HEXAGON TRANSPORTATION CONSULTANTS, INC.

MEMORANDUM

To: Salifu Yakuba, City of San Jose

From: Mike Waller

Subject: Executive Summary - Transportation Analysis for the CVSP Core Composite Plan

Date: August 9, 2004

The Santa Clara Valley Transportation Authority (VTA) provided the current version of their 2030 Travel Demand Model for use in evaluating the urban design concepts. The model represents the entire nine-county Bay Area and five surrounding counties and provides the best ever representation of projected travel demand within the Bay Area and Santa Clara County. The model represents all major modes of transportation (auto, bus and rail transit, and non-motorized travel).

The two key distribution questions are how many trips will be "internalized" and the directional distribution of CVSP trips north and south of the valley. These questions are regionally important because the answers are a direct indication of where traffic impacts attributable to the CVSP development plan are likely to eventually occur. The model projects that during the AM peak hour:

- 28% of the CVSP trips are projected to occur within the valley (internalized)
- ~18% are projected to originate from Morgan Hill and Gilroy
- ~3% are projected to originate from communities located south of Gilroy

Therefore, about 21 percent of the morning inbound trips are projected to come from south of Coyote Valley.

The model also projects that of the AM Peak Hour Trips to Coyote Valley from the North:

- ~18% are coming from inside the area bounded by Highways 17, 85 and 101 (South San Jose)
- ~49% from the remainder of Santa Clara County

These results indicate that about 67 percent of the AM peak hour traffic to Coyote Valley will be traveling southbound in the reverse commute direction. This result is consistent with one of the major Coyote Valley planning objectives, which is to try and avoid adding traffic to the peak direction commute.

The travel demand modeling results indicate that *overall*, the amount of gateway roadway capacity may be adequate to serve the AM peak hour demand. However, it is important to note that the travel demand modeling results do indicate a demand for additional roadway capacity at many of the gateways. The gateway capacity issues will need to be addressed in subsequent traffic analysis work in order to determine whether these facilities will operate in a manner that complies with San Jose's level of service policies.

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The current Coyote Valley urban design plan includes employment and housing development plans that greatly exceed the previous 2025 projections. Consequently, and not surprisingly, the CVSP freeway analysis indicates a significantly overloaded Route 101 freeway north and south of Coyote Valley during the AM peak hour. Only the southbound segment of the freeway south of Coyote Valley is projected to operate with an acceptable volume-to-capacity ratio. All other freeway segments are projected to be operating at or over the available freeway capacity. The projected capacity deficiency is most severe for the freeway segments north of Coyote Valley. On these segments the freeway demand exceeds the available capacity by 20 percent or more. Additional transportation planning work will be necessary to address the freeway capacity deficiency issues.

The results indicate the planned CVSP circulation system within the valley will work as intended, and no significant increases in planned internal roadway capacity will be required. The traffic projections also indicate that it may be prudent to plan for additional capacity for the roadways that provide freeway connections. Additional capacity will also be needed on several of the roadways serving the relatively high concentration of employment along and north of Bailey Avenue.

Only limited conclusions concerning transit planning issues can be supported by the preliminary travel demand modeling. However, it is clear that there is a strong demand for the Caltrain service. The modeling indicates parking demand for about 750 parking spaces at the Coyote Valley Station. A parking lot of that size would be the largest on the Caltrain system. Further work should be done to investigate alternative operating strategies or extension alignments to attempt to maximize the potential ridership before concluding whether the line should be extended. The travel demand model's forecast that about 28 percent of the trips associated with the planned development would be "internalized" suggests that there will be a viable market for some kind of internal transit system. Further work should be done to investigate alternative service strategies, transit modes and alignments. Fixed guideway systems are inherently expensive, and it will be important to devise an internal transit service plan that phases in service in a cost effective manner.

HEXAGON TRANSPORTATION CONSULTANTS, INC.

MEMORANDUM

To: Salifu Yakuba, City of San Jose

From: Mike Waller

Subject: Transportation Analysis for the CVSP Core Composite Plan

Date: August 6, 2004

The purpose of this memorandum is to present the results from the preliminary travel demand modeling of the CVSP Urban Design Plan. The following sections briefly describe:

- Study Methodology
- Trip Distribution
- Gateway Demand
- Freeway Demand
- Internal Roadway Planning Issues
- Transit Planning Issues

Methodology

The Santa Clara Valley Transportation Authority (VTA) provided the current version of their 2030 Travel Demand Model for use on this project. This model represents the entire nine-county Bay Area and five surrounding counties and provides the best ever representation of projected travel demand within the Bay Area and Santa Clara County. The model represents all major modes of transportation (auto, bus and rail transit, and non-motorized travel).

Two scenarios were modeled. Scenario 1 represented the 2030 base case where Coyote Valley would be developed in accordance with current development approvals (e.g. Coyote Valley Research Park). Scenario 2 replaced the Coyote Valley Research Park urban design plan with the CVSP Core Composite Plan. The model was then used to forecast AM peak hour travel. These results have been summarized to address the key transportation related questions concerning the CVSP urban design plan.

Trip Distribution

The currently approved development concept for the Coyote Valley Research Park includes only large-scale campus industrial development. The associated travel demand was therefore, heavily peaked inbound in the morning and outbound in the evening. One important objective of the CVSP urban design plan is to balance the travel demand by providing significant housing and commercial development within the valley. The intent is to encourage the maximum amount of "internalization" of trip-making within the valley, and balancing the demand for inbound and outbound travel during both morning and evening peak periods. Thereby, maximizing the efficiency of the transportation system since it would be "loaded" in both directions.

Key AM Peak Hour Trip Distribution Findings:

- 28% of the CVSP trips were internal
- 33% of the CVSP trips were outbound
- 39% of the CVSP trips were inbound

Another important trip distribution question revolves around the directional distribution of CVSP trips north and south of the valley. This question is regionally important because it is a direct indication of where traffic impacts attributable to the CVSP development plan are likely to eventually occur.

Of the AM Peak Hour Trips to Coyote Valley from the South:

- ~18% are coming from Morgan Hill and Gilroy
- ~3% are coming from communities located south of Gilroy

Therefore, about 21 percent of the morning inbound trips are projected to come from south of Coyote Valley. This finding is consistent with previous analyses conducted during the preparation of the EIR for the Coyote Valley Research Park. These inbound AM peak hour trips are primarily associated with the employment opportunities within the valley.

Of the AM Peak Hour Trips to Coyote Valley from the North:

- ~18% are coming from inside the area bounded by Highways 17, 85 and 101 (South San Jose)
- ~49% from the remainder of Santa Clara County
- ~4% from the Peninsula communities
- ~8% from the East Bay communities

These results indicate that about 67 percent of the AM peak hour traffic to Coyote Valley will be traveling southbound in the reverse commute direction. This result is consistent with one of the major Coyote Valley planning objectives, which is to try and avoid adding traffic to the peak direction commute.

Gateway Demand

Eight roadways will eventually serve as "gateways" in and out of Coyote Valley. Three interchanges along Route 101 will eventually provide the most important connections between the freeway and development within the valley. One interchange and its connecting roadway (Bailey Avenue) are currently under construction. These gateways are planned to provide 17 lanes worth of inbound capacity and 16 lanes worth of outbound capacity to the valley. The slight imbalance in lane capacity is due to Bailey Avenue being planned to provide four inbound lanes and three outbound lanes.

The travel demand modeling results indicate that *overall*, the amount of gateway roadway capacity may be adequate to serve the AM peak hour demand. However, it is important to note that the travel demand modeling results do indicate a demand for additional roadway capacity at many of the gateways. However, it is important to note that the travel demand modeling results do indicate a demand for additional roadway capacity at many of the gateways. These include:

- Golf Course Drive (from the south),
- Monterey Road (from the north),
- Santa Teresa (north and south), and
- Bailey Avenue (over-the-hill).

The gateway capacity issues will need to be addressed in subsequent traffic analysis work in order to determine whether these facilities will operate in a manner that complies with San Jose's level of service policies.

Freeway Demand

The Route 101 freeway was recently widened to provide three mixed flow lanes and one high-occupancy vehicle lane through Coyote Valley. One of the fundamental planning assumptions used in planning the Route 101 improvement was that Coyote Valley would only contain approximately 21,800 jobs within the planning horizon. This assumption led to a design decision that would essentially fill the freeway to near capacity by the design year of 2025. The travel demand modeling results for the base scenario (which included the same Coyote Valley development projection) confirms the earlier freeway planning study.

The current Coyote Valley urban design plan includes employment and housing development plans that greatly exceed the previous 2025 projections. Consequently, and not surprisingly, the CVSP freeway analysis indicates a significantly overloaded Route 101 freeway north and south of Coyote Valley during the AM peak hour. Only the southbound segment of the freeway south of Coyote Valley is projected to operate with an acceptable volume-to-capacity ratio. All other freeway segments are projected to be operating at or over the available freeway capacity.

The projected capacity deficiency is most severe for the freeway segments north of Coyote Valley. On these segments the freeway demand exceeds the available capacity by 20 percent or more. The projected traffic volume exceeds previous projections by more than 1,100 vehicles per hour during the AM peak period. Additional transportation planning work will be necessary to address the freeway capacity deficiency issues.

Internal Roadway Planning Issues

The travel demand modeling results were also used to evaluate the proposed internal circulation system within Coyote Valley. Key questions relate to the number of lanes needed for various segments of Coyote Valley Parkway and the parkway alignment.
The results indicate the planned circulation system will work as intended, and no significant increases in planned roadway capacity will be required. The traffic projections show that much of the parkway will need to constructed as a four-lane facility, and the magnitude of traffic volume may lead to a need for more detailed studies to determine the optimum method of traffic control at several high-volume intersection locations.

The traffic projections also indicate that it may be prudent to plan for additional capacity for the roadways that provide freeway connections. Additional capacity will also be needed on several of the roadways serving the relatively high concentration of employment along and north of Bailey Avenue.

Further traffic analysis work will be needed to address capacity deficiencies on Bailey Avenue (over-the-hill) and on Santa Teresa Boulevard south of Coyote Valley.

Transit Planning Issues

Only limited conclusions concerning transit planning issues can be supported by the preliminary travel demand modeling. However, it is clear that there is a strong demand for the Caltrain service. The modeling indicates parking demand for about 750 parking spaces at the Coyote Valley Station. A parking lot of that size would be the largest on the Caltrain system. In comparison, the Morgan Hill, San Martin and Gilroy Caltrain stations together provide a little over 1,200 parking spaces and serve roughly the same magnitude of housing.

The LRT extension from the current end-of-the-line station did not achieve a very high ridership projection. This result could be attributable to relatively slow LRT operating speeds in comparison to the Caltrain service, or a number of other reasons. Further work should be done to investigate alternative operating strategies or extension alignments to attempt to maximize the potential ridership before concluding whether the line should be extended.

The travel demand model's forecast that about 28 percent of the trips associated with the planned development would be "internalized" suggests that there will be a viable market for some kind of internal transit system. Further work should be done to investigate alternative service strategies, transit modes and alignments. Fixed guideway systems are inherently expensive, and it will be important to devise an internal transit service plan that phases in service in a cost effective manner.