

AC TRANSIT DISTRICT
Board of Directors
Executive Summary

GM Memo No. 08-033

Meeting Date: February 13, 2008

Committees:

Planning Committee	<input checked="" type="checkbox"/>	Finance and Audit Committee	<input type="checkbox"/>
External Affairs Committee	<input type="checkbox"/>	Operations Committee	<input type="checkbox"/>
Rider Complaint Committee	<input type="checkbox"/>	Paratransit Committee	<input type="checkbox"/>
Board of Directors	<input type="checkbox"/>	Financing Corporation	<input type="checkbox"/>

SUBJECT: Annual Route Performance Review: 2007

RECOMMENDED ACTION:

Information Only Briefing Item Recommended Motion

Fiscal Impact:

None.

Background/Discussion:

AC Transit Board Policy 550 provides direction for the design and allocation of transit service in the East Bay, including service standards and goals. The policy also requires an annual assessment of route performance. This report measures 2007 performance against these standards and goals.

Route Performance Standards

Board Policy 550 establishes weekday peak period service frequency standards as follows:

- Trunk Routes/Major Corridors - LOS C – 15-20 minutes
- Rapid Service - LOS B - 10-14 minutes (headway based)
- Urban Crosstown/Feeder – LOS C 15-20 minutes
- Suburban Crosstown/Feeder - LOS D – 21-30 minutes
- Low Density – LOS E – 31-60 minutes
- Owl (modified Trunk route) - LOS E – 31-60 minutes
- Transbay – LOS D – 21-30 minutes

BOARD ACTION: **Approved as Recommended** [] **Other** []
 Approved with Modification(s) []

The above order was passed on:

Linda A. Nemeroff, District Secretary
By _____

In addition, Policy 550 establishes the following minimum weekday performance standards:

- Trunk Routes/Major Corridors - 40 passengers per service hour
- Rapid Service - 40 passengers per service hour
- Urban Crosstown/Feeder - 30 passengers per service hour
- Suburban Crosstown/Feeder - 20 passengers per service hour

Note that service hours represent time spent transporting passengers and do not include layover or deadhead time.

Attachment A to this Memo lists AC Transit's Local routes and All-Day Transbay routes, demonstrating route utilization trends from best to worst. The lines are grouped by service category (Local, Transbay All-Day, All-Nighter, Low Density, District 2). Note that only All-Day Transbay lines are included because peak hour Transbay Lines have separate reporting requirements and performance standards as defined by the Transbay Comprehensive Service Plan. Finally, staff has identified the routes that are included in MTC's Lifeline Transit Network, for purposes of assisting in any future Lifeline Transit Program work that might occur.

Route Performance Summary

Methodology – The following sections provide information on route performance. It is important to note that this data was collected using Automatic Passenger Counters (APC). As in the past, there is a disparity between the APC data and the information provided to the Federal Transit Administration (FTA) in the National Transit Database (NTD) report. Part of the explanation for this disparity is based on the ways that the data is collected, and the uses to which it is put.

The NTD report contains data on Unlinked Passenger Trips (UPT), which is collected following a federally-approved methodology. Approximately 320 randomly-selected round trips are sampled annually; the data is subsequently validated by a statistician. The data represents a gross ridership number for the entire system, and does not take into account specific service routes or types.

By contrast, APC data represents line by line trends. The data is not collected following a specific methodology, although efforts are made to collect information on all trips on a line. Ideally, data would be collected for every trip on every line. However, due to limited APC equipment, not every trip is sampled for data. Staff compensates for trips that do not have data by applying a multiplier to the number of passenger boardings actually recorded by the APC on each one-way trip. The multiplier is simply the ratio of the number of one-way trips scheduled to the number of one-way trips in which data has been captured. For example, if half of a particular route's one-way trips have been sampled, then the number of sampled boardings would be doubled to arrive at the average daily ridership for the route. If all of a particular route's one-way trips have been sampled, then the number of sampled boardings is taken as is, without further

adjustment, to represent the average daily ridership for the route. Note that data for a particular one-way trip may have been collected more than once, but that the one-way trip in question has been sampled at least once. Additional data is simply averaged over the number of samples gathered.

Accordingly, staff notes that the data in Attachment A represents an average of the data collected over the course of the last calendar year. Data from summer months are generally not included in the route averages, because ridership during those months is not reflective of ridership patterns over the majority of the year. Staff further notes that comparing APC data from 2007 to prior years would not represent a true comparison, as different trips were sampled, in different numbers, for each of the years. In sum, the data in Attachment A represents a gross level analysis for each of the routes for the year 2007. It should be viewed as a starting point for analysis and validation of the data trends which it depicts.

Staff often has a need to assign the APC-equipped buses to a specific line for a week or more, which can affect the overall ridership numbers. Moreover, the equipment is not installed on all fleet types, which means that there are built-in "holes" in the data. This data is not validated statistically, although staff does apply a 5% factor to account for the under-counting of the system, as advised by the manufacturer. Various reports are available from the APCs, and are valuable tools that staff uses as a starting point for route performance analysis. It should be noted that the margin-of-error for individual line performance is higher than for the system as a whole, since the number of observations used to create the line estimates are low but the number of observations of the system in total is high.

2007 Route Utilization Analysis – Overall, route utilization decreased slightly across all route types (District 1, District 2 and All-Day Transbay) other than All-Nighter routes.

District 1 Local Services – District 1 route utilization was essentially flat (-0.3 percent, statistically insignificant). During the reporting period the District made a number of route changes. For example, in June 2007, the 1 and 1R routes were implemented along with numerous other adjustments. When these changes are grouped together and compared against the routes (and route segments) prior to the changes, utilization decreased by about 1,400 passengers daily. District 1 local service generated about 41 passengers per service hour.

However, almost all of the route utilization reduction was concentrated in East Oakland. The changed route segments in Alameda County north of downtown Oakland saw an increase of about 4.5 percent, but the changed route segments east of downtown Oakland saw a decrease of about six percent.

In West Contra Costa (where the District implemented mostly minor changes) route utilization remained unchanged at about 21,000 passengers daily, while the utilization of East Oakland routes declined by almost 7.5 percent; virtually every route in East

Oakland was affected (MacArthur routes did not decline). When East Oakland was factored out, the remaining routes saw increases of about two to three percent.

Adherence to Policy 550 Effectiveness Guidelines

Most District service met the Policy 550 expectation for passengers per hour in 2007. Eighteen routes fell below the standard; for example, several trunk/major corridor routes fell just below the District's 40 passengers per hour standard, including Lines 50, 97, 88, 18, 7 and 99. The difference (about one to two passengers per hour for the first 4 routes) is not statistically significant; however, staff will continue to monitor the routes. Line 99 was recently extended into Fremont and northward into BayFair and will be monitored as a new service. The most problematic was Line 7, which is classified as a major corridor route; at 30 passengers per hour, it is below the standard for the service type. Line 7 data shows a 17 percent decline in ridership in 2007. Line 19 was also below major corridor standards in 2007; however, effective with the June 2007 service changes, this line was extended to downtown Berkeley during peak periods. Staff plans to provide the Board with a separate analysis on this route.

Urban crosstown routes 9, 13, 45, 56, 63, 71 and 74 also fell below standard (30 passengers per hour). The 71 was recently changed and staff will continue to monitor that route. Line 9 was below standard last year and staff has no data available for 07-08. Line 74 ridership showed a significant increase to and from the Orinda BART station (where it now boards and alights more than 330 passengers daily, representing about 20 percent of the passengers at one stop), but overall line ridership is down from last year. Staff plans to focus on the 74 this calendar year, after an intensive study of Line 51 is completed. The other routes above are East Oakland lines which experienced reduced ridership in common with the general trend in the area.

Finally, Lines 87, 59/59A, and 91 all failed to carry more than 20 passengers per hour. As a result, Staff will consider converting Lines 87 and 91 north of Castro Valley BART into a "flex route" service. This concept will be considered after assessment of the Line 333 Union City-Fremont-Newark Flex Route. Line 41 was below standard last year, but no data is available for 2007 (new 30 foot buses were deployed on this line, and no APC data is available).

District 2 Local Services – Routes in South County were restructured in July 2007 as part of the South County Service Study. New circulator routes were added in Fremont and Newark, a nighttime flex route (Line 333) was implemented between Fremont BART and New Park Mall for people traveling after 7pm; Line 99 was extended to Fremont BART. Service hours remained about the same as prior schedules. After only two to three months of service with the new route structure, route utilization was down about one percent in South County, although average passengers per hour was about 24.

Transbay All-Day Services – While route utilization increased overall on Transbay Services (see GM Memo 08-034), utilization on all day routes declined by about 10

percent. Significantly, most of this decline was on local trips. In fact, the NL trips to and from San Francisco actually increased slightly. Farebox recovery continued to be strong, with the all-day O Alameda line achieving 44 percent, and the NL and F at 29 and 28 percent respectively.

All-Nighter Services – On weekday All-Nighter services (the regionally designed routes that operate from midnight to 6am), route utilization declined on weekdays by about 20 percent and on Saturdays (Friday nights) by about eight percent. However, on Sundays (Saturday nights), utilization was about 40 percent higher than last year. A key component of the All-Nighter arrangement was expansion on the weekends to provide 30 minute service on the Transbay Line 800 and the Line 801, which serves the International/Mission/BART Fremont Corridor.

All-Nighter Services 2007			
Line	Weeknight Passengers	Saturday Passengers	Sunday Passengers
800	183	526	935
801	297	321	688
802	40	139	52
805	55	40	20
840	98	50	20
851	103	186	74
880	20	20	20
07-08 Total	795	1,282	1,808
06-07 Total	992	1,385	1,294
Percent Change	-19.8%	-7.4%	39.8%

Supplemental Services – Counts for Supplemental Services (these are the 600 route series, i.e., 650, 651, etc.) indicated a decline of about 1,200 passengers daily. Staff continues to monitor these services under Policy 560 guidelines.

Best of the Best – The District’s top ten routes, as measured by passengers per service hour, are well above Policy 550 standards regarding effectiveness, defined as 40 passengers per hour on major corridors and trunk routes. The top ten routes by utilization account for about 87,000 weekday passengers.

Trunk Line/Major Corridor Ridership – In 2007, Line 51 regained the title of heaviest route with a 21 percent route utilization increase, and total boardings approaching 19,000 daily. The new 1R/1 Local corridor generated about 22,000 weekday trips, while the new 40 line, which now terminates in downtown Oakland, carried almost 10,000 passengers daily. The San Pablo Avenue corridor (72R/72/72M) served about 15,000 passengers daily. An outstanding success story continues to be the 97-Hesperian, which broke the 5,000 daily passenger mark and now operates every 15 minutes on weekdays.

Utilization by Pax per Line				Utilization by Pax Per Hour			
Line	2007 Utilization	% Change Utilization	Pax Per Service Hour	Line	2007 Utilization	% Change Utilization	Pax Per Service Hour
51	18,747	20.9%	71.6	51	18,747	20.9%	71.6
1R	10,793	N/A	69.3	1R	10,793	N/A	69.3
1	10,761	N/A	55.7	40	9,625	-14.4%	64.9
40	9,625	-14.4%	64.9	53	2,105	-2.2%	62.7
72/72M	8,049	-1.7%	43.5	1	10,761	N/A	55.7
50	7,592	4.0%	38.2	72R	6,970	4.9%	50.3
72R	6,970	4.9%	50.3	54	1,853	-15.3%	50.1
57	6,170	2.8%	44.4	57	6,170	2.8%	44.4
97	5,140	8.9%	38.1	62	2,871	-23.0%	44.4
92	2,938	20.0	41.2	72/72M	8,049	-1.7%	43.5

Best Crosstown/Feeder Routes – The 53 and 54 routes, while demonstrating negative utilization trends, continue to perform well as urban crosstown routes – both exceeded 50 passengers per hour. Colleges continue to be an important market for AC Transit services – with more than 2,900 daily passengers (41 passengers per hour) on the Line 92 to CSU East Bay/Chabot College and 2,500 passengers (39 passengers per hour) on the 52L to UC Berkeley. Line 92 experienced a 20 percent route utilization increase.

Three Year Trends – The Board had previously requested a “three-year” summary of route utilization. At the end of 2007, staff now has data available to show trends over a three year period, rather than year-to-year. Note that the method to report in-service hours has evolved from 2005 to 2006 as a result of improvements in the scheduling software. Staff believes that while “service hours scheduled” may be slightly different, they are within the margin of error. Again, however, staff points out that the data collected provides staff an excellent starting point for trend analysis. Going forward, staff will report multi-year trends. From this point, reporting methodologies from year to year should be consistent and allow for valid statistical comparisons on yearly changes.

AC Transit operates several different services, with different markets and patronage trends. For this analysis, staff has identified local services, trunk lines, All-Nighter and Transbay services for separate consideration.

In the multi-year analysis, ridership on District 1 local and trunk services was about flat, although passengers per hour appears to have declined. The decrease in passengers per hour is a result of increases in running time, which require more hours to maintain the same service frequency. All day Transbay ridership increased, although passengers per hour declined. This was due both to increased running times and also to additional service hours on the shoulders of the peak when service is often not productive.

Service Type	2007		2006		2005		2007-2005 Change	
	Wkday. Utiliz.	Wkday. Pax/Hr.	Wkday. Utiliz.	Wkday Pax/Hr	Wkday. Utiliz.	Wkday. Pax/Hr.	Wkday. Utiliz.	Wkday. Pax/ Hr.
All Local Routes District 1	147,892	41.4	148,282	42.6	150,875	46.5	-2.0%	-11
Trunk Routes Only	87,665	52.5	86,355	52.3	88,611	58.0	-1.1%	-9
All-Day Transbay	7,366	26.8	8,057	13.8	6,435	26.9	14.5%	-1.5
All-Nighter Routes	1,045	13.2	1,242	13.8	1,257	16.9	-16.9%	-21.9
2007: Trunk Lines are 1/1R, 15, 18, 40, 51, 57, 72/72R, 97, 40, 43, 51, 57, 72, 82 97 and 99								
2006/Prior: Trunk Lines are 15, 40, 43, 51, 57, 72/72R, 82/82R, 97 and 99								

Actions for Deficient Routes

June 2007 Changes – Staff plans to review ridership on several routes that were changed in the June 2007 service changes. Among these are:

Line 1/1R – Ridership, along with other East Oakland routes, appears to have fallen, even though service was improved by connecting International and Telegraph via Broadway. Passengers per hour on the 1R are very high – about 70 passengers per hour – though service delivery has suffered through insufficient running time. Staff added running time in December and additional service hours, and will increase supervision on the route.

Line 18 – The new segments of Line 18 (which was formed from old segments of Lines 15 and 43) appear to be carrying seven to 10 percent more passengers than the old routings; however, they are still below the 40 passenger per hour threshold for major corridor routes. Staff will continue to monitor the route performance and report to the Board.

Line 19 Sixth/Hollis – Although there is no 2007 ridership data on Line 19, the Board did authorize changes which included extending service on Cedar Street to downtown Berkeley during peak periods and operating all service via Cedar Street to North Berkeley BART at other times. This change was implemented in June 2007 and Marketing is also planning to advertise the entire Line 19 service in spring 2008. In addition, staff administratively rerouted service to provide direct access to Berkeley's Fourth Street retail district and the Berkeley Amtrak station. This change was

implemented in December 2007. Staff's intention is to perform ridership counts in February and have the on-going West Berkeley Circulation Study inform the District on the City's desires for this route. Staff expects to develop a plan to operate service to downtown Berkeley at all times.

December 2007 Changes – In addition to the June follow-up, staff will also pursue the following actions based on route changes in December:

Line 53 was administratively extended to this route to the Woodminster retail area near Joaquin Miller and Highway 13 via Lincoln Avenue.

Line NX 4 was diverted into the new Monte Vista development (at the old Leona Quarry near Interstate 580 and Edwards Avenue) to provide direct service to downtown San Francisco. The provision of a bus stop within the development was a condition of approval for the development, and AC Transit committed to operating service into the development.

Other Work Plan Items – As noted, once the Line 51 Task Force work is completed, staff will direct efforts at improving conditions on Line 74 in Richmond. This line serves 23rd Street (the main north-south corridor in the area), and Contra Costa College, before continuing into El Sobrante and terminating at Orinda BART. The segment operating into Orinda BART has been especially successful, with more than 330 daily passengers – the highest single stop on the route. Unfortunately, the balance of the route has seen decreased ridership; staff will work to understand why ridership has declined and consider ideas to reverse the trend.

Lines 41, 59/59A, and 98 are all very weak routes. Staff will develop alternatives in the next few months or recommend discontinuance to the Board if appropriate. In Central County, staff will work with the Central County Policy Advisory Committee (PAC) to discuss alternatives for Lines 87 and 91. Lines 41, 59/59A, 87 and 91 are all candidates for Flexible Service routes.

Over the longer term, staff is pursuing several concepts:

- CSU East Bay – The campus is interested in purchasing a “class pass” from AC Transit and would in turn discontinue its dedicated Hayward BART shuttle. Any concepts developed would require full cost recovery to the District.
- Alameda Line 63 – Staff continues to work with City staff to develop routing alternatives to increase reliability and effectiveness.
- MacArthur BRT Stage 2 – Staff is advancing a “Small-Starts” project for the MacArthur Corridor to bring the benefits of limited stop and transit priority measures to this important corridor.
- Downtown Oakland Plan – Staff has incrementally clustered service on the 11th/12th and 20th Street corridors, and plans to work toward an overall formal transit priority streets plan that would increase service, access and reliability throughout the downtown area.

Prior Relevant Board Actions/Policies:

GM Memo 00-328: Adopt Service Deployment Policies
GM Memo 04-361: Overview of TCRP Manual
GM Memo 04-198: MacArthur Corridor Analysis
GM Memo 05-027: Designing with Transit
GM Memo 05-061: Status of West Grand-Grand-MacArthur BRT Improvements
GM Memo 06-013: 2005 Annual Assessment of Route Performance
GM Memo 06-014: RM2 Funding Allocation for Express Bus and Owl Service
GM Memo 06-061: RM2 Funding Allocations for Express Bus, Owl and Telegraph-
International-E. 14th Rapid Bus Operations
GM Memo 07-033: 2007 Annual Route Performance
Board Policy 520: Promoting Public Transit in Land Use Planning
Board Policy 550: Service Standards and Design Policy

Attachments:

Attachment A: Analysis of Weekday Route Performance

Approved by: **Rick Fernandez, General Manager**
**Nancy Skowbo, Deputy General Manager, Service
Development**

Prepared by: **Anthony Bruzzone, Manager of Service and Operations
Planning**
Howard Der, Senior Transportation Planner

Date Prepared: **February 8, 2008**

ANALYSIS OF WEEKDAY ROUTE UTILIZATION TRENDS 2007							
<i>Schools and Special Services</i>							
Route	2007 APC Avg. Estimated Pggs.	2008 APC Avg. Estimated Pggs.	Route, Cont'd.	2007 APC Avg. Estimated Pggs.	2008 APC Avg. Estimated Pggs.		
305	13	18	655	66	91		
314	5	44	657	282	279		
356	15	62	658	226	147		
360	28	76	660	65	68		
391	21	48	662	135	123		
603	21	36	665	28	51		
604	122		667	123	111		
605	55		668	159	158		
606	25		669	90	97		
607	23		670	53	77		
608	57	61	671	71	158		
609	27	49	672	34	98		
610	80	88	673	72	79		
612	75	69	674	32	23		
613	14	38	675	180	312		
614	48	55	676	168	210		
615	19	24	677	58	77		
618	67	90	678	8	22		
620	32	45	679	43	64		
621	107	92	680	39	46		
622	92	56	681	81	128		
623	179	208	682	148	139		
624	20	57	683	69	64		
625	58	63	684	159	226		
626	48	64	688	68	70		
627	18	22	689	23	32		
628	29	74					
629	151	176					
631	302	341					
632	37	34					
638	92	162					
640	16	28					
641	60	88					
642	127	95					
643	107	114					
645	16	48					
646	255	412					
647	49	54					
648	144	170					
649	86	90					
650	142	198					
651	47	50					
652	84	135					
653	56	53					
654	605	737					