



Franklin Hill Group

March 15, 2018

Ms. Joyce Rooney
Transit Manager
City of Redondo Beach
1922 Artesia Blvd.
Redondo Beach, California 90278

Dear Ms. Rooney:

This letter report presents the findings of the stop analyses conducted by Franklin Hill Group for the City of Redondo Beach (City) using the Beach Cities Transit (BCT) FY2017 Passenger Miles Travelled (PMT) sample. The scope of work included, for each route:

- Evaluation of ridership by stop;
- Identification of ridership by time periods (peak and off-peak) during weekdays, Saturdays and Sundays;
- Identification of peak stops for boarding and alighting; and,
- Calculation of average daily boardings and alightings by stop.

Background

The City has contracted with Franklin Hill Group for the past several years to develop annual survey sampling plans for BCT for reporting PMT to the National Transit Database (NTD), and to provide statistical certification of the sample. The FY17 sampling plan called for 504 randomly sampled trips, as shown in the far right column of Table 1. The actual number of sampled trips with data was 504, and the number of trips with data for the stop analysis was 502. This is an increase over the FY16 data, which called for 396 sampled trips of which 388 had the needed stop information.

TABLE 1: FY17 Desired and Sampled Trips compared to Trips in Stop Analysis

Route	NY17 Trips in Stop Analysis Files				NTD FY17 Sampled Trips	NTD FY17 Sampling Plan
	Weekdays	Saturdays	Sundays	Total		
Route 102						
Southbound	94	10	26	130		131
Northbound	107	23	14	144		145
Subtotal	201	33	40	274	276	276
Route 109						
Southbound	65	20	21	106		106
Northbound	91	14	17	122		122
Subtotal	156	34	38	228	228	228
Grand Total	357	67	78	502	504	504

Using the passenger counts reported to NTD for FY17, the expansion factors shown in Table 2 were used to weight each observed passenger by day of week (Weekday, Saturday, and Sunday) in the stop analysis. It should be noted that the total passenger trips reported in FY17 (369,278) were 5.6% lower than the 391,363 reported in FY16. The decrease was slightly higher on Route 102 (-5.9%) than on Route 109 (-5.4%).

Table 2. Passengers in FY17 Stop Analysis and FY17 Reported Passenger Trips with Calculated Expansion Factor per Passenger

Route	Passengers in FY17 Stop Analysis Trips				FY17 Unlinked Passenger Trips (NTD Report)			
	Weekday	Saturday	Sunday	Total	Weekday	Saturday	Sunday	Total
Route 102								
Southbound	1007	55	119	1181				
Northbound	1319	148	63	1530				
102 Total	2326	203	182	2711	164,175	11,005	4,030	179,210
Expansion Factors	70.58	54.21	22.14					
Route 109								
Southbound	1209	293	184	1686				
Northbound	1452	125	142	1719				
109 Total	2661	418	326	3405	158,323	17,938	13,807	190,068
Expansion Factors	59.50	42.91	42.35					
GRAND TOTAL	4987	621	508	6116	322,498	28,943	17,837	369,278

The next step in the stop analysis was to calculate the average daily ridership by stop. For FY17, BCT reported 362 total service days to NTD, comprised of 256 weekdays, 56 Saturdays and 50 Sundays. The weighted boardings and alightings by stop were divided by the appropriate number of service days to yield average daily boarding and alightings at each stop, for each route.

Ridership by Stop

The primary analyses are the weighted average daily boardings and alightings by stop, for each route. For the stop analysis, daily boardings and alightings were separately summed across the northbound and southbound stops in each route. Northbound and southbound stops were paired based on stop number (in the one-way loops within each route) and street address. In each route there were a small number of stops in one direction or the other that were deemed “unique” in that they were not paired with a stop in the opposite direction. Each route is discussed separately below.

Route 102

Route 102 primarily serves the City of Redondo Beach, and runs from the Redondo Beach Pier north and east to the Redondo Beach Green Line Station on Marine, with a one-way loop around the South Bay Galleria and Marketplace. The stop analysis, presented in Table 3, presents the weighted boardings and alightings for 34 paired northbound and southbound stops, seven unpaired northbound stops and four unpaired southbound stops.

Table 3. Route 102 Average Daily Boardings and Alightings by Stop – FY17

STOP ID#		STOP DESCRIPTION	Northbound + Southbound					
NB	SB		Average Daily Boardings	%	Average Daily Alightings	%	Total Activity	%
301	301	Redondo Beach Pier	104	11.3%	85	9.3%	189	10.3%
302		Catalina Ave. @ Torrance Blvd.	16	1.8%	1	0.1%	17	0.9%
303	428	Catalina Ave. @ Garnet St.	7	0.8%	7	0.7%	14	0.8%
304	427	Catalina Ave. @ Emerald St.	8	0.9%	5	0.6%	13	0.7%
305		Catalina Ave. @ Diamond St.	38	4.2%	6	0.7%	45	2.4%
306	426	Diamond St. @ PCH	153	16.6%	127	13.8%	279	15.2%
307		Diamond St. @ Sea Hawk Way	30	3.3%	7	0.8%	37	2.0%
	425	Diamond St. @ Helberta Ave.	0	0.0%	103	11.2%	103	5.6%
308	424	Diamond St. @ Lucia Ave.	3	0.3%	16	1.8%	19	1.0%
309	423	Prospect Ave. @ Diamond St.	10	1.1%	16	1.8%	27	1.5%
310	422	Beryl St. @ Prospect Ave.	17	1.9%	10	1.0%	27	1.5%
311	421	Beryl St. @ Flagler Ln.	7	0.7%	12	1.3%	19	1.0%
312	420	190th St. @ Beryl St.	10	1.1%	17	1.8%	26	1.4%
313	419	Rindge Ln. @ 190th St.	12	1.3%	19	2.0%	31	1.7%
314	418	Rindge Ln. @ Ripley Ave.	7	0.8%	5	0.6%	12	0.7%
315	417	Rindge Ln. @ Pullman Ln.	7	0.7%	7	0.8%	14	0.8%
316	416	Rindge Ln. @ Clark Ln.	11	1.2%	16	1.7%	27	1.5%
317	415	Rindge Ln. @ Grant Ave.	12	1.3%	10	1.0%	22	1.2%
318	414	Rindge Ln. @ Carnegie Ln.	7	0.8%	9	1.0%	16	0.9%
319	413	Artesia Blvd. @ Rindge Ln.	33	3.6%	27	2.9%	60	3.3%
320 / 330	330 / 320	Artesia Blvd. @ Mackay Ln.	58	6.4%	52	5.6%	110	6.0%
321	329	Artesia Blvd. @ Felton Ln.	25	2.8%	16	1.8%	41	2.3%
322	328	Artesia Blvd. @ Inglewood Ave.	6	0.7%	9	1.0%	16	0.8%
323	327	Artesia Blvd. @ Kingsdale Ave.	46	5.0%	65	7.1%	110	6.0%
324	326	Hawthorne Blvd. @ Artesia Blvd	20	2.2%	29	3.1%	49	2.7%
325	325	Hawthorne Blvd. @ Market Place Drive	8	0.9%	10	1.1%	18	1.0%
326	324	Hawthorne Blvd. @ 182nd St.	28	3.0%	21	2.3%	49	2.7%
327	323	Artesia Blvd. @ Firmona Ave.	21	2.3%	18	2.0%	40	2.2%
328	322	Artesia Blvd. @ Inglewood Ave.	2	0.2%	3	0.3%	5	0.3%
329	321	Artesia Blvd. @ Felton Ln.	21	2.3%	14	1.5%	35	1.9%
331	412	Vail Ave. @ Artesia Blvd.	20	2.2%	12	1.3%	32	1.8%
332	411	Vail Ave. @ Nelson Ave.	7	0.7%	8	0.9%	15	0.8%
333	410	Vail Ave. @ Voorhees Ave.	7	0.7%	9	0.9%	15	0.8%
334	409	Vail Ave. @ Gates Ave.	11	1.2%	4	0.5%	15	0.8%
335	408	Vail Ave. @ Robinson St.	15	1.7%	7	0.7%	22	1.2%
336		Vail Ave. @ May Ave.	1	0.1%	5	0.5%	6	0.3%
337		Vail Ave. @ Pinckard Ave.	1	0.1%	1	0.1%	2	0.1%
	407	Vail Ave. @ Ernest Ave.	11	1.2%	2	0.2%	13	0.7%
	406	Vail Ave. @ Bataan Rd.	7	0.8%	1	0.1%	8	0.4%
338	405	Vail Ave. @ Warfield Ave.	13	1.5%	7	0.8%	21	1.1%
339		Redondo Beach Ave. @ Manhattan Beach Blvd.	4	0.4%	5	0.5%	8	0.5%
340		Redondo Beach Ave. @ Santa Fe Ave.	0	0.0%	0	0.0%	1	0.0%
341	403	Redondo Beach Ave. @ Space Park Drive	6	0.7%	2	0.2%	8	0.4%
	402	Redondo Beach Ave. @ Marine Ave.	3	0.3%	0	0.0%	3	0.2%
401	401	Greenline Station	83	9.1%	114	12.4%	197	10.7%
TOTAL WEIGHTED ACTIVITY			918	100.0%	918	100.0%	1837	100.0%

Over half of the average total boarding and alighting activity on Route 102 was at the stops shown in Table 4 below. The top stop for both boardings and alightings was at the Diamond St @ Pacific Coast Highway stop near Redondo Union High School (RUHS). The stop at Diamond St. @ Helberta, which was one of the top stops for alightings is right across the street from RUHS (note that this stop was in the southbound direction only). The next two largest volume stops for both boardings and alightings were the Redondo Beach Pier and the Redondo Beach Greenline Station. Three stops on busy Artesia Boulevard round out the top volume stops: Artesia Blvd. and Kingsdale Ave. (at the South Bay Galleria); Artesia Blvd. and Mackay Lane; and Artesia Blvd. and Rindge Lane.

Table 4. FY17 Route 102 Top Stops for Average Daily Boardings and Alightings

STOP DESCRIPTION	Weighted Northbound + Southbound					
	Average Daily Boardings	%	Average Daily Alightings	%	Average Daily Total Activity	%
Diamond St. @ PCH	152.6	16.6%	126.5	13.8%	279.2	15.2%
Greenline Station	83.4	9.1%	113.7	12.4%	197.1	10.7%
Redondo Beach Pier	103.8	11.3%	85.1	9.3%	188.9	10.3%
Artesia Blvd. @ Kingsdale Ave.	45.6	5.0%	64.9	7.1%	110.5	6.0%
Diamond St. @ Helberta Ave.**	0.4	0.0%	103.1	11.2%	103.5	5.6%
Artesia Blvd. @ Mackay Ln.	58.4	6.4%	51.8	5.6%	110.2	6.0%
Artesia Blvd. @ Rindge Ln.	32.8	3.6%	27.1	2.9%	59.8	3.3%
Total Percent of Avg Total Activity at Top Stops		51.9%		62.3%		57.1%

There were eight stops that each had less than 0.5% of the average daily boardings and alightings on Route 102 in FY17, as shown in Table 5. With one exception, these stops were all along either Redondo Beach Blvd. near the Greenline Station, or on Vail Avenue. The one exception was at Artesia Blvd. and Inglewood Ave.

Table 5. FY17 Route 102 Stops With Half a Percent or Less of Total Average Daily Boardings and Alightings

STOP DESCRIPTION	Weighted Northbound + Southbound					
	Average Daily Boardings	%	Average Daily Alightings	%	Average Daily Total Activity	%
Redondo Beach Ave. @ Manhattan Beach Blvd.	3.6	0.4%	4.9	0.5%	8.5	0.5%
Vail Ave. @ Bataan Rd.	7.2	0.8%	0.8	0.1%	8.0	0.4%
Redondo Beach Ave. @ Space Park Drive	6.1	0.7%	1.7	0.2%	7.8	0.4%
Vail Ave. @ May Ave.	0.8	0.1%	5.0	0.5%	5.8	0.3%
Artesia Blvd. @ Inglewood Ave.	1.9	0.2%	3.0	0.3%	5.0	0.3%
Redondo Beach Ave. @ Marine Ave.	3.1	0.3%	0.0	0.0%	3.1	0.2%
Vail Ave. @ Pinckard Ave.	0.8	0.1%	1.1	0.1%	1.9	0.1%
Redondo Beach Ave. @ Santa Fe Ave.	0.3	0.0%	0.3	0.0%	0.6	0.0%
Total Percent of Avg Total Activity at Top Stops		2.2%		1.3%		1.8%

Figure 1 presents a graphic representation of the weighted boarding and alightings by stop for Route 102 in FY17.

Route 109

Route 109 runs north from Via Valencia in Redondo Beach Rivera Village to the LAX City Bus Center in El Segundo, roughly following the Pacific Coast Highway north through Hermosa Beach and Manhattan Beach to El Segundo, with a one-way loop around the Manhattan Village Mall and the Greenline Douglas Station. The stop analysis in Table 6 presents the weighted boardings and alightings for 72 paired northbound and southbound stops, five unpaired northbound stops and five unpaired southbound stops.

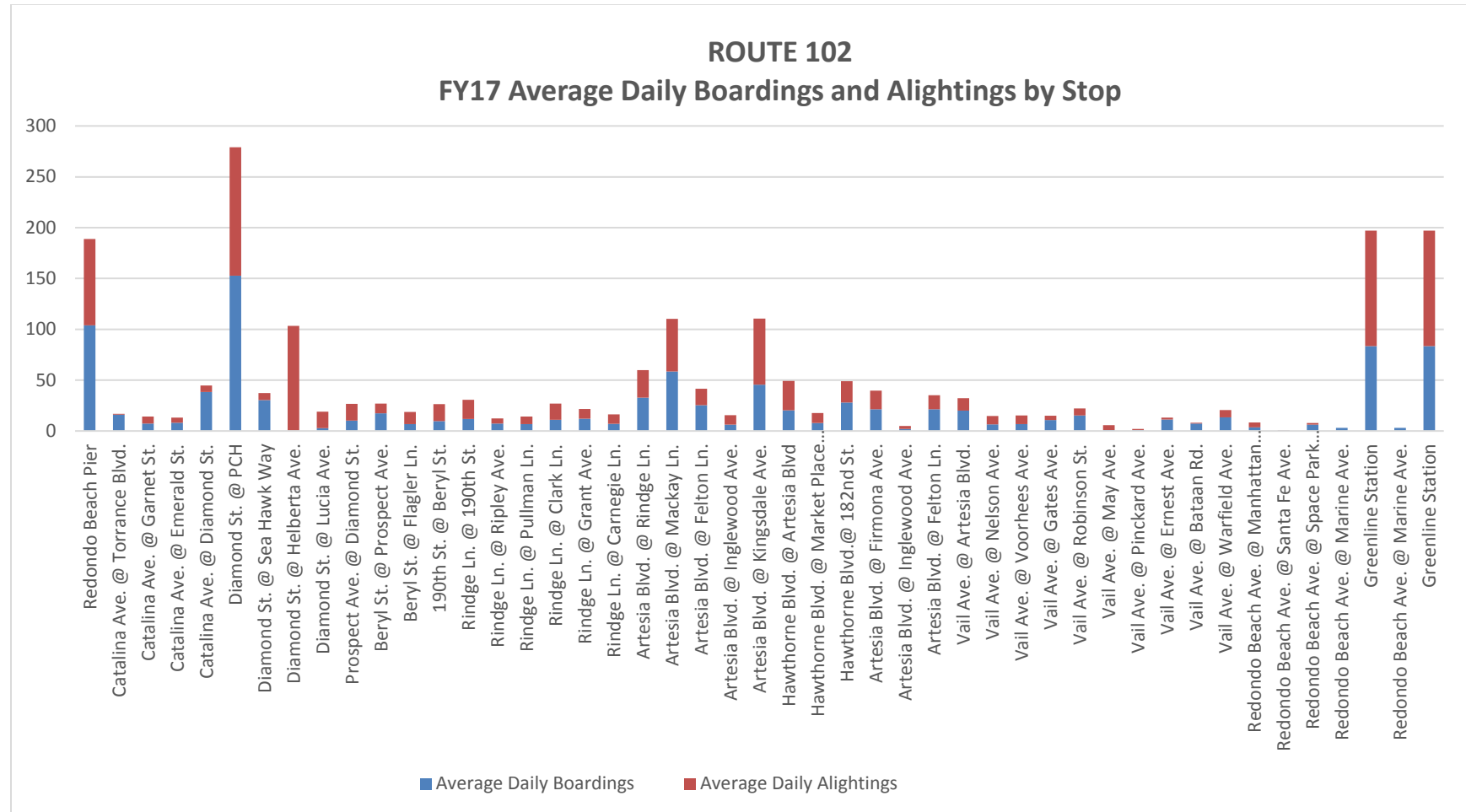


Table 6. FY17 Route 109 Average Daily Boardings and Alightings

STOP ID#		STOP DESCRIPTION	Northbound + Southbound					
NB	SB		Average Daily Boardings	%	Average Daily Alightings	%	Total Activity	%
101	101	Palos Verdes Bl. / Via Valencia	37.6	3.1%	47.7	3.9%	85.4	3.5%
102	267	Catalina Ave. / Elena Ave.	9.0	0.7%	13.9	1.1%	22.9	0.9%
103		Catalina Ave. / Avenue I	11.9	1.0%	0.0	0.0%	11.9	0.5%
104	266	Catalina Ave. / Avenue F	3.6	0.3%	0.9	0.1%	4.6	0.2%
105	265	Catalina Ave. / Avenue C	2.9	0.2%	2.0	0.2%	4.9	0.2%
106	264	Catalina Ave. / Knob Hill Ave.	10.3	0.8%	3.6	0.3%	13.9	0.6%
107	263	Catalina Ave. / Topaz St.	0.5	0.0%	0.8	0.1%	1.3	0.1%
108	262	Catalina Ave. / Sapphire St.	5.6	0.5%	5.4	0.4%	11.0	0.5%
109	261	Catalina Ave. / Pearl St.	2.1	0.2%	4.4	0.4%	6.5	0.3%
302	260	Catalina Ave. / Torrance Blvd.	45.8	3.8%	32.3	2.7%	78.1	3.2%
303	428	Catalina Ave. / Garnet St.	1.5	0.1%	4.6	0.4%	6.0	0.2%
304	427	Catalina Ave. / Emerald St.	2.9	0.2%	1.2	0.1%	4.1	0.2%
305	259	Catalina Ave. / Diamond St.	5.9	0.5%	16.2	1.3%	22.1	0.9%
110	258	Catalina Ave. / Carnelian St.	2.1	0.2%	0.9	0.1%	3.0	0.1%
	257	Catalina Ave. / Beryl St.	1.2	0.1%	2.3	0.2%	3.6	0.1%
111	256	Beryl St. / Harbor Dr.	14.2	1.2%	15.5	1.3%	29.7	1.2%
112		Hermosa Ave. / 2nd St.	2.0	0.2%	2.3	0.2%	4.3	0.2%
	255	Harbor Dr. / Yacht Club Wy.	1.6	0.1%	1.5	0.1%	3.1	0.1%
113	254	Hermosa Ave. / 2nd St.	10.7	0.9%	9.3	0.8%	20.0	0.8%
114	253	Hermosa Ave. / 6th St.	5.8	0.5%	1.6	0.1%	7.4	0.3%
115	252	Hermosa Ave. / 8th St.	2.4	0.2%	4.5	0.4%	6.9	0.3%
116	251	Hermosa Ave. / 10th St.	52.5	4.3%	30.4	2.5%	82.8	3.4%
117	250	Hermosa Ave. / 16th St.	17.1	1.4%	10.1	0.8%	27.2	1.1%
118	249	Hermosa Ave. / 19th St.	3.8	0.3%	2.6	0.2%	6.4	0.3%
119	248	Hermosa Ave. / 22nd St.	5.8	0.5%	5.8	0.5%	11.6	0.5%
120	247	Hermosa Ave. / 26th St.	4.0	0.3%	1.9	0.2%	5.8	0.2%
	246	Manhattan Ave. / 27th St.	1.0	0.1%	2.0	0.2%	3.0	0.1%
121	245	Manhattan Ave. / Longfellow Ave.	3.9	0.3%	2.9	0.2%	6.8	0.3%
122	244	Manhattan Ave. / 1st St.	6.6	0.5%	2.4	0.2%	9.0	0.4%
123	243	Manhattan Ave. / 4th St.	9.8	0.8%	6.3	0.5%	16.1	0.7%
124	242	Manhattan Ave. / 10th St.	30.7	2.5%	24.7	2.0%	55.4	2.3%
125	241	Highland Ave. / Fourteenth St.	55.0	4.5%	67.4	5.5%	122.4	5.0%
126	240	Highland Ave. / 18th St.	4.8	0.4%	3.8	0.3%	8.6	0.4%
127	239	Highland Ave. / Marine Ave.	8.9	0.7%	8.6	0.7%	17.5	0.7%
128	238	Highland Ave. / 26th St.	9.4	0.8%	10.4	0.9%	19.8	0.8%
129	237	Highland Ave. / 30th St.	5.8	0.5%	7.1	0.6%	12.9	0.5%
130	236	Highland Ave. / 33rd St.	9.9	0.8%	25.7	2.1%	35.5	1.5%
131		Highland Ave. / Rosecrans Ave.	9.6	0.8%	2.8	0.2%	12.4	0.5%
132		Rosecrans Ave. / Alma Ave.	13.7	1.1%	0.8	0.1%	14.4	0.6%
133	235	Rosecrans Ave. / Blanche Rd.	7.4	0.6%	7.8	0.6%	15.2	0.6%
134	234	Rosecrans Ave. / Pacific Ave.	6.0	0.5%	5.1	0.4%	11.1	0.5%
135	233	Rosecrans Ave. / Walnut Ave.	2.6	0.2%	2.5	0.2%	5.0	0.2%
136	136	Rosecrans Ave. / Sepulveda Blvd. (Frys)	16.0	1.3%	14.7	1.2%	30.6	1.3%
137	137	Parkview Ave. / Village Dr.	5.9	0.5%	8.3	0.7%	14.3	0.6%
138	138	Apollo / Rosecrans Ave.	1.9	0.2%	8.7	0.7%	10.6	0.4%
139	139	Douglas St. / Park Place	122.2	10.1%	223.2	18.4%	345.4	14.2%
140	140	Rosecrans Ave. / Nash St.	6.6	0.5%	2.7	0.2%	9.3	0.4%
141	141	Rosecrans Ave. / Village Dr.	3.6	0.3%	5.3	0.4%	9.0	0.4%
	232	Rosecrans Ave. / Sepulveda Blvd. (Frys)	8.5	0.7%	1.6	0.1%	10.2	0.4%
142	231	Park Place / Plaza El Segundo	10.8	0.9%	11.0	0.9%	21.8	0.9%
143	230	Sepulveda Blvd. / El Segundo Blvd.	10.6	0.9%	4.0	0.3%	14.6	0.6%
144	229	Grand Ave. / Sepulveda Blvd.	13.8	1.1%	15.8	1.3%	29.7	1.2%

Table 6. FY17 Route 109 Average Daily Boardings and Alightings (Continued)

STOP ID#		STOP DESCRIPTION	Northbound + Southbound					
NB	SB		Average Daily Boardings	%	Average Daily Alightings	%	Total Activity	%
145	228	Grand Ave. / Kansas St.	2.9	0.2%	3.6	0.3%	6.5	0.3%
146	227	Grand Ave. / Center St.	0.7	0.1%	6.9	0.6%	7.6	0.3%
147	226	Grand Ave. / Lomita St.	10.8	0.9%	7.0	0.6%	17.8	0.7%
148	225	Grand Ave. / Sheldon St.	5.9	0.5%	6.0	0.5%	11.9	0.5%
149	224	Grand Ave. / Eucalyptus Dr.	7.3	0.6%	15.0	1.2%	22.3	0.9%
	223	Grand Ave. / Main St.	7.1	0.6%	11.7	1.0%	18.9	0.8%
150	222	Main St. / Holly Ave.	51.6	4.2%	42.7	3.5%	94.2	3.9%
151	221	Main St. / Mariposa.	14.4	1.2%	12.7	1.0%	27.1	1.1%
152	220	Main St. / Oak Ave.	4.9	0.4%	4.2	0.3%	9.1	0.4%
153	219	Main St. / Walnut Ave.	3.0	0.2%	4.7	0.4%	7.7	0.3%
154	218	Main St. / Imperial Ave.	17.6	1.5%	26.8	2.2%	44.4	1.8%
155	217	Imperial Ave. / Eucalyptus Dr.	5.2	0.4%	9.9	0.8%	15.0	0.6%
156	216	Imperial Ave. / Sheldon St.	4.5	0.4%	6.4	0.5%	10.9	0.4%
157	215	Imperial Ave. / McCarthy Ct.	12.2	1.0%	79.5	6.5%	91.7	3.8%
158	214	Imperial Ave. / Center St.	8.1	0.7%	5.6	0.5%	13.7	0.6%
159	213	California St. / Imperial Ave.	13.4	1.1%	8.0	0.7%	21.4	0.9%
160		Imperial Hwy. / California St.	6.1	0.5%	0.7	0.1%	6.8	0.3%
161	212	Imperial Hwy. / Sepulveda Blvd.	11.3	0.9%	9.7	0.8%	21.0	0.9%
162	211	Imperial Hwy. / Hughes Wy.	1.4	0.1%	0.7	0.1%	2.1	0.1%
163	210	Imperial Hwy. / Nash St.	4.0	0.3%	3.0	0.2%	7.0	0.3%
164	209	Imperial Hwy. / Douglas St.	3.6	0.3%	3.4	0.3%	7.0	0.3%
165	165	Aviation Station / Bus Bay 3	195.3	16.1%	166.7	13.7%	361.9	14.9%
166	208	Airport Blvd. / Century Blvd.	0.7	0.1%	1.9	0.2%	2.6	0.1%
167	207	Aviation Blvd. / 111th St.	4.3	0.4%	0.7	0.1%	5.0	0.2%
168	206	Aviation Blvd. / 104th St.	0.9	0.1%	0.5	0.0%	1.4	0.1%
169	205	Century Blvd. / Aviation Blvd.	14.6	1.2%	7.6	0.6%	22.2	0.9%
170	204	Century Blvd. / International Rd.	12.1	1.0%	5.7	0.5%	17.8	0.7%
171	203	Airport Blvd. / Century Blvd.	17.2	1.4%	3.1	0.3%	20.2	0.8%
172	202	96th St. / Airport Blvd.	15.6	1.3%	7.8	0.6%	23.4	1.0%
201	201	LAX Transit Center / Bus Bay 6	110.5	9.1%	55.4	4.6%	166.0	6.8%
TOTAL WEIGHTED ACTIVITY			1214.9	100.0%	1214.9	100.0%	2430	100.0%

Roughly half of the Route 109 ridership (55.5%) was due to the average daily rider activity (boardings plus alightings) at the eight stops shown in Table 7. The largest volume of both boardings and alightings were near the two Greenline Stations at Aviation and at Douglas Street. The next largest stops for boardings were the LAX Transit Center, followed by Highland and Fourteenth Street in downtown Manhattan Beach and Hermosa Ave, at Tenth Street in Hermosa Beach. For alightings, the next largest stops were Imperial Ave. and McCarthy Street in El Segundo, followed by Highland and Fourteenth Street and then the LAX Transit Center.

Table 7. FY17 Route 109 Top Stops for Average Daily Boardings and Alightings

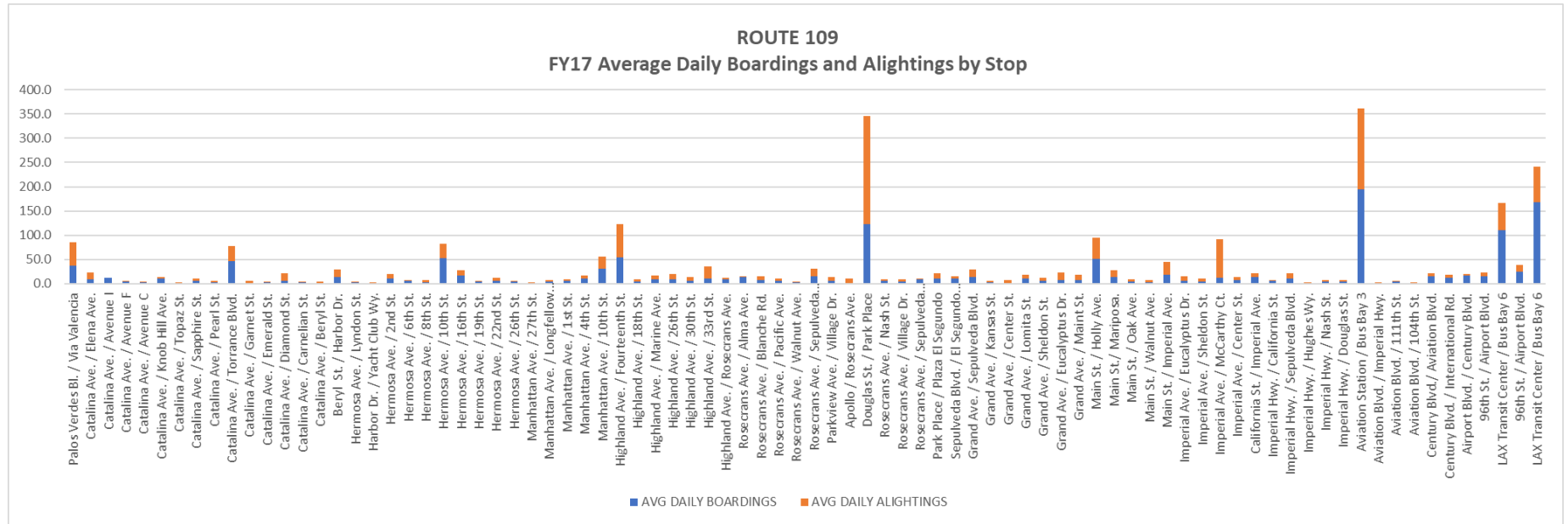
STOP DESCRIPTION	109 Weighted Northbound + Southbound					
	Average Daily Boardings	%	Average Daily Alightings	%	Average Daily Total Activity	%
Aviation Station / Bus Bay 3	195.3	16.1%	166.7	13.7%	361.9	14.9%
Douglas St. / Park Place	122.2	10.1%	223.2	18.4%	345.4	14.2%
LAX Transit Center / Bus Bay 6	110.5	9.1%	55.4	4.6%	166.0	6.8%
Highland Ave. / Fourteenth St.	55.0	4.5%	67.4	5.5%	122.4	5.0%
Main St. / Holly Ave.	51.6	4.2%	42.7	3.5%	94.2	3.9%
Imperial Ave. / McCarthy Ct.	12.2	1.0%	79.5	6.5%	91.7	3.8%
Palos Verdes Bl. / Via Valencia	37.6	3.1%	47.7	3.9%	85.4	3.5%
Hermosa Ave. / 10th St.	52.5	4.3%	30.4	2.5%	82.8	3.4%
Total Percent of Avg Total Activity at Top Stops		52.4%		58.7%		55.5%

Given that Route 109 is a longer route with more stops, it is not surprising that it has more stops with little activity than Route 102. Table 8 lists the 16 stops that had less than 0.2% of average daily ridership activity on Route 109 for FY17. Only three of these stops were unpaired stops, as shown by asterisks next to the stop name. Seven of these low volume stops were along Catalina Avenue in Redondo Beach.

Table 8. FY17 Route 109 Stops with Two-Tenths a Percent or Less of Total Average Daily Boardings and Alightings

STOP DESCRIPTION	109 Weighted Northbound + Southbound					
	Average Daily Boardings	%	Average Daily Alightings	%	Average Daily Total Activity	%
Catalina Ave. / Garnet St.	1.5	0.1%	4.6	0.4%	6.0	0.2%
Hermosa Ave. / 26th St.	4.0	0.3%	1.9	0.2%	5.8	0.2%
Aviation Blvd. / 111th St.	4.3	0.4%	0.7	0.1%	5.0	0.2%
Rosecrans Ave. / Walnut Ave.	2.6	0.2%	2.5	0.2%	5.0	0.2%
Catalina Ave. / Avenue C	2.9	0.2%	2.0	0.2%	4.9	0.2%
Catalina Ave. / Avenue F	3.6	0.3%	0.9	0.1%	4.6	0.2%
Hermosa Ave. / 2nd St.*	2.0	0.2%	2.3	0.2%	4.3	0.2%
Catalina Ave. / Emerald St.	2.9	0.2%	1.2	0.1%	4.1	0.2%
Catalina Ave. / Beryl St.*	1.2	0.1%	2.3	0.2%	3.6	0.1%
Harbor Dr. / Yacht Club Wy.*	1.6	0.1%	1.5	0.1%	3.1	0.1%
Catalina Ave. / Carnelian St.	2.1	0.2%	0.9	0.1%	3.0	0.1%
Manhattan Ave. / 27th St.*	1.0	0.1%	2.0	0.2%	3.0	0.1%
Airport Blvd. / Century Blvd.	0.7	0.1%	1.9	0.2%	2.6	0.1%
Imperial Hwy. / Hughes Wy.	1.4	0.1%	0.7	0.1%	2.1	0.1%
Aviation Blvd. / 104th St.	0.9	0.1%	0.5	0.0%	1.4	0.1%
Catalina Ave. / Topaz St.	0.5	0.0%	0.8	0.1%	1.3	0.1%
Total Percent of Avg Total Activity at Lowest Volume Stops		2.7%		2.2%		2.5%

Figure 2 presents a graphic representation of the average daily weighted boardings and alightings by stop for Route 109.



Ridership by Time Periods

Ridership was reviewed by time periods (peak and off-peak) during weekdays, Saturdays and Sundays by Route and by route direction. Peak was defined as sampled trips with run start times before 9:00 am or between 3:59 pm and 7:00 pm. Off-peak was defined as sampled trips with run start times between 9:00 am and 4:00 pm, and after 6:59 pm.

Table 9 presents the weighted annual ridership by route, by time periods. Both routes carry the most riders northbound in the weekday off-peak, between 9 am and 4 pm. The largest portion of the remaining ridership was southbound on both routes during the weekday peak before 9 am. The lowest ridership was on Route 102 in the off-peak time after 7 pm, only 1.9% of all Route 102 riders and 0.9% of all system riders. Systemwide, Route 102 also had lower ridership on Sundays (2.2% of the system total).

Table 9. Weighted Annual Ridership by Time Periods for Weekdays, Saturdays and Sundays

By Route	Weekdays							Saturday	Sunday	Total
	Peak			Off-Peak			Weekday Total			
	Before 9 am	4 pm -7 pm	Peak Total	9 am - 4 pm	After 7 pm	Off-Peak Total				
Route 102										
Southbound Riders	46937	6423	53360	16446	1270	17716	71077	2982	2635	76693
Northbound Riders	7482	15528	23010	67900	2188	70088	93098	8023	1395	102517
Total	54419	21951	76370	84346	3459	87805	164175	11005	4030	179210
Percent	30.4%	12.2%	42.6%	47.1%	1.9%	49.0%	91.6%	6.1%	2.2%	100%
Route 109										
Southbound Riders	30879	13506	44385	23323	4224	27547	71933	12574	7793	92299
Northbound Riders	17790	13982	31772	49680	4938	54619	86390	5364	6014	97769
Total	48669	27488	76157	73004	9163	82166	158323	17938	13807	190068
Percent	25.6%	14.5%	40.1%	38.4%	4.8%	43.2%	83.3%	9.4%	7.3%	100%
System Total										
Total	103088	49439	152527	157350	12621	169971	322498	28943	17837	369278
Percent	27.9%	13.4%	41.3%	42.6%	3.4%	46.0%	87.3%	7.8%	4.8%	100.0%

Source Files and Raw Data

The source file for the tables and graphs in this report are in the file embedded below. The raw data files will be emailed separately.



FY17 Stop Analyses -
Tables Source Filesv2.

Please do not hesitate to contact me at 310-828-3649 or email me at cstecher@earthlink.net should you have questions about this report.

Cordially,

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President