | 745 | 586 | -159 | -27.1% |
| Bowdoin | College | California | Both | 220 | 193 | -27 | -14.0% |
| Amherst | College | California | Both | 232 | 210 | -22 | -10.5% |
| College | Yale | Williams | Both | 2155 | 1744 | -411 | -23.6% |
| College | Princeton | Oberlin | Both | 1716 | 1691 | -25 | -1.5% |
| College | Hanover | Columbia | Both | 932 | 871 | -61 | -7.0% |

On nearly all roadway segments surveyed, the volume of traffic dropped following installation of the traffic calming measures. The largest change in total volume was on Stanford Avenue where volume dropped by more than 1,111 vehicles. Cambridge and Yale also experienced significant reductions as traffic patterns changed and cut through traffic rerouted to El Camino Real and California Avenue.

Princeton experienced a minor increase of 17 vehicles and a segment of California increased as a result of the rerouting of cut through traffic.

At the time the project was approved by City Council, volume reductions were projected for College Terrace including 8 percent reductions for Stanford and California, and 5 percent reductions for College and other open streets interior to the neighborhood. Actual traffic volume reductions are generally within or exceed the ranges projected.

There was concern that traffic reductions in College Terrace may have been associated with an overall reduction in background traffic on nearby arterial streets. Therefore, traffic volume data was collected on Oregon Expressway and El Camino Real from the County and Caltrans, respectively, to identify any overall trends of increased or decreased volumes within the study area. As seen in **Table 3**, traffic volumes at these nearby locations show limited variation, meaning that changes in volumes

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traveling through the College Terrace neighborhood were not appreciably affected by changes in background traffic conditions. Rather they were likely the result of the traffic calming measures.

**Table 3 - Background Traffic Levels on Nearby Major Streets**

| Roadway | Limit 1 | Limit 2 | Year | AADT |
|---|---|---|---|---|
| Oregon Expwy | Cowper | Middlefield | 2004 | 34133 |
| Oregon Expwy | Cowper | Middlefield | 2008 | 35041 |
| El Camino | Page Mill | | 2002 | 46000 |
| El Camino | Page Mill | | 2003 | 43500 |
| El Camino | Page Mill | | 2004 | 43000 |
| El Camino | Page Mill | | 2005 | 44000 |
| El Camino | Page Mill | | 2006 | 43000 |

## RESIDENT FEEDBACK ON TRAFFIC CALMING FEATURES

Although the traffic calming measures performed as generally expected, there was still mixed support for some of the features. The traffic circles on College at Oberlin, Hanover, and Columbia were of particular concern by many residents. As a result, a petition drive was initiated in late 2007 to ask that the traffic circles be removed. Reasons for requesting removal included ambiguity of driver rights of way; lack of vehicle speed reduction; improper turning in front of circles; impeded visibility between motorists, cyclists, and pedestrians; potential vehicle encroachment into the pedestrian and bicycle travel paths; lost parking spaces at intersections; false sense of security; cost; and aesthetics.

Most other features were generally supported during PAC meetings and at neighborhood meetings.

## PROJECT ADVISORY COMMITTEE (PAC)

In response to neighborhood concerns, a project Advisory Committee (PAC) was formed to help refine the traffic calming solutions. The PAC was comprised of nine College Terrace residents who met with City staff

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and Kimley-Horn on multiple occasions to discuss potential modifications to the NTMP. Concepts and issues were also discussed at two neighborhood meetings to gauge support for specific modifications to the plan.

## RECOMMENDED MODIFICATIONS

After hearing the comments and concerns by residents about the traffic calming measures in the interior of the neighborhood, a modification to the current NTMP was developed by the PAC, City, and Kimley-Horn. The plan addressed (to the extent possible) concerns about the current plan while achieving the same traffic safety and traffic calming goals of the initial trial installation. The principal elements of the modified plan include:

- Retain speed tables on Stanford Avenue and California Avenue.
- Retain traffic circles on Yale at College and Cambridge, and add curb extensions to approaches.
- Remove existing traffic circles on College Terrace at Oberlin, Hanover, and Columbia. (The circle has already been removed at Hanover).
- Install small center median islands with stop signs on College Terrace at Oberlin, Hanover, and Columbia.
- Install four speed humps to control speeds on College.
- Install a speed table on Upper California.

The following text and illustrations provides additional explanation of the proposed plan modifications.

Curb Extensions at Circles – Rather than remove the two traffic circles on Yale Street, it was proposed that curb extensions be added to the features. The extensions would be located on the free flow approaches to the circles in what is currently striped as a no-parking zone. The features would be semi-circular in shape and extend from the curb roughly the width of a parked car. This physically prevents vehicles from parking too close to the circle where they may interfere with sight distances or the movement of large trucks and emergency vehicles through the intersection. They also

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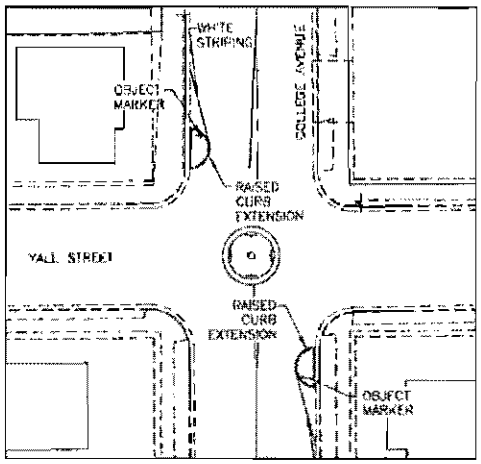
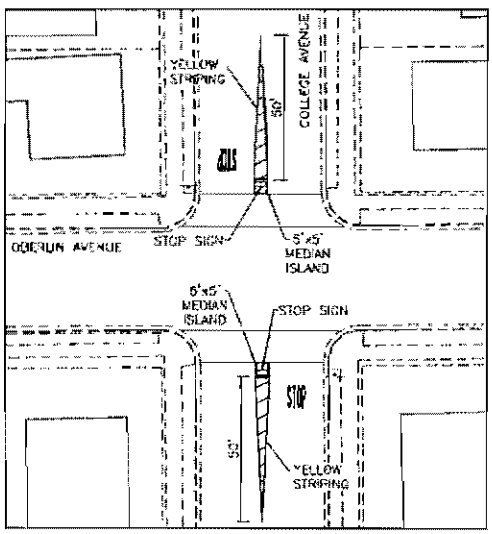
keep vehicles from driving along the gutter to avoid having to slow down around the traffic circle. It should be noted that the at the Yale/Cambridge circle, a curb extension is only needed in the southbound direction. Northbound traffic is unable to drive in the gutter to avoid slowing in this direction.




Median Islands – Median islands are proposed to be located on College Avenue at the intersections at Oberlin, Hanover, and Columbia. The islands would be installed along the centerline of the street behind the striped (or implied) cross walk. Two islands would be installed at each location. They would be roughly 5 feet square with striping to direct traffic to drive around the feature and would be small enough to avoid interfering with access to residential driveways. The medians will reinforce to traffic on College Avenue that they must stop at the intersection, as well as provide a refuge for pedestrians crossing the street. At these locations, not all side street traffic is required to stop and frequently traffic speeds from the cross street onto College Avenue while cutting the corner and sometimes temporarily traveling in the opposing travel lane. The islands will cause traffic to slow down as they make the turn and keep them in the correct travel lane. This will specifically improve the safety of pedestrians and cyclists crossing the street. It will also act as an additional deterrent to cut through traffic.




Speed Humps – Speed humps are proposed along College Avenue to replace the circles at Oberlin, Hanover, and Columbia. The humps would primarily be installed to create a

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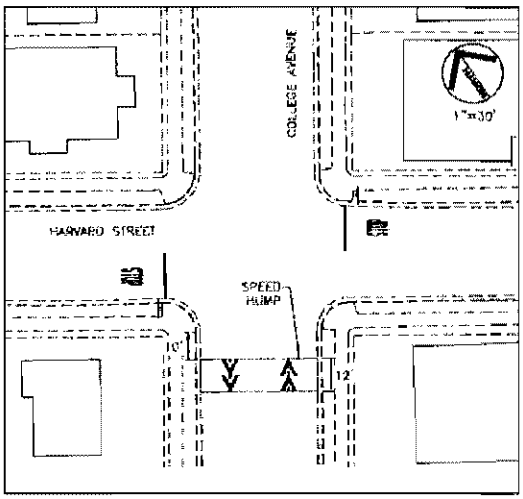
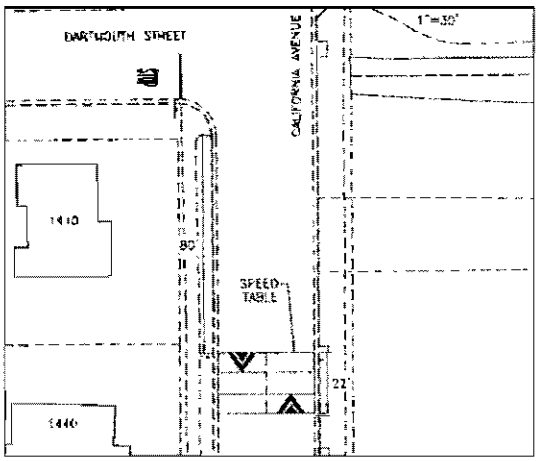
deterrent to cut through traffic since most drivers travel at or near the posted speed limit in this area. Four humps would replace three circles and would be located on College Avenue just west of Wellesley, Princeton, Harvard, and Dartmouth. These locations represent roughly half the distance between the adjacent stop signs on College Avenue. Speed humps are not the same as speed tables. They are 12 feet across and 3 inches tall. Their design is slightly more abrupt than a speed table and therefore vehicles must slow down more when traveling over the feature.

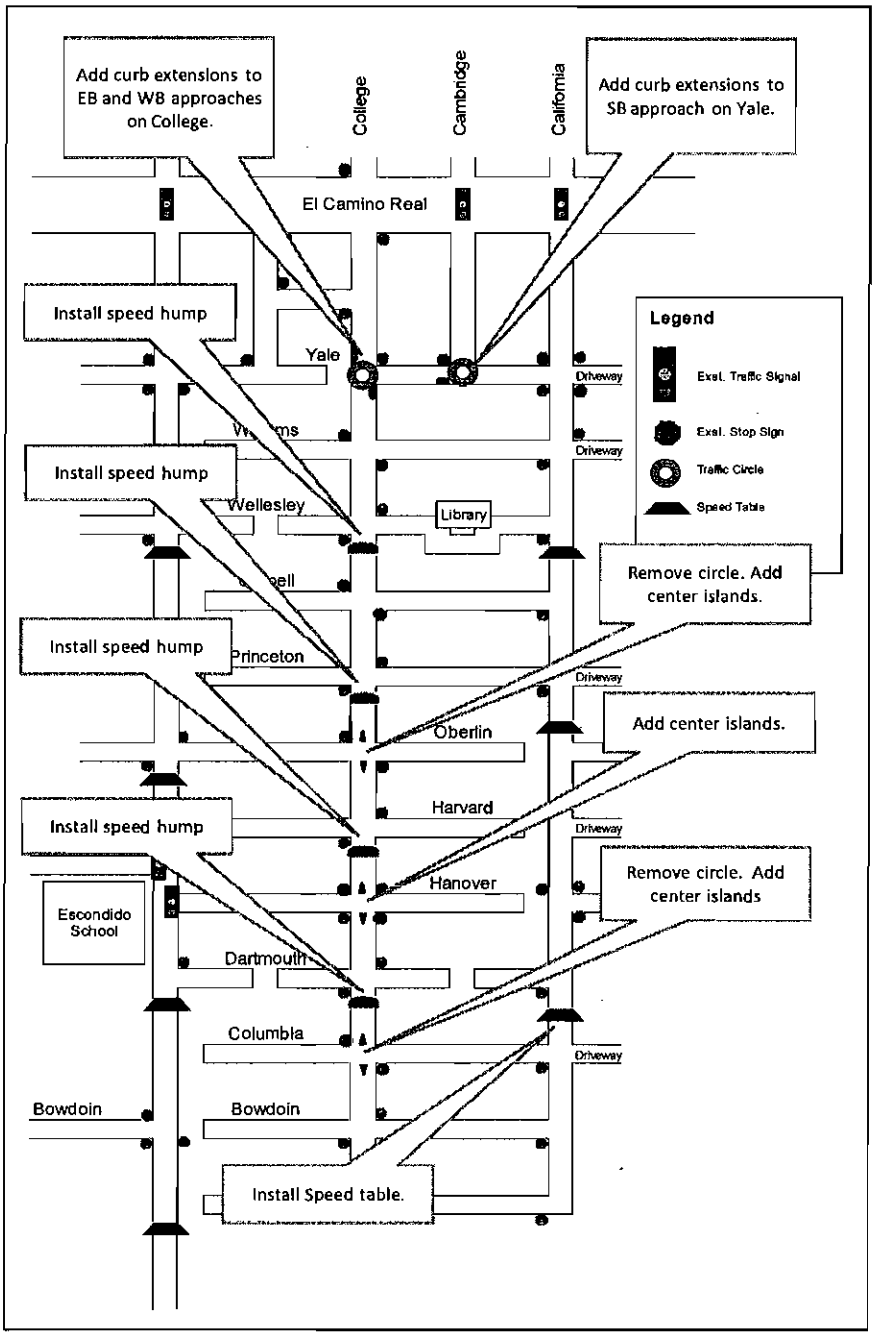



Speed Table – A speed table is proposed on California Avenue between Dartmouth and Columbia. The table would be the same design as the speed tables previously installed on Stanford and California Avenues. The table would be 22 feet across the crown of the feature and 3 inches tall. The table is intended to help slow traffic that is traveling to and from the Upper Terrace of the neighborhood and discourage cut through traffic.




A schematic of the entire modified plan is shown in **Figure 4.**

## Figure 4 - Proposed Modified Plan



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## NEIGHBORHOOD SURVEY

In May 2009, the City mailed to College Terrace residents a survey to determine support for modifying the NTMP and extending the trial period for another six months or taking another course of action. The survey included background information, description of the proposed modified plan, and a postcard survey.

Residents were asked to vote on several questions including whether they support the permanent retention of speed tables on Stanford and Columbia. They were then asked if they support the modified plan, or retaining the current traffic calming features on College/Yale, or removing all traffic calming features on College/Yale and returning to original conditions.

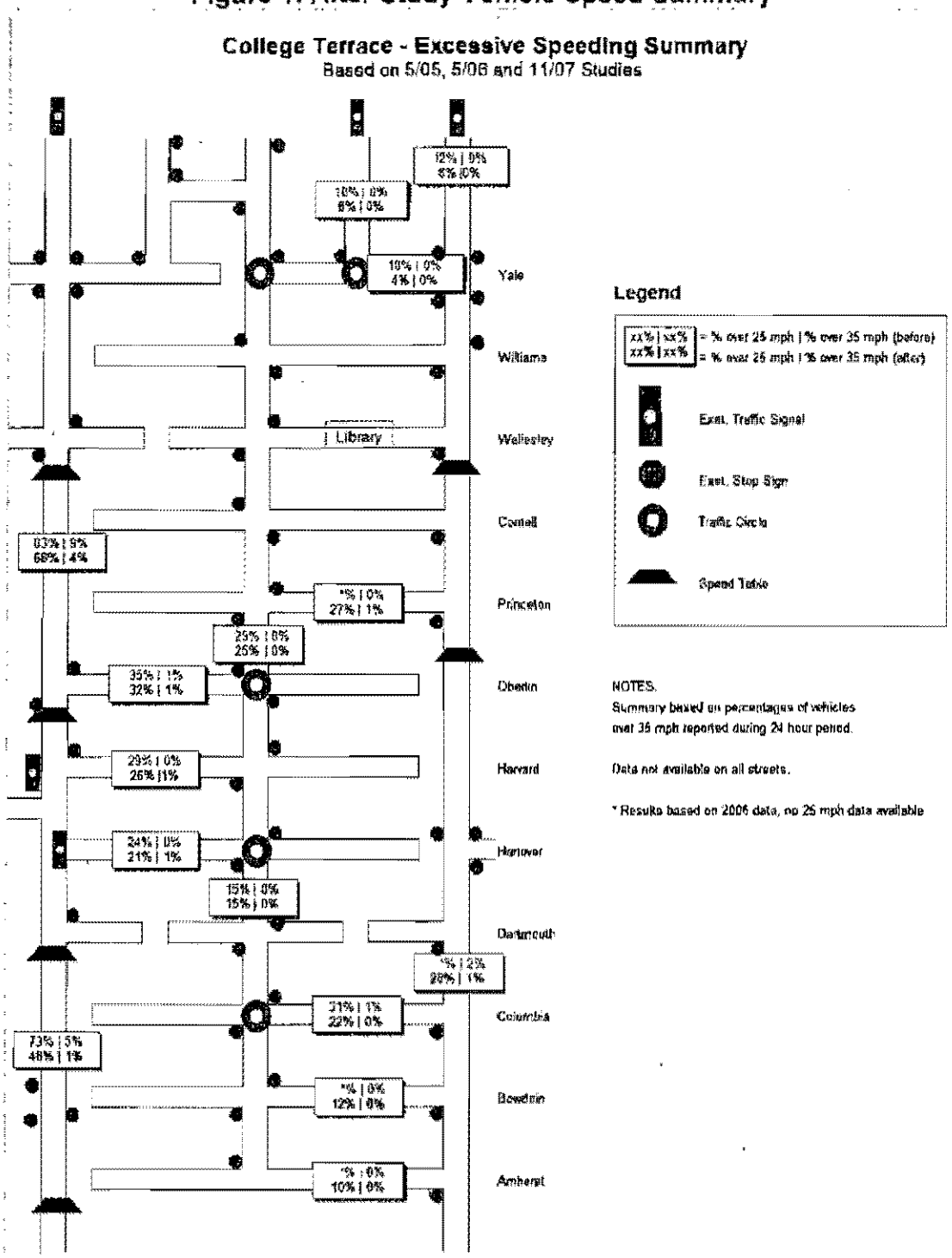
Surveys were sent to all residential addresses in College Terrace. The City received 274 completed postcard surveys.

- 228 supported (voted yes) for the retention of the speed tables on Stanford and California.
- 36 voted no to the retention of the speed tables on Stanford and California.
- 183 voted for support of the modified plan and to extend the trial period for another 6 months.
- 38 voted for retaining the existing measures on College/Yale.
- 49 voted for removal of measures on College/Yale.

In summary, 86 percent of residents voted to retain the speed tables on Stanford and California and 68 percent voted to implement the modified plan and to extend the trial period for another 6 months.

This information is being presented to the City Planning Commission and City Council this summer.

## Figure 1: After Study Vehicle Speed Summary

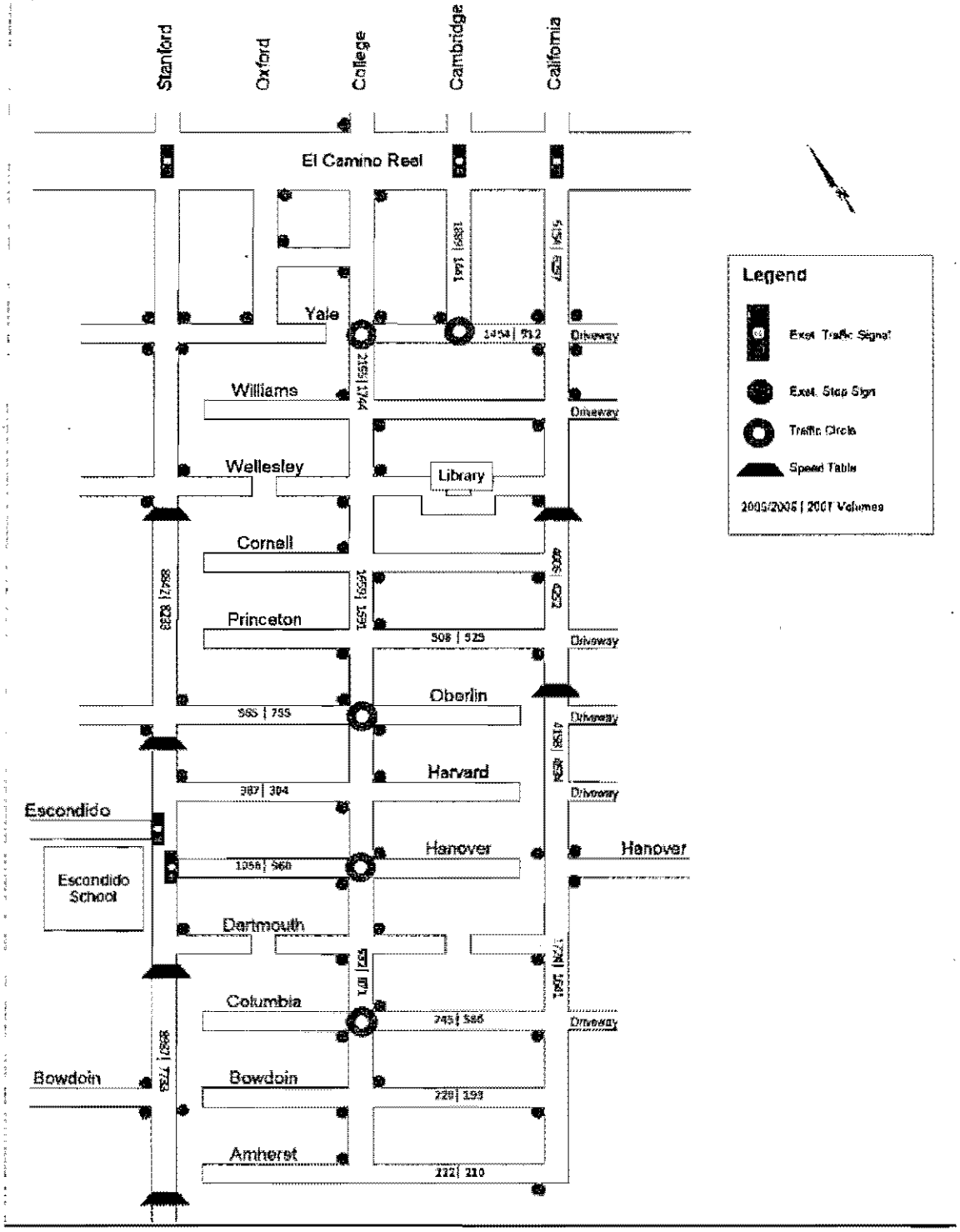



**Summary of Speed Data:**

The percentages of vehicles exceeding 25 mph (the posted speed limit through College Terrace) and 35 mph were calculated for each of the locations shown. The 2002 results are shown on the top, while 2007 results are shown in the bottom.

The greatest reduction in vehicles exceeding the 25 mph or 35 mph thresholds was on the streets bordering the neighborhood (i.e. Stanford and California). Reduction in speeds interior to the neighborhood was less, principally because drivers generally did not drive more than 3 to 4 miles per hour over the speed limit even before the traffic calming measures were installed.

## Figure 2: After Study – Change in Volume Summary




**Summary of Volume Data:**

On nearly all roadway segments surveyed, the volume of traffic dropped following installation of the traffic calming measures. The largest change in total volume was on Stanford Avenue where volume dropped by more than 1,111 vehicles. Cambridge and Yale also experienced significant reductions as traffic patterns changed and cut through traffic rerouted to El Camino Real and California Avenue. Princeton experienced a minor increase of 17 vehicles and a segment of California increased as a result of the rerouting of cut through traffic.

**ATTACHMENT D**

## Summary of College Terrace Traffic Circles Petition Drive

Submitted by Ronda Rosner, 1235 College Ave, 858-1655, rondarosner@gmail.com
Tuesday, March 11, 2008

**Summary statement**: The one-year trial of the College Terrace Traffic Calming Plan is nearing completion. I have captured the opinions of many residents regarding whether the traffic circles should be made permanent. Of those who affirmed the unacceptability of making the traffic circles permanent, 211 residents have signed a petition to that effect.

**Overview**:
I began the petition drive in November after reading about the College Terrace Traffic Calming Plan status on the city's website. The one-year mark had passed and at that time there was no city resource assigned to evaluate the success or failure of the project. My focus was strictly on the traffic circles component of the project, not on the California Ave/Stanford Ave speed tables.

I was curious whether a substantive number of other residents held a similar opinion to mine – that the circles did not reduce the volume of traffic, nor did they significantly reduce the speed of traffic, but they did generate incremental safety issues for drivers, pedestrians, and bicyclists. I also believe that the evaluation of the success or failure of the circles must not be based solely on the data generated by the city's traffic measuring devices. Therefore, the petition drive enabled me to collect candid opinions and thoughtful suggestions from our residents to supplement data provided by the city's measurements.

The wording of the petition is very clear, in order to send a strong message to the city:
*"We, the undersigned residents of College Terrace, consider the Traffic Circle component of the College Terrace Traffic Calming Plan to be an unacceptable long-term solution to any perceived traffic problem in College Terrace."*

This project was executed over six weekends in the period of November 10th, 2007 to March 9th, 2008. I worked alone on the project. For the gathering of petition signatures, I concentrated mostly on College Avenue, where four of the five traffic circles are located. I collected a total of 211 signatures from residents, all of whom are 18 years of age or older. I gathered signatures of spouses/roommates at the same address, which was consistent with the method used to collect the signatures of the 272 residents who were originally in favor of moving forward with the College Terrace Traffic Calming Plan. About 40% of residents were not at home during the canvassing periods. Of those who were available, approximately 75% signed the petition. The 25% of residents who were contacted and did not sign the petition either held favorable or neutral opinions about the traffic circles. Resident's responses ran the full gamut of "I'm so glad you are doing this petition!" to "I like the traffic circles because they make me drive slower."

**Petition Statistics by Address**:
College Avenue – 77 signatures
Hanover Street – 21 signatures
Harvard Street – 18 signatures
Princeton Street – 16 signatures
Oberlin Street – 15 signatures
Williams Street – 13 signatures
Columbia Street – 12 signatures
Dartmouth Street – 9 signatures
Amherst Street – 7 signatures
California Avenue – 6 signatures
Bowdoin Street – 5 signatures
Wellesley Street – 5 signatures
Cornell Street – 4 signatures
Stanford Ave/Staunton Ct – 3 signatures

**Reasons for unfavorable opinions of Traffic Circles:**

- Ambiguity – Drivers do not know who has the right of way or which direction an approaching vehicle will go at the traffic circles. Drivers signal their intention far less at the traffic circles than they do at an intersection with two-way or four-way stop signs. Two traffic engineers (who live in the Terrace) said, in essence, "Any time ambiguity is introduced to a traffic situation, the probability for an accident to occur increases significantly". Many residents were dismayed that the circles did not work like true roundabouts, but instead relied on a combination of stop signs – a kind of "belt and suspenders" approach to handling traffic.

- Vehicle speed – Residents, particularly those who live on College Ave, observed that vehicle speed had not decreased significantly during the trial. In the upper Terrace, where two stop signs were removed at the time of the traffic circle installations (at Columbia and at Hanover), vehicles can travel six blocks on College Ave without stopping. Many of the upper Terrace residents are convinced that speeds have actually increased since the circles were installed. Younger drivers view the upper Terrace circles as a "slalom course" challenge and attempt to maneuver around them as fast as possible. Residents told me the upper Terrace had become, in their words, a "speedway" and they were concerned for the safety of their children. In the vicinity of the Oberlin circle, where the bulk of daily traffic is composed of cut-through activity, the residents observed that drivers noticeably speed up upon navigating the circle, basically to "make up the time lost from having to drive around the circle". This practice is really basic to human nature. Unfortunately, because there are only two-way stops at each circle the drivers who navigate the circle in the direction without a stop sign tend to increase their speed to an even higher level in the next block than if they had been required to stop.

- "Short-cuts" – I've coined the term "short-cut" to describe the act of turning illegally at a traffic circle, ie: driver intends to make a left turn at a circle, but instead of driving around it to enter the cross street, he/she turns left onto the cross street into the lane of oncoming traffic to cut the turn short. This is a very common practice. It is not practical to police this activity, just as it is not practical to police compliance with the stop signs. On numerous occasions residents noted that large delivery trucks and emergency vehicles regularly short-cut the traffic circles – most often at Hanover Street and at the small circle at Yale/Cambridge. Once the driver has committed to the illegal turn, there is no room to veer aside if another car or pedestrian or bicyclist is present, unless the driver steers into the circle or up onto the sidewalk. There have been two accidents at the Yale/Cambridge circle where the driver drove into the circle.

- Visibility – Where drivers are required to stop at a traffic circle, they must align their direction of travel towards the right, in order to prepare to drive around the circle. This positioning means the drivers must crane their necks to look to the left for oncoming traffic, pedestrians and bicyclists. They may not look as carefully through the circle towards the opposing direction of traffic, as it requires more diligence and patience to look right and left at the cross street. At night, headlights are pointed off to the right and as the driver navigates the circle an oncoming pedestrian or bicyclist may not be seen until the vehicle is almost upon them. At a regular intersection, the headlights point straight ahead and it is much more likely that a pedestrian or bicyclist would be seen in the headlights in time for the driver to either stop, slow their turn or veer to avoid collision.

- Pedestrian/Bicyclist safety – The pedestrian crossing areas at the traffic circle intersections are, depending on the size of the vehicle and driver's skill/attention, the exact same area the vehicle must use to navigate the circle! Many residents have stories of close calls with vehicles while crossing at the traffic circle intersections. The sidewalk corner ramps for baby strollers, tricycles, scooters, skaters, and wheelchairs point directly into the path of traffic at the circles. Residents with young children told me they do not allow their children to cross the street on their own at these intersections.

  For bicyclists, the risk of having an accident at a traffic circle intersection is higher due to:
  a) increased vehicle speeds combined with reduced ability to veer away to avoid,
  b) reduced visibility at night via headlights,
  c) fewer drivers use turn signals to indicate direction of travel (ambiguity), and
  d) short-cuts place vehicles in the wrong lane of traffic.

  The College Ave/Hanover St intersection was the only four-way stop in the Terrace for at least the last 25 years. This was likely due to the fact that Hanover St is a primary bicycle commute artery through the Terrace between Stanford and the industrial park. Bicyclists commented that the removal of the stop sign in the College direction and the placement of the Hanover traffic circle increased the chance of accidents between bicycles and vehicles. An incident took place last summer at the College/Hanover intersection where a vehicle hit a bicyclist, resulting in a dislocated shoulder and a trip to the hospital for the victim. The Jordan middle-school students who commute by bicycle travel down College to avoid the higher traffic routes (California Ave and Stanford Ave). They must now deal with the hazards presented at the traffic circle intersections, including the small circle at Yale/Cambridge where the students ride to cross El Camino at Cambridge.

- Lost parking spaces – Parking spaces have been lost at the corners of each traffic circle intersection, as well as two additional spaces at College Ave/Yale and three additional spaces at Yale/Cambridge.

- False sense of security – Drivers frequently do not make a full stop at traffic circle intersections where there is a stop sign, particularly at Oberlin and College turning right onto Oberlin towards Stanford Ave. This is a route that cut-through traffic takes through the Terrace. They do slow down, but are lulled into a false sense of security that the presence of the traffic circle lessens the chance they will be involved in an accident or be cited for non-compliance. This increases the hazard for pedestrians, many of whom walk their children to Escondido School every morning.

- Cost – Some residents felt it was not cost-effective for the city to expend $25K per circle ($30K if landscaped) to install permanent circles in College Terrace.

- Aesthetics – This is mentioned only as a lesser point, though it was on the minds of a number residents. They thought the circles would be more attractive with plantings, though the maintenance of plantings brings an additional cost burden. The signage would still need to be clearly visible, and the signage is the non-aesthetic element. Encroaching vegetation, though it is attractive, would present incremental visibility issues for pedestrians.

Some residents mentioned that although they were originally in favor of the circles, they'd reversed their opinion about them after their installation. About 20% of those who signed the petition felt there was never a traffic problem in the Terrace that required resolution.

**Suggestions on how to deal with College Terrace traffic and improve safety:**

- Stop signs – The vast majority of residents, including those who did not sign the petition, felt that stop signs are the most effective way of slowing vehicle speeds through the Terrace, and potentially the best way to reduce the volume of cut-through traffic. The desire was nearly unanimous to replace the two stop signs that were removed on College Ave at Columbia and at Hanover – particularly in light of the fact that the traffic circles will be removed when the roads are resurfaced. A majority also felt that four-way stops should be implemented at the traffic circle intersections – on College Ave at Columbia, at Hanover, and at Oberlin. Columbia is the key intersection used by upper Terrace cut-through traffic and Oberlin is the key intersection used by mid-Terrace cut-through traffic. Residents of Yale and Cambridge suggested a three-way stop at that intersection – in part to improve the safety of middle-school bicycle commuters.

  Another approach was voiced with regularity: put stop signs at every side street where it crosses College. This would result in four-way stops on College at Columbia, at Hanover, at Oberlin, at Cornell and at Williams. Several residents felt the current pattern of two-way stops going down College was unclear and presented hazards. This would be corrected with the proposal of stops at every side street, combined with stops every other block on College. In fact, the primary omissions of stops on side streets entering College are at Williams and at Cornell, where there is a large volume of cut-through traffic. In the past, Columbia did not have a stop at College but this was changed when the circle was installed.

  The side streets are only one block long and drivers are not likely to accelerate excessively if they are required to stop at College Ave, the main interior street of the Terrace. Another important point is that drivers entering College from the side streets have a fairly clear view of cars, bicyclists, and pedestrians before proceeding through an intersection, as College is a very wide street. However, the view from College looking down the side streets is not nearly as clear and drivers often must creep out slightly into the intersection to check the view before proceeding.

  Some residents felt there would be increased noise and pollution with the placement of new stop signs, but I would urge the city to take a long-term view on this issue. As gas prices increase and technology evolves, more vehicular traffic will be composed of quieter, low-polluting vehicles. Also, as public transportation becomes more prevalent, there will be a reduction in cut-through traffic (and an increase in pedestrians walking to connect to public transportation). There will be an increase in bicycle commuters as well. In the end, it is many of our own residents who are speeding down our streets and making illegal short-cuts at the circles. Residents want to create a traffic flow in the Terrace that will change/control this behavior more effectively than the traffic circles.

- Barriers – In the interest of being complete, I report that one resident suggested a barrier could be installed at California and Yale to reduce cut-through traffic. The businesses across from the Yale St residences have parking lots that are accessible via California and via Cambridge. Other residents complained that they must take a convoluted and troublesome route to get out of the Terrace from their location due to barrier placements.

**ATTACHMENT E**

August 13, 2008

## COLLEGE TERRACE TRAFFIC CALMING STUDY PROJECT UPDATE

Dear Resident,

The City of Palo Alto staff has been working closely with the residents of the College Terrace neighborhood and the Project Advisory Committee (PAC) members beginning in 2003, when the College Terrace Traffic Calming Plan was initiated. The intent of the plan was to develop solutions for the traffic impacts identified through traffic data collection and residents' experience. Proposed improvements were focused on enhancing traffic safety while reducing excessive motor vehicle speeds, cut through motor vehicle travel, and traffic noise. The goal of the College Terrace Neighborhood Traffic Calming Plan was to tailor solutions to specific locations and to help residents and non-residents recognize that a comprehensive traffic management plan can benefit everybody through improved safety and livability.

Following Council approval, traffic circles, speed tables and other traffic calming measures were installed in late 2006 on the border and interior streets of the College Terrace neighborhood. The one-year trial of the College Terrace Traffic Calming Plan is now complete, and an after study has been commissioned by the City to assess the effectiveness of the traffic calming measures, both in terms of traffic safety as well as meeting neighborhood expectations.

The goal of the second phase of this project is to conduct a follow up evaluation of the traffic calming measures. A new Project Advisory Committee (PAC) made up of 11 residents appointed by the College Terrace Resident's Association (CTRA) Board, City staff and consultants was formed in January 2008.

Before and after data has been collected for both speeds and traffic volumes. Results are shown in the attached table for the before and after volumes and the 85 (%) percentile speeds (speed at which 85% of the drivers are driving). Overall numbers show that there have been significant decreases in both speed and volume, with some increases at various locations throughout the neighborhood. The results in the table will be discussed in more detail at the first neighborhood meeting to be scheduled in late fall 2008.

Resident input on the traffic calming measures has been collected by the PAC and the CTRA. Overall feedback on the speed tables on Stanford and California Avenue has been positive. The City has also become aware that there are neighborhood-wide reservations about the design and effectiveness of the traffic circles on College Avenue.

The traffic circles are generating incremental safety issues for drivers, pedestrians and bicyclists. One of the major concerns being the ambiguity of the circles, where drivers approaching the circle don't know who has the right-of-way or which direction an approaching vehicle intends to go. Another concern expressed is that cars are encroaching into the pedestrian crosswalks as they try to maneuver around the circle. Some of the other concerns with the circles are reduced visibility at night, unsafe vehicle speeds and cars taking short-cuts by using the wrong lane of traffic.

The next steps in this project are for the PAC and the City to develop another viable alternative for traffic calming measures to be implemented on College Avenue. The City would then present this plan to the residents at the next neighborhood meeting, after which a neighborhood survey on the permanent retention of the existing traffic calming devices and/or a new traffic calming trial with the new traffic calming features would be circulated for a neighborhood vote.

In the meantime, the PAC has requested that the City implement the following two measures below, as an interim solution while the PAC continues to work with the City to develop a feasible alternative for College Avenue. The City has met with the CTRA Board and they are in support of this interim change until the PAC and the City work to find another viable alternative on College Avenue.

1. Remove the traffic circle at Hanover/College and restore the original 4-way stop.
2. Reverse the stop signs to their original locations at Columbia/College Avenue.

The City plans to have this work done prior to the start of school. We have tentatively scheduled this work for the weeks of August 18th and the 25th.

If you have any questions please email me at Shahla.yazdy@cityofpaloalto.org or call me at (650) 617-3151. Information on the project will also be posted as it becomes available at the following website:
http://www.cityofpaloalto.org/knowzone/city_projects/transportation/college_terrace.asp.

Sincerely,

Shahla Yazdy
Transportation Engineer

Enclosure

# MULTIWAY STOP Sign Evaluation Form
# Traffic Operations Section

CALTRANS WARRANTS USED FOR MULTIWAY STOP SIGN ANALYSIS

Major Street_____

Minor Street_____

A MULTIWAY STOP installation should ordinarily be used only where the volume of traffic on the intersecting roads is approximately equal. A traffic signal is more appropriate for an intersection with a heavy volume of traffic.

Any of the following conditions may warrant a MULTIWAY STOP installation:

1. Where traffic signals are warranted and urgently needed, the MULTIWAY STOP may be an interim measure that can be installed quickly to control traffic while arrangements are being made for the signal installations.

   SATISFIED ☐ Yes ☐ No

2. An accident problem, as indicated by five or more reported accidents within a 12 month period of a type susceptible to correction by a MULTIWAY STOP installation. Such accidents include right-turn and left-turn collisions as well as right-angle collisions. (If met, see collision diagram, attached).

   SATISFIED ☐ Yes ☐ No

   Collision History:_____

3. MINIMUM TRAFFIC VOLUMES

   (a) The total vehicular volume entering the intersection from all approaches must average at least 500 vehicles per hour for any 8 hours of an average day, and

   SATISFIED ☐ Yes ☐ No

| | Full Warrant | Reduced Warrant (70%) | Direction | 8-Hours | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| Major Street Approach Volume | N/A | N/A | | | | | | | | | |
| | | | Total | | | | | | | | |
| | | | | | | | | | | | |
| Minor Street Approach Volume | 200 | 140 | | | | | | | | | |
| | | | Total | | | | | | | | |
| Total Volume | 500 | 350 | N/A | | | | | | | | |

(b) The combined vehicular and pedestrian volumes from the minor street or highway must average at least 200 units per hour for the same 8 hours, with an average delay to minor street vehicular traffic of at least 30 seconds per vehicle during the maximum hour, but

SATISFIED
☐ Yes ☐ No

| | Full Warrant | Reduced Warrant (70%) | | 8-Hours | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Combined Vehicular and Pedestrian Volume | | Direction | | | | | | | | |
| Minor Street | 200 | 140 | | | | | | | | | |
| | | | | | | | | | | | |
| | | | Total | | | | | | | | |

DELAY (Peak Hour)

| | Peak Hour | Peak Hour Volume | Warrant Requirement | Average Delay Per Vehicle |
|---|---|---|---|---|
| Minor Street | | | 30 sec. per vehicle | |

(c) When the 85-percentile approach speed of the major street traffic exceeds 40 miles per hour, the minimum vehicular volume warrant is 70 percent of the above requirements.

SATISFIED
☐ Yes ☐ No

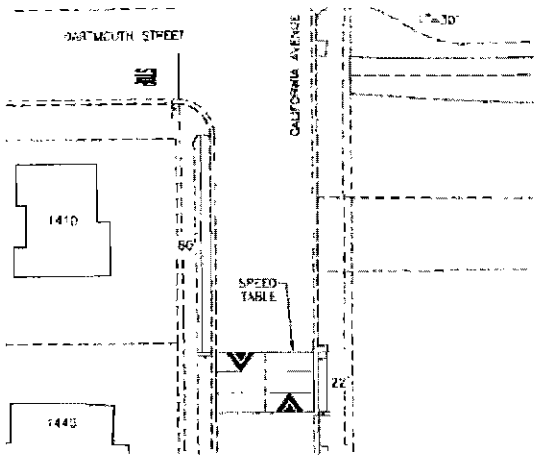
| | 85th Percentile |
|---|---|
| Major Street | |

Analysis By Date

# Description of "Modified Plan"

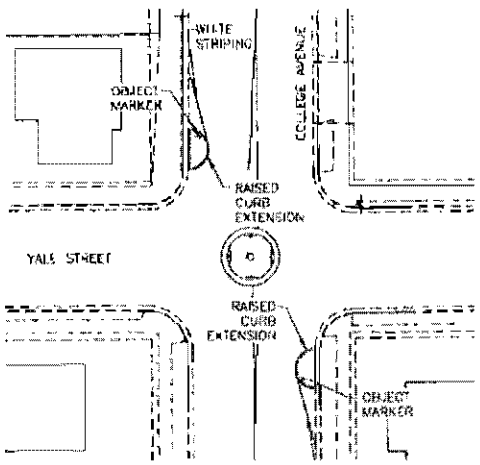
## Speed Table

The Modified Plan will keep the well received speed tables on Stanford and California and will add another table on California between Columbia and Dartmouth. The speed table would be the same design as the speed tables previously installed on Stanford Avenue. The table would be 22 feet across the crown of the feature and 3 inches tall. The table is intended to help slow traffic that is traveling to and from the upper Terrace of the neighborhood and discourage cut through traffic.




## Curb Extensions at Circles

The two traffic circles on Yale (at College and Cambridge) have been very successful in reducing speed by 4% and volume by 60%. Residents in this area have been very supportive of keeping these circles as part of the plan. The Modified Plan retains the two traffic circles on Yale. In order to enhance the effectiveness, rather than removing the two traffic circles, it is proposed that curb extensions be added to the features on the east and westbound approaches. The curb extensions would slow down cars as they maneuver around the circle and will also prevent cars from driving straight through.



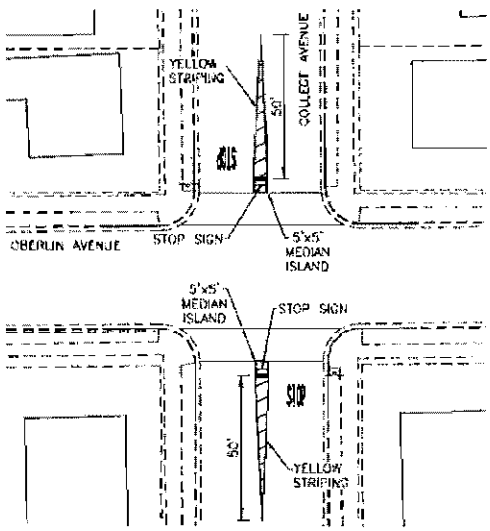

The extensions will be located on the free flow approaches to the circles in what is currently striped as a no-parking zone; therefore no additional parking spaces will be removed. The features will be semi-circular in shape and extend from the curb roughly the width of a parked car. This physically prevents vehicles from parking too close to the circle where they may

interfere with sight distances or the movement of large trucks and emergency vehicles through the intersection. They also keep vehicles from driving along the gutter to avoid having to slow down around the traffic circle. It should be noted that the at the Yale/Cambridge circle, a curb extension is only needed in the southbound direction. Northbound traffic is unable to drive in the gutter to avoid slowing in this direction.

Curb extensions are not attached to the curb, a gap remains between the curb line and the new island in order to maintain gutter flow. The curbs are also mountable by fire trucks.

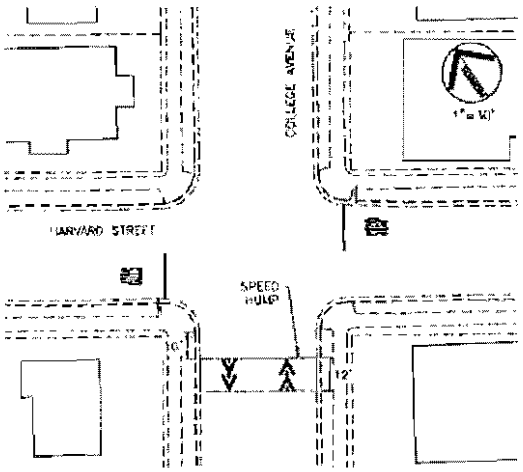
Median Islands

Median islands are proposed on College Avenue at the intersections at Oberlin, Hanover (where the traffic circle was removed and replaced with a 4-way stop sign in August 2008), and Columbia. The islands would be installed along the centerline of the street behind the striped (or implied) cross walk. Two islands would be installed at each location. They would be roughly 5 feet square with striping to direct traffic to drive around the feature and would be small enough to avoid interfering with access to residential driveways. The medians will reinforce drivers on College Avenue that they must stop at the intersection; they will also enhance the visibility of the stop signs on College Avenue as well as provide a refuge for pedestrians crossing the street.




At these locations, not all side street traffic is required to stop and frequently speeds from the cross street onto College Avenue while cutting the corner and sometimes temporarily traveling in the opposing travel lane. The islands will cause traffic to slow down as they make the turn and keep them in the correct travel lane. This will particularly improve the safety of pedestrians and cyclists crossing the street. It will also act as an additional deterrent to cut through traffic.

Speed Humps




Four new speed humps will be placed roughly half way between stop signs on College Avenue in areas that affect the greatest volume of cut-through traffic. Speed humps are proposed along College Avenue to replace the circles at Oberlin, Hanover, and Columbia. They would be placed near the intersections but not at the corners; similar to the placement of some speed tables on Stanford Avenue. The humps would primarily be installed to create a deterrent to cut through traffic since most drivers travel at or near the posted speed limit in this area. Four humps would replace three circles and would be located on College Avenue just west of Wellesley, Princeton, Harvard, and Dartmouth. These locations represent roughly half the distance between the adjacent stop signs on College Avenue.

Speed humps are not the same as speed tables. Their design is slightly more abrupt than a speed table and therefore vehicles must slow down more when traveling over the feature. The primary purpose of speed humps is to reduce travel speeds to approximately 25 mph between the humps and 15 mph at the humps, which is posted as the advisory speed.
Speed humps are formed by a gradual rise and fall in the pavement surface, usually with a parabolic profile, to a maximum height of three inches and extend over a distance of 12 feet in the direction of travel. The speed humps will not be placed directly in front of driveways and they do not affect parking spaces

**ATTACHMENT H**

May 5, 2009

**SUBJECT: COLLEGE TERRACE TRAFFIC CALMING PROJECT – NEIGHBORHOOD SURVEY**

Dear Resident,

The evaluation of the trial of the College Terrace Traffic Calming project, including assessment of the effectiveness of the traffic calming measures, in terms of traffic safety as well as meeting neighborhood expectations, is now complete. The purpose of this letter is to summarize the results of the trial, present options for moving forward, including a Modified Traffic Calming Plan, and to request your response to a project survey.

Staff has been working closely with the City's transportation consultants, College Terrace Residents' Association (CTRA) Board and the nine member Project Advisory Committee (PAC) of neighborhood residents, to evaluate the existing plan and develop an alternative to the current project that would achieve the same goals for traffic safety and speed and traffic volume reductions, while addressing neighborhood concerns about the existing plan.

**Trial Project Evaluation:** Overall feedback on the speed tables on Stanford Avenue and California Avenue has been very positive. These measures are recommended for permanent retention. The speeds and traffic volumes have been lowered in the interior/exterior of the neighborhood. Before and after data has shown that overall speeds in the neighborhood have been reduced by 10% and cut through traffic has been reduced by more than 1100 vehicles/day. However, the two traffic circles on upper College Avenue are generating incremental safety issues for drivers, pedestrians and bicyclists. The most common concerns expressed by residents are the uncertainty about right-of-way for vehicles traveling around the circles and cars encroaching into the pedestrian crosswalks as they try to maneuver around the circle. Other concerns with the circles are reduced visibility at night, unsafe vehicle speeds and cars taking short-cuts by using the wrong lane of traffic. A summary of the completed technical evaluation and speed and volume data is posted on the project website (see website address on reverse side).

**"Modified Plan" endorsed by the PAC and CTRA Board:** After hearing all the comments and concerns from the neighborhood about the traffic calming measures in the interior of the neighborhood, City staff, Project Advisory Committee and the engineering consultants have developed a modification to the current plan that we feel will address most of the neighborhood's concern about the current plan while achieving the same traffic safety and traffic calming goals of the trial project. The elements of the Modified Plan (as depicted on Exhibit A) are:

- Retain existing speed tables on Stanford Avenue and California Avenue.
- Remove existing traffic circles at Columbia and Oberlin.
- Install small center median islands with stop signs on College at Columbia, Hanover and Oberlin.
- Install 4 speed humps to control speeds on College (see map on Exhibit A for general locations)
- Keep the traffic circles on Yale at College and Cambridge and add curb extensions to approaches.
- Add a new speed table on upper California Avenue.

**Description of "Modified Plan":** The traffic circles on College at Columbia and Oberlin will be removed and replaced with center median islands. These islands will be placed at the intersections of Oberlin, Columbia and Hanover (where the traffic circle was removed and replaced with a 4-way stop sign last August) and will help to slow down cars that are turning left onto College and keep vehicles in the correct lane. The median islands will also enhance the visibility of the stop signs on College Avenue, as well as provide a refuge for pedestrians crossing the street.

Four new speed humps will be placed roughly half way between stop signs on College Avenue in areas that affect the greatest volume of cut-through traffic. The primary purpose of speed humps is to reduce travel speeds to approximately 25 mph between the humps and 15 mph at the humps.

The Modified Plan retains the two traffic circles on Yale at Cambridge and College. These circles have resulted in a significant decrease in both speed and volumes and the residents in this area have been very supportive of keeping these circles as part of the plan. These circles would be further enhanced by adding curb extensions on the east and westbound approaches. The curb extensions would slow down cars as they maneuver around the circle and will also prevent cars from driving straight through.

The Modified Plan will keep the well received speed tables on Stanford and California and will add another table on California between Columbia and Dartmouth. The additional table will help slow traffic that is traveling to and from the upper Terrace neighborhood and will also discourage cut through traffic.

In order for the "Modified Plan" option to be approved for a short 6-month trial, it must receive a "yes" vote from a majority (50+) percent of survey respondents. If supported by the neighborhood survey, this plan could be implemented in conjunction with the street resurfacing project later this summer. The trial would end in the first quarter of 2010.

**Postcard Survey:** Enclosed with this letter is a postcard survey for each resident to vote on whether they (1) support the permanent retention of the speed tables on Stanford Avenue and California Avenue, (2) support the Modified Plan for a new 6-month trial, or (3) support complete retention or removal of the existing traffic calming measures in the interior of the neighborhood. If the neighborhood supports the Modified Plan with the new traffic calming features, staff will work with the neighborhood to expeditiously evaluate the results of the trial after 6 months. Residents will also be asked to vote for the permanent retention or permanent removal of the Modified Plan existing traffic calming devices at that time.

Please take some time to read the enclosed materials and ***fill out the enclosed survey card and mail it no later than May 29, 2009.*** Please note that only one survey card per household is permitted. ***It is very important that as many College Terrace Neighborhood households as possible participate in the survey.***

**Next Steps:** Transportation staff will present ballot results and staff recommendation at a public hearing by the Planning and Transportation Commission. The Commission's recommendations will be considered by City Council (date to be determined). If Council approves, installation/removal of the approved trial measures would take place late summer 2009 as part of Public Work's College Terrace paving project.

Additional detailed information on the history and background of the project can be found at the project website: http://www.cityofpaloalto.org/knowzone/city_projects/transportation/college_terrace.asp. If you have any questions please email me at Shahla.yazdy@cityofpaloalto.org or call me at (650) 617-3151.

Shahla Yazdy
Transportation Engineer

**College Terrace Traffic Calming Project**
**NEIGHBORHOOD SURVEY**

Please check only one box, print your address CLEARLY on the reverse side and mail it back by **May 29, 2009**.

**STEP 1:** Do you support the permanent retention of the speed tables on Stanford and California Avenues? _____**YES** _____**NO**

**STEP 2:** Do you support the "Modified Plan" and extend trial for another 6 months?

Modified Plan:

- Remove traffic circles on College at Columbia and Oberlin.
- Install median islands at Hanover, Oberlin and Columbia.
- Modify traffic circles on Yale to add curb extensions.
- Install 4 speed humps on College.
- Install 1 speed table on upper California. _____**YES** _____**NO**

**If NO on STEP 2**, then do you support (please check one)

_____ Retaining the existing traffic calming measures on College/Yale **OR**

_____ Removal of all traffic calming measures on College/Yale and returning to original conditions.

ATTACHMENT I

# PLEASE PARTICIPATE
## IN THE TRAFFIC CALMING PROJECT SURVEY

**City Survey and Background were mailed to your home May 6th**

***Mail or Deliver Postcard to the City with Your Return Address***

***DEADLINE is MAY 29th***

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**ISSUE 1 – Retention of Speed Tables on Stanford and California Avenues**

- This is a vote to make all 6 speed tables installed in 2007 permanent.
- Your neighbors on the CTRA Board and on the Project Advisory Committee (PAC) support this proposal, and resident feedback on the tables has been favorable.
- Why? City measurements show the tables have reduced excessive speeds along these busy collector streets (85th percentile speeds down by 8-10%). Drivers report safer gaps merging onto Stanford and California Avenues near the speed tables.

**ISSUE 2 – Six Month Trial of the "Modified Plan" for College Avenue and Yale**

- This is a vote for a trial of the hybrid plan described in detail in the city's mailing, with a clear six month time limit.
- The existing circles at Columbia and Oberlin would be removed and replaced by median islands with stop signs plus strategically placed speed humps on College Avenue near Wellesley, Princeton, Harvard and Dartmouth.
- Where speed humps with the same gradual rise were installed in other Palo Alto neighborhoods, residents have found them helpful in deterring non-resident traffic without causing issues with safety or noise often found with the older "bump" design.
- The median islands along College are expected to increase compliance with stop signs, reduce the speed of left-turning traffic, and make crossing the street safer during the school commute rush.
- This plan includes keeping the two circles along Yale, while adding curb extensions to slow the flow of traffic around the circles. Many residents living nearby like these circles. Volumes and speeds have both declined near these circles.
- A new speed table would be added on upper California Avenue, to address speed and cut-through concerns related to coming development in this area.
- The City has committed to surveying residents on whether to permanently retain or remove the modifications six months after the trial period begins.
- The CTRA Board and your neighbors on the Project Advisory Committee support this six month trial. The PAC helped create the Modified Plan after exploring dozens of options.

**ISSUE 3 – Alternatives to the Trial of the Recommended "Modified Plan"**

- For anyone voting NO on Issue 2, this offers a choice between making all 4 existing traffic circles on College and on Yale permanent, or removing all of them and returning to 2007 conditions.
- Neither the CTRA Board nor the PAC support these options, because they do not meet the original project goals of improving safety and reducing cut-through traffic.

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*For maps, data, background and links to the city's project website, see* **www.cttc.info.**
*Questions or comments? Email* **board@ctra.org** *or contact Andrew Fetter at 843-0131.*

*City of Palo Alto*
*Department of Planning and Community Environment*
*California Environmental Quality Act*
*MITIGATED NEGATIVE DECLARATION*

## *College Terrace Traffic Calming Project*

NOTICE IS HEREBY GIVEN that a Mitigated Negative Declaration has been prepared by the Palo Alto Department of Planning and Community Environment for the project listed below. In accordance with CEQA Guidelines, this document is available for review and comment during a minimum 20-day inspection period beginning **September 3, 2004** and ending on **September 22, 2004**. Written comments may be submitted to the Department of Planning and Community Environment during the hours of 8:00 AM to 5:30 PM in the Transportation Division, Civic Center, 250 Hamilton Avenue, (fifth floor), or 8:00 AM to 4 PM at the Development Center, 285 Hamilton Avenue, Palo Alto, California or FAX 650-617-3108. The Initial Study prepared for the Mitigated Negative Declaration may also be reviewed at the Department of Planning and Community Environment, Transportation Division.

## I. DESCRIPTION OF PROJECT

**Date:** September 3, 2004 **Application Nos.:** Not Applicable

**Project Location:** College Terrace Area, City of Palo Alto

The College Terrace area is bounded by El Camino Real on the east side, California Avenue on the south side, Amherst Street on the west side, and Stanford Avenue on the north side. The area predominantly contains single-family residences except for a small amount of commercial uses along El Camino Real. The main land uses surrounding the College Terrace area consist of Stanford University on the north and west sides, and Stanford Research Park on the south side.

**Project Sponsor's Name and Address:** City of Palo Alto Transportation Division
P.O. Box 10250, Palo Alto CA 94303

**Contact Person and Phone Number:** Heba El-Guendy (650) 329-2552
heba.elguendy@cityofpaloalto.org

**Project Description:**

The attached Plan A illustrates the type and location of physical traffic calming devices recommended for trial implementation in the College Terrace area. The plan contains a total of six speed tables and raised crosswalks (similar design), and five traffic circles as listed below.

**Stanford Avenue:** From east to west along Stanford Avenue, Plan A recommends a speed table west of Wellesley Street, and a raised crosswalk just west of Oberlin Street. The plan also recommends speed tables west of Amherst Street and Dartmouth Street.

**College Avenue:** Four traffic circles at the intersections of College Avenue with Yale Street, Oberlin Street, Hanover Street, and Columbia Street.

**Cambridge Avenue:** A traffic circle at the intersection of Cambridge Avenue/Yale Street.

**California Avenue:** A raised crosswalk at the west side of its intersection with Wellesley Street, and a speed table west of Princeton Street.

A workable community majority has been reached in favor of the trial implementation of Plan A. The project's Mitigated Negative Declaration provides the foundation under the California Environmental Quality Act ("CEQA") for the City Council's approval of the trial implementation of the traffic calming devices in College Terrace.

The recommended plan also includes performance measures to meet city goals established for the plan. These measures include reducing cut-through traffic, limiting diverted traffic, reducing vehicular speeding, monitoring intersection delays/LOS, monitoring vehicular accidents following plan installation, monitoring police and fire responses to the neighborhood, and tracking comments from other agencies (USPS, transit operators, PASCO) regarding the plan elements. Some of these performance measures also act as mitigation measures in the form of "performance standards" under CEQA and are further discussed in the traffic and public service sections below. The other performance measures are in place to meet project goals. The recommended trial period is one year following the project's construction. This will allow detailed monitoring of the project and determination of whether the resulting conditions satisfy the performance measures. If they are met, the plan will be considered for permanent establishment. In the event that the performance measures are not being met, the Director of Planning will authorize corrective (improvement) actions based on recommendations of the Transportation Division, to modify the traffic calming devices so that the performance measures are met. These improvement actions could include the removal of one or more of the traffic calming devices, changes to the device(s) design, installation of other traffic calming elements to streets with greater than anticipated diverted traffic, etc.

## II. DETERMINATION

**In accordance with the City of Palo Alto's procedures for compliance with the California Environmental Quality Act (CEQA), the City has conducted an Initial Study to determine whether the proposed College Terrace Traffic Calming Project may have a significant effect on the environment. On the basis of that study, the City makes the following determination:**

_____ **The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION is hereby adopted.**

X **Although the project, as proposed, could have a significant effect on the environment, there will not be a significant effect on the environment in this case because mitigation measures have been added to the project and, therefore, a MITIGATED NEGATIVE DECLARATION is hereby adopted.**

**The initial study, described in following pages, incorporates all relevant information regarding the potential environmental effects of the project and confirms the determination that an EIR is not required for the project.** The Initial Study includes some project performance measures and corrective actions that are included as part of the traffic calming project.

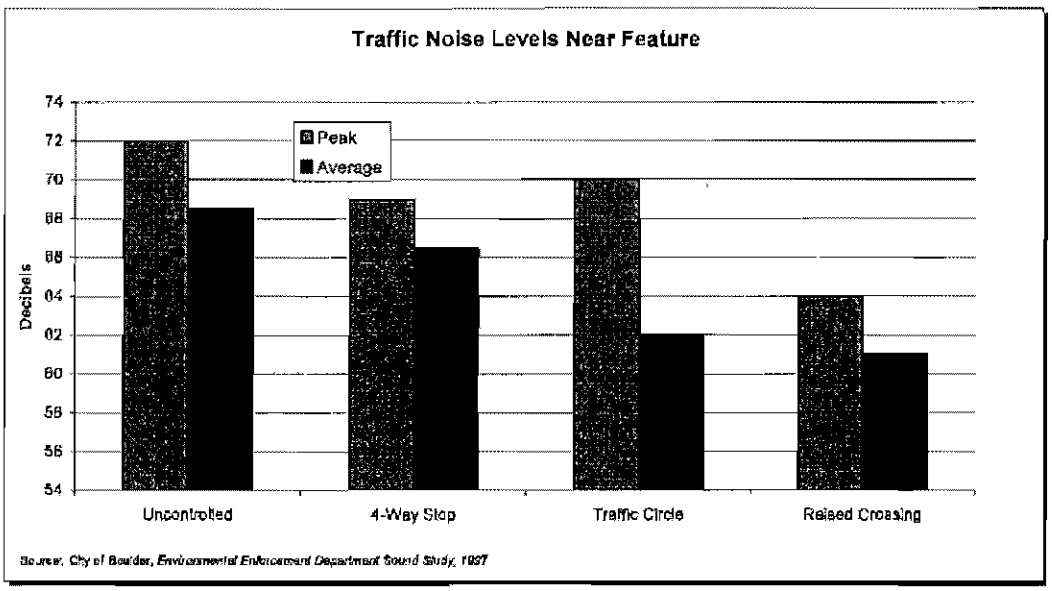
## AIR QUALITY

**Mitigation AQ-1.** Implement Best Management Practices to Reduce Air Emissions During Construction. The City shall include in construction contracts the following requirements:

a. Cover all truck hauling construction and demolition debris from the site;
b. If there are exposed or disturbed soil surfaces, water them at least twice daily;
c. Use watering to control dust generation during demolition of structures or break-up of pavement;
d. If there are exposed or disturbed soil surfaces, sweep daily (with water sweepers);
e. Provide daily clean-up of mud and dirt carried onto paved streets;
f. Install sandbags or other erosion control measures to prevent silt runoff to public roadways; and
g. Replant any vegetation that is disturbed as quickly as possible.

## NOISE

**Mitigation NOISE-1:** Construction hours would be limited to Monday through Friday 8:00 a.m. to 6:00 p.m. and Saturday 9:00 a.m. to 6:00 p.m., as per the City Noise Ordinance, Chapter 9.10 requirements. All construction truck traffic shall conform to the City of Palo Alto Trucks and Traffic Ordinance (10.48) that details city truck routes. Following construction of the plan, it is not expected that the traffic calming devices will cause significant noise impacts. The following bar chart illustrates noise levels in the vicinity of an uncontrolled location, a four-way stop controlled intersection, a traffic circle and a raised crosswalk.




## PUBLIC SERVICES

**Mitigation FIRE-1:** As additional assurance against any substantial increase in response travel times, the recommended trial implementation of the traffic calming plan provides for monitoring of response times for one year succeeding the plan's installation to ensure that there is compliance with the following performance measures.

Performance Measure: The travel times for Fire Department calls within and near the College Terrace neighborhood will not exceed the department's mission goals for travel time of 4

minutes for 90% of fire and basic medical responses, and 6 minutes for 90% of advanced medical responses (paramedics) attributable to implementation of the traffic calming plan.

Performance Measure: There will be no serious impediments in any emergency activities, including identifiable trends in increases in travel times during the trial period, of the Fire Department within and near the College Terrace neighborhood attributable to the traffic calming plan.

In the event that monitoring shows a pattern of substantial increases in response travel times, further actions will be taken to eliminate any such increases. Improvement actions for the two aforementioned performance measures could include moving or removing one or more of the traffic calming devices recommended in the plan to address the specific problem, and considering installation of an alternative device(s).

**Mitigation POLICE-1:** As noted earlier, the recommended traffic calming Plan A provides for monitoring of response times for one year succeeding the plan's construction to ensure that there is compliance with the following performance measures.

Performance Measure: The travel times for Police Department calls within and near the College Terrace neighborhood will not exceed the department's mission goals for travel time of 3 minutes attributable to implementation of the traffic calming plan.

Performance Measure: There will be no serious impediments in any emergency activities, including identifiable trends in increases in travel times during the trial period, of the Police Department within and near the neighborhood attributable to the traffic calming plan.

In the event that monitoring shows unanticipated increases in response times, further actions will be taken to eliminate any such increases. Improvement actions for the performance measures associated with Police service could include moving or removing one or more of the traffic calming devices to address the specific problem, and considering installation of an alternative device(s).

**TRANSPORTATION/TRAFFIC**

**Mitigation TRANSPORTATION-1:** As additional assurance against significant traffic diversion to local and collector streets, the proposed traffic calming plan provides for mitigation of traffic diversion through required compliance with the following performance measures.

Performance Measure: On local and collector streets with "before" counts of less than 2500 vehicles per day (vpd), no average daily vehicle count at a peripheral or internal location will increase by more than 25% of the "before" count. On local streets, the addition will not cause the volume to exceed 2500 vpd $\pm$10%.

Performance Measure: On local streets with a "before" count of 2500 vpd or greater, no average daily traffic count at a peripheral or internal location will increase by more than 10% of the "before" count.

In the event that monitoring shows a pattern of substantial traffic diversions, further actions will be taken to meet goals of the performance measures. The improvement actions for the performance measures include: (a) install additional traffic calming measures on street segments or at ends of street segments where the diversion standard is exceeded (such measures could include center medians, speed tables, and/or electronic speed limit signs); (b) move or remove

one or more of the constructed devices to address the specific problem; and, (c) replace one or more of the constructed devices with alternatives.

**Mitigation TRANSPORTATION-2:** As an additional assurance against significant level of service changes at intersections, the proposed traffic calming plan provides for monitoring to assure compliance with the following performance measure.

Performance Measure: The AM or PM peak hour Level of Service (LOS) at the signalized intersections in College Terrace (Stanford Avenue at Escondido Road and Hanover Street) will not degrade to unacceptable levels.

In the event that monitoring shows intersections worsen beyond LOS D, further actions will be taken to meet the performance measure goal. For example, signal improvement could be achieved through a change in signal phasing and/or timing. This action can be used to fine tune the allotment of green time, thus increasing signal efficiency and improving LOS.

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Heba El-Guendy

**Heba El-Guendy, Transportation Engineer**

Sept. 3rd, 2004

**Date**

for Steve M Kan

**Steve Emslie, Director of Planning and Community Environment**

September 3, 2004

**Date**

ATTACHMENT K

**Betten, Zariah**

**From:** andrew fetter [andrewfetter@yahoo.com]
**Sent:** Tuesday, July 14, 2009 11:10 AM
**To:** Planning Commission; Council, City
**Cc:** andrew fetter
**Subject:** College Terrace Traffic Calming Modified Trial opinion

Dear Planning Commission and City Council,

As a College Terrace resident, I encourage you to approve the proposed Modified Traffic Calming Trial at your upcoming meetings:PT&C (7/22) and Council (8/3).

The College Terrace Residents Board and their Traffic Calming Committee, as well as a large majority (of those who voted) of residents support the plan. Out of 274 surveys received by the city,183 voted in for support of the Modified Plan.

In addition the city staff and hired traffic consultant, as a result of numerous committee meetings and neighborhood meetings, agree that the modified trial is a worthy of implementation. Although there is a wide range of opinion on the value of traffic calming, I think the suggested modified plan is a reasonable attempt to make the neighborhood a safer place for all.

Regards,

Andrew Fetter, member of Traffic Calming Committee
2255 Wellesley St

Attachment C

**Planning and Transportation Commission**
**Verbatim Minutes**
**October 12, 2011**

**EXCERPT**

**College Terrace Traffic Calming Project:** Review and Recommendation to the City Council to Approve the College Terrace Traffic Calming Project

Chair Martinez: We'll begin on Item number two which is a recommendation to City Council on the final College Terrace Traffic Calming Project. We'll open the Public Hearing and start with a brief staff presentation. We rehearsed this too.

Commissioner Tanaka: I have to recues myself on this item because I live in College Terrace so I'll step down for this item but then I'll return for the minutes and other great stuff.

Chair Martinez: Thank you. Okay, Jaime.

Mr. Jaime Rodriguez, Chief Transportation Official: Good evening Commissioners. My name is Jaime Rodriguez Chief Transportation Official from the City of Palo Alto. Shahla Yazdy from our transportation team will give you the presentation on the College Terrace Traffic Calming Project as having been the Project Manager for the last few years.

Ms. Shahla Yazdy, Transportation Engineer: Good evening Commissioners. I'm Shahla Yazdy, Transportation Engineer. The College Terrace Traffic Calming Plan, shall we start off with a project area map where you see Stanford Avenue to the North and California Avenue on the South bordered by Amherst Street and El Camino Real. Stanford University is on the North and the research park is on the South.

Brief project background. The neighborhood has suffered through twenty years of cut through traffic and speeding throughout the whole neighborhood. In 2003 the city with the help of consultants, the policy advisory committee, the College Terrace Residents Association and the city began a Traffic Calming Management Program for this neighborhood. First round of traffic calming features were installed in 2006 on a trial basis. After the trial was completed the plan was modified and approved for trial in 2009 which we also came to the Planning Commission for.

This modified plan, the trial is complete and that is what we are here to discuss this evening. The current plan that is existing on College Terrace is four speed tables on Stanford Avenue. It might be hard to see but there are maps in your hand outs, three speed tables on California Avenue, four speed humps on College and center median islands with stop signs on Columbia, Hanover and Oakland, and also two traffic circles on Yale at College and Cambridge with curve extensions around the perimeters.

So pretty much before and after data, what was taken only in the vicinity of new traffic calming measures. They were compared to the 2007 data so the number of speeders going over 25 mph

which was the 85th percentile was down on all the streets. Also, we saw volumes drop on pretty much all the streets except for Columbia and Princeton. We actually got a little increase in volumes on those streets.

In March of 2011 letters were sent out to the neighborhood, approximately 900 residents live there and they were asked whether or not they supported the permanent retention of the current plan. We received 243 postcards which represented 27% of the number of houses, 195 residents responded yes and 48 no and that gives us about 80% positive response which is over and above the 50% that we require.

Comments that we've received for this latest plan is pretty much positive support for all the traffic calming measures. In addition we have received requests for landscaping of the two traffic circles on Yale. Staff is recommending that rather than fill the circles as noted in the staff report to pursue other alternatives to improve the circle so that could be a private public partnership of sorts or even considered as a future CIP to be able to fund them.

The next steps that we are asking is for the Commission to recommend that Council approve the permanent installation of the traffic calming plan in College Terrace. So we are ready for questions.

Chair Martinez: Again, I would like to defer our questions until we have a chance to hear from our public visitors tonight. Are there any cards? You'll each have three minutes to speak.

Vice Chair Fineberg: First speaker is Fred Balin followed by John Agosta.

Mr. Fred Balin: Good evening. So we've had a good process. It's been a lengthy one. We started in 1999 with a petition that came to the Council followed up by some traffic studies. We got $50,000 as a CIP mitigation. We then got another $150,000 from a project on Hanover and California back in 2002. In 2004 it came to the Commission the first time and then went to the Council for the initial plan. The trial didn't start until 2006. There was a little delay there. We had five circles for the very first trial that went down College Avenue. After a year we had a big discussion about the circles and there was a woman, Rhonda Ross and she actually went around to every home in the Terrace and her letter is in one of the packets here. Based on that staff removed one of the circles and then we had a subsequent trial in which two more circles were removed so we were left with just two and another speed table was added as well. That was approved in the latest one and we are working on additional signage that staff has agreed to put in and the issue of the landscaping. I'm encouraged that staff will not be filling in the traffic circles which gives us the opportunity to move forward and landscape them because they really should be and for downtown north there are three barren circles there and we need to find a way to prevent putting up calming measures and stark concrete structures that really aren't very inviting so I hope we can move forward in all the neighborhoods as well.

So I would ask that in the Motion and recommendation from staff is to approve the permanent installation of the traffic calming planning for College Terrace in Attachment A and that there be some mention that that means there is no permanent filling with concrete for the traffic circles that exist now, that they stay in their temporary state. Then as far as the three ball bouts that are

adjacent to the traffic circles that staff has permitted us to landscape because they are right near the curb, our intention, at least my intention is to begin the process of filling those in with landscaping as soon as we can get approval from the Council so thank you very much.

Chair Martinez: Thank you for hanging in there all these years.

Vice Chair Fineberg: John Agosta to be followed by Brent Barker.

Mr. John Agosta: Thank you Commissioners for letting us speak. My name is John Lark Agosta, I live at 1648 California Avenue adjacent to Facebook. I've been part of their resident's association activities and traffic calming for a decade. I did find in the files the 1999 petition signed by 25 resident members of College Terrace asking for action taken because of deep concern about nature of traffic, speed and cut through. An interesting fact is that in 2002 the Resident's Association organized with the city a cut through survey measuring from license plate matching the number of cars that were entering and leaving College Terrace by each ingress and egress and there were several streets where the cut through traffic was greater than 50% and I am happy to say if you look now at the traffic levels and speeds there has been a significant reduction. I think we can thank the process for working successfully. I think we also have to look at the secular decline in traffic over the last ten years.

I think we can also look at as the Mayfield redevelopment is being redone there is a possibility for revisiting the traffic levels of the past and we should go ahead and continue to monitor, anticipate and possibly to examine the measures as we've had in the past so I'm here to support the process and say that this proposal is a solid one and we should go ahead with it. In fact, the discussion about landscaping has been interwoven and intermingled in this process from the beginning and cooperation with the residents association which has been very strong hopefully will lead to a successful collaboration there and we do continue with this discussion and possibly think about where, now that this funding is complete, if there are opportunities and places in the budget for further activities of this sort. Thank you very much.

Vice Chair Fineberg: Final speaker, Brent Barker and last call for cards.

Mr. Brent Barker; Thank you Commissioners. I appreciate the time you're taking listening to us and contiguity is a word, we looked it up on Wikipedia. My name is Brent Barker, I live at 2331 Amherst Street and I'm the President of the CTRA Board of Directors. I want to focus my remarks on the landscaping but I want to take the opportunity first to thank you and the city and the staff for hanging in there for so many years. The patience, perseverance and professionalism has really been outstanding and we truly do appreciate it. We've ended up with a very good and effective system and process.

The landscaping, I want to lay out sort of a four point case for landscaping. I know that we're looking now at probably leaving them in place but I just want to say that it was the understanding of the residents through a proposal by the city and voted on by the residents that somewhere it was between a covenant and a contract that the city would in fact landscape those traffic circles and that continues to this day.

Secondly, as the trials went on over the years we dropped from five circles down to two and the reduction of three circles did in fact save the city we would estimate between $75,000 and $90,000 so there has been a considerable savings as a result of this long trial. The long trial has in fact postponed if possibly precluding the landscaping service. The cost differential between hardscaping and landscaping we see as relatively minor. There are two different sets of numbers on the website and the cost differential is about $5,000 at 20%. The new figures we've seen the differential has grown to about $15,000 so for two circles it would be either a $10,000 with installation or $30,000 cost. Relative to the savings we feel that's a good bargain.

The last point I want to make is just the esthetics of having those circles. The traffic circles are situated such that the commercial district is in a transition into the neighborhood so they become a gateway into College Terrace. College Terrace is a very proud historical neighborhood whose life actually exceeds that of Palo Alto Proper. In fact, if my sources are correct, College Terrace was the original Palo Alto and then I think Stanford bought the name and University Park became College, became Palo Alto, College Terrace became part of Mayfield and that was kind of the role of things but this neighborhood is proud historically and this would be a nice way to set it off. Esthetically it would tie in very strongly with the beautification efforts that are going on on California Avenue so I thank you.

Chair Martinez: Thank you. Questions from Commissioners?

Commissioner Lippert: I have a couple of questions for staff. Haven't there been studies done where landscaping and trees located in medians are actually not esthetic considerations but actual traffic calming measures as well?

Mr. Rodriguez: Yes, extensive landscaping with large trees can be a very successful traffic calming measure. There actually is one on the other side of El Camino within Stanford Avenue there is a large traffic circle with several trees and it is extremely beautiful.

Commissioner Lippert: I've probably been involved in this project as long if not longer than you have in terms of traffic calming and every proposal that's come forward has always had some sort of landscaping as part of the description of the permanent plan. Why is this all of a sudden being removed?

Mr. Rodriguez: We began looking at landscaping versus hardscaping circles that were pending improvements about a year ago and it strictly was just a cost savings issue for the city. The circles that remain in place today all need landscaping so we made a decision about a year ago to not pursue future landscaping. We did consider a lot of other opportunities such as granting maintenance to residents, survey cities all around California and figure out what would be the best opportunity.

We lean towards hardscaping initially but as we started hearing more community concerns about the circles we thought it would be a better recommendation to try to find future funding or work with the community, College Terrace specifically to try to identify landscaping in the future.

Commissioner Lippert: Every year we review the CIP which is the Capital Improvement Program for the city and the traffic calming measures are part of that CIP. They are included in there in terms of accepting as a capital improvement in the city so integral in that budget for those numbers are the landscaping numbers and our job or our purview here is to look at consistency in land use with the capital improvement budget. Why would we approve something that is inconsistent with what our job is in terms of capital improvement program?

Mr. Rodriguez: The CIP, specifically the transportation purpose projects, the only traffic calming focus in CIP is the San Francisco program and the description limits to traffic tables, speed humps, those types of improvements. There is no active CIP that does landscaping. They are usually project specific.

Commissioner Lippert: I want to follow up on that. There are other neighborhoods in the city besides College Terrace that have been given the circles with the proviso that they be landscaped and they haven't either. I think Fred Balin specifically named downtown north. There is also several in the [SOFA] area as well. Are there any plans to landscape those or have those been in the CIP?

Mr. Rodriguez: There is no immediate plan to landscape the circles that are immediately pending. That is something we are looking at through the Blue Ribbon Infrastructure Task Force. That discussion has come up and as the future CIP s are developed that may be something that is prioritized in the future but that process is yet to be seen.

Chair Martinez: Commissioner, it seems to me that they are plain that they are looking for a way to landscape it. I didn't understand your line of questioning.

Commissioner Lippert: My line of questioning is that a trial is just that, a trial. It is meant to have certain metrics and measurements and they are supposed to be fine tuning in terms of what the final plan is supposed to be but implied in the final plan is standard that needs to be followed. Our job in looking at the CIP is to assure that what is being proposed from public works in terms of their capital improvements throughout the city are consistent with the land use designations in our review as a body here and what I see in essence is that because of budget considerations when something is being made permanent and in fact is saying well, you can either take what you currently have or you can take half a loaf and in some ways the residents are I think willing to take that half a loaf rather than saying we really need to have this plan fulfilled in its entirety and done right. The visual esthetics are not the consideration here. What's important is that there is a plan and there are certain standards and implied in that planting area is also a traffic calming measure in the way of plantings and public right of way. It has been documented in many city's that having plantings in a median actually reduces traffic speeds and it is an integral tool for this design.

Chair Martinez: Commissioner Keller.

Commissioner Keller: Thank you. First, if you would indulge me by educating me on the difference between traffic table, the term we used, speed hump and speed bump. I don't know the differences between them and I'm not sure if anyone else does.

Mr. Rodriguez: A speed bump is what you would find in a parking lot, a foot to 8 inches high, very abrupt, typically parking lots. Speed humps or undulators which is another common term are longer speed humps, usually elongated out to 8 feet wise and varying about three inches in height. A speed table is the equivalent of a 17 to 18 feet wide and usually serves as a crosswalk table as well and so each has a different effect on the street and a different application.

Commissioner Keller: Is there a difference in how deep or how thick or how far they extend?

Mr. Rodriguez: The typical distance between each is…

Commissioner Keller: I mean the height and the width if you will.

Mr. Rodriguez: So the speed table, the width and travel of the roadways are about 17 to 18 feet and usually about 3 to 4 inches in height. An undulator is about 8 feet wide. We are thinking about an average of three inches in height.

Commissioner Keller: Is there money left over in the current CIP under which, I assume there is a CIP for the traffic calming project, this particular project right?

Ms. Yazdy: We have a little over $30,000 left and that would be to kind of add the signs and do some painting, restriping and adding reflectors to the current traffic calming measures. I'm afraid that's not enough to provide landscaping for both circles.

Commissioner Keller: So the issue is if one wanted to do the landscaping one would have to find an additional source of money but there is an advantage to declaring victory and saying when this trial is done we are going to make it permanent. Is that reasonable to say?

Ms. Yazdy: Yes.

**MOTION**

Commissioner Keller: So if I could make a motion? So I move staff's recommendation with the following provisos: One is that we do not fill in the traffic circles. Second we allow resident landscaping of the curb extensions and third staff evaluate for future of new traffic circles how to handle them in particular the potential for public private partnerships or future CIP for landscaping for future traffic circles including the ones that are in College Terrace as well as the other ones mentioned that are not landscaped that are relatively newer in progress. Thank you.

Chair Martinez: Is there a second? Do you want to speak to your motion?

Commissioner Keller: I think this is a good job that people have worked on diligently. I think here we have a good work by city staff in moving this forward. It's unfortunate that we can't address the landscaping issue now but that's why I put in there that it needs to be dealt with in the future in an appropriate manner and staff to evaluate how to handle that and I think it's a

situation where we have a successful traffic calming measure and we should agree to the success and make it permanent. Thank you.

Commissioner Garber: No comments.

Chair Martinez: Commissioner Tuma.

Commissioner Tuma: I support the motion as stated. The one thing I would say, well a couple things with respect to landscaping, one is that I think there are a growing number of alternatives to, there is a lot of distance between a fully landscaped circle and an ugly concrete thing. There is stamped concrete, ornamentals, a lot of other things that I would encourage staff to look more at the long term fiscal sort of being fiscally responsible with these types of things where you can make something attractive, you can make it effective but you can also make it self-sustaining and not deal with issues like do you let the residents go out into the middle of the circle and the liability issues you get with that or the infrastructure you get with landscaping and then water use is something, water becoming more precious and more important with time so can we accomplish some of the same esthetic desires while keeping the city attractive but doing it in a way that doesn't require water, landscaping or ongoing maintenance. I think we can and there are lots and lots of different materials and techniques that are being used so whether that winds up being the end result for this particular project or not, the way the motion is framed leaves it in your hands to figure out but the direction towards water and other types of materials with an eye towards esthetic makes sense to me so that's the only comment I would make.

Vice Chair Fineberg: I support the motion and I would like to thank members of the public who have stayed with us to be here tonight and provide input. I am pleased that we are proposing that it be recommended to Council that it be made permanent. I am a little concerned that the reason we're kind of only giving half the loaf is because the CIP project ran out of money. If that's been the same scenario on our other circles then we need to somehow revise the process where we don't run out of money and we know what things will cost and we budget our CIPs properly so that next year when the budget comes up and the other proposed circles don't get half baked. I like the idea that it goes forward with the idea that somewhere the money will be found and hopefully the staff and the residents can work together to find whose budget it comes out of.

I agree with comments made by Commissioner Lippert that the raised elevation of the planting doesn't necessarily need to be gargantuan trees but having that line of sight broken with the visual plants between the drivers' line of sight and somewhere down the block is just a natural barrier to thinking that the road is a highway. There is something there blocking your line of sight and you are going to drive slower so I understand there is a capacity to have decorative pavers but if we are getting creative with things that don't require water they need to have that visual block and not just be an engineering project.

The other issue and I need to ask staff a question and I would like to propose a friendly amendment with the residences that will landscape the ball bouts I can imagine that there has to be some kind of a plan so we get the right kind of plants in those ball bouts and not, for instance, bamboo forest which block the line of sight and I exaggerate by saying that but we don't want the wrong plants there to block the line of sight as people make their turns so is there some way

to implement a casual process where there is a review and it doesn't create a burden or a quick set of guidelines that residences can use so they do go off on the right path, not to create burdens, not to create bureaucratic nightmares but something to keep it so we get the right plants in the right places?

Mr. Rodriguez; Definitely we can look internally at trying to propose some type of process and get a hold of the College Terrace Association and discuss some alternatives for developing a process or a staff level review for things that might come together in the future for a nice landscape.

Vice Chair Fineberg: I'm not even thinking it rising to the level of a staff level review but would it be appropriate to simply communicate the planting plan with XYZ staff person? I don't want to add a bureaucratic review process that requires staff time and impediments but how does one create a casual check?

Mr. Rodriguez: Definitely we can do that. We can go ahead and propose and leave Shahla in charge as a good staff contact and we have a landscape architect on staff with the city, Peter Jensen and he would actually be a really good person that we can run this type of a recommendation by and we do so on all of our projects as well.

**AMENDMENT TO MOTION**

Vice Chair Fineberg: So if I could propose a friendly amendment, or improve wording, that for the resident landscaping of the ball bouts that the residents work with either the traffic engineer or the landscape architect to confirm suitability of plan.

Commissioner Tuma: Or perhaps more simply just staff to work with the neighborhood association to define the landscaping of the ball bouts.

Vice Chair Fineberg: That's great, thank you.

Commissioner Keller: I'll accept that if the word neighborhood association is replaced by the College Terrace Resident Association, I think that's the name.

Commissioner Tuma: Let me think. Sure.

Chair Martinez: Commissioner Lippert.

**AMENDMENT TO MOTION**

Commissioner Lippert: I'm going to get a clicker I think. I'd like to offer a friendly amendment and the friendly amendment is that we recommend to City Council that within the next two CIPs they find monies to landscape the traffic circles and part of my reason for adding this friendly amendment is here we are, a community and we are doing an incredible amount of improvements within the city. We just started work on putting in the reservoir, underground reservoir project in a park. We are building a brand new library in Mitchell Park. We are about

ready to build or renovate the existing main library and we've started work on the art center in a park.

We are about to do a whole bunch of road improvements along Charleston again significant landscaping is involved in that. I don't understand why we can't find the money to landscape a couple of traffic circles and maybe several traffic circles throughout the city that residents drive down these streets every single day and its integral to the design of these traffic circles and getting them to work properly. In my own neighborhood, it's anecdotal but it's true. Somebody came down Hawthorne Avenue, didn't see the traffic circle because it was just a low white ring of concrete, saw it at the last minute, veered off and plowed into the house on the other side of the traffic circle. This is right at the corner of Hawthorne and Cowper, you can check the police reports, and it's true.

So without these properly being landscaped it's just an obstacle course is all that it is. The friendly amendment is that within the next two annual CIPs the city find the money to landscape the traffic circles.

Chair Martinez: Okay, the Maker.

Commissioner Keller: I am going to deal with that in this way. That is I already have a thing in there about staff evaluating the landscaping and how to do that and I'm going to add the words, within two years of the completion of this project at the end of that proviso.

Chair Martinez: So is that a no?

Commissioner Keller: I'm doing it a different way so instead of accepting his amendment as is, I am taking the spirit of action required in two years by adding within two years to the end of what I earlier stated.

Commissioner Garber: I accept. Okay, procedurally he is not accepting it but he is offering a second friendly amendment to his own motion which is embodying the spirit of the proposed amendment that was turned down and in so doing I am accepting his rewording of it, okay?

Chair Martinez: Thank you.

Mr. Rodriguez: If I could just add in a suggestion. Usually the development and approval of the CIP is at the City Council level as a dedication of funds but I'm wondering, and I want to understand it myself, that this recommendation to try to work and find funding within two years or actually create a CIP to get it done in two years. I am just throwing it out there.

Commissioner Keller: I believe the wording I said was for staff to evaluate the future of these and so that evaluation and a plan on how to do that would occur in two years and if that would also assuming the evaluation is that you could move forward with it in the process so it isn't telling you what to do exactly but it puts a time constraint that it be done in a timeline manner.

Chair Martinez: Vice Chair Fineberg.

Vice Chair Fineberg: I'd like to say that I agree with both Commissioner Lippert's proposal and Commissioner Keller's proposal. That said, I think Commissioner Lippert is absolutely right that we ought to be landscaping all of our circles but the only circle that is on the agenda for discussion tonight are the ones in College Terrace, not noticed to talk about circles in the rest of the city or propose new CIP projects in other parts of the city so I think it's a wonderful compromise that we take care of the circles as best we can and its possible for the College Terrace circles that staff may be able to come up with funding mechanisms that aren't CIPs so for tonight's action we can take care of getting those and then when we have it back on our docket to recommend new CIP projects when the CIP comes before us, that's when we introduce something that is in our purview, we can recommend new CIPs and we get it and that's when we lock down all the circles throughout the city so maybe that kind of answers everything.

Commissioner Tuma: It really doesn't answer it and the reason is that staff can always come back and say we looked at it and we can't do it. The issue is that what I'm saying is put this on the plate of the City Council and let them make the determination based on our recommendation that those circles really need to be landscaped. They can always say, no, we don't have the money and for whatever reasons we are not going to look at it but the idea is if you put it in front of the City Council as part of the recommendation they can either take it or leave it. The citizens have an opportunity to speak to it and plead their case and when the CIP comes up, I'm saying the CIP within two years it at least gives the City Council and the citizens the time to address it as well as ourselves.

Chair Martinez: Two things. I really appreciate the working relationship and trust that staff has developed with College Terrace community because when our public speakers stepped up they didn't say we demand this should be done within two years. They didn't lecture us about how the city needs to fulfill its promise. They stepped up and said we'll look for public and private partnership to get this done and that speaks a lot to the way in which you two have worked with the community in which the community itself really wants to get that done and I think enough has been said about encouraging the city to also support this effort to get the landscaping done and the policy that we want traffic circles to be landscaped and I think enough has been said about that and we should go forward on our vote.

So Commissioners, all in favor of the Motion say I. No opposed. Wait Lee is opposed. You are abstaining. Commissioner Tanaka is absent so that is Commissioner Keller, Garber, Martinez, Fineberg, Tuma voting in support, one abstention Commissioner Lippert and one absent Commissioner Tanaka. The Motion passes and thank you all very much.

**MOTION PASSED**