

## SIMULATED DATA WAREHOUSE FOR TRANSIT AGENCIES

Patricia Santillan  
Operations Analyst  
Pace Suburban Bus  
[patricia.santillan@pacebus.com](mailto:patricia.santillan@pacebus.com)  
(847)228-4216

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550 W Algonquin Rd.  
Arlington Heights, IL  
60005

### **ABSTRACT**

Pace Suburban Bus, using features in Microsoft Excel, created a faux data warehouse for the purpose of route profile analysis. This paper outlines the general format, formulas and techniques used to obtain these results. Developing this Excel data warehouse has allowed this transit agency to create some powerful tools to analyze route performance and compare routes against each other.

## **INTRODUCTION**

When it comes to IT projects, like many public agencies Pace Suburban Bus often lacks the proper funding to implement them to their fullest. So not only do we repurpose systems and make do with what we already have, but we also purchase less than ideal solutions because we desperately need any solution to make our situation better. As a result, we have disparate systems that do not speak the same language and combining data from them is either impossible or manually time consuming.

Pace needs a data warehouse to join the valuable information behind these various systems into one database so that our service can be analyzed by looking at the entire picture of a route. The cost of a data warehouse is upwards of half a million dollars, which, at the time was not an option. Therefore, we had to "make do". We used a popular software product to create a faux data warehouse that acts as a powerful analysis tool.

## **SOFTWARE SELECTION**

Although Access is Microsoft's answer to a friendly user database, the licensing per user is high and skills needed to create a database are limited. We chose to use Microsoft Excel due to its ease of use and extensive use throughout the company meaning that training would be minimal with no additional licensing costs. Although Excel comes across as unassuming, simple spreadsheet software, it has some very powerful programming capabilities that you do not have to be a programmer to use.

## **EASY AS 1-2-3**

We created a faux route profile data warehouse in four main steps.

- 1) Built tables to house data
- 2) Designed a form with appropriate places for variables
- 3) Built formulas to pull the data into the form
- 4) On Going Administration

### **1.) BUILT TABLES**

We compiled a list of all of the attributes about a route that we wanted included in the database. This included variables like route name, description, performance, route type, vehicle miles, etc. This list did not need to be exhaustive as we could make additions at later date. With this list we determined the best system, report, etc. which housed the data on a quarterly basis. After retrieving the data, we then created simple tables, disguised as worksheets, to store the data. As in most databases, we honed in on a key field, in this case the route number, which could join most of the tables together. This field could not be duplicated in its respective column. The entire table was then sorted on the key field, which was positioned in the far left column.

### **2.) CREATED A USER FORM**

We designed our own form using a worksheet in Excel. (Attachment 1) We used a fill-in-the-blank format leaving the blanks where the formulas would go to grab the correct data for the route. This form evolved as we found more data we wanted to include. The pivotal cell in this form is B2 where the user enters the route they want to analyze. Every formula on the form uses this cell in one way or another to populate the fields with corresponding data.

### 3.) BUILT FORMULAS

We used three very powerful yet easy to understand built-in formulas to grab the data from the worksheet "tables" to populate the various fields based on the route entered.

#### LOOKUP

The LOOKUP formula in Excel was used in each blank on the form to populate each variable with the corresponding data from the route entered. This formula looks at the cell where the user enters a route, goes to the appropriate table and looks for that same value in the table, and then returns data in the column specified. For Instance:

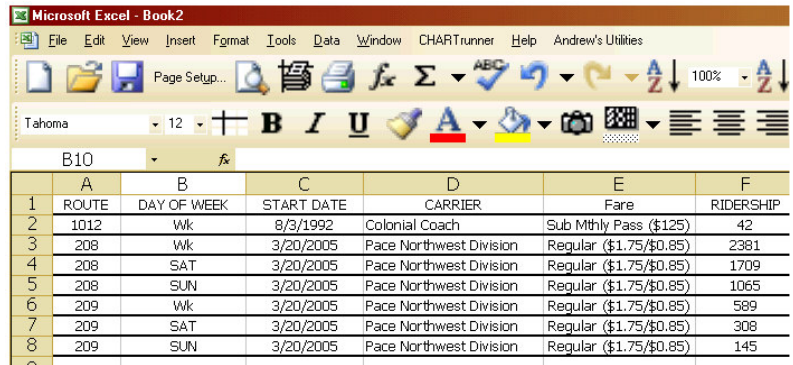
`=VLOOKUP(B2,T_STATICVARIABLES!$A$2:$Z$400,2,false)`

In English this formula says **vertically lookup** Route number entered in B2, matching what is in column A2 in the Static Variable table (!), which consists of data in A2 through Z400, when you find a match, return the value in the **second** column of that table. **Find an exact match only**. In this example, the formula should return the route description.

While typing the formulas we used the insert function wizard that walked us through setting up this formula and used the mouse to grab the data. Excel will automatically put the formula in the correct format.

#### CONCATENATE (AKA "&")

All of the data we collected was route specific. However, some were specific to the route as a whole, others were specific to just Weekday or Saturday service for that route. This posed a problem in that it produced duplicate records (rows) in the tables. The table below shows that route 208 appears three times in the route column (which we deemed as the key) because it operates on weekdays, Saturdays and Sundays and has some unique data to each.



	A	B	C	D	E	F
1	ROUTE	DAY OF WEEK	START DATE	CARRIER	Fare	RIDERSHIP
2	1012	Wk	8/3/1992	Colonial Coach	Sub Mthly Pass (\$125)	42
3	208	Wk	3/20/2005	Pace Northwest Division	Regular (\$1.75/\$0.85)	2381
4	208	SAT	3/20/2005	Pace Northwest Division	Regular (\$1.75/\$0.85)	1709
5	208	SUN	3/20/2005	Pace Northwest Division	Regular (\$1.75/\$0.85)	1065
6	209	Wk	3/20/2005	Pace Northwest Division	Regular (\$1.75/\$0.85)	589
7	209	SAT	3/20/2005	Pace Northwest Division	Regular (\$1.75/\$0.85)	308
8	209	SUN	3/20/2005	Pace Northwest Division	Regular (\$1.75/\$0.85)	145

Figure 1

In order to make each record unique to the key, we used a concatenate formula. A concatenate formula uses commas to add pieces of text together to form one "code". Adding a helper column and using the formula below, produced a concatenated field, which combined the route number with the day designation to produce figure 2.

=Concatenate (B2, C2)

	A	B	C	D	E	F	G
1	CONCATE	ROUTE	DAY OF WEEK	START DATE	CARRIER	Fare	RIDERSHIP
2	1012Wk	1012	Wk	8/3/1992	Colonial Coach	Sub Mthly Pass (\$125)	42
3	208Wk	208	Wk	3/20/2005	Pace Northwest Division	Regular (\$1.75/(\$0.85)	2381
4	208SAT	208	SAT	3/20/2005	Pace Northwest Division	Regular (\$1.75/(\$0.85)	1709
5	208SUN	208	SUN	3/20/2005	Pace Northwest Division	Regular (\$1.75/(\$0.85)	1065
6	209Wk	209	Wk	3/20/2005	Pace Northwest Division	Regular (\$1.75/(\$0.85)	589
7	209SAT	209	SAT	3/20/2005	Pace Northwest Division	Regular (\$1.75/(\$0.85)	308
8	209SUN	209	SUN	3/20/2005	Pace Northwest Division	Regular (\$1.75/(\$0.85)	145

Figure 2

Now each record (row) had a unique identifier and aided in the lookup formula. (Concatenate formulas can also be used with numbers but you must first convert the number to text by using the TEXT formula. You can also eliminate the word "Concatenate" and substitute an ampersand (&) for the commas)

#### LOGICAL FORMULAS LIKE IF

Probably the most powerful of these three formulas is the "IF" formula. IF is a part of the logic formula group along with "AND" and "OR". We used this formula in conjunction with other formulas to format professionally and to set conditions. For instance, let us say that a user enters a brand new route that does not yet have any ridership attached to it. The results would be an error or #NA, (not available). Using an IF statement helped to format professionally and hide these errors message. The inner (underlined) formula is the one outlined above. The IF statement works around it.

=if(ISNA(VLOOKUP(B2,T\_STATICVARIABLES!\$A\$2:\$Z\$400,2,false)), "",  
VLOOKUP(B2,T\_STATICVARIABLES!\$A\$2:\$Z\$400,2,false))

In English this IF formula says **IF** this formula produces a TRUE statement, than show me this (two quotes together equals nothing), otherwise show me this (produces a FALSE statement). So if it is TRUE that our original formula above is #NA, than I do not want to see anything in this cell. If it is FALSE that our original formula above is #NA, than show me the results of the original formula.

Pace used IF formulas to format for records that were unavailable, that have zero data, or if an error exists – like divide by zero. There are so many ways to use this formula but building up from the inner formula is the best practice.

#### 4.) ADMINISTRATION

A Pace administrator was then assigned to gather the data as it becomes available. It was then placed on a common drive that all could access. Updates are available each quarter with complete data.

## **ADDED TOOLS**

Since the original form was created, Pace has added several worksheets that act as additional tools on the existing data.

**KPI** – The KPI (Key Performance Indicators) worksheet is where you will find sprite graphs per quarter, showing the various benchmarks we use to determine route performance. At present, this is set up to look at weekday only. (Attachment #2)

**PLANNING** - The Planning worksheet is a place where anyone can enter notes about a route. Notes like route changes, marketing initiatives etc. can be added to get a better picture about a routes profile. (Attachment #3)

**COMPARE** – The Compare worksheet is designed to look at 2 to 10 different routes, side by side and compare attributes. (Attachment #4)

## **FUTURE USE**

Our intent is and always has been to create a data warehouse incorporating the data available in the entire company, not only from what is available to Strategic Services. We plan to use the structure of these tables as a jumping off point for discussions with consultants on the design of the future data warehouse. In the mean time, we continue to develop tools that aid our planning department in making decisions about the future of our service. As an added bonus, this tool has allowed us to show decision makers what can be done on a small scale and to imagine what can be accomplished when the entire company is involved.

## **CONCLUSION**

In this tight economy, we at Pace Suburban Bus used our existing resources to create a similar product we could not afford by mimicking programming options without the expense, training or involvement of the IT department. In doing so, vital information about our service could be analyzed and compared to make adjustments in service and manage our limited resources. We will continue to look at things from various angles to determine if we can find similar results in different ways. Due to the nature of public agencies, it would be in our best interest to become experts with this skill.

# ATTACHMENT 1

## Pace Route Profile 1st Quarter 2009

**Route:** **332 River - York Roads**

**Date:** **5/24/1976**

Provides weekday service between Oakbrook Center in Oak Brook and the Rosemont CTA Blue Line Station. Also serves Elmhurst and Bensenville Metra Stations, Elmhurst College, Elmhurst Memorial Hospital and the south cargo area of O'Hare Airport including AMC O'Hare. Saturday and Sunday service operates between Rosemont CTA station and Northwest Cargo Area.

**Days of Service:** Weekdays X Saturdays X Sundays X **Cust. Satisfaction Survey Results:** [N:\2007 CU](#)  
Yes No  
**Operates Minority Service:** X **Peak Headway:** 50 **On-Time Performance:** 0.00%  
**Fare Type:** Regular / Express **Route Type:** Regular **Service Type:** CTA Connector  
**Operated by:** Pace West **Link to Map:** <http://www.pace> **Link to Schedule:** <http://www.ps>

**Planner:** Erik **Scheduler:** Tom **Analyst:** Lidia **Business Development Rep.:** Beth/Ste

**This route serves the following communities:** Bensenville, Elmhurst, Oakbrook, Franklin Park, Schiller Park, Rosemont.

**Route operates in portions of the following counties:**

Chgo Cook	Sub Cook	DuPage	Kane	Lake, IL	McHenry	Will	Lake, IN
8.02%	36.54%	55.44%					

**Weekdays:**

	Revenue	Hours	Miles
<i>This service is performing poorly and is on the watch list.</i>	24.47	24.47	436.19
<i>Vehicle</i>	35.27	35.27	520.29

**HISTORICAL PERFORMANCE - A=Action List, R= Review List, W = Watch List**

	2002	2003	2004	2005	2006	2007	2008	2009
1ST Quarter		R	R	R				W
2ND Quarter	R	R	R	R				
3RD Quarter	R	R	R					
4TH Quarter		R	R			W		

**Trips operating from:** 5:35 **to** 23:31

**Ridership Trends - daily average**

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2006	553	534	578	573	590	593	572	626	627	645	627	674
2007	534	511	562	594	628	572	632	636	633	612	606	607
2008	568	531	527	595	621	644	647	660	637	580	596	513
2009	461	497	476	486								

**1st Quarter 2009 Performance**

Revenue per Rider	PAX per Rev Hr	PAX per Rev Mile	Cost per PAX	Subsidy per PAX	Recovery Ratio	Estimated Cost	Estimated Revenue	Cost per Rev Hr	Cost per Veh Mile
\$1.04	19.53	1.10	\$5.19	\$4.15	20.1%	\$2,479	\$497	\$101.31	\$4.76

# ATTACHMENT 1 – CONTINUED

**Saturdays:**

							<b>Revenue</b>	<b>Hours</b>	<b>Miles</b>
								6.87	131.85
							<b>Vehicle</b>	11.88	175.95
<i>This service is performing poorly and is on the watch list.</i>									
<b>HISTORICAL PERFORMANCE - A=Action List, R= Review List, W = Watch List</b>									
	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	
1ST Quarter			R			W		W	
2ND Quarter		R	R	R					
3RD Quarter			R						
4TH Quarter									
<b>Trips operating from:</b>	5:35	<b>to</b>	23:31						

**Ridership Trends - daily average**

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<b>2006</b>	196	169	216	218	199	274	232	240	244	271	237	290
<b>2007</b>	219	159	186	218	209	231	249	251	245	243	264	266
<b>2008</b>	239	239	231	224	248	244	239	249	275	256	236	225
<b>2009</b>	197	181	177	175								

**1st Quarter 2009 Performance**

<u>Revenue per Rider</u>	<u>PAX per Rev Hr</u>	<u>PAX per Rev Mile</u>	<u>Cost per PAX</u>	<u>Subsidy per PAX</u>	<u>Recovery Ratio</u>	<u>Estimated Cost</u>	<u>Estimated Revenue</u>	<u>Cost per Rev Hr</u>	<u>Cost per Veh Mile</u>
\$0.97	27.07	1.41	\$4.49	\$3.52	21.6%	\$835	\$180	\$121.55	\$4.75

**Sundays:**

							<b>Revenue</b>	<b>Hours</b>	<b>Miles</b>
								6.87	131.85
							<b>Vehicle</b>	10.60	174.35
<i>This service is performing poorly and is on the watch list.</i>									
<b>HISTORICAL PERFORMANCE - A=Action List, R= Review List, W = Watch List</b>									
	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	
1ST Quarter	R	R	R	R		W		W	
2ND Quarter	R	R	R	R					
3RD Quarter	R	R	R						
4TH Quarter	R	R	R	W					
<b>Trips operating from:</b>	5:35	<b>to</b>	23:31						

**Ridership Trends - daily average**

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<b>2006</b>	169	174	188	180	189	208	198	213	214	220	227	247
<b>2007</b>	186	164	169	175	209	230	234	255	249	242	217	238
<b>2008</b>	235	226	215	183	237	234	227	200	226	304	207	180
<b>2009</b>	192	155	151	142								

**1st Quarter 2009 Performance**

<u>Revenue per Rider</u>	<u>PAX per Rev Hr</u>	<u>PAX per Rev Mile</u>	<u>Cost per PAX</u>	<u>Subsidy per PAX</u>	<u>Recovery Ratio</u>	<u>Estimated Cost</u>	<u>Estimated Revenue</u>	<u>Cost per Rev Hr</u>	<u>Cost per Veh Mile</u>
\$0.88	24.31	1.27	\$4.46	\$3.58	19.7%	\$745	\$147	\$108.45	\$4.27

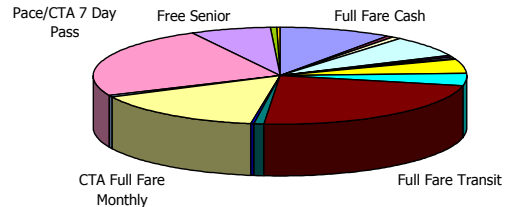
# ATTACHMENT 1 – CONTINUED

## Fare Distribution for Route 332 Pace West 1st Quarter 2009 (all day types)

Route	332	
Full Fare Cash	3,067	9.84%
Reduced Fare Cash/Child 7-11	173	0.55%
10 Ride Plus/Ride Plus	222	0.71%
Full Fare Trans	2,158	6.92%
Reduced Fare Trans	142	0.46%
Local with Trans	4	0.01%
Plusbus	41	0.13%
Linkup sticker/Pass	190	0.61%
Military	35	0.11%
RF 10 Ride	11	0.04%
Coupons/Free	1,474	4.73%
Trans Accepted	1,281	4.11%
Trans Issued	2	0.01%
Full Fare Transit	7,185	23.05%
Reduced Fare Transit	339	1.09%
Student Passes	2	0.01%
Subscription	0	
Waukegan	0	
Pace Summer Pass	0	
CTA Full Fare Monthly	4,819	15.46%
CTA Reduced Fare Monthly	184	0.59%
Pace/CTA 7 Day Pass	7,411	23.77%
Free Senior	2,192	7.03%
ADA Para Pass	0	
Accomodation Pass	0	
WIA Student Pass	0	#DIV/0!
CCC Full Fare	199	0.64%
CCC Reduced Fare	4	0.01%
Ride/Day Pass	22	0.07%
Shuttle Bug	0	
Pace SVC	12	0.04%
Campus Connection	1	0.00%
Free Transfers	0	
CTA Employee	6	0.02%
Pace Employee	2	0.01%
<b>Total</b>	<b>31,178</b>	

## Fare Distribution for Route 332 Pace West 1st Quarter 2009

Top 5 Fare Types highlighted and labeled on pie chart



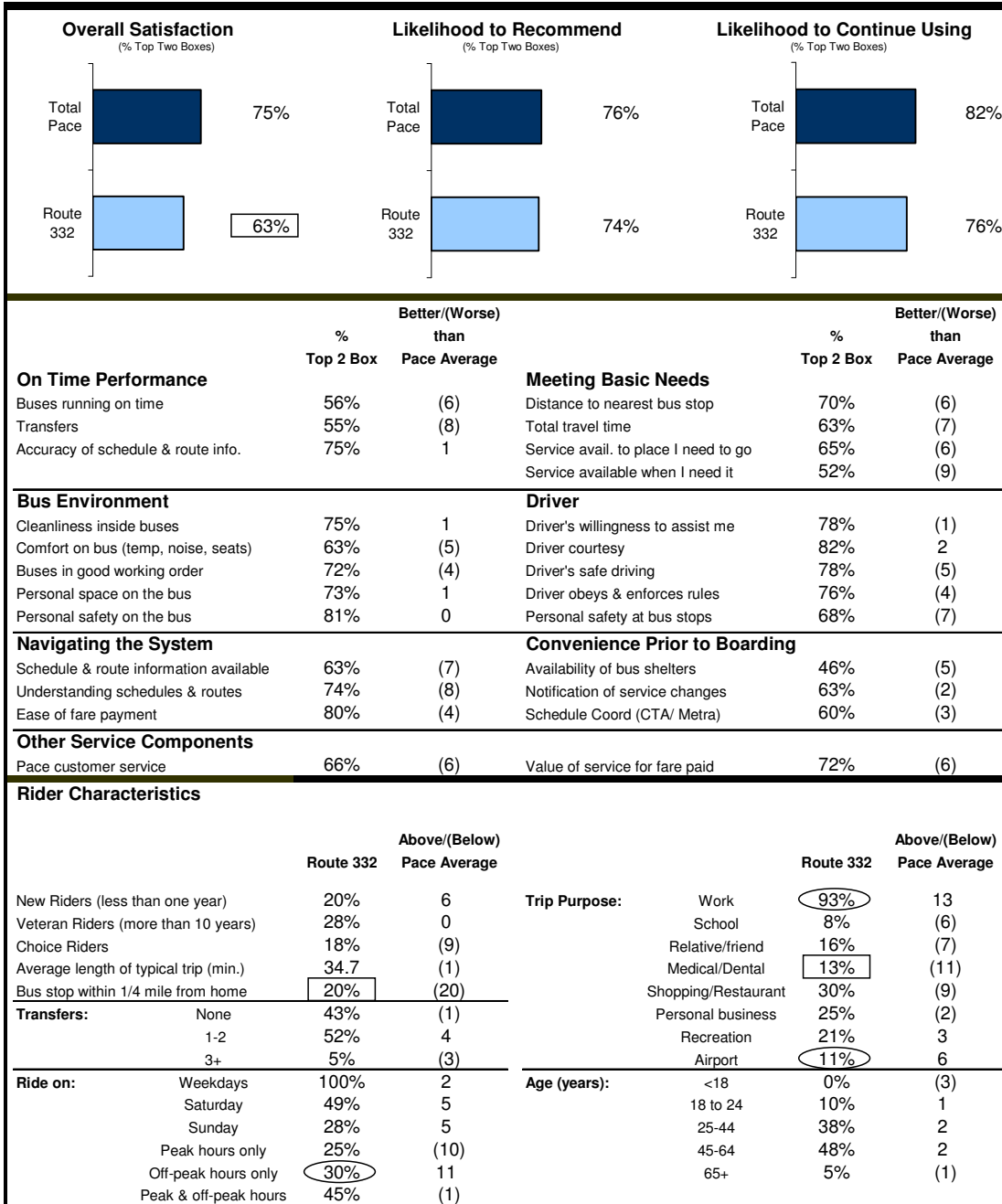
Full Fare Cash	Reduced Fare Cash/Child 7-11	10 Ride Plus/Ride Plus
Full Fare Trans	Reduced Fare Trans	Local with Trans
Plusbus	Linkup sticker/Pass	Military
RF 10 Ride	Coupons/Free	Trans Accepted
Trans Issued	Full Fare Transit	Reduced Fare Transit
Student Passes	Subscription	Waukegan
Pace Summer Pass	CTA Full Fare Monthly	CTA Reduced Fare Monthly
Pace/CTA 7 Day Pass	Free Senior	ADA Para Pass
Accomodation Pass	WIA Student Pass	CCC Full Fare
CCC Reduced Fare	Ride/Day Pass	Shuttle Bug
Pace SVC	Campus Connection	Free Transfers
CTA Employee	Pace Employee	



# ATTACHMENT A

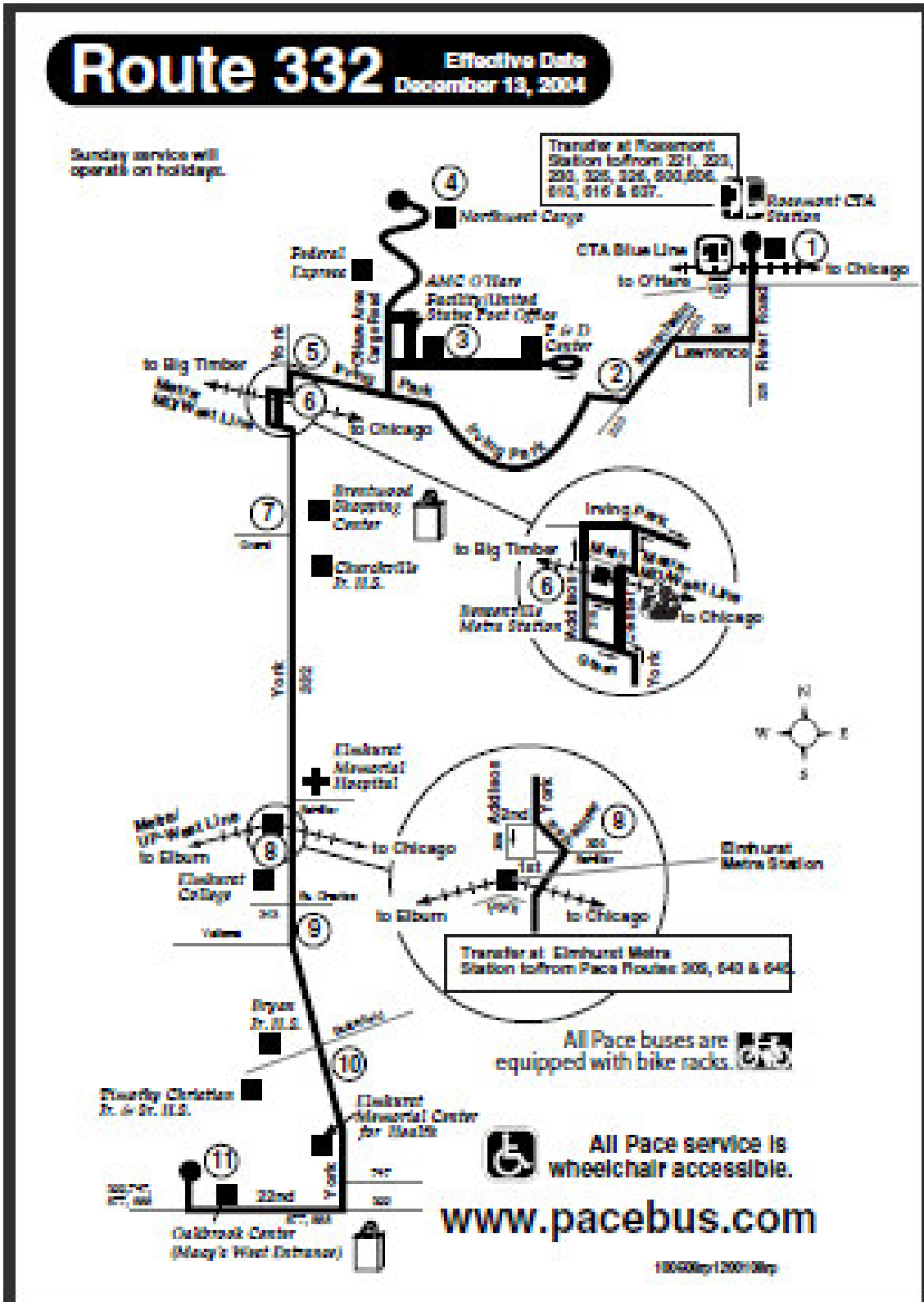


## 2007 Customer Satisfaction Survey Report Route 332 River - York Roads n = 61




○ / □ Indicate significantly higher/lower than the Total Pace Average at 90% confidence level.  
\* Use caution, the sample size is very small.

**ATTACHMENT B**



# ATTACHMENT C

 <b>ROUTE 332 RIVER - YORK ROADS</b>										
WEEKDAY - SOUTHBOUND										
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪
CTA BLUE LINE ROSEMONT STATION	MANHEIM IRVING PARK	AMC • O'HARE	NORTHWEST CARDO	YORK ROAD IRVING PARK	METRA MDV WEST LINE BENSenville STATION	YORK ROAD GRAND AVE.	SCHILLER PALMER	YORK ROAD ST. CHARLES	YORK ROAD BUTTERFIELD	DAKESBROOK CENTER
5:30am	5:45am	5:55am	5:55am	6:05am	6:05am	7:00am	7:10am	7:14am	7:15am E	7:25am
6:25	6:35	6:40	6:40	6:45	6:45	7:40	7:50	7:54	7:55	8:05
7:15	7:30	7:35	7:35	7:40	7:40	8:35	8:45	8:49	8:50	9:00
8:05	8:20	8:25	8:25	8:30	8:30	9:25	9:35	9:39	9:40	9:50
9:00	9:15	9:20	9:20	9:25	9:25	10:20	10:30	10:34	10:35	10:45
10:00am	10:15am	10:20am	10:20am	10:25am	10:25am	11:20am	11:30am	11:34am	11:35am	11:45am
1:30	1:45	1:50	1:50	1:55	1:55	2:50	3:00	3:04	3:05	3:15
2:25	2:40	2:45	2:45	2:50	2:50	3:45	3:55	3:59	4:00	4:10
3:20	3:35	3:40	3:40	3:45	3:45	4:40	4:50	4:54	4:55	5:05
4:15	4:30	4:35	4:35	4:40	4:40	5:35	5:45	5:49	5:50	6:00
5:10	5:25	5:30	5:30	5:35	5:35	6:30	6:40	6:44	6:45	6:55
6:05	6:20	6:25	6:25	6:30	6:30	7:25	7:35	7:39	7:40	7:50
7:00	7:15	7:20	7:20	7:25	7:25	8:20	8:30	8:34	8:35	8:45
8:00	8:15	8:20	8:20	8:25	8:25	9:20	9:30	9:34	9:35	9:45
9:00	9:15	9:20	9:20	9:25	9:25	10:20	10:30	10:34	10:35	10:45
10:00	10:15	10:20	10:20	10:25	10:25	11:20	11:30	11:34	11:35	11:45
11:15	11:25	B	11:31	-	-	-	-	-	-	-

WEEKDAY - NORTHBOUND										
⑪	⑩	⑨	⑧	⑦	⑥	⑤	④	③	②	①
DAKESBROOK CENTER	YORK ROAD BUTTERFIELD	YORK ROAD ST. CHARLES	SCHILLER PALMER	YORK ROAD GRAND AVE.	METRA MDV WEST LINE BENSenville STATION	YORK ROAD IRVING PARK	NORTHWEST CARDO	AMC • O'HARE	MANHEIM IRVING PARK	CTA BLUE LINE ROSEMONT STATION
-	-	-	6:10am	6:10am	6:20am	6:20am	6:30am	6:30am	6:30am	6:10am
-	-	-	7:15	7:15	7:25	7:25	7:35	7:35	7:35	7:15
-	-	-	8:15	8:15	8:25	8:25	8:35	8:35	8:35	8:15
-	-	-	9:15	9:15	9:25	9:25	9:35	9:35	9:35	9:15
-	-	-	10:15	10:15	10:25	10:25	10:35	10:35	10:35	10:15
-	-	-	11:15	11:15	11:25	11:25	11:35	11:35	11:35	11:15
-	-	-	12:15	12:15	12:25	12:25	12:35	12:35	12:35	12:15
-	-	-	1:15	1:15	1:25	1:25	1:35	1:35	1:35	1:15
-	-	-	2:15	2:15	2:25	2:25	2:35	2:35	2:35	2:15
-	-	-	3:15	3:15	3:25	3:25	3:35	3:35	3:35	3:15
-	-	-	4:15	4:15	4:25	4:25	4:35	4:35	4:35	4:15
-	-	-	5:15	5:15	5:25	5:25	5:35	5:35	5:35	5:15
-	-	-	6:15	6:15	6:25	6:25	6:35	6:35	6:35	6:15
-	-	-	7:15	7:15	7:25	7:25	7:35	7:35	7:35	7:15
-	-	-	8:15	8:15	8:25	8:25	8:35	8:35	8:35	8:15
-	-	-	9:15	9:15	9:25	9:25	9:35	9:35	9:35	9:15
-	-	-	10:15	10:15	10:25	10:25	10:35	10:35	10:35	10:15
-	-	-	11:15	11:15	11:25	11:25	11:35	11:35	11:35	11:15

SATURDAY - WESTBOUND				SATURDAY - EASTBOUND			
①	②	③	④	④	③	②	①
CTA BLUE LINE ROSEMONT STATION	MANHEIM IRVING PARK	AMC • O'HARE	NORTHWEST CARDO	NORTHWEST CARDO	AMC • O'HARE	MANHEIM IRVING PARK	CTA BLUE LINE ROSEMONT STATION
5:30am	5:45am	5:50am	5:50am	5:30am	5:00am	5:00am	5:10am
6:25	6:35	6:40	6:40	6:20	6:30	6:30	6:35
7:15	7:30	B	7:35	7:00	7:10	7:10	7:15
8:05	8:20	B	8:25	8:00	8:10	8:10	8:15
9:00	9:15	B	9:20	8:50am	9:00am	9:00am	9:05
10:00	10:15	B	10:20	9:40	9:50	9:50	9:55
11:00	11:15	B	11:20	10:40	10:50	10:50	10:55
11:15	11:25	B	11:31	11:31	11:35	11:40 K	11:50

SUNDAY - WESTBOUND				SUNDAY - EASTBOUND			
①	②	③	④	④	③	②	①
CTA BLUE LINE ROSEMONT STATION	MANHEIM IRVING PARK	AMC • O'HARE	NORTHWEST CARDO	NORTHWEST CARDO	AMC • O'HARE	MANHEIM IRVING PARK	CTA BLUE LINE ROSEMONT STATION
5:30am	5:45am	5:50am	5:50am	5:30am	5:00am	5:00am	5:10am
6:25	6:35	6:40	6:40	6:20	6:30	6:30	6:35
7:15	7:30	B	7:35	7:00	7:10	7:10	7:15
8:05	8:20	B	8:25	8:00	8:10	8:10	8:15
9:00	9:15	B	9:20	8:50am	9:00am	9:00am	9:05
10:00	10:15	B	10:20	9:40	9:50	9:50	9:55
11:00	11:15	B	11:20	10:40	10:50	10:50	10:55
11:15	11:25	B	11:31	11:31	11:35	11:40 K	11:50

B - Trips serve AMC O'Hare after Northwest Cardo.

E - Trip enters Elmhurst Memorial Center for Health making one stop at the South entrance of the main building. At all other times, passengers should board at York Rd.

K - Operates via Mannheim and I-190 to Rosemont CTA Station and does not serve Lawrence east of Mannheim or River Road south of I-190.

- Trips which serve AMC O'Hare also serve P&D 2 minutes later.

Sunday service ceases on New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

## ATTACHMENT #2

### Route 332 Weekday

#### QUARTERLY PERFORMANCE - QTR VS QTR

332	GOAL	Primary/ Secondary	072Q	073Q	074Q	081Q	082Q	083Q	084Q	091Q
Recovery Ratio	>18%	P	22.70%	18.79%	16.97%	22.19%	23.11%	23.19%	21.06%	20.05%
Subsidy per Rider	\$4/\$5	P	\$2.96	\$2.98	\$3.28	\$3.09	\$2.79	\$2.81	\$3.34	\$4.15
Productivity*	>50%	P	24.4	25.9	24.8	22.2	25.3	26.5	23.0	19.5
Cost/Vehicle Miles	<\$6	P	\$4.40	\$4.48	\$4.61	\$4.14	\$4.33	\$4.56	\$4.56	\$4.76
PAX/Revenue Mile	>.6	S	1.37	1.45	1.39	1.24	1.42	1.49	1.29	1.10
Cost/PAX	<\$7	S	\$3.83	\$3.67	\$3.95	\$3.97	\$3.63	\$3.66	\$4.23	\$5.19
Cost/Revenue Hour	<\$125	S	\$93.66	\$95.16	\$98.11	\$88.01	\$92.09	\$97.05	\$97.05	\$101.31
Annual Growth	>-20%	S	2.05%	5.14%	-6.17%	1.31%	3.68%	2.21%	-7.57%	-11.97%

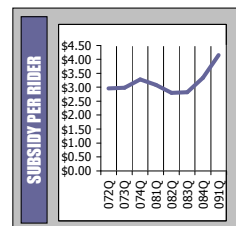
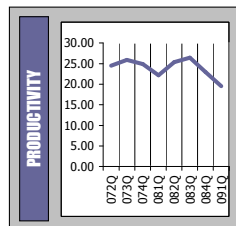
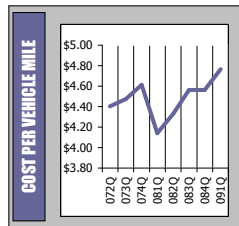
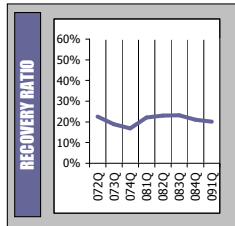
\* The goal for Productivity is 50% of the system total. This total varies per quarter so there will be no highlighting for this measure.

Performance not highlighted has met its goal

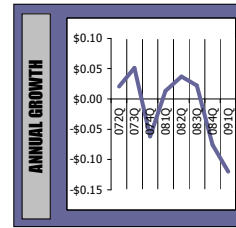
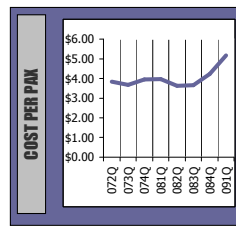
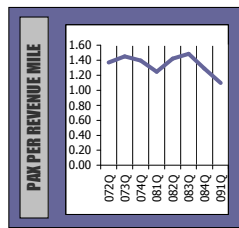
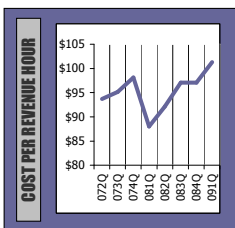
Performance is within 10% of goal

Performance is Unacceptable and further than 10% from the goal

#### PRIMARY INDICATORS



#### SECONDARY INDICATORS



## ATTACHMENT #3

### Notes for Route 332

Route	Implementation	Planner	Date Recorded	Change in Route
332	11/23/03		07/30/08	Routing adjustment 11/23/03
332	01/06/08		09/10/07	Date Scheduled for cancelation - SAT and SUN
332	01/15/08		12/01/07	Portions of route after 7pm scheduled for service cut
332	02/01/08		01/18/08	Springfield passed funding law - no routes eliminated

# ATTACHMENT #4

## Pace Route DNA/Performance Comparison

Route		332	382							
Day of Service		WK	WK							
<b>Quarterly Performance</b>		<b>Goal</b>								
Primary	Recovery Ratio	>18%	20.05%	15.35%						
	Productivity Wk	50% type	19.5	14.7						
	Productivity Sat/Sun	50% type								
	Subsidy per PAX	>\$4/\$5	\$4.15	\$5.02						
Secondary	Cost per Vehicle Mile	<\$6	\$4.76	\$4.68						
	Cost per Revenue Hour	<\$125	\$101.31	\$87.34						
	PAX per Revenue Mile	>0.6	1.10	0.93						
	Cost per PAX	<\$7	\$5.19	\$5.93						
Ridership % Change	<-20%	-11.97%	-22.22%							
Revenue Per Rider		\$1.04	\$0.91							
Estimated Cost		\$2,479.13	\$2,116.20							
Estimated Revenue		\$497.12	\$324.87							
<b>Action / Review / Watch</b>		<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
1st Quarter				W	W		R			
2nd Quarter										
3rd Quarter					W					
4th Quarter		W			W					
<b>On-Time Performance</b>		0.00%			0.00%					
<b>Daily Ave Ridership</b>		<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Jan		534	568	461	446	464	353			
Feb		511	531	497	428	460	377			
Mar		562	527	476	479	451	343			
Apr		594	595	486	483	508	342			
May		628	621		557	486				
June		572	644		515	534				
July		632	647		482	486				
Aug		636	660		488	485				
Sept		633	637		561	542				
Oct		612	580		571	580				
Nov		606	596		576	590				
Dec		607	513		503	421				
<b>Daily Vehicle Data</b>										
Daily Revenue Hours		24.47			24.23					
Daily Revenue Miles		436.19			383.46					
Daily Vehicle Hours		35.27			32.85					
Daily Vehicle Miles		520.29			452.56					
<b>Start Date</b>		05/24/76			Pre RTA					
<b>End Date if not Active</b>		ACTIVE			ACTIVE					
<b>Minority Service?</b>		Yes								
<b>Span of Service</b>		<b>1st Trip</b>	<b>Last trip</b>	<b>HDWY</b>	<b>1st Trip</b>	<b>Last trip</b>	<b>HDWY</b>	<b>1st Trip</b>	<b>Last trip</b>	<b>HDWY</b>
		5:35	23:31	50	5:30	18:50				
<b>Fare Type</b>		Regular / Express			Regular / Express					
<b>Route Type</b>		Regular			Regular					
<b>Service Type</b>		CTA Connector			CTA Connector					
<b>Operated by</b>		Pace West			Pace Southwest					
<b>Counties</b>										
Chicago Cook		8.02%			21.59%					
Suburban Cook		36.54%			78.41%					
DuPage		55.44%								
Kane										
Lake, IL										
McHenry										
Will										
Lake, IN										
<b>Communities Served:</b>		Bensenville, Elmhurst, Oakbrook, Franklin Park, Schiller Park, Rosemont			Bedford Park, Burbank, Oak Lawn					