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 Committee Meeting Date: May 10, 2007
 Board Meeting Date: June 7, 2007
 ACTION DISCUSSION INFO

BOARD MEMORANDUM

TO: Technical Advisory Committee
 Santa Clara Valley Transportation Authority
 Advisory and Standing Committees

THROUGH: Michael T. Burns *Michael T. Burns*
 General Manager

FROM: Carolyn M. Gonot *Carolyn M. Gonot*
 Chief Development Officer

SUBJECT: Comprehensive Operations Analysis: Draft Proposed Service Operating Plan

FOR DISCUSSION

The attached proposal for a new Service Operating Plan is the product of the Comprehensive Operations Analysis (COA), a 12-month effort to develop transit investment policy, evaluate market opportunities and identify improvements to VTA's transit system.

This memorandum provides the background and policy context for the COA along with a summary of key proposal elements. Detailed information is included in two attachments:

- Attachment A: Map of Proposed VTA Transit System overlay on current system
- Attachment B: Summary Tables of Proposed VTA Transit System

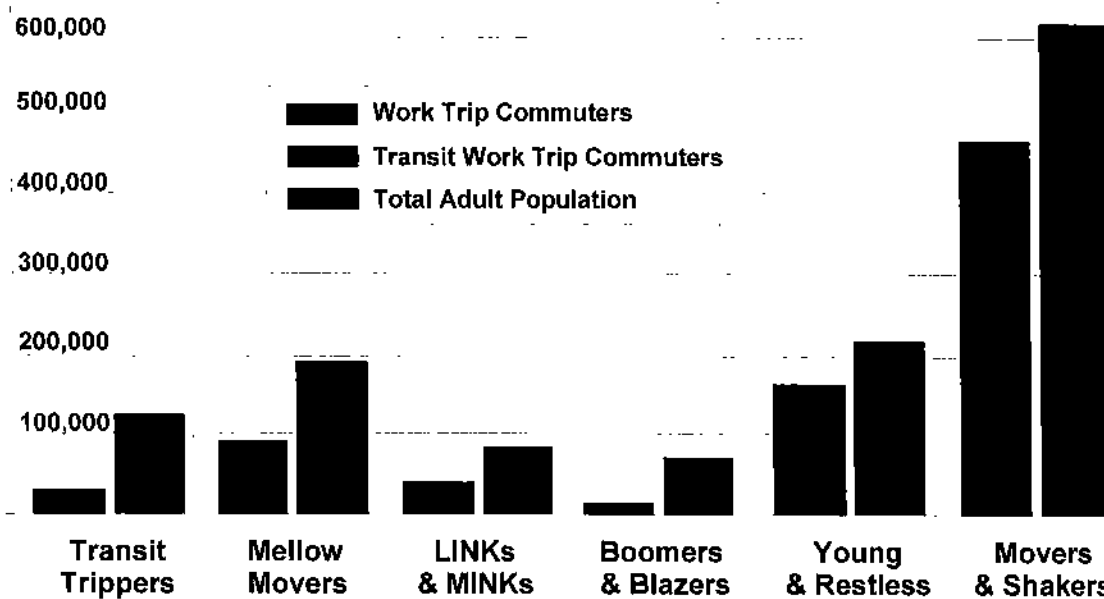
The VTA Board is expected to consider the COA proposal at its August 30, 2007 meeting. This will allow for a first phase of service changes by the target date of January 2008. A brief summary of the proposal was presented to the Board at the April 2007 meeting. Throughout April, May and June, VTA staff will be seeking stakeholder input. Stakeholders in the COA process include VTA's advisory committees, organized labor and the general public. Finally, public meetings will be held throughout the county beginning in May 2007. A detailed presentation of the COA proposal was provided to the March Transportation Planning and Operations Committee as an effort to provide VTA Board members the opportunity to digest the proposal and provide meaningful input prior to the start of public outreach activities.

COA BACKGROUND

The Comprehensive Operations Analysis (COA) began with detailed data collection and analysis of market conditions both for the transit and overall travel market in Santa Clara County. The first product of that analysis was a new direction in VTA Board policy represented by the Transit Sustainability Policy (TSP), which established core principles as a guide to the policy and the COA effort. The TSP also set out definitions of VTA's transit "products" and matches thresholds and criteria for these product offerings such as ridership, operational characteristics and facilities.

The Market Segmentation Analysis, an examination of the overall travel market presented to the VTA Board at its February 2007 Workshop, revealed that there are two large segments of the population based on attitudes and demographics. The larger of these segments will be difficult to attract to transit given sensitivities to time and a need for overall travel flexibility. However, the other side of the market is more amenable to transit as a travel choice provided services are designed to respond to their needs and attitudes. Using demographic data, it is possible to map the concentration of these market segments as an input into transit service design. The six market segments and their proportionate share of the overall travel market is presented below:

Commuters by Customer Type (2005)



VTA's existing customers were asked to provide information towards the COA during an extensive On-Board Passenger Survey effort conducted in late 2005 and early 2006. Key findings of this research revealed that a majority (56 percent) of VTA riders had an annual household income below \$25,000. Also, 63 percent of VTA riders rode the system because they "had no other way" or were, in other words, transit dependent. The passenger survey also solicited customer feedback on VTA's existing services and asked for suggestions for

improvement. The two highest-rated suggestions by VTA riders for improvements to the system were to “offer more frequent service” and “provide real time information”.

Combining existing customer’s travel patterns with the overall travel market data and other factors such as land use, parking costs and congestion built the foundation for a method of rating the “transit competitiveness” for origins and destinations throughout the county. Areas that were highly competitive for transit origins exist throughout the county, especially in the central and eastern parts of San Jose. However, very few transit competitive destinations exist, with only Downtown San Jose serving as a concentrated area for transit trip destinations. The lack of a congregation of transit competitive destinations presents a significant challenge to providing cost-effective transit services.

An in-depth examination of VTA’s existing transit operations and performance was also performed in the data analysis phase of the COA. It revealed that a select few lines within VTA’s 70-plus local and express routes were carrying the vast majority of riders. While these lines tend to perform well, the vast majority of VTA services are underutilized, contributing to the overall farebox recovery rate of just under 14 percent. Board policy states that a target farebox recovery rate of between 20 and 25 percent be reached by Fiscal Year 2007. The evaluation of existing transit performance, together with the analysis of both the transit and non-transit markets, indicated that there are a select group of corridors that can make up a core transit network.

COA PROPOSAL

The COA proposal was developed under the premise that it is a cost neutral exercise. In other words, system wide investment in operations will remain the same. The goal is to increase ridership and improve farebox recovery through more efficient use of the equivalent resources. Through efficiency measures such as eliminating or consolidating unproductive route segments, the proposal generates resource savings. These savings are then reinvested into the areas of the system that are most productive and offer opportunities for ridership growth.

The COA proposal reduces the number of vehicles required system wide while roughly maintaining the same number of service hours. Overall, the COA proposal requires 295 vehicles in the AM peak period, 308 vehicles in the PM peak and 246 vehicles in the midday. Compared to today’s system, the vehicle requirement in the peak period will be less while it will grow in the midday.

A summary of the system wide vehicle requirements in different time periods is presented in the table below:

**COA Proposal:
Vehicles Requirements**

Service Resource	Existing	Proposed	% change
AM Peak Buses	330	295	-10.6%
PM Peak Buses	350	308	-12.0%
Midday Buses	235	246	4.7%
Sat. Buses	197	195	-1.0%
Sun. Buses	155	163	5.2%

The remainder of this memorandum describes areas of detail for the COA proposal. The presentation is organized into the following areas:

- The core service area,
- Express bus/limited stop services,
- Future Bus Rapid Transit services,
- Community Bus program, and
- Candidates for reduction and consolidation.

CORE SERVICE AREA

Based on existing service performance and the results of the COA market analysis, a “core transit network” of the VTA service area was developed. The “core transit network” has high transit ridership potential based on a concentration of transit competitive origins and destinations and the prevalence of market segments that are amenable to transit. Service frequency is a critical component to building a core network of transit services in the county. Research into transit customer behavior suggests that 13 minutes is the cut-off point for “spontaneous” transit use where a customer will walk to a stop and wait for a bus without referencing a schedule. Because the county is characterized by relatively few primary east-west and north-south corridors, the creation of a core network can be accomplished by focusing investment in these areas. Building ridership in this core area is central to the COA Core Principles, which state that the COA shall “define a core transit network of services that serve a variety of trip purposes”.

Altogether, 18 lines are proposed to offer service frequencies of 15 minutes or less. This is an increase over the existing network where 12 lines have frequencies below 15 minutes in the peak period. The 22, 23 and 25 all will have frequencies of 12 minutes or less. Some lines – such as the 26 and 60 – feature “shortline” segments that enhance service on the most productive portion of the line, allowing for both concentrated local and longer distance service. In addition to enhanced peak service, the proposal increases midday frequencies in an effort to better meet the needs of VTA’s core transit market. Thirteen lines have been identified as midday lines deserving 15-minute or better midday service. This contrasts with today’s network where only eight lines feature midday frequencies less than 30 minutes.

The investment in midday service is a direct response to the market analysis, which identified the travel needs of both the Transit Tripper and Mellow Mover segments as being focused on all-day flexibility and convenience. Both segments are part of a “core” market for transit services because they are less time sensitive and more flexible than other travelers. They are also characterized by low-income households and tend to be concentrated in the central and east side of the county, where most of the core network lines are relocated. By offering greater midday service, VTA can strengthen its position and capture more of this core market of likely transit users traveling in the most transit competitive corridors.

EXPRESS BUS SERVICES

Attracting the other end of the travel market – the Young & Restless and Mover & Shaker segments – is a greater challenge given their attitudes towards transit, dispersed origin and destination pattern and desires for amenity-rich, high-speed service. These segments comprise close to 68 percent of the overall travel market, however and represent the opportunity for significant growth. While much of the proposed core network cannot compete effectively for these travelers, there are specific corridors where transit is competitive.

The Fremont BART-to-San Jose market is one example. The concentration of trips in the east bay-to-south bay commuter market – parallel to both I-880 and I-680 – makes this corridor one of the most congested in the Bay Area. The COA proposal addresses the existing gap in transit service by deploying Express Buses to meet every Fremont train and offering direct service—to Milpitas, Lockheed or Downtown San Jose – in an effort to attract choice travelers. This service to Downtown San Jose was identified by the RIDE Task Force and San Jose State University officials as an untapped market improved transit service. A similar rationale is behind a proposed 168 Express serving the South County-to-Downtown San Jose market. The 168 Express will originate at the Gilroy Transit Center, make one stop at the Morgan Hill Transit Center and then use connected freeway HOV lanes (101, 85, and 87) for an express trip to Downtown San Jose. The Gilroy Community-based Transportation Plan identified Express Bus service from South County to Downtown as a future transit improvement.

FUTURE BUS RAPID TRANSIT SERVICES

Offering a choice of frequent, fast transit to the Movers & Shaker market in South County is an additional service, layered on top of the existing high density service on the northern portion of Monterey Highway, between the Santa Teresa Light Rail station and Downtown San Jose. This segment is a future Bus Rapid Transit (BRT) line as identified in the Valley Transportation 2030 Plan and the 2006 Measure A Expenditure Plan. The COA proposal acknowledges that this and other future BRT routes will require capital improvements such as bus signal priority treatments, enhanced stations and even dedicated lanes to achieve true BRT status. However, services on these routes have all been upgraded in anticipation of future conversion. A summary of the BRT route enhancements is presented below:

- **Santa Clara/Alum Rock (Rapid 522, future 523)** – A new routing of the 23 Stevens Creek extending it eastward on Santa Clara Street and Alum Rock Avenue anticipates a future BRT service in the highest transit ridership corridor of the VTA system. The revised routing opens a new market by connecting major travel markets in the east and west. Because the 23 line is being upgraded to 12-minute all day headways, it also provides greater overall service frequency in the Santa Clara/Alum Rock corridor. Provided the VTA Board selects BRT in the corridor, future BRT service will feature both the 523 and 522 operating at 6-minute all day frequencies with rail-like stations and a dedicated median busway on Alum Rock Avenue.
- **El Camino (522)** – The 522 line is unchanged in the COA proposal. This Rapid Bus line and the local bus line 22 carry 21 percent of the overall bus system ridership. Headways remain at 15 minutes all day. Future upgrades will include station facilities and other measures to improve overall line speed.
- **Stevens Creek (future 523)** – The 23 line will be extended eastward on the Santa Clara/Alum Rock corridor and headways will drop from 15- to 12-minutes. This anticipates the future service frequency of the 523 along with a through routing all the way to Alum Rock Transit Center. The future BRT project will also feature capital improvements at key station sites such as Valley Fair/Santana Row, Vallco and a new De Anza Transit Center.
- **Sunnyvale-Cupertino (future 555)** – A short line will be overlaid to the most productive segment of Line 55, providing a 15-minute headway all-day along the route. The route has also been streamlined to encourage longer trips and improve efficiencies. A future 555 BRT will also require bus signal priority treatments along with exploration of alternative routings such as Mathilda and the 54 line.
- **Monterey Highway (future 568)** – Currently the Monterey Highway corridor has two local bus lines, 66 and 68, providing effective headways of 7.5 minutes during the peaks and 15 minutes during midday. These two lines will be streamlined under the COA proposal. While the existing travel speed is already at BRT levels, the likely focus of future 568 development will be station facilities and the pedestrian environment in the corridor.

COMMUNITY BUS PROGRAM

The success of VTA's pilot Community Bus line in Los Gatos and upcoming implementation in South County are both indicators of future efforts to rationalize the system by better matching VTA's service offerings to the communities. As defined in the Board-adopted Service Design Guidelines,

"Community bus service is typically deployed to better meet the needs of individual communities and neighborhoods, improve general circulation within a fixed local area and access to higher-capacity transit systems or

The COA proposal suggests deletion of 10 local bus lines. In addition, the proposal deletes or consolidates five Express or Limited lines. The deletion candidate lines have an average farebox recovery rate of 9 percent and average passengers per revenue hour of 15. This contrasts with the overall bus system, where the average farebox recovery rate is 16 percent and the passengers per revenue hour is 25. In the core network, the average farebox recovery rate climbs to 17 percent and the passengers per revenue hour is 28. It is no coincidence that all of these routes are located outside of the core service area, where few transit competitive destinations exist and market segments tend to be harder to reach with conventional local bus services.

Of the deletion candidate routes, many are being replaced by or consolidated into other, more productive routes. For example, the 58 line is being consolidated with the neighboring 57 to offer trunk service between Bowers/Scott and Saratoga/Campbell. The 85 line generates slightly below average ridership but it also operates in close proximity to several other lines, specifically the 25 in central San Jose and the 82 in downtown. Other lines, such as the 36, 39 and 67 all have parallel or duplicative service in their most productive segments.

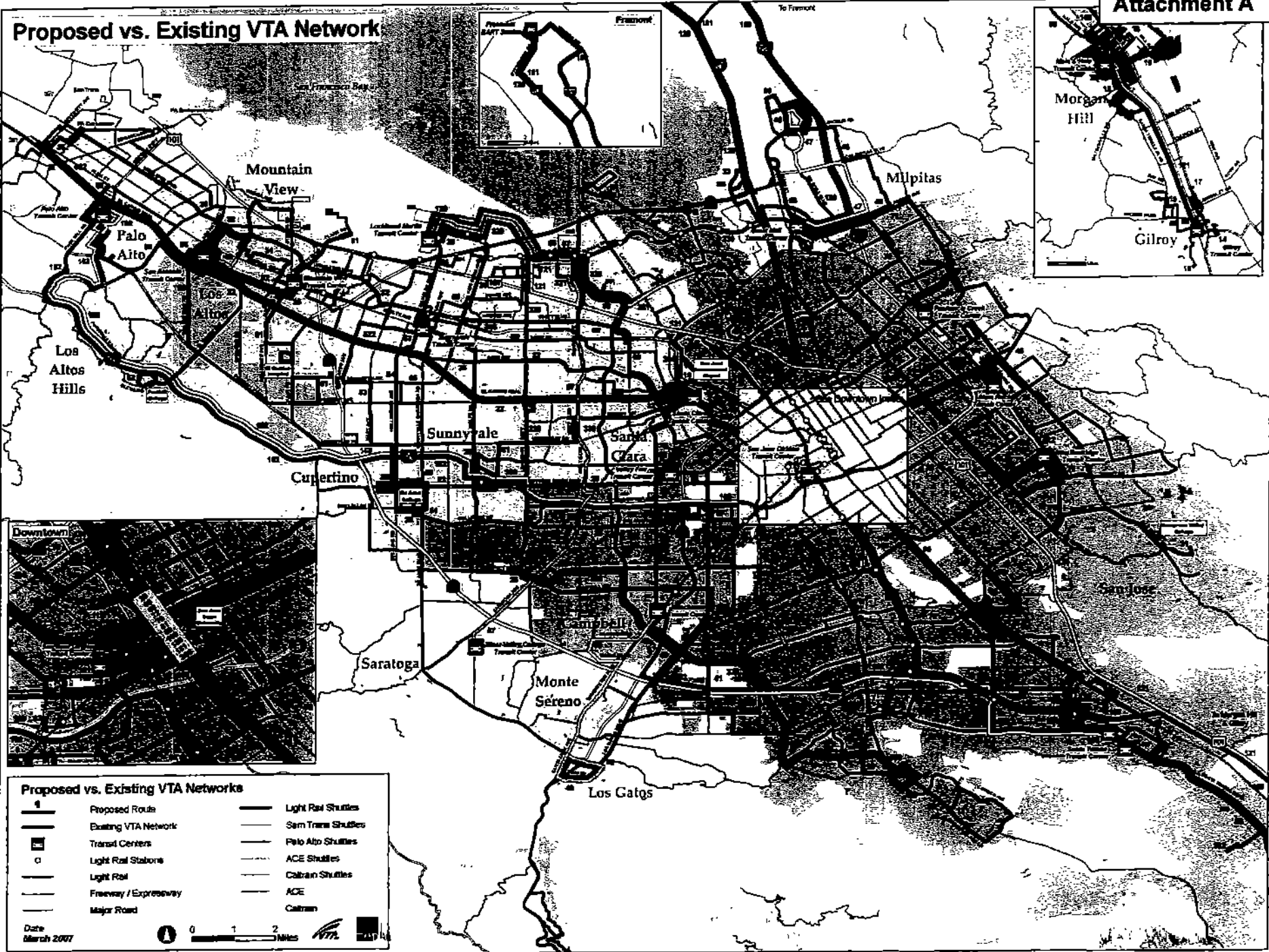
It is possible to counteract these measures by offering customer amenities such as real time information systems, allowing customers to better plan trips using the real time information available through PDAs, cell phones and the internet. VTA's future real time information program should target these areas for initial development, given the market profile characterized by a high level of technological literacy.

The COA will be considered by VTA stakeholder groups, Advisory and Standing Committees and the Board of Directors over the next several months. The proposal is intended to be a starting point for discussion of transit service and VTA Board policy. As such, it has incorporated the Core Principles adopted by the Board in October 2006 and responded to the market analysis efforts conducted at the outset of the study period. The proposal maintains the objectives of maintaining existing resources in an effort to build ridership and improve farebox recovery. Finally, regular meetings with the Policy Advisory Committee, Citizens Advisory Committee and VTA labor unions have ensured that the proposal was developed with input from significant stakeholders.

The attachments that follow present the COA proposal in detail. A presentation will be made to VTA Advisory and Standing Committees in May by VTA Planning and Operations staff.

Prepared by: Kevin Connolly, Transportation Planning Manager

Proposed vs. Existing VTA Network



Proposed vs. Existing VTA Networks

Proposed Route	Light Rail Shuttles
Existing VTA Network	Sam Trans Shuttles
Transit Centers	Palo Alto Shuttles
Light Rail Stations	ACE Shuttles
Light Rail	Caltrain Shuttles
Freeway / Expressway	ACE
Major Road	Caltrain

Date: March 2007

0 1 2 Miles

COA Proposal – Core Service Area

Attachment B

No Change
 Enhancement
 Reduction

Route	Headway (Minutes)				Vehicle Requirements				Notes
	Peak		Midday		Peak		Midday		
	Existing	COA	Existing	COA	Existing	COA	Existing	COA	
10	15	15	15	15	5	4	5	4	Airport Shuttle. Discontinue service to employee lot.
22	12	12	12	12	26	24	24	23	Discontinue Palo Alto-Menlo Park segment - saves vehicles
522	15	15	15	15	16	16	15	15	No change - future enhancements with BRT program
23	15	12	15	12	12	16	12	15	Through route to Alum Rock Avenue, 12-minute headways
25	10/30	10/30	15/30	10/30	19	18	12	17	Improve midday frequencies
26	20	15/30	30	15/30	13	10	7	10	Short line on eastern segment, improved frequencies
55	20	15/30	30	30	9	9	5	4	Routing efficiencies, interlining with 54 for enhanced service
57	30	15	40	30	8	8	4	4	Improve trunk frequencies
60	20	15/30	30	15/30	6	8	5	8	Shortline pattern b/t Santa Clara TC & Winchester LRT
61/62	30	15	20	15	7	10	7	10	Good Sam Hospital - Berryessa. Common Trunk on Taylor/Bascom
64	30	15/30	30	15/30	9	9	8	8	Re-route eastern segment to McKee
66	15	15	30	15/30	15	14	7	11	Southern segment routing efficiencies. Future BRT service.
68	15	15/30	30	30	15	13	9	8	Discontinue Gavilan CC segment. Supplement w/ 168 Express
70	15	15	15	15	14	14	13	13	Minor deviation correction
71	13/20	15	30	30	8	8	5	4	No route change - consistent AM frequencies
72	15	15	15/20	15	10	7	7	7	Interline with 73 in Downtown. All-day 15-minute frequencies
73	15	15	15/20	15	5	7	5	7	Interline with 72 in Downtown. All-day 15-minute frequencies
77	15/30	15	30	15	7	8	3	8	Discontinue routing north of Great Mall.

COA Proposal – Non-core Lines

No Change
 Enhancement
 Reduction

Route	Headway (Minutes)				Vehicle Requirements				Notes
	Peak		Midday		Peak		Midday		
	Existing	COA	Existing	COA	Existing	COA	Existing	COA	
27	30	30	45	30	7	4	4	4	Santa Teresa - Good Sam Hospital. Discontinue remainder.
31	15	15	30	30	8	4	4	2	Eastridge - Evergreen. Replace Capitol segment w/ 43 CB.
33	30	30	30	30	2	1	2	1	Great Mall - McCarthy Ranch.
35	30	30	30	30	5	4	5	4	Palo Alto - Mntn View TCs. Discontinue service to Stanford Center
46	30	30	60	30	2	3	1	2	Milpitas City Loop. No change. Interline with 47.
47	30	30	30	30	2	2	2	2	Milpitas City Loop. Streamline northern segment.
51	30	30	60	60	3	2	2	1	Vallco - Moffett. Preserve service to El Camino Hospital & Mntn View HS
52	30	30	30	30	2	3	2	3	Downtown Mntn View - Foothill CC. Replaces 23 Foothill service.
53	60	60	60	60	3	1	1	1	Westgate - Sunnyvale TC. Streamline route to serve De Anza.
54	30	30	45	30	5	3	3	3	West Valley CC - Sunnyvale/Fair Oaks. Mathilda routing.
63	30	30	45	30	4	4	3	4	SJSU - Almaden LRT. Discontinue segments sought of Coleman.
65	30	60	45	60	3	1	2	1	Fruitdale LRT - Camden/Branham. Discontinue 63 segment.
81	30	30	30	30	9	4	9	4	West side only. Operates between Downtown and Vallco.
82	30	30	40	30	4	4	4	4	Westgate - 21st/Mission. Discontinue route north of Downtown.

COA Proposal – Express/Limited Services

Attachment B

No Change
Enhancement
 Reduction

Route	Headway (Minutes)				Vehicle Requirements				Notes
	Peak		Midday		Peak		Midday		
	Existing	COA	Existing	COA	Existing	COA	Existing	COA	
101	4 Trips	--	--	--	2	0	0	0	Vallco-Palo Alto. 11 passengers. Discontinue.
102	3 Trips	3 trips	--	--	2	3	0	0	South San Jose - Palo Alto. No change.
103	4 Trips	3 trips	--	--	0	3	0	0	Eliminate deviation to Fruitdale LRT, add stop at Vallco.
104	3 Trips	--	--	--	3	0	0	0	East San Jose - Palo Alto. 11 passengers. Discontinue.
120	3 Trips	30	--	--	1	3	0	0	BART - Lockheed. Combine with 140 for increased service.
121	4 Trips	4 trips	--	--	4	3	0	0	Gilroy - Lockheed. Re-align to 101 & Lawrence.
122	1 Trip	--	--	--	1	0	0	0	South San Jose - Lockheed. Discontinue. Now served by 121.
140	5 Trips	--	--	--	4	0	0	0	BART - Sunnyvale Caltrain. Consolidated with new 120.
141	--	--	--	--	0	0	0	0	BART - Great America. Seasonal only. Discontinue.
168	--	30	--	--	0	5	0	0	South County - Downtown. New Express using HOV network.
180	20/15	15	30	15	8	5	5	8	BART - Great Mall - Downtown. Enhanced frequency.
181	--	15	--	--	0	8	0	0	BART - Downtown. Peak Express to Downtown/SJSU.
182	2 Trips	2 trips	--	--	0	0	0	0	Palo Alto - IBM. Reverse express. No change.
304	5 Trips	30	--	--	3	3	0	0	South SJ - Mountain View. Consolidate with 305.
305	3 Trips	--	--	--	3	0	0	0	South SJ - Mountain View. Discontinue. See 304.
321	3 Trips	1 trip	--	--	1	1	0	0	Great Mall - Lockheed. Reduce trips to match demand.
328	1 Trip	1 trip	--	--	1	1	0	0	Almaden Expressway - Lockheed. No change.
330	3 Trips	1 trip	--	--	1	1	0	0	Almaden Expressway - Tasman. Reduce trips to match demand.

COA Proposal – Community Bus Candidates

Attachment B

No Change
Enhancement
 Reduction

Route	Headway (Minutes)				Vehicle Requirements				Notes
	Peak		Midday		Peak		Midday		
	Existing	COA	Existing	COA	Existing	COA	Existing	COA	
11	-	30	-	30	0	2	0	2	New CB. Connects J-town senior housing, LRT, Retail.
13	30	30	30	30	2	2	1	2	Conversion. Replace segments of 63. Modify alignment.
14	-	60	-	60	0	1	0	1	Conversion. Gilroy - Wal-Mart. Split of 17 Line.
15	39/55	60	56	60	0	1	0	1	Conversion. Serving residential areas east of 101.
16	55/60	60	60	60	2	1	1	1	Conversion. Serves mobile home parks & high schools.
17	65/60	60	60	60	1	1	1	1	Conversion. Serves a shortened version of current 17 Line.
18	30/35	30	45	30	0	1	0	1	Conversion. Replaces 68 service b/t Gilroy TC & Gavilan CC.
19	30/35	30	45	30	2	1	1	1	Conversion. Connects residential areas to Gilroy TC.
32	30	30	30	60	6	4	3	2	Conversion. San Antonio TC - Santa Clara TC. Re-align.
34	60	-	60	60	1	0	1	1	Conversion. Midday, weekday service to DT Mountain View.
40	30	30	30	30	2	2	2	2	Conversion. No changes
42	-	60	-	60	0	1	0	1	New CB. Replaces existing 72 service south of Monterey.
43	-	-	-	-	0	0	0	0	New CB. Serves Capitol Expwy in evenings and Sundays.
45	-	30	-	30	0	2	0	2	New CB. Replaces segment of 64 b/t Penitencia & Alum Rock TCs
48	25/30	30	30	30	2	2	2	2	Existing CB. Reduce weekend service frequency
49	30	30	30	30	2	2	2	2	Existing CB. Reduce weekend service frequency
88	60	30	60	60	4	2	2	1	Conversion. Cal Ave Caltrain to VA Hospital. Re-align.
River Oaks	15	15	-	-	1	1	0	0	Conversion. Shuttle Route b/t River Oaks LRT & residential bldgs.
DASH	10	10	10	10	3	3	3	3	Conversion. Downtown San Jose circulator.
Great America	15	15	15	15	1	1	1	1	Conversion. Service to Great America theme park.

COA Proposal – Deletion/Consolidation Candidates

No Change
 Enhancement
 Reduction

Route	Headway (Minutes)				Vehicle Requirements				Notes
	Peak		Midday		Peak		Midday		
	Existing	COA	Existing	COA	Existing	COA	Existing	COA	
36	30	--	45	--	4	0	2	0	Consolidate. Join segments of route to 62 & 61.
37	45	--	60	--	2	0	1	0	Discontinue. Less than 11 boardings/revenue hour.
38	45	--	-	--	3	0	0	0	Discontinue. Segments already served by 48 & 60.
39	20	--	40	--	2	0	1	0	Consolidate. Major generators walking distance to 71.
44	35/25	--	-	--	0	0	0	0	Discontinue. Less than 6 boardings/revenue hour.
58	30	--	30	--	6	0	4	0	Consolidate. Trunk served by 57.
59	30	--	45	--	3	0	1	0	Discontinue. Less than 11 boardings/revenue hour.
67	60	--	-	--	1	0	0	0	Consolidate. Productive segment served by 66.
76	70/65	--	-	--	1	0	0	0	Discontinue. 15 boardings/revenue hour.
85	30	--	30	--	4	0	4	0	Consolidate. Served by 23, 25 and 82