

## **Interstate 680 HOV Lane Project Information**

### **Project Overview**

I-680 is the primary north-south corridor in the Central Contra Costa County area and serves as a major commuter, commercial, and recreational route between San Jose and I-80 in Solano County. Within the project area, I-680 is part of the north-south transportation system connecting the cities of Pleasant Hill, Concord and Walnut Creek to the south, and with State Route 4 and the City of Martinez to the north. I-680 also serves as a bypass of the central Bay Area for through traffic between the San Jose/South Bay region and the Sacramento area.

The project will construct High Occupancy Vehicle (HOV) lanes on Interstate 680 in the southbound direction from the Marina Vista Interchange in Martinez to the North Main Street Overcrossing in Walnut Creek. In the northbound direction the HOV lane will start at the junction of I-680/SR 242 in Pleasant Hill and extend north to the Marina Vista Interchange for a total project length of 8.7 miles. The project also includes the construction of five new soundwalls and the extension of two existing soundwalls. The HOV lanes will be constructed primarily by reconstructing the outside shoulder and restriping. As part of an effort to minimize traffic disruptions, save overall construction costs, and improve the overall roadway surface, a pavement rehabilitation project has been combined with this HOV. When completed, the northern terminus of this combined project will connect to the nine-lane (five northbound lanes, 4 mix-flow 1 truck/slow vehicle lane), southern terminus of the Benicia-Martinez Bridge Project.

This project is scheduled to begin construction in March 2003 and the HOV lanes are expected to open to traffic in the spring of 2005. The project estimate cost is approximately \$46 million.

In addition to the roadway work, two new structures will be constructed and five existing structures will be widened. Three regulatory permits were needed for the project: Corps of Engineers (404) permit for impacts to the wetlands; Fish and Game (1603) permit for the widening and the new structure's impacts to Grayson Creek; RWQCB Certification (401) to address the main issue of air-dropping bridge surface run-off into the creek. To mitigate the wetland and surface run-off impacts, the project team came up with a strategy that included a bio-filtration ditch and two bio-filtration swales in and around the I-680/Rte 4 interchange.

### **Project History**

A Project Study Report (PSR), approved in March of 1995, proposed to add an HOV lane in each direction on I-680 between SR 242 and the Marina Vista Interchange. The northern terminus of the project was shown to connect with an eight-lane facility after the completion of the new Benicia-Martinez Bridge Project. The southern terminus of the HOV lanes at SR 242 was questioned during the development of the PSR, and

subsequently, an alternative to extend the HOV lanes past the SR 242 Separation was investigated.

Extending the northbound HOV lane south of the SR 242 Separation was studied. Results of this study indicate that an extension of the northbound HOV lane would create nonstandard sight distance due to the existing 550-meter (1800') radius curve. This nonstandard sight distance could be corrected only by replacing the SR 242 Separation, which was found to be economically infeasible.

A dimensional analysis of the existing physical constraints and an operational analysis were conducted in the fall of 1997 to evaluate the feasibility of extending the southbound HOV lane. After evaluating four southern terminus locations for the southbound HOV lane, a Supplemental Project Study Report, approved in December of 1997, proposed to extend the southbound HOV lane to approximately 230 meters south of the Sunnyvale Avenue on-ramp. Considering the transition required to terminate the southbound HOV lane, the new project limits were established from the North Main Street Overcrossing to the Marina Vista Interchange.

In order to construct the HOV lanes, the East Martinez Underpass, carrying the BNSF mainline track over I-680 at KP 35.7, would be reconstructed so that standard horizontal and vertical clearance could be achieved at the structure. In order to replace the existing structure, a temporary shoofly (rail bypass) was necessary to maintain rail traffic during construction.

The Environmental Document, a ND/FONSI was signed in December 1999, and the Project Report was subsequently signed in April 2000. The PSR, the supplemental PSR and the PA&ED were all completed under the auspices of CCTA, with the Department providing oversight.

At about the time the PS&E was ready for submittal towards the end of May 2002, the local agency discovered that it was not allowed to borrow from its future STIP share to fund the estimated remaining \$10 M shortfall. Given the funding challenge and the consequence of delay in opening of the HOV lanes, the District executives decided to down scope the project by eliminating the railroad work in the project to reduce the cost and utilize design sequencing to deliver this. This method of delivery allowed the timely submittal of a modified estimate and practically all of the previously completed plans while work was underway to modify the affected plans. The plans affected by the deletion of railroad work within BNSF right of way were sent in stamped "Preliminary - for bidding purposes only."

Bids opened for the project on January 8, 2003 and the project was awarded February 21, 2003 to the low bidder RGW Construction Company. Design Sequencing Phase 2 package was delivered to the contractor prior to the pre-construction meeting, which was held on March 7, 2003 in the Walnut Creek Construction office.

## **HOV Lane History**

The first HOV lane utilized in California was a Toll Bridge Bypass Lane opened to Busses only on April 17, 1970, at the San Francisco-Oakland Bay Bridge. In December of 1971 the SFOBB Bypass lane use was extended to carpools of 3 or more. Additional HOV Bypass lanes have been added as needed over the 33 years of operation at the SFOBB toll plaza (currently 4 HOV bypass lanes #1,2,21&22) along with the permitted inclusion of motorcycles in March of 1992 and two-seat vehicles with two occupants in October of 1995.

In October of 1982 the Dumbarton Bridge (SR 84) became the second Bay Area Toll Bridge to open an HOV Bypass lane for carpools of 3 or more, followed by the San Mateo Bridge in November of 1986 and Richmond-San Rafael in October of 1989. The three North Bay Bridges (Carquinez, Benicia-Martinez and Antioch) allowed carpools to purchase 10-cent toll tickets (with purchase of 50 ticket books) in July of 1991 and permitted toll-free passage of 3 or more carpools plus two-seat two occupant vehicles in October of 1995.

Construction of mainline HOV lanes in the Bay Area began in Santa Clara County with the opening of a 4.7-mile segment of SR 237 in October of 1984. Today there are more than 300 lane miles of HOV lanes within the nine Bay Area Counties with approximately 25 more under construction, over 100 more miles are programmed for construction and another 56 miles are being proposed for future programming and construction.

The first HOV lanes in Contra Costa County were the 12.9-mile (24.7 lane miles) segment of I-680 between Walnut Creek and Danville opened in October of 1994. With the construction of this 8.7-mile segment (14.3 lane miles) of HOV Lanes between Walnut Creek and Martinez, Contra Costa Commuters who carpool will realize substantial time savings along the I-680 corridor.

## **Community / Agency Interaction**

On-going, multiple agency interaction throughout the planning and design phases occurred between, but not limited to Caltrans, Contra Costa Transportation Authority, Contra Costa County and TRANSPAC. As part of the environmental hearing process, a public hearing was held August 1999, at the Contra Costa Transportation Authority office in Walnut Creek.

This project represents another partnership between Caltrans, CCTA and the surrounding local agencies to share resources to deliver a project to the traveling public. Our goal has been to construct this project and have new HOV lanes open before the completion of the new Benicia-Martinez Bridge. Given the Groundbreaking today (4/24/03) and the anticipated construction completion date, we expect to meet that goal.

## **2002 HOV Lane Master Plan**

The first regional HOV Lane master plan, which was adopted in 1990, identified 470 potential new miles of HOV lanes in addition to the 64 lane miles already in place. That master plan became the system blueprint for federal, state, regional and local HOV lane funding over the next 12 years. By 1996 there were 270 miles of HOV lanes, as well as HOV bypasses at bridge toll booths, and many freeway ramp meters

(Actually, the first HOV was established by Caltrans and was a toll bridge bypass lane at San Francisco-Oakland Bay Bridge, opened to busses only on April 17, 1970. The SFOBB bypass lane use was extended to carpools of 3 or more in December of 1971.)

In 1997, MTC updated the regional HOV Master Plan and brought it in line with the requirements for the Regional Transportation Plan (RTP), to be financially constrained to reasonably available funding over a 25-year period. The plan proposed the addition of 149 new HOV lane miles to the then existing system of 270 lane miles.

The 2002 High Occupancy Vehicle (HOV) Lane Master Plan was prepared for and in cooperation with the Metropolitan Transportation Commission (MTC), The California Department of Transportation (Caltrans), District 4 and the California Highway Patrol, Golden Gate Division, by DKS Associates, in association with Parsons Brinckerhoff.

The 2002 HOV Lane Master Plan includes a thorough review of the current HOV lane performance. An assessment of HOV lane forecasts (2025) from the latest modeling conducted for the 2001 Regional Transportation Plan (RTP), and more current forecasts (2010) were developed and completed specifically for this plan. There are currently about 300 lane miles of freeway HOV lanes. Further expansion of the HOV lane system that are already funded or under construction and included in the 2003 Transportation Improvement Program (TIP) and the 2001 RTP expand the current 2002 HOV Lane system including an increased total of 512 freeway HOV lane miles. The 2002 HOV lane Master Plan includes specific considerations to integrate improvements to both the HOV lane system and MTC's Regional Express Bus Program, to ensure the two systems are mutually consistent and supportive.

In addition to the recommendations for expansion to the HOV lane system and the expansion of the express bus system, this Master Plan assesses the potential benefits to air quality in the Bay Area. The Bay Area recently adopted 2001 Ozone Attainment Plan includes the examination of HOV Lanes and potential air quality benefits as a "Future Study Measure 2".

### **Key Findings and Recommendations included in 2002 HOV Master Plan as follows:**

- What does the public think of HOV lanes? – According to recently conducted license plate and Web surveys conducted by MTC, Bay Area HOV lanes are supported by carpoolers and non-carpoolers alike.

- How well are HOV lanes used now and how will they be used in the future?- Nearly all existing peak direction freeway HOV lanes meet established Caltrans performance standards (e.g. one-minute time savings for per mile of HOV lane. This could be achieved by a speed in the HOV lane of 60 mph and 30 mph in the mixed flow lane). Fewer off-peak direction HOV lanes meet standards currently, but nearly all will between 2010 and 2025.
- How significant are HOV lane violation rates and how can CHP enforcement be improved? – Most HOV lanes have observed violation rates within acceptable Caltrans standards (below 10 percent), with the notable exception being the regions most heavily used HOV facility; I-80 westbound to San Francisco. The generally low violation rate is due to high HOV lane use, Aggressive CHP enforcement program and high fines (second highest in the country). HOV lane enforcement funding will need to increase as the region’s HOV lane system continues to grow.
- Are changes to HOV lane occupancy requirements being considered at this time? No. Current HOV lane operations indicate the existing occupancy requirements are adequate. However, MTC projections indicate that time savings will significantly decrease after 2010.
- How can we improve HOV lane person-carrying capacity? – The region’s express bus services and infrastructure to support these services should be expanded, particularly where rail services do not exist. The three priority 1 express bus corridors are; I-680, I-80 and US 101 (Sonoma/Marin counties).
- Should HOV lanes be converted to bus-only lanes? – It is unlikely that the number of freeway express buses will be great enough to warrant conversion to bus-only lanes. In addition, such conversions would force carpool and vanpool vehicles into already crowded mixed-flow lanes.
- Should freeway shoulders be used for peak-period bus use? – The evaluation indicates that there are some congested freeway segments where the shoulder may be available to accommodate HOV lane use. Caltrans does not support using shoulders for bus-only lanes that are contiguous to existing part-time HOV lanes due to potential confusion between buses and HOVs. Caltrans, the CHP and MTC will conduct a more thorough assessment of candidate shoulder segments that could be used to extend or close HOV lane gaps.
- How feasible would it be to allow non-carpoools (drive alones or commercial vehicles) to use HOV lanes by paying a toll (known as high-occupancy-toll, or HOT lanes)? – Most Bay Area HOV lanes are well used now and will not have sufficient capacity to “sell” as demand grows. Implementing HOT lanes may be a strategy to consider in some corridors to regulate users when HOV demand exceeds HOV lane capacity. Over the long term, there are six corridors where excess HOV lane capacity, particularly in off-peak direction, may be available to sell in order to fully utilize freeway capacity. (I-680 Sunol Grade HOV lane (s) –

the newly opened 14-mile segment (currently southbound only) in Alameda and Santa Clara counties on I-680 between the junctions of SR 84 and SR 237, may be considered as a “Possible HOT Lane Demonstration Project”.)

- How much will it cost to implement the HOV Lane Master Plan? – The plan is estimated to cost about \$ 3.7 billion to complete. Discounting lower priority (Priority 2) recommended improvements (\$1 billion), which will likely require new revenue sources beyond those typically considered available in the RTP, almost three-fourths of the recommended improvements are already committed (\$1.2 billion programmed in the TIP and another \$ 770 million committed in later years of the 2001 RTP).\_\_
- What are the air quality benefits of HOV lanes? – Overall differences in any measures at the regional level are small, since the HOV system and express buses operating on HOV lanes are just one component of a larger regional transportation network. HOV lane alternatives perform better than mixed flow alternatives.

### **Express Bus Recommendations (Expansion of System, Buses & Infrastructure)**

The 2002 HOV Lane Master Plan include specific considerations of integration of the “Express Bus Service”, with the HOV Lane System to ensure that the two systems are mutually consistent and supportive. Existing express bus routes were identified and new services have been recommended (proposed) where present or future HOV lane system would support it.

Recommendations to the Express Bus Service include expansion of the existing 24 route system with 12 new routes (“streams”). The 12 new streams defined in the plan can use HOV lanes to move freely from one part of the region to another, especially in corridors without rail service. The I-680 corridor (stream #4), has been identified as one of three routes given the highest priority for expansion (Priority 1) between Solano/Contra Costa to Santa Clara County (via I-680 and the Benicia-Martinez Bridge).

The plan also sets priorities regarding the purchase of new express busses (110 Priority 1, 28 Priority 2, 138 total), and number of new bus trips (253/64/317).

HOV lane related infrastructure facilities to support the express bus service recommendations include Direct HOV Access Ramps, Park-and-Ride Facilities, Major In-line Transit Stations and Minor Transit Stations. Major In-line Transit Stations are Intermodal Centers, located in freeway median and include adequate park-and-ride space, and provide connection from major regional express buses and other regional and local transit service. Minor Express Bus Stations (located off the freeway and intended to provide an interface between Expresses and local pedestrian and transit network.

### **Express Bus Costs**

The recommended Priority 1 improvements, which will cost roughly \$706 million in 2002 dollars, while the Priority 2 costs are estimated at \$1.05 billion. Recommended improvements included in the Priority 1 cost estimates are as follows:

- 71 new freeway HOV lane miles - \$337 million
- one new freeway-to-freeway HOV connector – \$34.8 million
- two new direct access ramp locations and two expansion locations \$196.9 million
- three new major freeway express bus stations - \$114 million
- 12 new minor express bus stations - \$22.9 million.

Recommended improvements in Priority 2 costs estimates are as follows:

- 87 new HOV lane miles - \$469 million
- five new freeway-to-freeway HOV connections - \$290 million
- four new direct access ramp locations - \$215.4 million
- three new major freeway express bus stations - \$70.6 million
- three new minor express bus stations - \$5.7 million