

## MEMORANDUM

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City of Fort Collins

**FROM:** Matt Delich *MD*

**DATE:** March 9, 2001

**SUBJECT:** HP HTP PDP, Buildings C and E Transportation Impact Study  
(File: 0045ME07)

This memorandum provides transportation analyses pertaining to the building and occupancy of two office buildings within the Hewlett-Packard Harmony Technology Park (HP HTP) located south of Harmony Road and east of Ziegler Road (CR9) in Fort Collins. The site location is shown in Figure 1. These analyses provide an addendum to the "HP Harmony Technology Park PDP Transportation Impact Study," November 2000. As discussed with City staff, it specifically addresses the impacts to specific intersections in the short range (2002) future. Figure 2 shows the site plan of the two buildings covered in this development proposal. This proposal is for Buildings C and E of the HP HTP PDP development proposal which is currently in the City development review process. It is intended that site access will be via Technology Parkway, which will be built south of Harmony Road across from the existing HP West Access, and Cambridge Avenue, which will be improved and have right-in/right-out/left-in access at Harmony Road.

Figure 3 shows the existing peak hour traffic at the key intersections. Raw traffic count data is provided in Appendix A. Harmony Road is a four-lane arterial street with auxiliary turn lanes at the Ziegler Road intersection, the HP West Access intersection, and the HP East Access/Cambridge Avenue intersection. The Harmony/Ziegler intersection is signalized. The Harmony/HP West Access intersection has stop sign control on the HP West Access. The Harmony/HP East Access/Cambridge intersection has stop sign control on the HP East Access and Cambridge Avenue. The traffic counts shown in Figure 3 were collected over a number of days. Therefore, they were adjusted and balanced between intersections and are shown in Figure 4. Table 1 shows the existing operation at the key intersections. Calculation forms are provided in Appendix B. Level of service descriptions are also provided in Appendix B. The key intersections operate acceptably overall. At the Harmony/HP West Access intersection, the southbound minor street left turns operate at level of service E during the afternoon peak hour. At the Harmony/HP East Access/Cambridge intersection, the southbound minor street left turns operate at level of service E and F during the respective morning and afternoon peak hours.

Trip generation for the development of Buildings C and E is shown in Table 2. The Office Park land use (Code 750) from Trip Generation, 6<sup>th</sup> Edition, ITE was used in estimating the trip

generation. Based upon traffic counts at the existing HP facility, the trip generation was factored by 80 percent to account for the use of alternative modes and the existing transportation demand management techniques which are currently in use at the existing HP facility.

The directional distribution of the generated trips was determined by analyzing the current distribution at the HP facility on the north side of Harmony Road. Since this is a short range (2002) analysis, this is the most relevant trip distribution available. Figure 5 shows the trip distribution used for the assignment of site generated traffic for Buildings C and E. Figure 6 shows the assignment of the site generated traffic at the key intersections.

Year 2002 background traffic was developed for the key intersections. The existing traffic counts were adjusted to account for the opening of Technology Parkway. The Celestica traffic was reassigned to both Ziegler Road accesses and an access to Technology Parkway. It was assumed that by the year 2002, at least 100 dwelling units within proposed developments (Imago, Willowbrook, Brookfield) to the south and east of HP HTP would be occupied. However, this development will not have access to Technology Parkway or to Cambridge Avenue. Therefore, this traffic was assigned to Harmony Road and Ziegler Road. It was assumed that Harvest Park/Sage Creek and most of Fossil Lake Village would be developed by the short range future. Traffic volumes at the Harmony/Ziegler intersection were increased at the rate of 1.5 percent per year. The Harmony/HP East Access/Cambridge intersection will be built to allow only right-in/right-out/left-in movements to the HP East Access and Cambridge Avenue by the year 2002. Therefore, southbound left turns at the HP East Access were reassigned to the HP West Access. Traffic volumes to/from the existing HP facility and Cambridge Avenue were held constant. Figure 7 shows the short range background traffic at the key intersections. The site generated traffic from Buildings C and E was added to the background traffic at the key intersections and is shown in Figure 8.

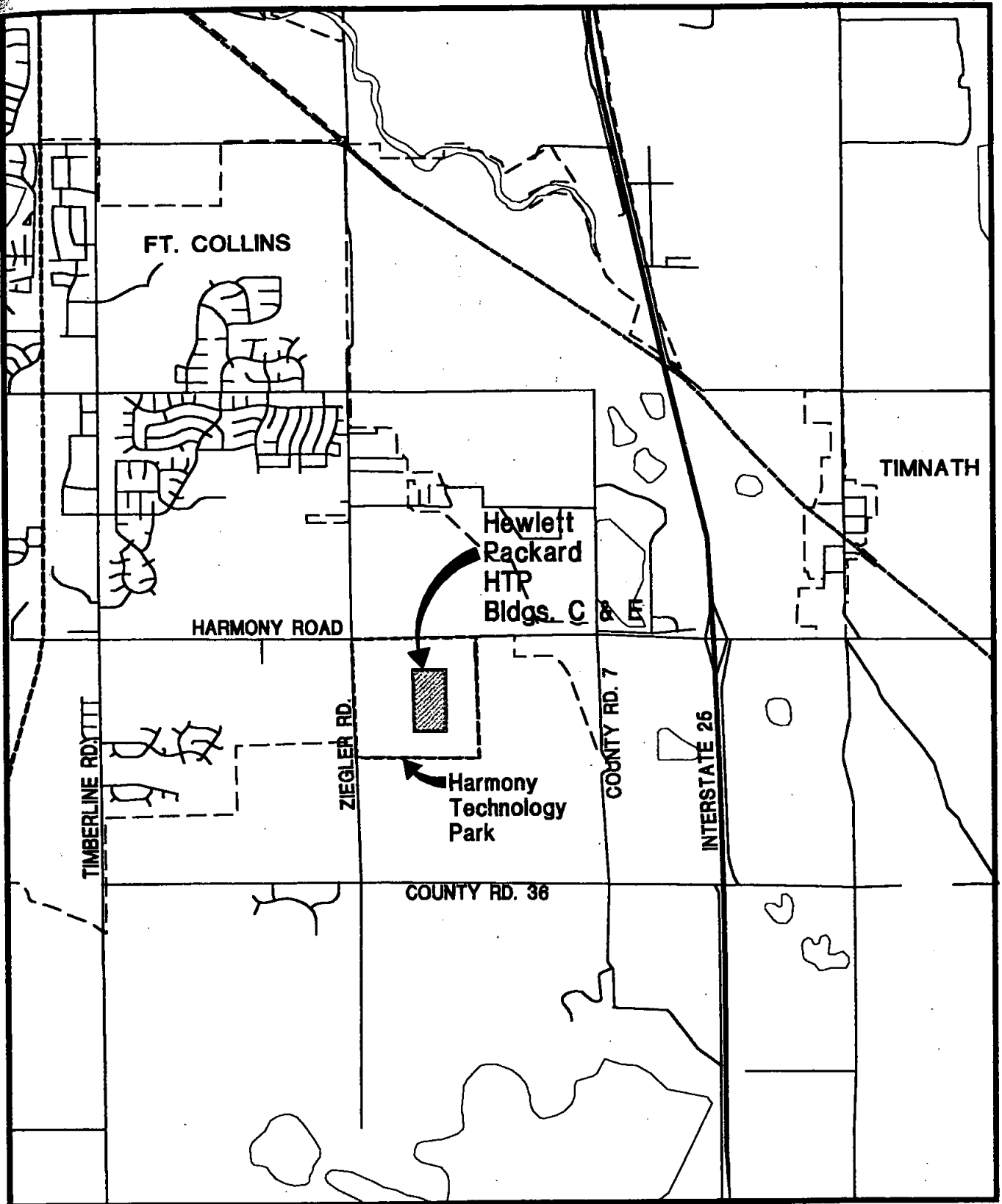
As a matter of policy, traffic signals are not at any location unless warrants are met according to the Manual on Uniform Traffic Control Devices. Using the traffic forecast shown in Figure 8, a peak hour signal warrant would be met at the Harmony/Technology/HP West Access intersection. The peak hour signal warrant analyses are provided in Appendix C.

Using the short range background peak hour traffic (Figure 7), the key intersections operate as indicate in Table 3. Calculation forms are provided in Appendix D. The analyses assumed that Harmony Road would remain as a four-lane facility. The key intersections will operate acceptably.

Using the short range total peak hour traffic (Figure 8), the key intersections operate as indicated in Table 4. Calculation forms are provided in Appendix E. The key intersections will operate acceptably. The recommended geometry is shown in Figure 9. Even though the conventional "rule of thumb" indicates that a dual left-turn lane may be needed for the southbound left-turns at the Harmony/Ziegler intersection, the analysis indicates that sufficient green time can be provided for Ziegler Road such that acceptable operation is achieved. It is expected that the 300 left-turn threshold would only occur during the morning peak hour. If the City desires to implement dual left-turn lanes on this leg of Ziegler Road, this can be done. It is noted in the cited traffic study that dual left-turn lanes were recommended on Ziegler Road in the year 2007 future. It is also

noted that by the year 2007, Harmony Road was shown to have a six-lane cross section. There may be merit in making all the improvements to the Harmony/Ziegler intersection when Harmony Road is widened to the six-lane cross section.

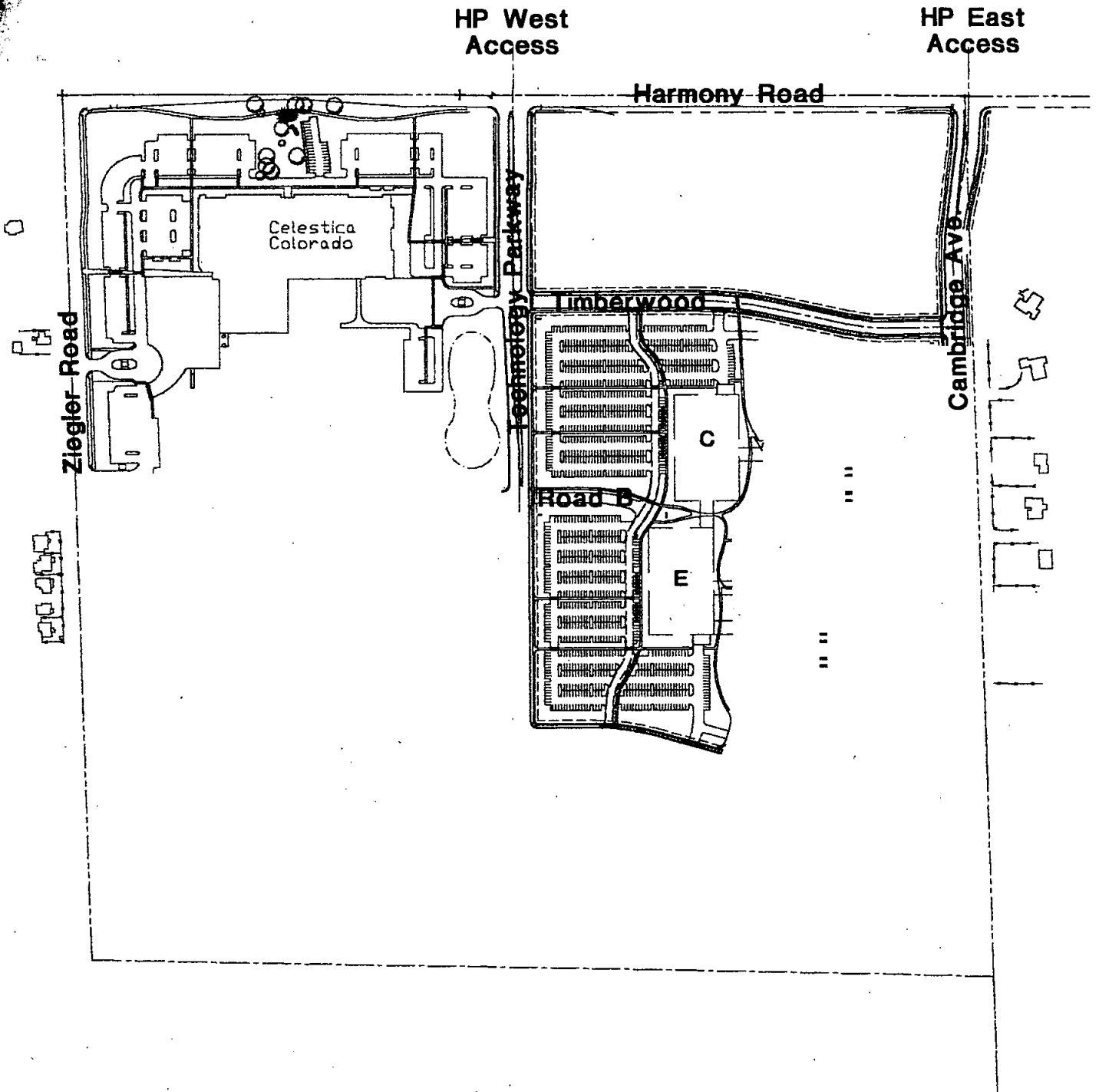
It is concluded that the key intersections will operate acceptably. HP HTP, Buildings C and E can be developed and occupied with access at the Harmony/Technology/HP West Access and Harmony/HP East Access/Cambridge intersections. A signal will be warranted at the Harmony/Technology/HP West Access intersection.



1" = 3000'

# SITE LOCATION

Figure 1



# SITE PLAN

Figure 2