

REGIONAL MEASURE 2 EXCERPT FOR I-680 HOV PROJECTS

APPROVED BY BAY AREA VOTERS ON MARCH 2004

(12) Direct High-Occupancy Vehicle (HOV) lane connector from Interstate 680 to the Pleasant Hill or Walnut Creek BART stations or in close proximity to either station or as an extension of the southbound Interstate 680 High-Occupancy Vehicle Lane through the Interstate 680/State Highway Route 4 interchange from North Main in Walnut Creek to Livorna Road. The County Connection shall utilize up to one million dollars (\$1,000,000) of the funds described in this paragraph to develop options and recommendations for providing express bus service on the Interstate 680 High-Occupancy Vehicle Lane south of the Benicia Bridge in order to connect to BART. Upon completion of the plan, the Contra Costa Transportation Authority shall adopt a preferred alternative provided by the County Connection plan for future funding. Following adoption of the preferred alternative, the remaining funds may be expended either to fund the preferred alternative or to extend the high-occupancy vehicle lane as described in this paragraph. Fifteen million dollars (\$15,000,000). The project is sponsored by the Contra Costa Transportation Authority.

Legis. text

Regional Measure 2 Investment Recommendation from the I-680 HOV/Express Bus Study

TO: TRANSPAC

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FROM: Deborah Dagang, CH2M HILL

DATE: June 1, 2009

A primary goal of the I-680 HOV/Express Bus Study has been to identify the best investment option(s) for HOV and express bus operations in the Contra Costa I-680 corridor, including access to the Pleasant Hill and Walnut Creek BART Stations, as defined by Regional Measure 2 (RM 2). The Study Policy Advisory Committee (PAC) has recommended an option for RM 2 funding, and is forwarding this recommendation to the TRANSPAC TAC for their consideration.

The Study PAC recommends that **Option 1. Southbound I-680 HOV Lane Gap Closure Project** receive the available RM 2 funding. This conclusion was reached after evaluating five options that were developed and closely reviewed by the Study TAC. Two of these options were identified as Regional Measure 2 Investment Options and three Other Arterial Options were also examined. A brief description of each of these options and the results of the evaluation are provided below.

Description of Options Evaluated

Regional Measure 2 Investment Options

Two options were evaluated for the purpose of selecting one option to be recommended for use of available Regional Measure 2 funds. Both of these options are capital improvements on I-680 that serve express buses and HOVs.

Option 1: Southbound I-680 HOV Lane Gap Closure Project

This project is included in the Regional Transportation Plan, and proposes to close the existing gap in the southbound I-680 HOV lane from 0.2 mile north of the Geary Road interchange, through the SR 24 interchange and to the Livorna Road interchange. The alternative examined would widen the existing roadway to add a median HOV lane from 0.2 mile north of Livorna Road to 500 feet north of South Main Street Undercrossing, and restripe the existing roadway from South Main Street to 0.4 mile north of North Main Street to continue the HOV lane to just north of Geary Road, without any right-of-way acquisitions. This alternative would require reducing the widths of the left shoulder as well as some of

the inside lanes. The project would include reconstructing retaining and sound walls, widening bridges, restriping the existing roadway, modifying existing fiber optical cable and traffic operations systems, installing ramp metering systems, and upgrading median barrier to standard.

Option 2: I-680 HOV Direct Connector Ramps to Walnut Creek BART

Multiple alternatives for HOV direct connector ramps to both the Walnut Creek and Pleasant Hill BART Stations were developed in this study. Through a screening process, the most feasible alternative for this study was identified.

The selected option for HOV direct connector ramps would serve both express buses and HOVs coming from and going to the north of the Walnut Creek BART Station. Express buses and HOVs traveling south on I-680 would exit the HOV lane via the new ramp that descends to an at-grade intersection that would be an L-shaped two-way stop-controlled intersection. The vehicles would turn left and cross under I-680 northbound lanes and arrive at the perimeter road at the BART station, via a freeway undercrossing structure. The express buses and HOVs accessing northbound I-680 would also use the structure under the I-680 northbound lanes and enter the freeway on the left-side via the northbound direct on-ramp. This option would not significantly impact the planned transit-oriented development for the Walnut Creek BART Station.

The associated work would include widening of I-680 to create room in the median for the HOV direct access ramps; construction of a "U" trench for the HOV direct access ramps connecting to the new access road; widening of the three existing undercrossing structures and removal of a portion of an undercrossing structure at Ygnacio Valley Road; realignment of Ygnacio Valley Road on-ramps to southbound I-680 and westbound SR 24; widening of the undercrossing structure at Parkside Drive; relocation of the intersection of Parkside Drive and San Juan Avenue; and relocation of Buena Vista Avenue to the west as a result of the freeway widening.

In the development and evaluation of the HOV Direct Connector Ramp option, it was assumed that two future planned HOV lane projects on I-680 would be in place as part of the future baseline. Essentially, these projects would provide the baseline HOV facility on the freeway mainline to which the HOV ramp would be able to connect. The two projects are the **Southbound I-680 HOV Lane Gap Closure Project**, which is Option 1 described above, and the **Northbound I-680 HOV Lane Project**, which adds an HOV lane on I-680 in the northbound direction from the North Main Street Overcrossing north to connect to an existing HOV lane that begins just north of the I-680/ SR 242 interchange.

Other Arterial Improvements

For this study, a variety of "other arterial freeway" improvement options were developed that focus primarily on the roadway system in the vicinity of the Walnut Creek and Pleasant Hill BART stations. These options are not eligible for RM 2 funding.

Option 3: Buskirk Roadway Improvements

This option seeks to improve the roadway in a manner consistent with current City of Pleasant Hill plans, through geometric modifications, roadway realignment, and intersection modifications, including transit signal priority (TSP). Specific improvements include abandoning the existing S-curve section of Buskirk Avenue between Elmira Lane and Hookston Road; widening the existing two-lane and three-lane roadway segments of Buskirk Avenue, Elmira Lane and Hookston Road to a four-lane segment; removal of the existing all-way-stop-control intersection at Elmira Lane and Hookston Road; construction of a smooth curve between Buskirk Avenue and the north end of Elmira Lane; installation of a new traffic signal at the intersection of Elmira Lane and Hookston Road; and installation of transit signal priority (TSP) at all signalized intersections on Buskirk Avenue from Monument Boulevard to Treat Boulevard.

Option 4: Express Bus Consolidation at Walnut Creek BART Station

Currently, a number of long distance express bus routes traveling to and from the north terminate at the Pleasant Hill BART Station, while those traveling to and from the south terminate at the Walnut Creek BART station. The proposed routing in this option would consolidate all long distance express bus service at the Walnut Creek BART station. The express buses traveling from the north would be rerouted to exit I-680 freeway via N. Main St exit and continue on N. Main St toward Walnut Creek BART Station. In the opposite direction, express buses departing from Walnut Creek BART Station would travel along N Main St and enter I-680 northbound through the Lawrence Way entry. Transit signal priority would also be implemented at three intersections between I-680 and Walnut Creek BART to improve transit travel times.

By consolidating the long distance express bus service at Walnut Creek BART; a regional bus hub would be created that brings the north-oriented bus service (such as those from Solano County) together with the south-oriented bus service (such as those serving San Ramon / Bishop Ranch), allowing better transfers between these services. Ability to transfer to a BART station would be preserved for all express bus lines. However, those coming from the north may find fewer seats available on the BART trains at the Walnut Creek BART Station, as compared to the Pleasant Hill BART Station.

Option 5: Transit Signal Priority / Queue Jump Lanes

For this option, transit signal priority (TSP) and/or queue jump lanes would be installed on the intersections between I-680 and the Pleasant Hill and Walnut Creek BART stations. These improvements would be to the surface streets that express buses use to access the BART stations and would help lower travel times and increase service reliability. Fourteen intersections would be affected by Alternative 5. Of these, three would include implementation of TSP and queue jump lanes.

Prioritization of Options

Each of the five options was evaluated based on a wide range of evaluation criteria that were developed in coordination with the Study TAC and PAC. The criteria, evaluation scores and results of the structured decision-making process used are summarized below.

Evaluation Criteria

The evaluation criteria are both quantitative and qualitative, and are briefly described below.

- **HOV/Transit Connectivity** (qualitative) – extent to which the option would increase access to, and connectivity with, existing and future HOV/transit facilities.
- **Transit Operations** (qualitative) – extent to which the option would ease transfers between routes and modes. Also includes an assessment as to whether the option would result in more efficient operations for the transit operators.
- **Traffic Operations** (quantitative) – potential impact to roadway operations. Performance measures assessed for the Regional Measures 2 Investment Options, which are freeway-based strategies, included hours of delay, HOV/Bus travel time, mode shift, and freeway operations (weaving). Performance measures assessed for the arterial-based strategies included HOV/Bus travel time and intersection delay.
- **Environmental Impacts** (qualitative) – potential impact on the natural and built environment. The assessment was based on existing information and a “windshield survey” of the corridor; no field studies or original analyses was performed. This assessment considered several factors including potential impacts to air quality, noise, natural resources, aesthetics and right-of-way.
- **Right-of-Way Impacts** (quantitative) – number of parcels potentially impacted. For this level of evaluation, full versus partial takes were not differentiated.
- **Capital Cost** (quantitative) - order-of-magnitude capital cost estimates in current (2009) dollars. Right-of-way costs are not included in this cost estimate.

The evaluation was conducted both with and without the consideration of the estimated capital costs for each option.

A structured decision-making process was used to evaluate the options identified. CH2M HILL used Criterium DecisionPlus, a commercially available software tool to conduct the decision analysis. The evaluation criteria were weighted to reflect the relative importance of each criterion. The weighting of the evaluation criteria was developed by the study TAC and PAC and are provided in **Table 1**.

TABLE 1
Evaluation Criteria and Weighting

Evaluation Criteria	Weighting
HOV/Transit Connectivity	25
Transit Operations	20
Traffic Operations	10
Environmental Impacts	15
Right-of-Way Impacts	10
Capital Cost	20
Total Criteria Weights	100

Evaluation Scores

Based on the evaluation conducted in this study, the assessment of each of the evaluation criteria were converted to a 1-to-5 scale for input into the decision analysis tool. A score of "5" indicates the most beneficial impact, and a "1" indicates the least beneficial impact. The assignment of scores for each option and criteria (except cost) is provided in **Table 2**. Capital cost estimates, also shown in **Table 2**, were input directly, and did not need to be converted to a scale.

TABLE 2
Evaluation Scores by Criteria and Option

Evaluation Criteria	Options				
	1. SB I-680 HOV Lane Gap Closure	2. I-680 HOV Direct Ramps	3. Buskirk Roadway Improvements	4. Express Bus Consolidation	5. Traffic Signal Priority/ Queue Jump Lanes
HOV/Transit Connectivity	5	4	2	3	3
Transit Operations	5	4	3	3	2
Traffic Operations	5	3	2	1	1
Environmental Impacts	5	4	2	3	3
Right-of-Way Impacts	5	1	3	5	5
Capital Cost (million \$)	45.3	104.3	7.1	0.08	0.24

Results of Prioritization

All five of the identified options were assessed using the structured decision-making process. A score was developed based on the evaluation performed for each of the criteria identified. This score is only applicable for the comparison described here. Scores do not have an intrinsic value and cannot be compared across different sets of evaluations. The relative scores depicted in **Figure 1** are based on all of the criteria, and the relative scores depicted in **Figure 2** do not include cost as a criterion.

With cost included as a criterion, **Option 1 - Southbound I-680 HOV Lane Gap Closure Project** scores the highest. When cost is removed as a criterion, Option 1 continues to score the highest.

FIGURE 1
Prioritization of All Options with Cost

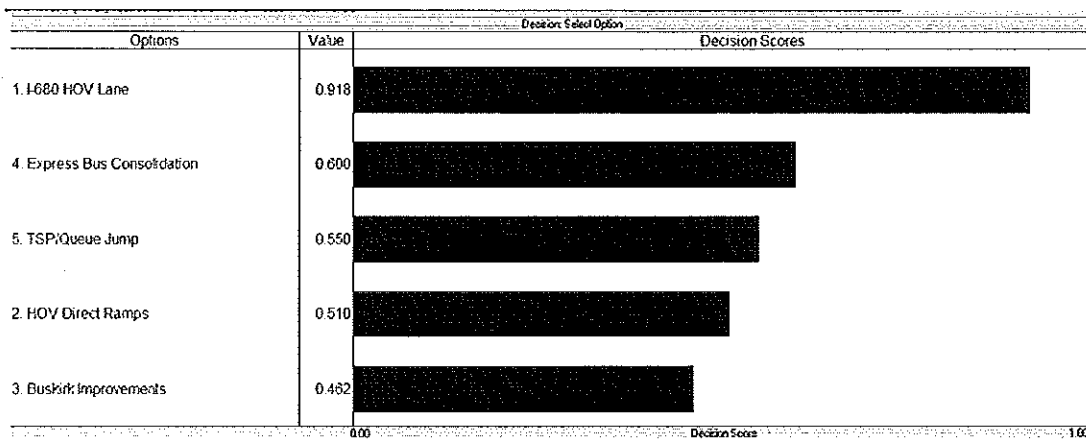
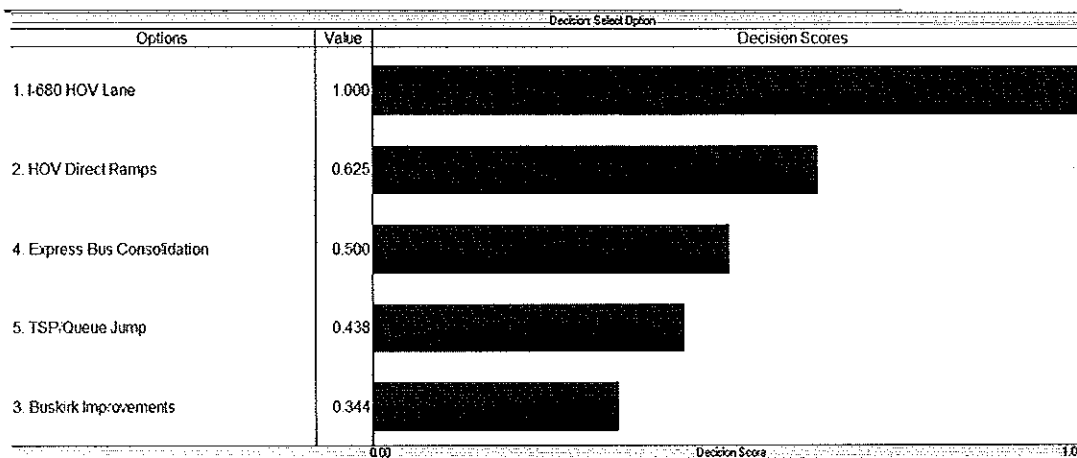


FIGURE 2
Prioritization of All Options without Cost



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