



Executive Summary – 2nd Quarter FY 16 (October – December 2015)

Situation

Blacksburg Transit has continued to see an unprecedented shortage of bus operators, as a result the frequency has been decreased on the majority of routes in an attempt to provide a continuous level of service to customers. In addition to the major staffing shortage, two other issues have compounded matters: multiple construction projects on and off campus and a greater increase in student enrollment than originally anticipated.

The combination of these three factors has led to an increased demand for bus service that is being pushed to the upper limits. Efforts are being made to increase the number of operators employed by BT, however as in any large organization attrition is impeding efforts.

Ridership Changes

- Ridership for the 2nd quarter was down by 5.68 percent (approx. 63,000 passenger trips).
- Additional factors affecting ridership:
 - Q2 Service Days: There were 68 full service days in FY 15, compared to only 61 full service days and six Full Service Alternate days in FY 16.
 - New this year, BT offered the full Service Alternate service level for Exam Week in December. This service level provided the same hours of operation as full service, but at lower frequency than normal weekday service.
 - Average Q2 Weekday productivity has increased from 3.59 in FY 15 to 4.11 in FY 16.
- Multiple service changes were implemented at the beginning of the Fall semester, resulting in a learning curve in terms of passengers using the service. Service continuity was established on 10/5; since 10/5 no further changes have been made.

Revenue Hours

- When compared to the same time frame in FY 15, 2,631 fewer revenue hours were used, in part due to the challenges BT faced recruiting and retaining operators.
- As a result of decreased frequency, the buses in operation were much busier resulting in a 6.67 percent increase in passengers per revenue hour in the 2nd quarter.
 - Passengers per revenue hour increased from 49.09 in FY 15 to 52.37 in FY 16.

Service Changes

Several changes were implemented in August, in conjunction with the beginning of the Fall semester. Route changes included increased frequency on routes to better service passengers; these changes followed similar changes made in FY 15 in an effort to reduce the number of full buses taking place. Unfortunately due to the three reasons listed under the section “Situation” a series of five changes were implemented over the first seven weeks of full service. The final service change was implemented on 10/5, creating stability and consistency for passengers.

FY 16 changes, implemented with the beginning of Fall semester:

- **CRC** – route was expanded to include service to Blacksburg Transit facility. As a result frequency changed to every 20 minutes.

- **Main Street North and South** – frequency was increased to every 15 minutes, Monday through Friday until 12:30 p.m., changing back to 20 minute frequency after this time.
- **Patrick Henry** – the on campus time check was moved to Squires West as a result of the Drillfield changes.
- **Progress Street** – the on campus time check was moved to Squires East as a result of the Drillfield changes.
- **Toms Creek B** – as a result of the construction on UCB the Toms Creek B route was added year round, replacing the former Toms Creek route.
- **Two Town Trolley** – Additional service hours were added from 7:15 – 10:15 a.m., Monday through Friday.
- **University Mall Shuttle** – as a result of the construction on UCB the University Mall Shuttle was expanded to provide year-round service. The on campus time check was moved to Burruss Hall.
- **University City Boulevard** – route was suspended until completion of the construction on UCB.
- **Full Service Alternate** – A new service level was introduced that could be used on days when reduced service was inadequate but full service was too much. Examples of FSA are Exam week and Labor Day.
- **Summer Service** - Hours of operation during Reduced service were changed to match Summer service, eliminating the need for a separate service level.

1st Change to Service – Effective 8/31

- Reduced the number of buses required to operate during evening hours, by combining routes at 6:45 p.m., Monday through Saturday (HWA and HWB). Additional reductions were seen at 9:45 p.m., also M-Sa (HWD & HDG, UMS & TCB).
- Reductions to frequency on all routes begin at 3:30 p.m. on Fridays.

2nd Change to service – Effective 9/7

- Reduced the number of buses required to operate during afternoon hours, by combining HWA & B at 12:30 p.m.
- Reduce the number of buses on the Patrick Henry route, provide additional service by the Main Street route.
- Reassign some of the buses above to provide increased frequency to TCB and UMS.

3rd Change to service – Effective 9/17

- Reduce the number of buses required at 3:30 p.m., M – F.

4th Change to service – Effective 9/26

- Due to heavy ridership demand, the HWA and B routes were once again combined, operating on 15 minute frequency.
- TCB switch to 15 min frequency at 12:30 p.m.
- Main Street no longer servicing Seneca Circle during daytime; PH returns to 15 minute frequency in afternoons.

5th Change to service – Effective 10/5

- UCB route was added to service, operating Mon through Friday until early evening.
- Friday: All routes switch to 30 minute frequency at 5:45 p.m.
- Full and Reduced Weekends: UMS and TCB routes will each operate hourly.

Full Buses

In FY 15, Blacksburg Transit made a concerted effort to reduce the number of full buses; this effort relied on building additional buses into the schedule during peak times on specific high ridership routes. Unfortunately due to the challenges already mentioned this effort was not possible during FY 16. As a result increased numbers of full buses were seen during the fall semester.

	FY 15	FY 16
October	88	116
November	50	51
December	26	13

Note: The data contained in this report is unaudited. Charts displaying ridership per hour, by route can be found online at www.blacksburg.gov/BTReports.

FAQs about these reports

These are questions that came up at BT; please forward any other questions to twitten@blacksburg.gov.

How are the Efficiencies calculated? BT uses passengers per Revenue hour for our graphs, allowing you to compare numbers across routes.

Why are the scales of the efficiency graphs not all the same? To provide the easiest graphs to read and compare the break service graphs are scaled to 70 passengers per hour, the regular service graphs are scaled to 160, with the exception of Tom's Creek.

Why do I see such a range ridership growth in some month to month comparisons? August, December, January and May all have a different number of Enhanced and regular service days depending on the VT calendar. If there are more Regular service days, a decrease in ridership may be seen. If there are more Enhanced service days, an increase in ridership may be seen.

What is a Revenue Hour? A revenue hour is defined by the Federal Transit Administration (FTA), a simple definition would be the time out of a day that a bus is available to carry passengers. Time spent getting to the beginning of a route, break times, returning to the garage are not included. For example: If three vehicles operated on the TC from 3 p.m. until 4 p.m., this is actually 3 revenue hours, so the passenger per revenue hour is actually an average per vehicle. Due to tripper usage, some vehicles do not operate for the full hour.

Why do the times go from 7AM till 3AM? Most of the time 3AM goes before 7AM, but on the graphs you will note the times go from 6AM till 3AM; we collect data based on the day service starts not the calendar day. For example the April 29, 2011 service day will start at 7AM and continue till 3AM.

Why do the highest efficiencies occur in the evenings on Friday and Saturday? BT calls this the "Backpack Factor". Simply put, you can fit a lot more passengers heading out for the evening on a bus at 9PM, when no one has a backpack, than you can fit on a bus at 9AM headed to class at VT.

Why doesn't the Hokie Express route carry anyone during the middle of the day on the weekends? This route runs in the morning and evening, it does not run for part of the day.

What is the breakdown of Full service to Reduced service for this reporting period? 61 Full service days, 23 Reduced service days, 2 scheduled Non-service day and 6 Full Service - Alternate days.

Were there any anomalies in the service? Several service changes were made throughout the first six weeks of the semester, with the last change being implemented on 10/5. Details can be found in the Executive Summary.

What are Full Buses? When a bus is full it can no longer pick up passengers, therefore the bus will *pass by* any future stops. The number of Full Buses refers to the number of instances this occurs; this is *not* the number of people passed by, or the number of stops passed by after the occurrence.

What does Blacksburg Fixed Route mean? Blacksburg Fixed route refers to ridership numbers on the actual bus routes (fixed) in Blacksburg. These numbers include all ridership totals associated with Athletics and Specials; they do **not** include BT Access or Christiansburg ridership information.

Total Passengers per Month Blacksburg Fixed Route Service ONLY



* **Note:** August, December, January and May ridership numbers fluctuate based on the number of Full and Reduced service days.

**Total Blacksburg Fixed Route Passengers per Fiscal Year
and Percentage Increase by Fiscal Year**
(July 1 through June 30)

Total Passengers					
		FY 13	FY 14	FY 15	FY 16
1st Quarter	July	77,367	85,463	76,009	76,299
	Aug *	188,585	200,501	204,909	220,078
	Sept	480,481	520,905	541,589	504,050
2nd Quarter	Oct	477,550	514,598	500,985	471,019
	Nov	362,267	365,095	343,000	347,277
	Dec *	253,569	270,381	271,105	233,409
3rd Quarter	Jan *	202,879	218,344	241,646	
	Feb	422,954	394,720	440,317	
	March	322,347	347,386	361,493	
4th Quarter	April	424,330	453,872	453,648	
	May *	204,188	195,421	180,103	
	June	65,683	68,679	64,084	

Percentage Increases				
		FY 13 - FY 14	FY 14 - FY 15	FY 15 - FY 16
1st Quarter	July	10.46%	-11.06%	0.38%
	Aug *	6.32%	2.20%	7.40%
	Sept	8.41%	3.97%	-6.93%
2nd Quarter	Oct	7.76%	-2.65%	-5.98%
	Nov	0.78%	-6.05%	1.25%
	Dec *	6.63%	0.27%	-13.90%
3rd Quarter	Jan *	7.62%	10.67%	-100.00%
	Feb	-6.68%	11.55%	-100.00%
	March	7.77%	4.06%	-100.00%
4th Quarter	April	6.96%	-0.05%	-100.00%
	May *	-4.29%	-7.84%	-100.00%
	June	4.56%	-6.69%	-100.00%

Total Passengers				
	FY 13	FY 14	FY 15	FY 16
1st Quarter	746,433	806,869	822,507	800,427
2nd Quarter	1,093,386	1,150,074	1,115,090	1,051,705
3rd Quarter	948,180	960,450	1,043,456	0
4th Quarter	694,201	717,972	697,835	0

Percentage Increases			
	FY 13 - FY 14	FY 14 - FY 15	FY 15 - FY 16
1st Quarter	8.10%	1.94%	-2.68%
2nd Quarter	5.18%	-3.04%	-5.68%
3rd Quarter	1.29%	8.64%	-100.00%
4th Quarter	3.42%	-2.80%	-100.00%

Total Passengers (YTD Comparison)				
	FY 13	FY 14	FY 15	FY 16
Total Passengers	1,839,819	1,956,943	1,937,597	1,852,132

Percentage Increases (YTD Comparison)			
	FY 13 - FY 14	FY 14 - FY 15	FY 15 - FY 16
Total Percentage	6.37%	-0.99%	-4.41%

* **Note:** August, December, January and May ridership numbers fluctuate based on the number of Full and Reduced service days.

Ridership is down by 5.68 percent or 63,385 passenger trips in the 2nd Quarter.

Blacksburg Fixed Route Revenue Hours per Fiscal Year and Passengers per Revenue Hour by Fiscal Year (July 1 through June 30)

Revenue Hours by Month

		FY 15	FY 16	Percentage Change
1st Quarter	July	2637.08	3096.51	17.42%
	Aug *	5513.92	5279.99	-4.24%
	Sept	9665.30	7930.90	-17.94%
2nd Quarter	Oct	9093.66	7927.78	-12.82%
	Nov	7113.33	6450.55	-9.32%
	Dec *	6506.46	5703.94	-12.33%
3rd Quarter	Jan *	5140.37		-100.00%
	Feb	7794.44		-100.00%
	March	7264.55		-100.00%
4th Quarter	April	8651.01		-100.00%
	May *	4872.68		-100.00%
	June	2390.83		-100.00%

Passengers per Revenue Hour by Month

		FY 15	FY 15	Percentage Change
1st Quarter	July	28.82	24.64	-14.51%
	Aug *	37.16	41.68	12.16%
	Sept	56.03	63.56	13.42%
2nd Quarter	Oct	55.09	59.41	7.85%
	Nov	48.22	53.84	11.65%
	Dec *	41.67	40.92	-1.79%
3rd Quarter	Jan *	47.01	#DIV/0!	#DIV/0!
	Feb	56.49	#DIV/0!	#DIV/0!
	March	49.76	#DIV/0!	#DIV/0!
4th Quarter	April	52.44	#DIV/0!	#DIV/0!
	May *	36.96	#DIV/0!	#DIV/0!
	June	26.80	#DIV/0!	#DIV/0!

Revenue Hours by Quarter

	FY 15	FY 16	Percentage Change
1st Quarter	17,816.30	16,307.40	-8.47%
2nd Quarter	22,713.45	20,082.27	-11.58%
3rd Quarter	20,199.36	0.00	-100.00%
4th Quarter	15,914.52	0.00	-100.00%

Passengers per Revenue Hour by Quarter

	FY 15	FY 15	Percentage Change
1st Quarter	46.17	49.08	6.32%
2nd Quarter	49.09	52.37	6.67%
3rd Quarter	51.66	#DIV/0!	#DIV/0!
4th Quarter	43.85	#DIV/0!	#DIV/0!

Revenue Hours by Fiscal Year

	FY 15	FY 16	Percentage Change
Total Rev Hours	40,529.75	36,389.67	-10.21%

Passengers per Revenue Hour by Fiscal Year

	FY 15	FY 15	Percentage Change
Total Pass per Rev Hr	47.81	50.90	6.46%

Revenue Hours for the 2nd quarter are down
by **11.58 percent, or by 2,631.18 hours.**
The Passengers per revenue hour **increased by 6.67 percent.**

A positive percentage change indicates an increase in the
number of passengers carried per revenue hour. Conversely a
negative percentage change indicates a decrease in the
number of passengers carried per revenue hour.

*** Note:** August, December, January and May revenue hours fluctuate based on the number of Full and Reduced service days.

FY 16 Q2 Productivity Reports

FY 16 Q2 Passengers per Revenue Hour

	Full Service Passengers per Revenue Hour	Full Service Alternate Passengers per Revenue Hour	Reduced Service Passengers per Revenue Hour
Monday	21.53	24.84	4.90
Tuesday	22.61	18.90	4.85
Wednesday	22.81	19.19	3.90
Thursday	20.77	17.49	2.39
Friday	18.90	25.41	8.13

FY 16 Q2 Passengers per Revenue Mile

	Revenue Miles	Passengers	Passengers per Revenue Mile
October	76,092	471,019	6.19
November	62,034	347,277	5.60
December	55,726	233,409	4.19

FY 16 Q2 Full Service Productivity by Day of Week

	Passengers	Number of Trips	Weekday Productivity
Monday	170,590	41,191	4.14
Tuesday	168,954	40,319	4.19
Wednesday	176,359	41,197	4.28
Thursday	170,838	41,555	4.11
Friday	136,254	35,895	3.80
Total	822,995	200,157	4.11

FY16 Q2 Full Service Alternate Productivity by Day of Week

	Passengers	Number of Trips	Weekday Productivity
Monday	12,652	3,741	3.38
Tuesday	10,414	3,806	2.74
Wednesday	10,325	3,765	2.74
Thursday	18,460	6,697	2.76
Friday	11,122	3,407	3.26
Total	62,973	21,416	2.94

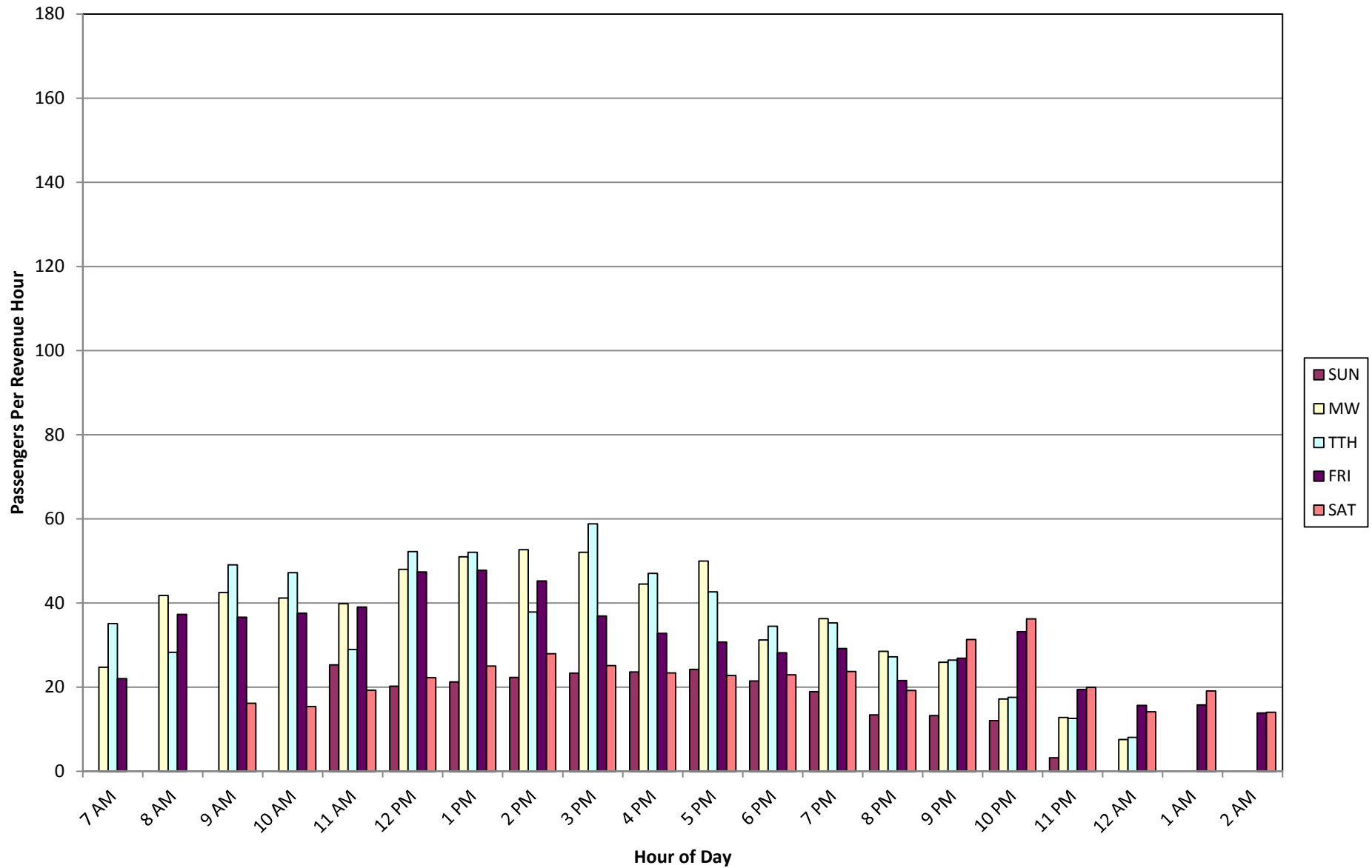
FY16 Q2 Reduced Service Productivity by Day of Week

	Passengers	Number of Trips	Weekday Productivity
Monday	4,638	2,925	1.59
Tuesday	4,602	2,836	1.62
Wednesday	3,743	2,470	1.52
Thursday	1,361	1,015	1.34
Friday	7,852	3,729	2.11
Total	22,196	12,975	1.71

Passengers Per Revenue Hour by Hour of Day

2nd Quarter FY 16

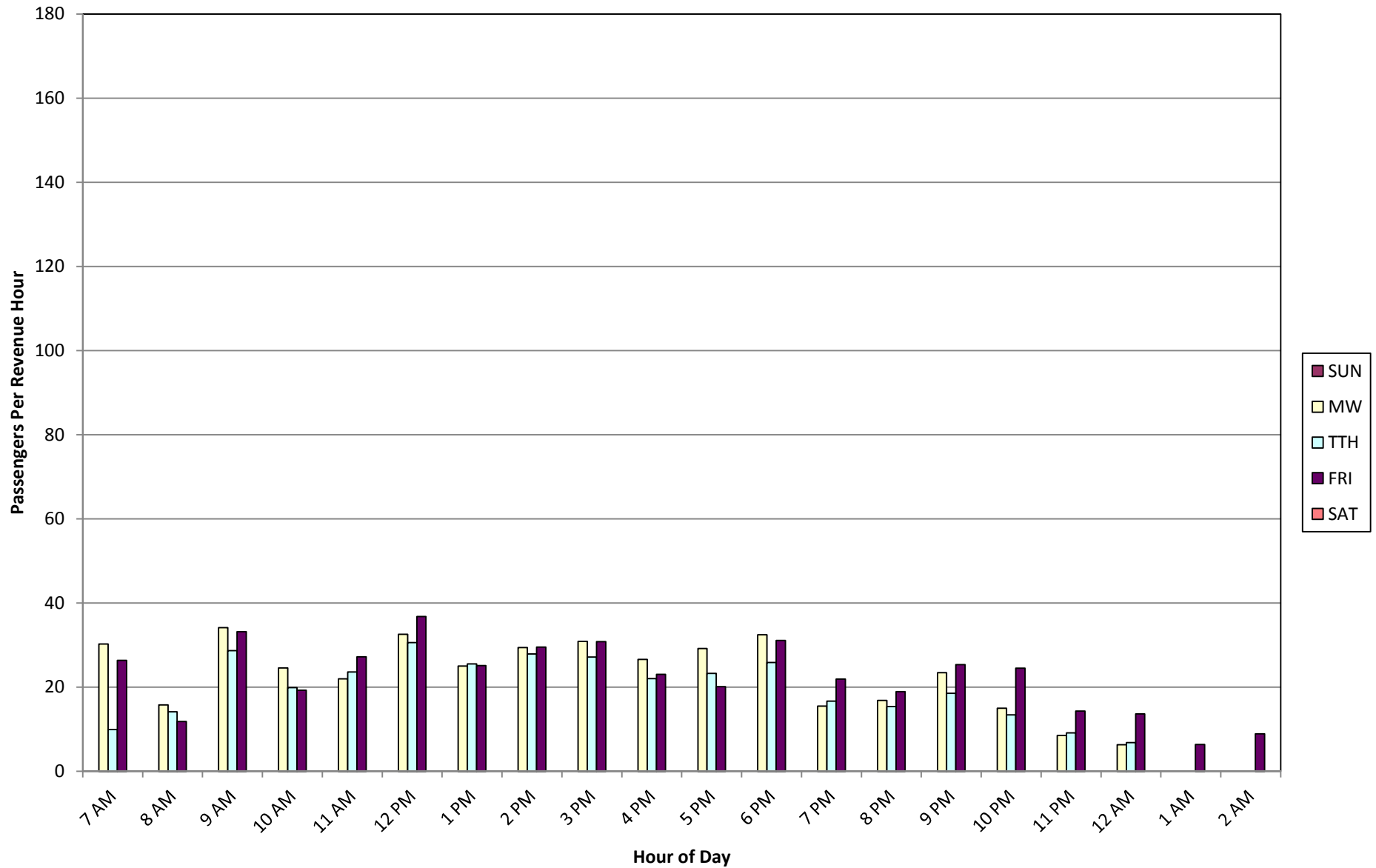
Full Service: System



Passengers Per Revenue Hour by Hour of Day

2nd Quarter FY 16

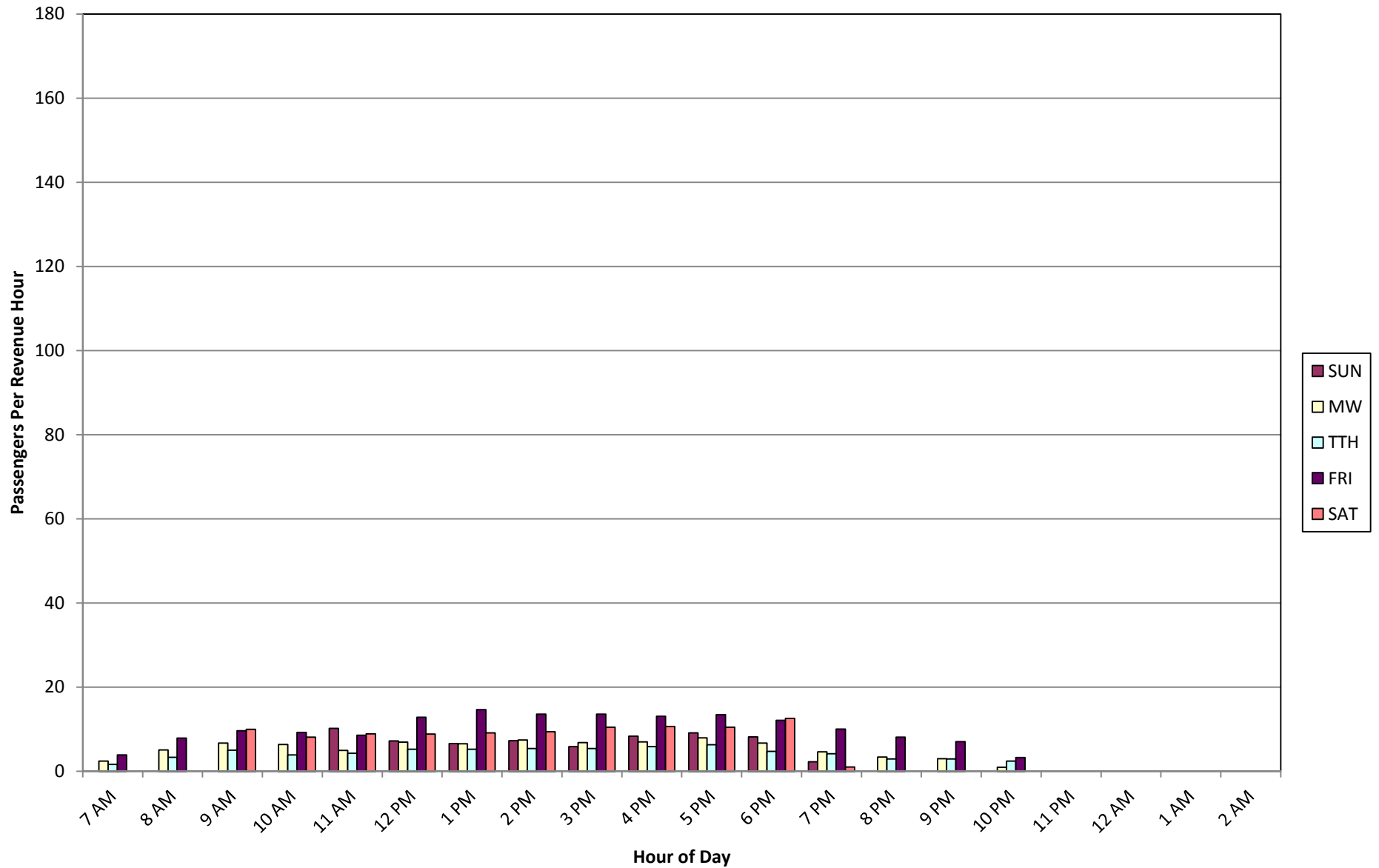
Full Alternate Service: System



Passengers Per Revenue Hour by Hour of Day

2nd Quarter FY 16

Reduced Service: System



**Top 20 Boardings & Alightings by Month
FY 16 - 2nd Quarter**

Oct-15

Stop Name	Total Boardings	Stop Name	Total Alighting
Burruss Hall	53,894	Squires Wbnd	32,674
Squires Ebnd	36,283	McBryde Hall	23,870
Squires Wbnd	17,274	Old Turner/Stanger Wbnd	18,401
University Mall Main Entrance	16,784	Burruss Hall	17,905
Newman Library	16,540	Newman Library	16,191
Torgersen Hall	13,143	University Mall Main Entrance	13,617
The Village on Patrick Henry Wbnd	13,141	Squires Ebnd	11,392
Progress/Hunt Club Sbnd	9,496	The Village on Patrick Henry Wbnd	11,082
Tall Oaks/Foxhunt Ebnd	7,424	Toms Creek/Hunt Club Nbnd	10,377
Toms Creek/Hunt Club Sbnd	6,547	Tall Oaks/Foxtrail Sbnd	8,497
McBryde Hall	6,525	Torgersen Hall	7,808
Patrick Henry/Toms Creek Wbnd	6,330	Cassell Coliseum	7,645
Tall Oaks/Copper Croft Nbnd	5,963	Litton Reaves Hall	7,601
Heather/Tall Oaks Nbnd	5,894	Patrick Henry/Seneca Wbnd	7,454
Davidson Hall	5,804	Heather/Tall Oaks Sbnd	6,480
Main/Red Maple Nbnd	5,639	Tall Oaks/Foxhunt Ebnd	5,210
Old Security Bldg	5,542	Wright House	5,155
Patrick Henry/Seneca Wbnd	5,462	Progress/University Terr Nbnd	5,048
Old Turner/Stanger Wbnd	5,218	Main/Red Maple Nbnd	4,554
Cassell Coliseum	5,064	Main/Collegiate Ct Sbnd	3,908

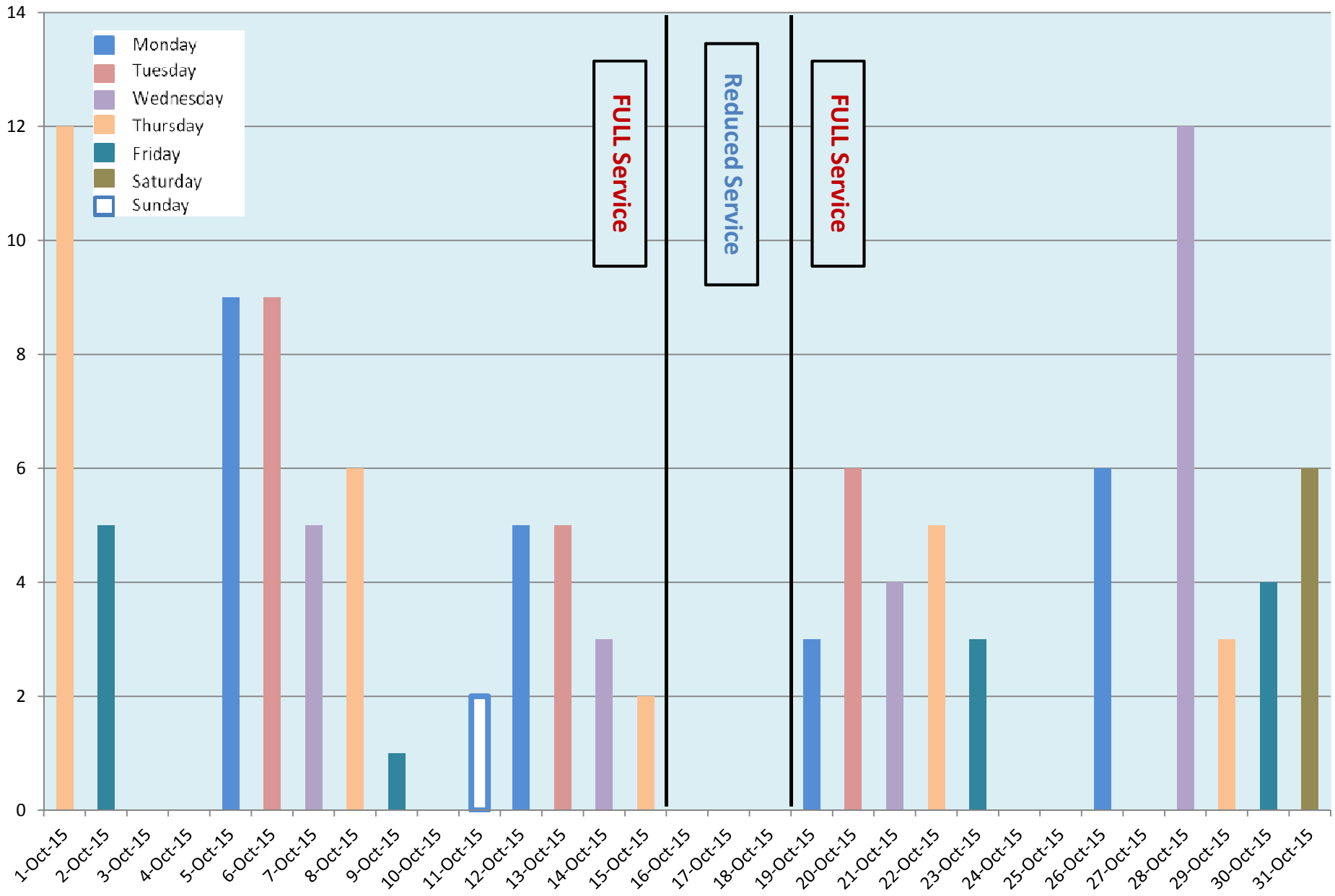
Nov-15

Stop Name	Total Boardings	Stop Name	Total Alighting
Burruss Hall	40,563	Old Turner/Stanger Wbnd	29,088
Squires Ebnd	27,949	Squires Wbnd	23,281
Newman Library	12,554	Burruss Hall	14,157
University Mall Main Entrance	12,423	Newman Library	12,896
Squires Wbnd	12,097	University Mall Main Entrance	9,347
The Village on Patrick Henry Wbnd	8,531	Squires Ebnd	8,337
Torgersen Hall	8,121	The Village on Patrick Henry Wbnd	7,691
Progress/Hunt Club Sbnd	7,692	Toms Creek/Hunt Club Nbnd	7,622
Old Turner/Stanger Wbnd	7,566	Litton Reaves Hall	6,433
Tall Oaks/Foxhunt Ebnd	4,718	Patrick Henry/Seneca Wbnd	5,024
Davidson Hall	4,549	Torgersen Hall	4,876
Toms Creek/Hunt Club Sbnd	4,374	Wright House	4,812
Patrick Henry/Toms Creek Wbnd	4,307	Tall Oaks/Foxtrail Sbnd	4,655
Main/Red Maple Nbnd	4,243	Cassell Coliseum	4,344
Heather/Tall Oaks Nbnd	4,183	Progress/University Terr Nbnd	3,742
Tall Oaks/Copper Croft Nbnd	3,848	Heather/Tall Oaks Sbnd	3,605
Old Security Bldg	3,761	Main/Red Maple Nbnd	3,434
Patrick Henry/Seneca Wbnd	3,678	University Mall Nbnd	3,157
Litton Reaves Hall	3,014	Tall Oaks/Foxhunt Ebnd	2,921
Pheasant Run	2,973	Main/Collegiate Ct Sbnd	2,811

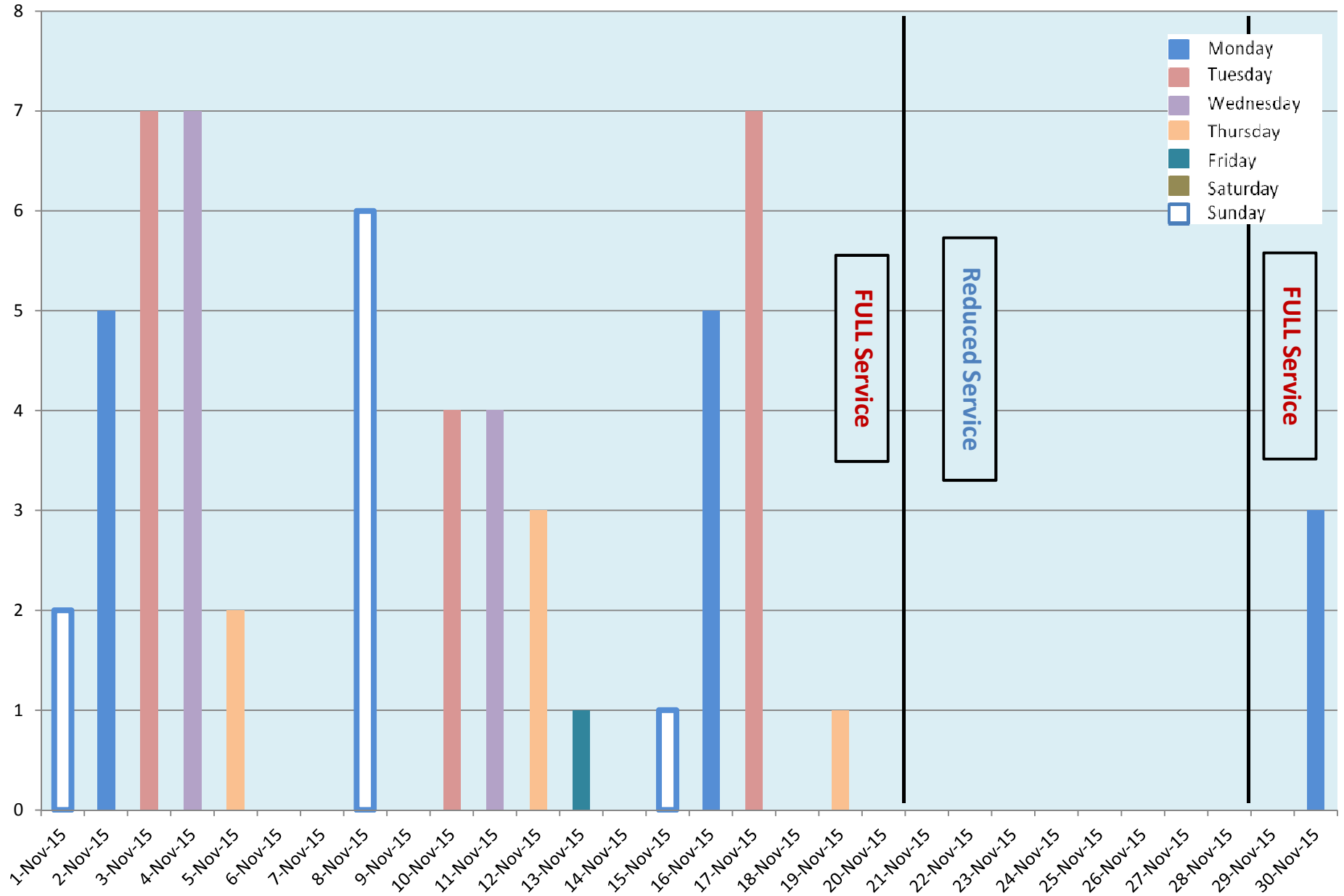
Dec-15

Stop Name	Total Boardings	Stop Name	Total Alighting
Burruss Hall	26,809	Old Turner/Stanger Wbnd	15,990
Squires Ebnd	17,830	Squires Wbnd	15,511
Newman Library	9,610	Burruss Hall	9,802
Squires Wbnd	7,579	Newman Library	9,726
University Mall Main Entrance	7,124	Squires Ebnd	5,991
Torgersen Hall	5,593	University Mall Main Entrance	5,524
Progress/Hunt Club Sbnd	4,765	Toms Creek/Hunt Club Nbnd	4,767
Old Turner/Stanger Wbnd	4,533	Torgersen Hall	4,476
The Village on Patrick Henry Wbnd	4,444	Litton Reaves Hall	4,226
Tall Oaks/Foxhunt Ebnd	3,500	Tall Oaks/Foxtrail Sbnd	3,947
Davidson Hall	3,235	Wright House	3,607
Heather/Tall Oaks Nbnd	2,771	The Village on Patrick Henry Wbnd	3,568
Tall Oaks/Copper Croft Nbnd	2,625	Patrick Henry/Seneca Wbnd	2,773
Old Security Bldg	2,417	Tall Oaks/Foxhunt Ebnd	2,684
Main/Red Maple Nbnd	2,401	Heather/Tall Oaks Sbnd	2,651
Ascot/Hampton	2,325	Cassell Coliseum	2,442
Toms Creek/Hunt Club Sbnd	2,307	Progress/University Terr Nbnd	2,012
Patrick Henry/Toms Creek Wbnd	2,190	Main/Red Maple Nbnd	1,991
Litton Reaves Hall	2,076	Main/Collegiate Ct Sbnd	1,876
Tall Oaks/Foxridge Nbnd	1,993	University Mall Nbnd	1,843

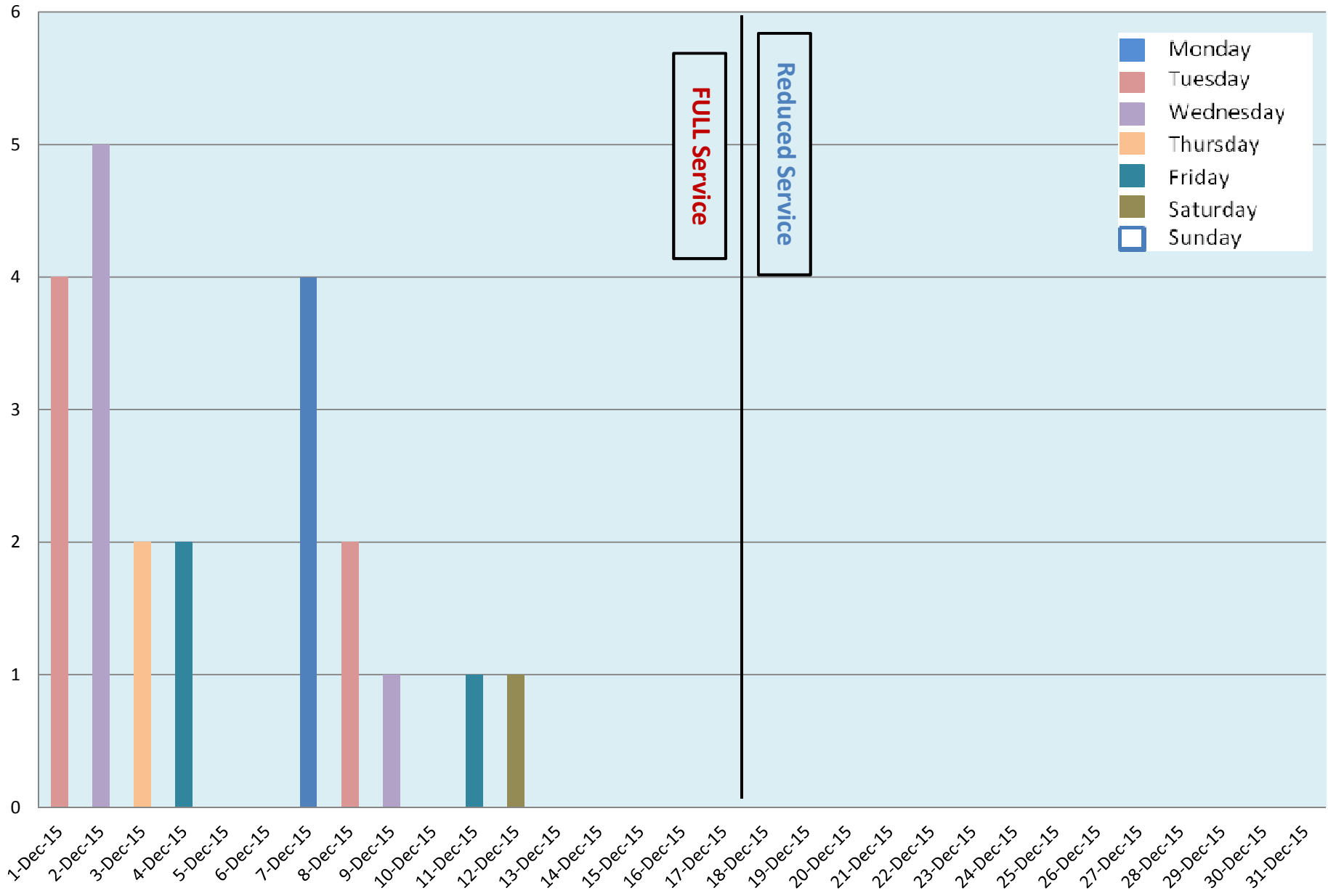
Blacksburg Fixed Route Total Monthly Full Buses FY 16 Q2 - Full & Reduced Service - October



Blacksburg Fixed Route Total Monthly Full Buses FY 16 Q2 - Full & Reduced Service - November

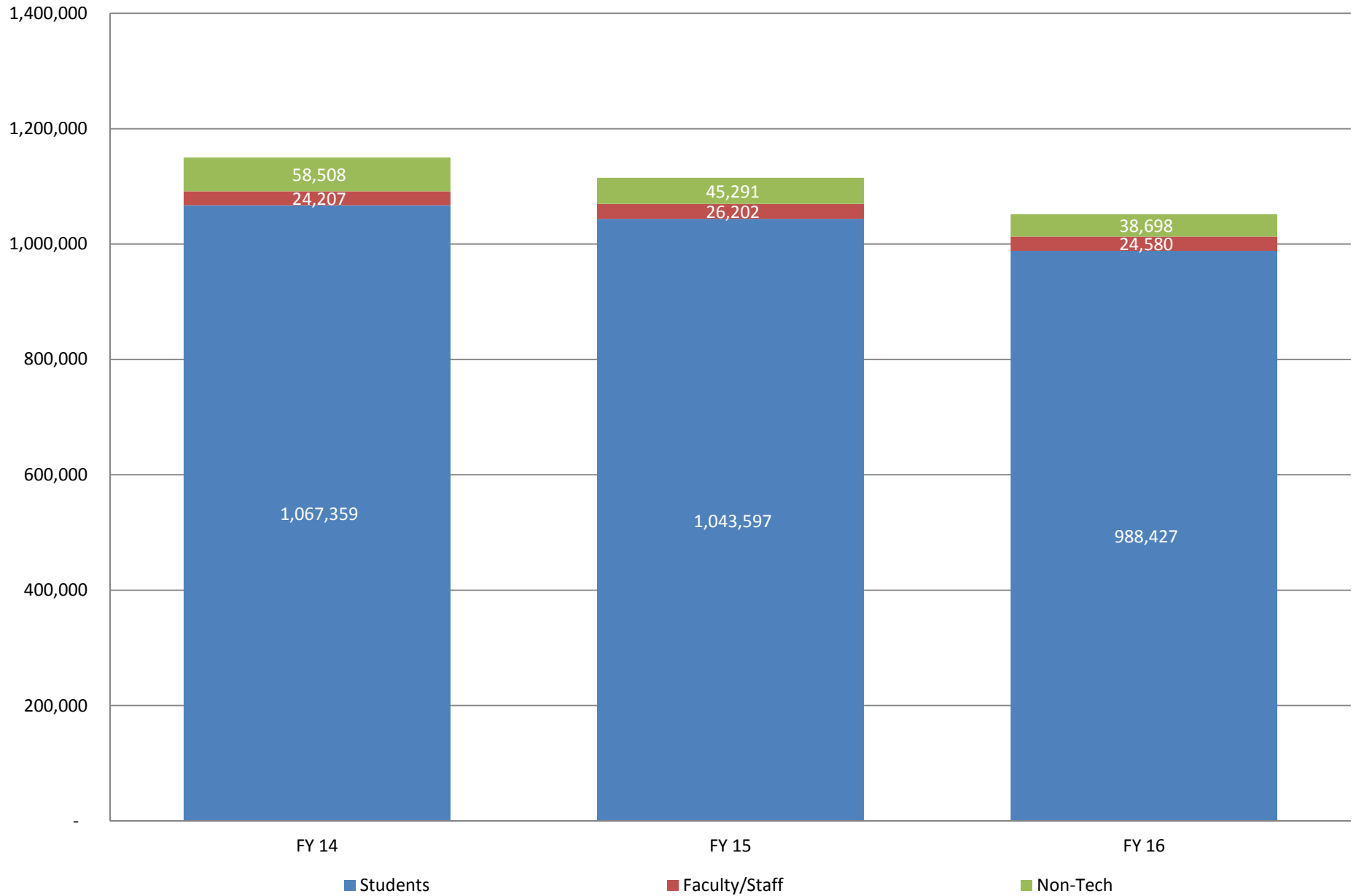


Blacksburg Fixed Route Total Monthly Full Buses FY 16 Q2 - Full & Reduced Service - December



Blacksburg Fixed Routes

FY 14-16 2nd Quarter: VT vs. Non-VT



Blacksburg Fare Totals: Does Not include Demand Response, does include Athletics/Specials

	TOTAL	STUDENTS		FACULTY/STAFF		TOTAL TECH		TOTAL NON-TECH	
		#	%	#	%	#	%	#	%
July-15	76,299	61,637	80.78%	5,319	6.97%	66,956	87.75%	9,343	12.25%
August-15	220,078	198,502	90.20%	6,951	3.16%	205,453	93.35%	14,625	6.65%
September-15	504,050	478,943	95.02%	9,124	1.81%	488,067	96.83%	15,983	3.17%
Total For Quarter:	800,427	739,082	92.34%	21,394	2.67%	760,476	95.01%	39,951	4.99%
October-15	471,019	444,993	94.47%	9,357	1.99%	454,350	96.46%	16,669	3.54%
November-15	347,277	327,429	94.28%	8,000	2.30%	335,429	96.59%	11,848	3.41%
December-15	233,409	216,005	92.54%	7,223	3.09%	223,228	95.64%	10,181	4.36%
Total For Quarter:	1,051,705	988,427	93.98%	24,580	2.34%	1,013,007	96.32%	38,698	3.68%
January-16			#DIV/0!		#DIV/0!	-	#DIV/0!	-	#DIV/0!
February-16			#DIV/0!		#DIV/0!	-	#DIV/0!	-	#DIV/0!
March-16			#DIV/0!		#DIV/0!	-	#DIV/0!	-	#DIV/0!
Total For Quarter:	-	-	#DIV/0!	-	#DIV/0!	-	#DIV/0!	-	#DIV/0!
April-16			#DIV/0!		#DIV/0!	-	#DIV/0!	-	#DIV/0!
May-16			#DIV/0!		#DIV/0!	-	#DIV/0!	-	#DIV/0!
June-16			#DIV/0!		#DIV/0!	-	#DIV/0!	-	#DIV/0!
Total For Quarter:	-	-	#DIV/0!	-	#DIV/0!	-	#DIV/0!	-	#DIV/0!