TO: HONORABLE CITY COUNCIL

FROM: CITY MANAGER

DEPARTMENT: PLANNING AND COMMUNITY ENVIRONMENT

DATE: JANUARY 20, 2004

SUBJECT: PROPOSED CHARLESTON/ARASTRADERO ROAD CORRIDOR PLAN

REPORT IN BRIEF

On April 14, 2003 the Palo Alto City Council directed staff to prepare a Charleston/Arastradero Corridor Plan to address school commute and other travel safety concerns for pedestrians, bicyclists and drivers, as well as to enhance residential amenities along the corridor, without inducing traffic to shift onto nearby residential streets and maintaining the ability to handle existing and projected traffic. Council also adopted an urgency ordinance providing that the City would not formally consider or approve applications for certain residential or non-residential development if the development was located within specified distances from the Charleston Corridor. The ordinance provided that the restrictions on development applications would terminate no later than the expiration of the ninth month following the effective date of the ordinance. Accordingly, the restrictions on development applications shall no longer be effective after January 14, 2004.

Some elements of the Charleston/Arastradero Corridor Improvement Plan are already part of the “Travel Smart, Travel Safe” Residential Arterial program approved by Council on October 7, 2003 for which funding is being pursued (CMR:454:03). These include advanced traffic detection, traffic-adaptive signal operation, electronic speed advisory signs, and pedestrian-actuated, in-pavement lighted crosswalks. The traffic-adaptive system, since it reduces delay at intersections during peak periods is an essential pre-condition to the proposed conversion of about one-half of the Charleston/Arastradero from four lanes (two through lanes in each direction) to three lanes (one through lane in each direction with left-turn pockets and intermittent center medians). Additionally, the City will continue to work with the schools along the corridor and the School District to decrease peak-hour automobile school commute trips by increasing the number of alternative mode (cycling, walking, Palo Alto Shuttle, school and VTA bus transit) trips to and from their facilities, as well as adjusting start times of the schools.

The Corridor Improvement Plan includes a funding element, with variety of financing options, including federal, state, and regional grants, traffic impact fees, and other sources. Project implementation after Council approval of a plan for the Corridor will proceed within
the context of the City’s capital improvements planning process. Council may choose to implement the plan in phases, matching availability of grant and other funding with City resources; and/or reduce the proposed Corridor Improvement Plan scope to manage the fiscal impact of the plan. Staff recommends a one-year trial period of the three-lane cross-section before Council authorization to make these changes permanent.
RECOMMENDATION
The Planning and Transportation Commission and staff recommend that the City Council adopt the attached resolution (Attachment A) adopting a Mitigated Negative Declaration, and approving the Corridor and Phasing Plans (Attachment B) for the Charleston/Arastradero Corridor Improvement Plan.

BACKGROUND

Current Conditions
The proposed Charleston/Arastradero Road Corridor Improvement Plan site is located in the southern portion of Palo Alto between Fabian Way and Charleston Road to the east and Miranda and Arastradero Road to the west. Charleston/Arastradero form a continuous corridor, with El Camino Real marking the point of transition from one street to the other. A map of the corridor is included as Attachment C. Both Charleston and Arastradero are classified as “Residential Arterials” in the 1998-2010 Palo Alto Comprehensive Plan. The length of Charleston/Arastradero, within the Corridor Plan limits, is approximately 2.3 miles. Eighty-fifth percentile vehicle speeds along the corridor range from 34.7 (Charleston Road, near Carlson) to 36.9 mph (Arastradero Road, near Pomona) and 37.3 mph (Charleston Road, west of Fabian). Both roads have four through lanes within the Corridor Improvement Plan reach. The corridor comprises two of the five streets classified in the Palo Alto Comprehensive Plan 1998-2020 as “Residential Arterials,” which are mandated as requiring consideration for appropriate traffic calming measures. In addition, in 2000, the Charleston Road Corridor Study identified a number of potential enhancements to pedestrian and cycling safety.

Public Review Process
At its April 14, 2003 meeting, Council directed staff to prepare a plan of transportation and urban design/landscape improvements for the Charleston/Arastradero Road Corridor (CMR:237:03). Council also directed staff to return with a report on land use assumptions, to be included in projecting future traffic conditions on the corridor before such predictions were undertaken. The land use assumptions were reviewed and approved for traffic projection purposes by the Council on June 9, 2003 (CMR:310:03). The expected outcomes of the Charleston/Arastradero redesign include safer travel to schools and other Corridor destinations; well-landscaped medians where possible; and improvements to pedestrian, bicycle, vehicle and bus transit travel along the corridor. Other key purposes of the transportation plan directed by Council are to provide safer traffic flow along the corridor, reduce the incidence of vehicle speeding (without reducing vehicle travel times or causing diversion of through traffic to other residential streets), and accommodate existing and projected traffic.

An initial set of performance measures for the Corridor based on best practices in traffic engineering assessment was presented for discussion at public meetings on July 10 and July 15, 2003. A refined and expanded set of road performance measures was then presented to
an informal focus group of Corridor stakeholders. The set of road performance measures was further refined and expanded for presentation to the Planning and Transportation Commission and then to Council (CMR:430:03), which approved them on September 22, 2003.

Conceptual plans and alternatives for improving the Charleston/Arastradero corridor were presented and discussed at public meetings on October 15 and October 22, 2003 and at meetings of the informal focus group of Corridor stakeholders. Staff and a project consultant made a presentation on the conceptual alternatives to Corridor PTA representatives and one principal (Terman Middle School) on November 13. Staff also presented information on the Corridor Improvement Plan conceptual alternatives to the Palo Alto Bicycle Advisory Committee on November 12. Conceptual plans were presented at a joint study session of City Council and the Planning and Transportation Commission on November 24 (CMR:524:03). Staff conducted a “mobile workshop” for interested residents along the Charleston Road/Arastradero Road Corridor on December 9, with stops and discussion at the Gunn High School driveway intersection with Arastradero Road, the Hoover School driveways into and out of Charleston Road, and the median island on Charleston Road between Louis and Montrose. On December 10, the Planning and Transportation Commission held a public hearing on the Corridor Improvement Plan. Staff has also scheduled meetings with representatives of Hoover Elementary School and Gunn High School to discuss implications of the Corridor Improvement Plan for circulation on each campus. A variety of information on the Corridor Plan effort is on the project web site at http://www.cityofpaloalto.org/charleston-arastradero/index.html.

**DISCUSSION**

The Charleston/Arastradero Corridor Improvement Plan focuses on transportation issues, and is thus a transportation improvement plan rather than a land use plan. All urban modes of travel are addressed in the Corridor Improvement Plan, including private motor vehicles, public transit, cycling, and walking. Ways and means of reducing vehicle trips are also evaluated. Consideration of improved visual amenity on the corridor—through provision of additional street trees and other natural features, landscaped medians, street furniture, and other landscape architecture and urban design improvements—are an integral part of the plan. These amenities may provide both visual enhancement and traffic calming benefits. Another primary objective is to provide smoother, more efficient traffic flow along the corridor with no reduction in capacity or travel times, while minimizing diversions to other streets.

The Charleston/Arastradero Corridor Improvement Plan comprises the following elements:

1) Evaluation of existing and projected traffic conditions
2) Recommendations for corridor improvements
3) Phasing of corridor improvements
4) Cost and funding plan for corridor improvements.
Recommended Corridor Improvement Plan measures include the following major components (a more complete list is shown in Attachment B):

1) A new dedicated westbound right-turn lane and associated driveway and signalization improvements at the Gunn High School driveway.

2) Automation of the Charleston/Arastradero Road traffic signals through deployment of traffic-adaptive signal technology.

3) Converting about one-half the total corridor length from a four-lane cross-section (two travel lanes in each direction) to a three-lane cross-section (one travel lane in each direction with intermittent left-turn pockets and raised center medians for pedestrian refuge).

4) Deploying additional electronic speed advisory ("VCalm") signs; installing pedestrian “countdown” signal heads along the corridor; and, at selected non-signalized intersections, installing in-pavement, pedestrian-actuated crosswalk lighting.

5) Widening, removing gaps in, and tinting or painting the on-street bicycle lanes along the Corridor.

6) Removing the “free right” turn ("pork chop” islands) on the southern leg of the El Camino Real/West Charleston/Arastradero intersection and installing non-skid textured pavers on all four crosswalks.

7) Creating a center left-turn lane for eastbound Charleston Road traffic into Hoover Elementary School.

8) Re-designing the existing center median at Louis and Montrose.

9) Increasing Palo Alto Shuttle service frequency along the Corridor.

National research suggests that converting a four lane arterial to three lanes has little effect on daily traffic volumes, and thus, by implication, has little traffic-shift effect. It reduces prevailing vehicle speeds somewhat (typically less than 5mph), while substantially reducing both speeding (driving 5 or more miles per hour above the speed limit) and crashes. A 1999 research report entitled “The Conversion of Four-Lane Undivided Roadways to Three-Lane Facilities” by the Thomas M. Welch of Iowa Department of Transportation Engineering Division summarizes the benefits of these conversions in projects nationwide. National research also suggests that traffic-adaptive signal operation (automation) significantly reduces vehicle delay and shortens vehicle queues. A research report entitled “Adaptive Signal Control II” by Professor Peter T. Martin and colleagues at the University of Utah Department of Civil and Environmental Engineering describes the benefits of traffic
adaptive signal operation in projects worldwide. A traffic analysis of the existing and projected corridor conditions is included as Attachment E.

The Corridor Plan elements, as well as the advantages and disadvantages of each element are summarized in the following matrix:

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<tr>
<th>ELEMENT</th>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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| Traffic Adaptive System                      | + Increase efficiency of streets and intersections  
+ Reduce peak hour travel times                                                                                                                  | - cost                                                                        |
| Wide 16’ Median installation                | + Reduce vehicle speeds, which increases traffic safety  
+ Retain or improve traffic flow  
+ Increase pedestrian safety (center refuge), two fewer lanes to cross  
+ Reduce traffic accidents (potential for up to 25%)  
+ Room for continuous & wider bike lanes  
+ Provides left lanes for side streets  
+ Adds vegetation                                                                                                                                | - prevents some left turn access from driveways  
- cost                                                                                                                                         |
| For 3-lane alternatives                     |                                                                                                                                                                                                           |
| Small 6’ medians, “vegetation islands”, or center medians Where space allows | + Increased vehicular safety by separating oncoming vehicles  
+ Adds vegetation, which adds to visual component  
+ At pedestrian crossings adds pedestrian refuges for safety  
+ Slows traffic                                                                                                                                  | - Cannot provide left lanes  
- Prevents some left access from driveways  
- Not as effective for traffic safety as larger median element  
- Requires space reallocation                                                                                                                   |
| Painted or Tinted Bicycle Lanes             | + Increase bicyclist safety by increased visibility  
+ Increases presence of corridor as bicycle commuting area and perhaps bicycle use  
+ Other communities have shown success of this element                                                                                           | - New application here, so would likely need to do demonstration project  
- May confuse drivers at first, particularly at intersections                                                                               |
| Widen bicycle lanes                         | + Increase safety for bicyclists  
+ Perhaps increase bicycle use                                                                                                                    | - Will reallocate space from other uses, such as parking & lane widths in some areas                                                  |
| Pedestrian bulbouts on side streets & intersections where not interfering with significant turning traffic | + Shortens pedestrian crossing widths and pedestrian safety  
+ Increase pedestrian feel of corridor and perhaps pedestrian activity  
+ Slow traffic speeds for safer pedestrian crossings                                                                                           | - Needs careful design – will not be located where interfere with significant traffic movements (such as RT movements)  
- May require changing curbline, drainage, etc.                                                                                                 |
| Enhanced Pedestrian Crossings               | + Increases pedestrian safety and perhaps use  
+ Many options to enhance visual nature of residential corridor                                                                                   | - Can be expensive, depending on type of treatment                                |
<p>| Includes “countdown” signals at major intersections |                                                                                                                                                                                                           |</p>
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| Sidewalk Improvements | + Increases pedestrian safety and perhaps pedestrian activity  
+ Repairs damaged, cracked, or uneven sidewalks | - Must take precautions to not impact roots of trees as per Tree Technical Manual |
| Electronic speed signs | + Relative inexpensive  
+ Reduces traffic speeds  
+ High public acceptance | - Driver awareness may lessen over time |
| Increase residential, school and bicycling signage on the corridor | + Increased drivers awareness of shared mode & residential corridor and perhaps enhance traffic safety | - Must be designed to be attractive along the corridor  
- If gateway element, would require public/City consensus on design |
| Enhanced roadside planting scheme | + Enhanced visual component  
+ May slow traffic | - Cost  
- Placements shall not compete with adjacent trees |
| Replace “pork chop islands” on ECR with traditional curb | + Increase bicycle safety and perhaps use  
+ Increase pedestrian safety and perhaps pedestrian activity | - Delay RT movements slightly |
| WB Right turn lane at Gunn High School | + Reduce queues  
+ Reduce intrusion on residential streets | - Requires wider driveway into campus |
| EB Left turn lane at Hoover School (into what is now school exit) | + Increase access to Hoover for both WB and EB traffic  
+ Reduce U-turn traffic now on residential streets | - Would require School Board approval  
- Would involve some adjustments by parents |

The proposed Charleston/Arastradero Corridor Improvement Plan has a high probability of meeting the performance measures set for it by Council. Assessment of the Corridor Plan as regards the Council-adopted performance measures is contained in Attachment D. In addition, the project final report is appended as Attachment F.

**BOARD/COMMISSION REVIEW AND RECOMMENDATIONS**
On December 10, 2003, the Planning and Transportation Commission conducted a public hearing on the proposed Charleston/Arastradero Corridor Improvement Plan and unanimously (5 votes in favor and one Commissioner absent) recommended adoption of the Mitigated Negative Declaration and the proposed Corridor Improvement and Phasing Plan. Commission comments and questioned focused on ways of encouraging more walking, cycling, and shuttle usage on the corridor. Commissioners agreed with the proposed Corridor Plan phasing and a one-year trial. Commissioners expressed enthusiasm for the proposed traffic-adaptive signal system for the Corridor and were complimentary of the public outreach and involvement in development of the Plan. The December 10 staff report to the Commission and meeting minutes are included as Attachments H and I, respectively.
ENVIRONMENTAL REVIEW
City staff and consultants prepared an Initial Study and Mitigated Negative Declaration that analyzed the project for potential environmental impacts in accordance with the California Environmental Quality Act (CEQA). The analysis of the Initial Study identifies environmental factors that would be potentially affected by the proposed project including Biological Resources, Archaeological Resources, Public Services and Temporary Construction Impacts. Implementation of the Improvement Plan would not result in any unavoidable, significant environmental impacts. The project is designed and includes mitigation that would reduce the identified environmental impacts to the less than significant level. The Draft Mitigated Negative Declaration and Initial Study were circulated on December 9, 2003, with a state-approved, 20-day shortened review period that ended on December 31, 2003. Two comment letters were received for the Draft Mitigated Negative Declaration; one from Santa Clara Valley Transportation Authority and the other from the Santa Clara Valley Water District. Neither comment letter brought up any additional environmental impacts requiring further environmental review or edits to the Mitigated Negative Declaration and Initial Study. The Final Mitigated Negative Declaration, Initial Study and Appendices, Mitigation & Monitoring Program, Comment Letters, and Responses to Comment Letters are included in Attachment F. The Resolution approving the Mitigated Negative Declaration is included as Attachment A.

ATTACHMENTS
A. Resolution Adopting the Mitigated Negative Declaration and Charleston/Arastradero Corridor Improvement Plan
B. Corridor Plan Provisions, Descriptive Narrative, Phasing, and Plan Illustrations
C. Map of Charleston/Arastradero Corridor
D. Performance Measures Assessment
E. Traffic Analysis
F. Corridor Improvement Plan Final Report
G. Initial Study and Mitigated Negative Declaration
H. Planning and Transportation Commission Staff Report of December 10, 2003
I. December 10, 2003 Minutes of the Planning and Transportation Commission meeting

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