

**IMPERIAL VALLEY TRANSIT  
ANNUAL PASSENGER MILE SAMPLING METHODOLOGY  
AND FINAL RESULTS  
JULY 1, 2008-JUNE 30, 2009**



**Prepared for:  
County of Imperial  
Imperial Valley Association of Governments  
940 Main Street, Suite 208  
El Centro, CA 92243**



**Prepared by:  
Rea & Parker Research  
P.O. Box 421079  
San Diego, CA 92142  
858-279-5070**



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**IMPERIAL VALLEY TRANSIT  
ANNUAL PASSENGER MILE SAMPLING METHODOLOGY  
AND FINAL RESULTS  
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The County of Imperial provides fixed route bus service throughout the County through the services of Imperial Valley Transit, which was created in 1989. Imperial Valley Transit began as a 5 route system with 3 buses running Monday through Friday. The passenger ridership initially averaged approximately 3,000 passengers a month.

The service is operated by First Transit, Inc., administered by the Imperial County Department of Public Works, and funded by the Imperial Valley Association of Governments (IVAG). Funding is provided annually through the adopted IVAG Transit Finance Plan. The sources of the funding include, State Transit Assistance (STA), State Transportation Development Act (TDA), Federal 5311 and 5307 funds and local fare revenue.

The Federal Register of September 25, 1987, specifies that certain operating data must be collected from federally funded transit systems as part of the Section 15 Uniform System of Accounts and Records and Reporting System. One such required set of data that is required is an annual estimate of unlinked passenger trips and passenger miles that is reliable with 95 percent confidence to a margin of error of +/- 10 percent. The Urban Mass Transportation Administration and Federal Transit Administration (FTA) developed several suggested sampling techniques for collecting annual estimates of unlinked passenger trips and passenger miles. A transit agency may use a technique other than the UMTA recommended techniques as long as it meets the prescribed precision and confidence levels.

The County of Imperial contracted with Rea & Parker Research of San Diego, California to conduct the study that would require Rea & Parker Research personnel to ride randomly selected Imperial Valley Transit bus trips for a one year period that covered July 1, 2008-to-June 30, 2009. Stephanie O'Hara of the National Transit Database provided to Rea & Parker Research "a spreadsheet that our in-house statistician has used in the past to assist agencies setting up a sampling cycle, particularly when agencies do not operate 7-day-week schedules."<sup>1</sup> Application

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<sup>1</sup> E-mail correspondence—May 9, 2008. This spreadsheet is a worksheet (NTD Sampling Table 2710.1a) in the accompanying Excel file that contains the final annual unlinked passenger counts and passenger mile estimates.

of the spreadsheet (NTD Sampling Table 2710.1a) indicated that the requisite confidence level and margin of error could be obtained by sampling 5 randomly selected one-way bus trips every three days, for a total of 520 trips sampled for the year.<sup>2</sup>

**Sample Size Table**

**95 Percent Confidence Level @ Tolerance of 10 Percent**

**Number of Days Service Operated (m)**

<b>313</b>
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**Number of One-Way Trips per Day (N)**

<b>111</b>
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	Sampling Interval (Every _ Day)					
	1	2	3	4	5	6
<b>Trips/Day</b>	2	3	5	8	12	18
<b>Annual Trips</b>	626	468	520	624	744	936

Rea & Parker Research elected to utilize the NTD methodology inasmuch as it is specifically designed to address small transit systems. As such, no determination of variance, standard deviation, margin of error, confidence levels or intervals was undertaken by Rea & Parker research independent of this established methodology. Attached as an appendix to this report are the academic and professional consultative experiences of Richard A. Parker, Ph.D. and Louis M. Rea, Ph.D., principals of Rea & Parker Research and also principal investigators and analysts for this study.

In preparation for the commencement of the study, Rea & Parker Research entered each bus trip into an SPSS (Statistical Package for the Social Sciences) database as a code, indicating weekday and Saturday, bus route number (each Imperial Valley Transit route runs in one direction only), and the number of the trip. For example, Route 50 on a weekday at 9:48am would have been coded and entered as 50-04, the fourth Route 50 trip on weekdays and Saturday's 5:20pm Route 100 would have been coded 100s-05, the fifth Saturday Route 100 trip. Five trips were randomly selected by the SPSS program for counting every three days.

No buses run for Imperial Valley Transit on Sundays or on several holidays throughout the year. Other buses might alter their route somewhat on certain days or run only one day per week. Still

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<sup>2</sup> The actual total number of sampled trips was 525 because the extra day in the year (365 days exceeds 52 weeks) fell within the calendar year studied.

others curtail their trips when Imperial Valley College is not in session. Random selection of any bus that was not running on a given day caused a randomly selected replacement to be chosen. Most weeks were configured in one of three formats: Monday and Thursday, Tuesday and Friday, or Wednesday and Saturday. If a holiday occurred during any week, these pairings were altered. For example, if Thanksgiving Day were the scheduled Thursday, that week may have rearranged itself with the Wednesday and Saturday pairing so that for those two weeks only, buses were sampled on Monday and Wednesday one week and Thursday and Saturday in the previous or succeeding week. Missed trips, of which there were very few, were made up on the same day of the week as the missed trip during the succeeding week.

On board personnel were given an assignment log and trip sheets, as demonstrated on the next pages. The assignment log provided specific instructions about where to board each bus, where and when to exit, and if that trip was one that was selected for sampling. If the trip was selected, trip sheets were attached onto which the Rea & Parker Research counting employee on board was to record boardings, alightings, and on-board counts between stops.

The Rea & Parker Research supervisor, who was based in the City of Imperial, collected and distributed these forms to the counting personnel and sent the completed forms twice per month to San Diego for data entry by Rea & Parker Research staff and math and logic checks by one of the principals of Rea & Parker Research—Richard A. Parker, Ph.D. or Louis M. Rea, Ph.D. At that point in time, the distance between stops was added to the forms and the total number of passenger miles could be determined. A completed trip sheet also follows in the next pages of this report for illustrative purposes. These completed forms were then compiled onto Daily Record Sheets that maintained a running balance of counts and mileage. A sample Daily Record Sheet also follows.

## Imperial Valley Transit Passenger Sampling Assignment Log

Assignment# <u>55B</u>	Employee: _____
DATE: <u>1-7-09</u>	Day of Week: <u>Weds</u>

SPECIAL INSTRUCTIONS FOR REPORTING/FINISHING IF OTHER THAN FIRST OR LAST STOP			
Reporting Time:		Reporting Place:	
Finishing Time:		Finishing Place:	

### On-Board Bus Schedule

<u>Bus Route</u>	<u>Trip Serial #</u>	<u>Beginning Stop</u>	<u>Begin Stop Time</u>	<u>Last Stop</u>	<u>Last Stop Time</u>	<u>Bus Scheduled for Data Collection?</u>	<u>Special Instructions after Last Stop</u>
50		Brawley E St & Rio Vista	12:59P	El Centro State & 14 <sup>th</sup>	2:10P	no	Stay on bus
100	100-08	El Centro State & 14th	2:10P	Calexico Hacienda	2:56P	YES	Stay on bus and with driver
150		Calexico Hacienda	3:06P	El Centro State & 14 <sup>th</sup>	4:20P	no	
Blue East Clockwise	blu1-10	El Centro State & 14th	4:35P	El Centro State & 14 <sup>th</sup>	5:33P	YES	
200	200-10	El Centro State & 14th	5:40P	Brawley E St & Rio Vista	6:37P	YES	

## SURVEY TRIP SHEET

							<b># of Pages</b> <u>1 of 1</u>	
<b>(1) Trip Serial No.</b> <u>100-08</u>			<b>(2) Date</b> <u>1-7-09</u>		<b>(3) Day of Week</b> <u>Weds</u>		<b>(4) Time Period</b> <u>Midday</u>	
<b>(5) Route No.</b> <u>100</u>			<b>(6) Vehicle Inventory Number</b> _____		(7) Total Capacity _____		(8) Seated Capacity _____	
<b>(9)</b>	<b>(10)</b>	<b>(12)</b>	<b>(13)</b>	<b>(14)</b>	<b>(15)</b>	<b>(16)</b>	<b>(17)</b>	
<b>Stop No.</b>	<b>Stop Description</b>	<b>Odometer Reading</b>	<b>Passengers Boarded</b>	<b>Passengers De-Boarded</b>	<b>Passengers On Board</b>	<b>Distance Between Stops</b>	<b>Passenger Miles (15) x (16)</b>	
1	State St / 14 <sup>th</sup> St.				0		0	
2	State St. / 8 <sup>th</sup> St.				0		0	
3	State St. / 5 <sup>th</sup> St.				0		0	
4	4th St. / Brighton				0		0	
5	4th St. / Wensley				0		0	
6	Ross St. / 10 <sup>th</sup> St.				0		0	
7	Imperial Ave. / Pepper St.(Hospital)				0		0	
8	Aurora / 4th St.				0		0	
9	Aurora / 14 <sup>th</sup> St.				0		0	
10	4th St. / Wake St.				0		0	
11	Imperial Valley Mall				0		0	
12	Heber Family Apts				0		0	
13	Heber Post Office				0		0	
14	Heber/Pitzer				0		0	
15	Scaroni/Cole				0		0	
16	Scaroni/Hacienda				0		0	
0	(26) Capacity Miles (7) x (22)	Totals	0	0	0	0	0	
			(20)		(21)	(22)	(23)	
0	(27) Seat Miles (8) x (22)			Mean On Board	0			

## SURVEY TRIP SHEET

							# of Pages <u>1 of 2</u>
(1) Trip Serial No. <u>blu1-10</u>		(2) Date <u>1-7-09</u>		(3) Day of Week <u>Weds</u>		(4) Time Period <u>PM Peak</u>	
(5) Route No. <u>BLUE-EAST/CLOCKWISE</u>		(6) Vehicle Inventory Number _____		(7) Total Capacity _____		(8) Seated Capacity _____	
(9)	(10)	(12)	(13)	(14)	(15)	(16)	(17)
Stop No.	Stop Description	Odometer Reading	Passengers Boarded	Passengers De-Boarded	Passengers On Board	Distance Between Stops	Passenger Miles (15) x (16)
1	State St. / 14th St.				0		0
2	8th/State St.				0		0
3	5th/State St.				0		0
4	Park/5 <sup>th</sup>				0		0
5	Dogwood/Evan Hewes				0		0
6	Dogwood/Orange/Brighton				0		0
7	Hope/Brighton				0		0
8	1st/Brighton				0		0
9	3rd/Brighton				0		0
10	4th/Wensley				0		0
11	4th/Driftwood				0		0
12	Wake Ave.				0		0
13	Social Services Buildings				0		0
14	Clark Rd/S. Loop Rd.				0		0
15	Ross/10 <sup>th</sup>				0		0
16	Imperial/Pepper				0		0
0	(26) Capacity Miles (7) x (22)	Totals	0	0	0	0	0
			(20)		(21)	(22)	(23)
0	(27) Seat Miles (8) x (22)						

## SURVEY TRIP SHEET

							# of Pages <u>2 of 2</u>
(1) Trip Serial No. <u>blu1-10</u>		(2) Date <u>1-7-09</u>		(3) Day of Week <u>Weds</u>		(4) Time Period <u>PM Peak</u>	
(5) Route No. <u>BLUE-EAST/CLOCKWISE</u>		(6) Vehicle Inventory Number _____		(7) Total Capacity _____		(8) Seated Capacity _____	
(9)	(10)	(12)	(13)	(14)	(15)	(16)	(17)
Stop No.	Stop Description	Odometer Reading	Passengers Boarded	Passengers De-Boarded	Passengers On Board	Distance Between Stops	Passenger Miles (15) x (16)
17	La Brucherie/Ocotillo				0		0
18	La Brucherie/Orange				0		0
19	Waterman/Main				0		0
20	State St. / 14th St.				0		0
0	(26) Capacity Miles (7) x (22)	Totals	0	0	0	0	0
			(20)		(21)	(22)	(23)
0	(27) Seat Miles (8) x (22)			Mean On Board	0		



## SURVEY TRIP SHEET

							<b># of Pages</b> <u>1 of 2</u>	
(1) Trip Serial No. <u>200-10</u>		(2) Date <u>1-7-09</u>		(3) Day of Week <u>Weds</u>		(4) Time Period <u>PM Peak</u>		
<b>(5) Route No.</b> <u>200</u>		<b>(6) Vehicle Inventory Number</b>		(7) Total Capacity _____		(8) Seated Capacity _____		
<b>(9)</b>	<b>(10)</b>	<b>(12)</b>	<b>(13)</b>	<b>(14)</b>	<b>(15)</b>	<b>(16)</b>	<b>(17)</b>	
<b>Stop No.</b>	<b>Stop Description</b>	<b>Odometer Reading</b>	<b>Passengers Boarded</b>	<b>Passengers De-Boarded</b>	<b>Passengers On Board</b>	<b>Distance Between Stops</b>	<b>Passenger Miles (15) x (16)</b>	
1	State/14 <sup>th</sup>				0		0	
2	Imperial/Commercial				0		0	
3	Imperial/Euclid				0		0	
4	Bradshaw/86 (Costco)				0		0	
5	La Brucherie/Bradshaw (WalM)				0		0	
6	Aten / La Brucherie				0		0	
7	Imperial Valley College				0		0	
8	Barioni Ave./K St. (IID)				0		0	
9	Imperial Post Office				0		0	
10	15th & Imperial				0		0	
11	Legion Rd. / Hwy 86 (Hospital)				0		0	
12	Brawley—K St./ 2nd St.				0		0	
13	Brawley—K St/Imperial Ave				0		0	
14	Brawley—K St./S. 9th				0		0	
15	Brawley—K St./S. Palm St.				0		0	
16	Brawley—Palm St. / J St.				0		0	
0	(26) Capacity Miles (7) x (22)	Totals	0	0	0	0	0	
			(20)		(21)	(22)	(23)	
0	(27) Seat Miles (8) x (22)							

## SURVEY TRIP SHEET

							# of Pages <u>2 of 2</u>	
(1) Trip Serial No. <u>200-10</u>		(2) Date <u>1-7-09</u>		(3) Day of Week <u>Weds</u>		(4) Time Period <u>PM Peak</u>		
<b>(5) Route No. <u>200</u></b>		<b>(6) Vehicle Inventory Number _____</b>		(7) Total Capacity _____		(8) Seated Capacity _____		
(9)	(10)	(12)	(13)	(14)	(15)	(16)	(17)	
Stop No.	Stop Description	Odometer Reading	Passengers Boarded	Passengers De-Boarded	Passengers On Board	Distance Between Stops	Passenger Miles (15) x (16)	
17	Brawley--S. Main St. / Palm				0		0	
18	Brawley—Main St. / 10th St.				0		0	
19	Brawley—Main/North Plaza				0		0	
20	Brawley—Main/3rd St.				0		0	
21	Brawley--E St./Rio Vista				0		0	
22	Westmorland--Center				0		0	
23	Calipatria--Main St. / Park				0		0	
24	Calipatria—111/Main				0		0	
25	Niland—111/Main				0		0	
							0	
							0	
							0	
							0	
							0	
							0	
							0	
							0	
0	(26) Capacity Miles (7) x (22)	Totals	0	0	0	0	0	
			(20)		(21)	(22)	(23)	
0	(27) Seat Miles (8) x (22)			Mean On Board	0			

Finally FTA Form 406A is used to compile the Daily Record Sheet totals for the year. Form 406A shows (on Lines 1, 7, and 10) that a total of 17,420 unlinked boardings were counted for the year (33.18 boardings per bus trip), with mean numbers of

- 25.51 passengers on 98 sampled weekday a.m. peak hour bus trips (prior to 9:00 a.m.),
- 41.03 boardings on 183 sampled midday weekday trips (9:00 a.m.—3:00 p.m.),
- 25.71 boardings on 131 weekday p.m. peak bus trips (3:00 p.m. –7:00 p.m.)
- and 16.83 on 23 nighttime trips (after 7:00 p.m.).
- Saturdays, with fewer buses that run on the busier routes, typically, average 40.62 boardings per trip.

Inasmuch as Saturdays were oversampled (90 trips) relative to weekday trips (111 daily scheduled weekday trips, but only 28 scheduled Saturday trips and the same daily treatment for all days, the 33.18 boarding average is disproportionately high. When weights are applied, the mean number of boardings per trip system wide is 31.30.

Applying these mean numbers of unlinked boardings and correspondingly determined passenger miles (based on number of people on-board and distance between stops) reveals the final estimates required for the federal database. **Form 406A shows that the annual estimated unlinked passenger boardings and mileage is determined (with a margin of error of +/- 10 percent at 95 percent confidence) to be 949,000 riders who travel 10,294,546 passenger miles annually (Lines 16 and 17).**

Form 406A also breaks down the total ridership and mileage by time of day (Lines 16 and 17).

- There are 190,077 unlinked boardings annually during weekday a.m. peak periods, traveling 2,543,680 miles.
- Midday riders on weekdays total 396,254 per year and 3,753,544 miles.
- Peak riders during the weekday p.m. periods total 232,032 and 2,436,605 miles.
- Weekday nights have 17,028 riders traveling 119,020 miles
- Saturdays have 59,146 riders and 749,164 miles.

## SURVEY TRIP SHEET

							# of Pages <u>1 of 1</u>																																																																																																																																																																								
<b>(1) Trip Serial No.</b> <u>100-11</u>		<b>(2) Date</b> <u>11-14-08</u>		<b>(3) Day of Week</b> <u>Fri</u>		<b>(4) Time Period</b> <u>PM Peak</u>																																																																																																																																																																									
<b>(5) Route No.</b> <u>100</u>		<b>(6) Vehicle Inventory Number</b> <u>105</u>		<b>(7) Total Capacity</b> <u>64</u>		<b>(8) Seated Capacity</b> <u>43</u>																																																																																																																																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 8%;">(9)</th> <th style="width: 18%;">(10)</th> <th style="width: 12%;">(12)</th> <th style="width: 10%;">(13)</th> <th style="width: 12%;">(14)</th> <th style="width: 10%;">(15)</th> <th style="width: 10%;">(16)</th> <th style="width: 8%;">(17)</th> </tr> <tr> <th>Stop No.</th> <th>Stop Description</th> <th>Odometer Reading</th> <th>Passengers Boarded</th> <th>Passengers De-Boarded</th> <th>Passengers On Board</th> <th>Distance Between Stops</th> <th>Passenger Miles (15) x (16)</th> </tr> </thead> <tbody> <tr><td>1</td><td>State St / 14th St.</td><td>60084.1</td><td>14</td><td></td><td>14</td><td>0.4</td><td>5.6</td></tr> <tr><td>2</td><td>State St. / 8th St.</td><td>60084.5</td><td>2</td><td></td><td>16</td><td>0.3</td><td>4.8</td></tr> <tr><td>3</td><td>State St. / 5th St.</td><td>60084.8</td><td>1</td><td>1</td><td>16</td><td>0.3</td><td>4.8</td></tr> <tr><td>4</td><td>4th St. / Brighton</td><td>60085.1</td><td>1</td><td></td><td>17</td><td>0.3</td><td>5.1</td></tr> <tr><td>5</td><td>4th St. / Wensley</td><td>60085.4</td><td>1</td><td></td><td>18</td><td>0.8</td><td>14.4</td></tr> <tr><td>6</td><td>Ross St. / 10th St.</td><td>60086.2</td><td>2</td><td></td><td>20</td><td>1.5</td><td>30</td></tr> <tr><td>7</td><td>Imperial Ave. / Pepper St.(Hospital)</td><td>60087.7</td><td>5</td><td>1</td><td>24</td><td>0.5</td><td>12</td></tr> <tr><td>8</td><td>Aurora / 4th St.</td><td></td><td></td><td></td><td>24</td><td></td><td>0</td></tr> <tr><td>9</td><td>Aurora / 14th St.</td><td></td><td></td><td></td><td>24</td><td></td><td>0</td></tr> <tr><td>10</td><td>4th St. / Wake St.</td><td>60088.2</td><td></td><td>2</td><td>22</td><td>1.9</td><td>41.8</td></tr> <tr><td>11</td><td>Imperial Valley Mall</td><td>60090.1</td><td>6</td><td>1</td><td>27</td><td>2.4</td><td>64.8</td></tr> <tr><td>12</td><td>Heber Family Apts</td><td>60092.5</td><td>5</td><td></td><td>32</td><td>0.5</td><td>16</td></tr> <tr><td>13</td><td>Heber Post Office</td><td>60093</td><td>3</td><td></td><td>35</td><td>4.8</td><td>168</td></tr> <tr><td>14</td><td>Heber/Pitzer</td><td></td><td></td><td></td><td>35</td><td></td><td>0</td></tr> <tr><td>15</td><td>Scaroni/Cole</td><td></td><td></td><td></td><td>35</td><td></td><td>0</td></tr> <tr><td>16</td><td>Scaroni/Hacienda</td><td>60097.8</td><td></td><td>3</td><td>32</td><td></td><td>0</td></tr> <tr> <td>876.8</td> <td>(26) Capacity Miles (7) x (22)</td> <td>Totals</td> <td>40</td> <td>8</td> <td>391</td> <td>13.7</td> <td>367.3</td> </tr> <tr> <td></td> <td></td> <td></td> <td>(20)</td> <td></td> <td>(21)</td> <td>(22)</td> <td>(23)</td> </tr> <tr> <td>589.1</td> <td>(27) Seat Miles (8) x (22)</td> <td></td> <td></td> <td>Mean On Board</td> <td>23.93333333</td> <td></td> <td></td> </tr> </tbody> </table>								(9)	(10)	(12)	(13)	(14)	(15)	(16)	(17)	Stop No.	Stop Description	Odometer Reading	Passengers Boarded	Passengers De-Boarded	Passengers On Board	Distance Between Stops	Passenger Miles (15) x (16)	1	State St / 14th St.	60084.1	14		14	0.4	5.6	2	State St. / 8th St.	60084.5	2		16	0.3	4.8	3	State St. / 5th St.	60084.8	1	1	16	0.3	4.8	4	4th St. / Brighton	60085.1	1		17	0.3	5.1	5	4th St. / Wensley	60085.4	1		18	0.8	14.4	6	Ross St. / 10th St.	60086.2	2		20	1.5	30	7	Imperial Ave. / Pepper St.(Hospital)	60087.7	5	1	24	0.5	12	8	Aurora / 4th St.				24		0	9	Aurora / 14th St.				24		0	10	4th St. / Wake St.	60088.2		2	22	1.9	41.8	11	Imperial Valley Mall	60090.1	6	1	27	2.4	64.8	12	Heber Family Apts	60092.5	5		32	0.5	16	13	Heber Post Office	60093	3		35	4.8	168	14	Heber/Pitzer				35		0	15	Scaroni/Cole				35		0	16	Scaroni/Hacienda	60097.8		3	32		0	876.8	(26) Capacity Miles (7) x (22)	Totals	40	8	391	13.7	367.3				(20)		(21)	(22)	(23)	589.1	(27) Seat Miles (8) x (22)			Mean On Board	23.93333333		
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8	Aurora / 4th St.				24		0																																																																																																																																																																								
9	Aurora / 14th St.				24		0																																																																																																																																																																								
10	4th St. / Wake St.	60088.2		2	22	1.9	41.8																																																																																																																																																																								
11	Imperial Valley Mall	60090.1	6	1	27	2.4	64.8																																																																																																																																																																								
12	Heber Family Apts	60092.5	5		32	0.5	16																																																																																																																																																																								
13	Heber Post Office	60093	3		35	4.8	168																																																																																																																																																																								
14	Heber/Pitzer				35		0																																																																																																																																																																								
15	Scaroni/Cole				35		0																																																																																																																																																																								
16	Scaroni/Hacienda	60097.8		3	32		0																																																																																																																																																																								
876.8	(26) Capacity Miles (7) x (22)	Totals	40	8	391	13.7	367.3																																																																																																																																																																								
			(20)		(21)	(22)	(23)																																																																																																																																																																								
589.1	(27) Seat Miles (8) x (22)			Mean On Board	23.93333333																																																																																																																																																																										

**DAILY RECORD SHEET**

**Week Ending Saturday 4-25-09**  
**Page 1 of 2**

Data Elements	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total for This Week	Previous Cumulative Total	Cumulative Total
<b>(20) Passengers Boarded</b>									
AM Peak			83				83	1936	2019
Midday			148				148	6080	6228
PM Peak							0	2538	2538
Night							0	350	350
Saturday						240	240	2742	2982
<b>TOTAL</b>	0	0	231	0	0	240	471	13646	14117
<b>(21) Passengers on Board</b>									
AM Peak			729				729	17489	18218
Midday			1753				1753	65401	67154
PM Peak							0	23864	23864
Night							0	3799	3799
Saturday						2961	2961	31250	34211
<b>TOTAL</b>	0	0	2482	0	0	2961	5443	141803	147246
<b>(22) Bus Trip Distance</b>									
AM Peak			89.9				89.9	1957.7	2047.6
Midday			85				85	3413.7	3498.7
PM Peak							0	2101.7	2101.7
Night							0	274.1	274.1
Saturday						137.9	137.9	2271.7	2409.6
<b>TOTAL</b>	0	0	174.9	0	0	137.9	312.8	10018.9	10331.7
<b>(23) Passengers Miles</b>									
AM Peak			1229.9				1229.9	26063.8	27293.7
Midday			1653.2				1653.2	56595.3	58248.5
PM Peak							0	27658.8	27658.8
Night							0	2317.1	2317.1
Saturday						2560.3	2560.3	36242.7	38803
<b>TOTAL</b>	0	0	2883.1	0	0	2560.3	5443.4	148877.7	154321.1

# DAILY RECORD SHEET

## *continued*

Week Ending Saturday 4-25-09  
Page 2 of 2

Data Elements	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total for This Week	Previous Cumulative Total	Cumulative Total
<b>(26) Capacity Miles</b>									
AM Peak			4385.1				4385.1	107897.1	112282.2
Midday			5048				5048	190865.2	195913.2
PM Peak							0	118351.5	118351.5
Night							0	14704.6	14704.6
Saturday						8034.6	8034.6	135989.2	144023.8
<b>TOTAL</b>	0	0	9433.1	0	0	8034.6	17467.7	567807.6	585275.3
<b>(27) Seat Miles</b>									
AM Peak			3005.5				3005.5	72113.9	75119.4
Midday			3389				3389	127701.5	131090.5
PM Peak							0	78132.8	78132.8
Night							0	10000.6	10000.6
Saturday						5432.5	5432.5	91809.7	97242.2
<b>TOTAL</b>	0	0	6394.5	0	0	5432.5	11827	379758.5	391585.5
<b>(28) Trips in Sample</b>									
AM Peak			2				2	82	84
Midday			3				3	150	153
PM Peak							0	98	98
Night							0	20	20
Saturday						5	5	70	75
<b>TOTAL</b>	0	0	5	0	0	5	10	420	430
<b>(29) Number of Bus Trips</b>									
AM Peak							151	6010	6161
Midday							195	7808	8003
PM Peak							181	7268	7449
Night							20	808	828
Saturday							28	1176	1204
<b>TOTAL</b>							575	23118	23693

**Form 406A (Modified)  
ANNUAL DATA TO FTA: IMPERIAL  
VALLEY TRANSIT**

July 1, 2008-June 30, 2009

Line No.	ITEM	WEEKDAYS				SATURDAY	SAMPLE	WEIGHTED**
		AM PEAK	MIDDAY	PM PEAK	NIGHT		TOTAL	TOTAL
	Accumulations from Daily Record Sheet							
1	(20) Passengers Boarded	2500	7509	3368	387	3656	17420	16420
2	(21) Passengers on Board	23125	80030	31175	4179	42089	180598	165093
3	(22) Bus Trip Distance	2455.9	4266.9	2781.5	325	2736.7	12566	12153.3
4	(23) Passenger Miles	33456	71129.6	35367.9	2705	46308.2	188966.7	176254.6
5	(26) Capacity Miles	128245.7	244376.6	153809.7	17946.1	165979.6	710357.7	673990.4
6	(27) Seat Miles	90271.7	160306	101927	11507.3	112095.3	476107.3	452745.0
7	(28) Trips in Sample	98	183	131	23	90	525	
8	(29) Total Number of Bus Trips	7451	9657	9025	1012	1456	28601	
9	WEIGHTS**	1.39561804	0.96865523	1.2646024	0.807664068	0.296959314		
	Sample Averages							
10	Unlinked Passengers (Boardings) per Trip (1/7)	25.51	41.03	25.71	16.83	40.62	33.18	31.3
11	Passenger Miles per Trip (4/7)	341.39	388.69	269.98	117.61	514.54	359.94	335.7
12	Capacity Miles per Trip (5/7)	1308.63	1335.39	1174.12	780.27	1844.22	1353.06	1283.8
13	Seat Miles per Trip (6/7)	921.14	875.99	778.07	500.32	1245.50	906.87	862.4
14	% Passenger Miles to Seat Miles per Trip (11/13)	0.371	0.444	0.347	0.235	0.413	0.397	0.389
15	% Passenger Miles to Capacity Miles per Trip (11/12)	0.261	0.291	0.230	0.151	0.279	0.266	0.262
	Annual Totals (weighted by number of trips)							
16	Annual Unlinked Passenger Trips (10*8)	190077	396254	232032	17028	59146	949008	
17	Annual Total Passenger Miles (11*8)	2543680.16	3753543.97	2436605.32	119020.00	749163.77	10294545.88	

Imperial Valley Transit vehicles experience their highest percentage occupancy (Line 14) during midday on weekdays, with 44.4% of seat miles occupied, followed by Saturdays (41.3 percent), and, as would be expected, nighttime have the lightest occupancy (23.5 percent).

The original Form 406A was modified from its published version to accommodate the requisite weighting and to correct some errors in the form. The original Form 406A follows on the next page, with errors noted by yellow highlight. These errors were as follows:

- 1) Lines 11-12 on the original were repeats of lines 9-10 rather than the data shown on the modified Form 406A on lines 12-13, which was the clear intent, and
- 2) Line 10 on the original is shown as being calculated by dividing line 1 by line 7; whereas, the correct determination is line 4 divided by line 7



ANNUAL DATA TO FTA

Transit ID \_\_\_\_\_

Level \_\_\_\_\_

Fiscal Year End \_\_\_\_\_

Type of Service \_\_\_\_\_

Mode \_\_\_\_\_

Line No.	ITEM	WEEKDAYS				SATURDAY	TOTAL
		AM PEAK	MIDDAY	PM PEAK	OTHER		
	Accumulations from Daily Record Sheet						
1	(20) Passengers Boarded						
2	(21) Passengers on Board						
3	(22) Bus Trip Distance						
4	(23) Passenger Miles						
5	(26) Capacity Miles						
6	(27) Seat Miles						
7	(28) Trips in Sample						
8	(29) Total Number of Bus Trips						
9	Unlinked Passengers per Trip (1/7)						
10	Passenger Miles per Trip (1/7)						
11	Unlinked Passengers per Trip (1/7)						
12	Passenger Miles per Trip (4/7)						

\*DO = Directly Operated PT = Purchased Transportation

Sample Plan Used \_\_\_\_\_

Date Prepared \_\_\_\_\_

Date Updated \_\_\_\_\_

**APPENDIX: Qualifications of Rea & Parker Research**

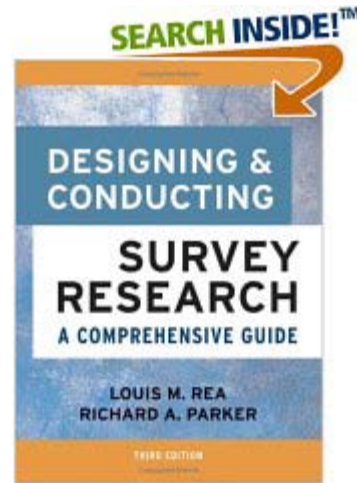
**Richard A. Parker, Ph.D.**

**Louis M. Rea, Ph.D.**

Rea & Parker Research is a survey and market research and economic consulting firm based in San Diego, California. Rea & Parker Research also has facilities in Los Angeles and Orange County. Rea & Parker Research is a division of Rea & Parker, Incorporated, a California corporation—incorporated in 1985 (Fed ID: 33-0156230). Its home office in San Diego is located at 4875 Casals Place, San Diego, CA 92124 (mailing address: P.O. Box 421079, San Diego, CA 92142-1079). Telephone numbers for Rea & Parker Research are 858-279-5070 and 858-279-1170 (fax). The website is [www.rea-parker.com](http://www.rea-parker.com).

It was founded by its present owners, Louis M. Rea, Ph.D., and Richard A. Parker, Ph.D., in 1984 and was incorporated in 1985. Rea & Parker Research has grown into a well-respected, financially stable, and substantial research organization with clients throughout the State of California and the Southwest who will attest to the firm's ability to deliver a quality product within the originally designated budget and in accordance with the contracted time schedule.

Dr. Parker is the firm's President and Dr. Rea its Vice-President. Dr. Rea and Dr. Parker are also professors in the School of Public Affairs at San Diego State University. Dr. Parker and Dr. Rea are co-authors of a highly successful book, *Designing and Conducting Survey Research: A Comprehensive Guide*, published by Jossey-Bass Publishers in 1992, with a second edition published in 1997, and a third edition in 2005.



Rea & Parker Research utilizes the university offices and state-of-the-art computer facilities, along with access to renowned scholars and reference material when necessary. There are four regularly employed members of the staff: Richard A. Parker, Ph.D., Louis M. Rea, Ph.D., Sherry Ryan, Ph.D., and Sharon Gomez, with part-time research assistant help from graduate and undergraduate student assistants.

Drs. Parker and Rea have extensive experience in public and urban affairs regarding the collection of primary demographic, attitudinal, and market-related data through survey research and focus group analysis. Rea & Parker Research has a significant history of success in deriving marketing data from ethnic minority groups. Further, they are highly regarded economic consultants, particularly in the areas of fiscal impact analysis, urban economic development, and site specific commercial, retail, and residential evaluation.

Rea & Parker Research has designed and conducted surveys and market research for a significant list of clients, including:

- State of California--Senate Rules Committee
- State of California--Senate Special Committee on Border Issues
- State of California--Office of the Auditor General
- State of California--Office of the Attorney General
- California Department of Transportation (CALTRANS)
- San Diego County Sheriffs Department
- County of Orange
- City of San Diego Housing Commission
- City of Escondido

- City of Carlsbad
- City of Oceanside
- City of Poway
- City of Davis
- City of St. Helena
- City of Dana Point
- City of Holtville
- Los Angeles County Metropolitan Transportation Authority
- Southern California Regional Rail Authority (Metrolink)
- Orange County Transportation Authority
- Bay Area Rapid Transit
- San Diego Metropolitan Transit System
- Riverside Transit Agency
- Imperial Valley Transit
- Southern California Association of Governments
- Imperial Valley Association of Governments
- San Diego Association of Governments
- Santa Clarita Transit
- Otay Water District
- San Diego County Water Authority
- Imperial Irrigation District
- County of San Diego (including Watersheds, Emergency Preparedness)
- City of San Diego (including Water Department Satisfaction Surveys)
- Sweetwater Authority
- San Diego Gas & Electric
- San Luis Rey Indian Water Authority
- San Diego County Taxpayers Association
- San Diego County Law Library
- California Center for Sustainable Energy
- City Heights Community Development Corporation (City of San Diego)
- Centre City Development Corporation (City of San Diego)
- North Park Main Street Association (San Diego)
- La Jolla Band of Mission Indians
- Viejas Enterprises
- Foxwoods Development
- Wallace, Roberts and Todd--Planners and Architects (San Francisco)
- Westec Services, Inc. (Salt Lake City)
- Joint Labor/Management Committee-Retail Food Industry
- San Diego/Imperial Counties Labor Council AFL-CIO
- PRC Engineering
- RECON, Incorporated
- Christiansen and Wallace
- Stevens Planning Group
- IBI Group
- Brian Mooney and Associates--Urban Planners
- MNA Consulting Services
- Stoorza, Ziegau, & Metzger--Public Relations
- Southwest Strategies, LLC
- Stirling Enterprises
- Pardee Construction Company
- San Diego Aircraft Carrier Museum Foundation

- Westbrook Development
- Genstar Development
- Laing Urban
- Pacific Century Development
- Subway, Inc.
- Westfield Shopping Centers
- Shea Properties
- Pacific Beachfront Resort
- Housing Solutions Alliance
- Smart Growth Coalition—National City
- Seyfarth Shaw LLP—Attorneys at Law (Ikon Office Solutions, Kaiser Permanente, Orange County Register, Bank of America)
- Paul, Plevin, Sullivan & Connaughton LLP (General Dynamics/NASSCO)
- Ault, Deuprey, Jones, Daniels, & Gorman--Attorneys at Law
- Higgs, Fletcher & Mack--Attorneys at Law
- O'Neill, Huxtable & Abelson--Attorneys at Law

**Richard A. Parker, Ph.D. is a Professor of Practice in the School of Public Affairs at San Diego State University where he teaches graduate and undergraduate courses in statistics, survey research, urban economic development, finance, and real estate.** Dr. Parker possesses extensive analytical experience in statistical survey research, market analysis, land use, real estate development and valuation, and transportation issues. He will serve as the co-Project Director.

Dr. Parker has been a consultant to both the public and private sectors for almost 30 years. He has specialized in sample survey research for various governmental agencies and market research for retail, commercial, residential, and recreational development. Particular emphasis has been placed upon market research conducted in the field of transportation, with a myriad of rider/on-board surveys, intercept surveys, telephone surveys, and focus group projects having been performed for several transportation agencies. Dr. Parker has further established his reputation with regard to fiscal impact studies, urban redevelopment, and environmental impact/socioeconomic and demographic analyses. Dr. Parker has also been involved on a consultative basis with a number of issues concerning economic and population growth impacts in Southern California and has published a variety of articles, monographs, and books on these subjects. He has further participated in various panel discussions, delivered expert testimony to legislatures and courts, and appeared on several radio and television programs on behalf of his clients.

Dr. Parker is a graduate of Brown University, the University of California at Berkeley, and UCLA. He possesses degrees in Business Administration from those institutions (B.S., MBA, and Ph.D.) plus a further graduate degree in City Planning (MCP) from San Diego State University.

**Louis M. Rea, Ph.D. is Vice-President of Rea & Parker Research and professor of City Planning in the School of Public Affairs at San Diego State University. Dr. Rea teaches graduate courses in statistical analysis, transportation planning, survey research, and urban/fiscal problems.** He has published a variety of articles, participated in panel discussions, and delivered numerous papers at professional conferences throughout the United States. He has extensive experience as a researcher and consultant in California and particularly in San Diego and the Los Angeles area for the past 30 years. Dr. Rea will be Co-Project Director for this study.

Dr. Rea has conducted and supervised numerous projects in the areas of transportation research and transit planning, including on-board bus/train surveys, ride checks, intercept surveys, and focus groups. He has also conducted Internet and telephone surveys in numerous consulting and research assignments for municipal jurisdictions and private businesses throughout Southern California. Dr. Rea has prepared environmental impact reports and market analyses for various commercial/recreational developments and has analyzed the feasibility of assessment districts and direct benefit financing. Dr. Rea has also prepared demographic and economic profiles and projections for various projects.

Dr. Rea is a graduate of Colgate University in New York, where he earned a BA. He received a Master of Regional Planning (MRP) and Ph.D. in Social Science. from Syracuse University in Regional Planning.

Complete resumes are attached.

### **Selected Sample Survey Research Projects of Rea & Parker Research**

#### **State of California (Senate Rules Committee, Senate Select Committee on Border Issues, and Office of the Auditor General)**

- Analysis of fiscal impact of undocumented immigrants on public services in San Diego County, including criminal justice system, education, and public health. Further identified estimated number of undocumented residents and their contributions to State and local tax revenues. Also included in the analysis were federal revenues, false documentation issues, and macro economic impacts. Study included substantial primary data gathering techniques, including direct interviews with undocumented immigrant workers and INS returnees. Prepared, administered, and analyzed sample surveys of undocumented immigrants in San Diego County for purposes of determining employment characteristics, revenue generation, demographics, and migration patterns. Research included extensive face-to-face interviews and structured roundtable discussions.

#### **City of Carlsbad**

- Prepared, implemented, and analyzed citywide sample telephone survey of 600 respondents concerning future urban commercial development in this fast growing Northern San Diego County city. Extensive analysis of underlying values through conjoint analytical techniques was featured.

#### **County of Orange**

- Prepared, implemented, and analyzed 1,040 person telephone survey of unincorporated area (North Tustin) in order to assess level of service satisfaction issues and potential annexation/sphere of influence adjustments.

### **City of San Diego**

- Prepared, implemented, and analyzed 400 person telephone survey of residents of three low income San Diego communities concerning issues such as crime, economic development, city services, and the success of the City's "Weed and Seed Program."
- Prepared, administered, and analyzed sample survey of San Diego County residents for purposes of assessing utilization and demand factors for Mission Bay Park in San Diego. This survey of 850 persons served to inform the revision of the Park's Master Plan.
- Analysis of market for existing condominium developments in downtown San Diego. Detailed analysis included extensive survey and corresponding statistical and qualitative analysis including recommendations for future market composition.
- Consultant for the revitalization of an older commercial retail area in mid-city San Diego seeking to rejuvenate its retail base. Three surveys and a series of key participant discussions were performed in conjunction with this effort--existing retailers, potential retailers, and residents of the area--plus corresponding statistical and qualitative analysis. Final report included a recommended retail structure for the community that would be realistic, implementable, and sensitive to the diversity of ethnicity in this community.
- Conducted 600 person telephone survey in mid-city for purposes of establishing need for community court in the area populated by myriad low-income minority and immigrant groups. Also in-person interviews/surveys of 100 local business owners.
- Conducted 400 person customer satisfaction survey for City Water Department, with emphasis, in particular, on water recycling.

### **San Diego County**

- Public awareness survey of 1300 County residents regarding water quality and watershed protection, including level of knowledge, behavior, and opinion components.
- Prepared, implemented, and analyzed 8 intercept surveys of law library users concerning classes offered, benefits, opportunities for improvement.
- Evaluated the San Diego Community Planning Process as viewed by planning group participants and informed parties (developed questionnaire, analyzed data, and prepared a final report).
- Two 600 person surveys for Office of Emergency Preparedness to gauge before and after publicity campaign knowledge and state of preparedness for emergencies or catastrophic disaster in county.

## **San Diego County Sheriff's Department**

- Established sampling methodology for analysis by station (11) of workload and availability for calls for service among Sheriff's patrol deputies. Over 3,000 samples drawn and analyzed to establish manpower needs.
- Sample of Communications Center 911 and administrative calls to determine optimal workload shifts and total personnel required.
- Utilized scientific sample to analyzed time savings applicable to the conversion of arrest data to laptop computers from manual entry. Final report included specific determination of manpower hours saved and recommendations for software and operational policy changes in order to maximize technological advantages.

## **Orange County Transportation Authority**

- Rail safety survey (n = 600) concerning rail safety and potential improvements at 50 at-grade intersections of automobile and rail traffic in Orange County
- Marketing program consultant including two 600 person surveys among Latino and senior residents of Orange County and 12 focus groups to identify market-enhancing opportunities for transit service.
- Conducted CenterLine Customer Profile for the Orange County Transportation Authority involving intercept surveys of 8,800 potential urban light rail users and 1,500 telephone survey interviews. Final analysis assessed likely ridership, preferred destinations, trip purposes, demographic and psychographic profiles of potential light Metro Rail ridership.
- Conducted 2,000 person rider/on-board bus survey for the Orange County Transportation Authority regarding monthly, weekly, and daily bus pass sales. Prepared questionnaire, administered survey, analyzed data in order to assess potential for expanding bus pass sales.
- Prepared Multi-Cultural Market Assessment Study for transportation services in Orange County. Formulated baseline data and marketing strategies for long- and short-term transportation related issues facing Orange County's diverse multi-cultural communities, with particular emphasis upon Hispanic and Vietnamese communities. Administered three different statistical surveys including intercept and rider/on-board formats, each in English, Spanish, and Vietnamese.
- Conducted Vietnamese ridership study, including in-person intercept survey, telephone sample survey, and focus group among Vietnamese community leaders regarding current bus service and future transit needs in the Vietnamese areas of Orange County.
- Sample survey of 400 bicycle commuters.



- Conducted 5 day intercept counts of passengers boarding and alighting Metrolink and Amtrak trains at Oceanside, San Clemente, San Juan Capistrano, Laguna Niguel/Mission Viejo, Tustin, Irvine, Santa Ana, Orange, Anaheim, Fullerton, Anaheim Hills, Norwalk, and Commerce rail stations, including detailed statistical analysis and analytical report.

#### **Los Angeles County Metropolitan Transportation Authority (MTA)**

- Rider/on-board 2002 Bus survey for Los Angeles County Metropolitan Transportation Authority, including 40,000 rider/on-board surveys, 2,500 follow-up telephone interviews, and 10 focus groups. Includes additional surveys for **Alhambra Community Transit, Culver City Bus Lines, Commerce Transit, Pasadena ARTS, Cerritos-On-Wheels (COW), Santa Monica Big Blue Bus, Los Angeles Commuter Express, Santa Clarita Transit, Torrance Transit, Carson Circuit, El Monte Trolley, and Foothill Transit.**
- Rider/on-board 2002 Rail survey for Los Angeles County Metropolitan Transportation Authority, including 15,000 rider/on-board surveys, 1,000 follow-up telephone interviews, and 3 focus groups.

#### **Southern California Regional Rail Authority (Metrolink)**

- Obtained precise counts of passenger boardings and alightings at each station for each train in the Metrolink train system and conducted a 3,500 person rider/on-board sample survey regarding customer satisfaction for the Southern California Regional Rail Authority (Metrolink). Analysis included comparative data analysis of trends from the 1997 rider/on-board survey (also conducted by Rea & Parker Research) and from 1995.
- Computerized, analyzed, prepared final report, and presented findings for 6000 rider/on-board rail passenger surveys for the Southern California Regional Rail Authority (Metrolink) regarding customer satisfaction. Analysis included comparative data analysis of trends from previous rider/on-board surveys.
- Determined the requisite two-stage sample for Federal Transportation Agency requirements for annual passenger and mileage calculations.

#### **San Diego Association of Governments (SANDAG)**

- Consultant to All Congregations Together (ACT) -- a non-profit community organization that provides transportation service for individuals with special needs in Southeast San Diego. The purpose of the consulting assignment was to identify transportation issues and problems that were hampering the mobility of local residents. Rea & Parker Research organized and supervised intercept surveys at various locations in the area and conducted focus groups. Regarding the focus groups, Rea & Parker Research designed discussion guides, trained residents to conduct focus groups, assisted in that facilitation, and analyzed focus group data.

### **California Department of Transportation**

- On-Line Survey and focus groups with CALTRANS engineers concerning internal job issues.

### **Riverside Transit Agency**

- On-board customer satisfaction survey, passenger count, and ride check of 100% of system—weekdays and weekends

### **Southern California Association of Governments**

- 800 person survey and 6 focus groups to determine desired route for high-speed rail from Northern California between Los Angeles and San Diego
- 5,000 respondent cross-border transportation survey at 3 Imperial County border checkpoints—24 hours (weekends and weekdays)

### **University of California-Berkeley**

- Panel based survey of participants in pilot study of commute by rail with pooled rental car available at work location and rail station.
- Survey of riders of Metrolink between Riverside and Los Angeles re: location of new station and potential bus connection routes

### **Otay Water District**

- 2008 residential customer satisfaction/awareness (n = 300) **and** call center satisfaction (n = 300) surveys.
- 2008 employee satisfaction survey—online survey of entire staff of district pertaining to employee satisfaction
- 2007 residential customer satisfaction/awareness (n=300) **and** customer service surveys (n=200). Emphasis upon customer satisfaction, conservation measures, customer service needs, communications.
- 2005 customer satisfaction survey of 350 residential customers concerning behavior, opinion, customer service, desalination, water reclamation, and conservation practices.

### **San Diego County Water Authority**

- 2009 San Diego County Water Authority Public Opinion Survey: 700 respondents concerning behavior, opinion, future needs assessment issues, desalination, water reclamation, fluoridation, and conservation practices.
- 2008 San Diego County Water Authority baseline and tracking polls for water conservation media campaign (600 person samples for each)—Water Conservation Opinion and Awareness Survey Report.

- 2007 San Diego County Water Authority Public Opinion Survey: 700 respondents concerning behavior, opinion, future needs assessment issues, desalination, water reclamation, fluoridation, and conservation practices.
- 2005 San Diego County Water Authority Public Opinion Survey: 725 respondents concerning behavior, opinion, future needs assessment issues, desalination, water reclamation, and conservation practices.
- 2005 Member Agency Survey: On-line survey of general managers, division managers, operating heads regarding SDCWA policies and programs
- 2005 Survey of 400 San Diego County public works contractors to identify issues pertaining to project labor agreements and other public works contracting issues, including satisfaction with working in association with SDCWA.
- 2004 Member Agency Survey was prepared, administered and analyzed regarding customer satisfaction. Project included a total revision of the instrument that had been used for many previous years in order to successfully discern possibilities for improved service by the Water Authority to its member agencies
- 2004 San Diego County Water Authority Telephone Public Opinion Survey: 710 respondents concerning behavior, opinion, future needs assessment issues, desalination, water reclamation, and conservation practices.
- 2004 Engineering Department Employee Satisfaction Survey: Survey of Engineering Department staff about employee satisfaction issues—compensation, benefits, advancement, working conditions, feedback, and others.
- 2003 San Diego County Water Authority Telephone Public Opinion Survey conducted among 600 telephone respondents in order to assess knowledge, behavior, opinions, and willingness to pay regarding water issues, including reliability.

#### **City of San Diego Water Department**

- Conducted 400 person survey of City Water Department customers regarding satisfaction, recycling, and water conservation.

#### **San Diego County**

- Public awareness survey of 1300 County residents regarding water quality and watershed protection, including level of knowledge, behavior, and opinion components.

#### **North County Co-Permittees**

- Public awareness survey of 800 Carlsbad and San Luis Rey watershed residents, including level of knowledge, behavior, and opinion components.

### **Imperial Irrigation District**

- Developed statistical models to predict daily power consumption based upon a variety of factors, including temperature, humidity, cloud cover, precipitation, vapor pressure, season, day of the week, and many more.

### **North Park Main Street Association**

- Conducted two intercept surveys--business owners and shoppers in San Diego Main Street National Historic Preservation Area in order to determine shopping needs and level of improvement or decline in area since the implementation of the Main Street program.

### **City of Davis**

- Prepared, administered, and analyzed sample survey of 833 residents of Davis, California for purposes of assessing utilization, demand, and tax allocation factors for City of Davis Department of Parks and Recreation in concert with the preparation of the Master Plan.

### **City of St. Helena**

- Prepared, administered, and analyzed sample survey of City of St. Helena, California residents for purposes of General Plan revisions.

### **City of Poway**

- Prepared, administered, and statistically analyzed a mail survey of 800 Poway businesses regarding their needs and opinions concerning Poway's business climate and future opportunities. Final report included detailed analysis and exposition, including recommendations where appropriate.
- Prepared, administered, and statistically analyzed a mail survey of 6,000 Poway households concerning their opinions regarding a variety of issues of importance to the City for future planning. Final report included fully tabulated results with accompanying statistical reports.

### **City of Dana Point**

- Prepared recreation and parks needs assessment survey for administration to general public.

### **City of Oceanside**

- Public awareness survey of 800 Carlsbad and San Luis Rey watershed residents, including level of knowledge, behavior, and opinion components.

### **Sweetwater Authority**

- Public awareness survey of 400 residents of the water agency, including level of knowledge, behavior, and opinion components.

### **Imperial Irrigation District**

- Statistical modeling of power demand
- Instructed employees of Energy Supply and Trading division in statistical techniques

### **San Luis Rey Indian Water Authority**

- Prepared and supervised administration of detailed census and opinion survey of 2,500 members of five Indian tribes. Particular emphasis was given to issues of importance to the tribes' members such as job opportunities, education, cultural issues, economic development opportunities and transportation access issues. Focus group sessions with each tribe were utilized to complement the survey findings. Final report included both census data and fully tabulated and statistically analyzed summary of the opinions of reservation residents.

### **City of Escondido**

- Prepared, administered, and statistically analyzed telephone survey of 425 residents concerning library facilities.

### **Stoorza, Ziegus & Metzger — Public Relations**

- Conducted city-wide (San Diego) survey of voter opinion (850 participants) concerning the initiative to change the name of Dr. Martin Luther King, Jr. Way to Market Street and related issues.

### **MNA Consulting, Inc.**

- Prepared, administered, and analyzed sample survey of City of Poway, California citizens in order to assess demand factors for new public library facility.

### **San Diego Housing Commission**

- In accordance with the City of San Diego SRO Preservation Ordinance, a survey/inventory of all existing guest rooms in the City of San Diego was performed in order to retroactively identify rooms that qualified as single room occupancy hotel rooms as of December 1985, December 1987 and May 1988. The purpose of this survey was to identify a baseline number of such units for presentation purposes. Prepared survey instrument, SRO identification methodologies, computerization formats, statistical analyses, and final report with room-by-room breakdown.

### **San Diego County Department of Planning and Land Use**

- Evaluated the San Diego Community Planning Process as viewed by planning group participants and informed parties (developed questionnaire, analyzed data, and prepared a final report).

**San Diego County Law Library**

- Prepared and implemented 5 specific survey research projects among law library course attendees, librarians, and non-attendees.

**Stevens Planning Group, Inc.**

- Conducted economic/marketing analysis of proposed 2500-acre resort development in East San Diego County. Analysis included examination of comparable projects plus administration of surveys to target Services groups of potential users of proposed resort activities. Surveys were tabulated and statistically analyzed and then combined with reconnaissance of comparable projects in formal report to client.

**Higgs, Fletcher & Mack**

- Analyzed and testified as expert witness regarding statistical survey concerning appraisal of commercial real estate subject to condemnation.

**Seyfarth Shaw**

- Testified as expert witness regarding adequacy of statistical survey sampling of employees in various class action lawsuits.

## Richard A. Parker, Ph.D.

### Education

- Ph.D. University of California, Los Angeles  
Pacific Western University (Los Angeles, California)  
Doctor of Philosophy
- M.B.A. University of California, Berkeley (Berkeley, California)  
Master of Business Administration  
Teacher Certification — Lifetime Secondary Credential  
(Business, Social Studies, English)
- M.C.P. San Diego State University (San Diego, California)  
Master of City Planning
- B.S. Brown University (Providence, Rhode Island) and  
University of California, Berkeley (Berkeley, California)  
Bachelor of Science — Business Administration  
(Phi Beta Kappa)

### Selected Related Professional Experience

1985- Professor, School of Public Affairs, San Diego State University, San Diego, California. Courses taught:

- Seminar in Urban Planning Methodologies (graduate)
- Issues in Financing Urban Development (graduate)
- Quantitative Methods (Statistics) (graduate)
- Seminar in Quantitative Approaches to Public Administration (graduate)
- Quantitative Techniques in Urban Planning (graduate)
- Methods of Analysis in City Planning (upper division undergraduate)
- Contemporary Urban Issues (upper division undergraduate)
- Public Policy Administration (upper division undergraduate and graduate)
- Public Finance (graduate and upper division undergraduate)
- Seminar in Economics of Urban and Regional Planning (graduate)

1982- President/Project Director, Rea & Parker Research

Research Clients include:

- Los Angeles County Metropolitan Transportation Authority
- Southern California Regional Rail Authority (Metrolink)
- Orange County Transportation Authority
- Bay Area Rapid Transit
- Metropolitan Transit Development Board (San Diego Transit)
- Southern California Association of Governments
- San Diego Association of Governments
- State of California--Senate Rules Committee
- State of California--Senate Special Committee on Border Issues
- State of California--Office of the Auditor General
- State of California--Office of the Attorney General
- California Department of Transportation (CALTRANS)
- San Diego County Sheriffs Department
- San Diego County Water Authority
- San Diego Gas & Electric
- County of San Diego
- County of Orange
- City of San Diego
- City of San Diego Housing Commission
- City of Escondido
- City of Carlsbad
- City of Oceanside
- City of Poway

- City of Davis
- City of St. Helena
- City of Dana Point
- Santa Clarita Transit
- Sweetwater Authority
- San Diego County Taxpayers Association
- San Diego County Law Library
- City Heights Community Development Corporation (City of San Diego)
- Centre City Development Corporation (City of San Diego)
- North Park Main Street Association (San Diego)
- San Luis Rey Indian Water Authority
- La Jolla Band of Mission Indians
- Wallace, Roberts and Todd--Planners and Architects (San Francisco)
- Westec Services, Inc. (Salt Lake City)
- Joint Labor/Management Committee-Retail Food Industry
- San Diego/Imperial Counties Labor Council AFL-CIO
- PRC Engineering
- RECON, Incorporated
- Christiansen and Wallace
- Stevens Planning Group
- Brian Mooney and Associates--Urban Planners
- MNA Consulting Services
- Stoorza, Ziegus, & Metzger--Public Relations
- Southwest Strategies, LLC
- Ault, Deuprey, Jones, Danielsen, & Gorman--Attorneys at Law
- Higgs, Fletcher & Mack--Attorneys at Law
- O'Neill, Huxtable & Abelson--Attorneys at Law
- Seyfarth Shaw—Attorneys at Law
- Laing Urban

## **Selected Publications**

### Books

Designing and Conducting Survey Research: A Comprehensive Guide (with Louis M. Rea, Ph.D., 1992 (2<sup>nd</sup> edition 1997—3<sup>rd</sup> edition 2005). Jossey-Bass, Inc., Publishers, San Francisco.

### Monographs/Research Reports

Cost Benefit Analysis: A Case Study of the Berkeley Park Marina Shopping Center, University of California, Berkeley, California, 1971, 168 pp.

The Economics of Environmental Restrictions on the Use of Urban Land, Institute of Urban and Regional Development, University of California, Berkeley, California (with Leonard Merewitz, Ph.D.), 1973, 79 pp.

Back to the City: The Middle Income Housing Market in Centre City San Diego, San Diego State University, San Diego California, 1984, 258 pp.

The Fiscal Impact of Undocumented Immigrants Residing in San Diego County, State of California, Office of the Auditor General, 1992, 129 pp.

Illegal Immigration in San Diego County: An Analysis of Costs and Revenues, State of California, State Senate Office of Reproductions, 1993, 172 pp.

### Articles

"Water Supply for Urban Southern California: An Historical and Legal Perspective," Glendale University Law Review, Vol. 8, Nos. 1-2, 1988.

"The Retail Commercial Strip in Transition: A Case Study in San Diego," The Western Governmental Researcher (with Louis M. Rea, Ph.D.), Fall, 1989.



## **Louis M. Rea, Ph.D.**

### **Education**

- Ph.D. Social Science, The Maxwell School, Syracuse University, 1975
- M.R.P. Department of Regional Planning, The Maxwell School, Syracuse University, 1973
- B.A. Economics, Colgate University, Hamilton, New York, 1971  
(Phi Beta Kappa, cum laude, honors in economics)

### **Professional Experience**

Professor and Director: School of Public Administration and Urban Studies, San Diego State University, 1975-present. Manage an academic department with a budget of \$1 million; responsible for resource allocation and the purchase of supplies and equipment; supervise 20 full-time faculty and several staff personnel; responsible for hiring part-time faculty from the professional community. Courses taught:

- Quantitative Methods (Statistics) (graduate)
- Quantitative Techniques in Urban Planning (graduate)
- Seminar in Economics of Urban and Regional Planning (graduate)
- Introduction to Urban Planning (upper division undergraduate)
- Seminar in Urban and Regional Planning (graduate)
- Quantitative Methods in Criminal Justice Administration (upper division undergrad)

Vice-President/ Project Manager: Rea & Parker Research, 1982-present

Research Clients include:

- State of California--Senate Rules Committee
- State of California--Senate Special Committee on Border Issues
- State of California--Office of the Auditor General
- State of California--Office of the Attorney General
- California Department of Transportation (CALTRANS)
- San Diego County Sheriffs Department
- San Diego County Water Authority
- San Diego Gas & Electric
- County of San Diego
- County of Orange
- City of San Diego
- City of San Diego Housing Commission
- City of Escondido
- City of Carlsbad
- City of Oceanside
- City of Poway
- City of Davis
- City of St. Helena
- City of Dana Point
- Los Angeles County Metropolitan Transportation Authority
- Southern California Regional Rail Authority (Metrolink)
- Orange County Transportation Authority
- Bay Area Rapid Transit
- Metropolitan Transit Development Board (San Diego Transit)
- Southern California Association of Governments

- Santa Clarita Transit
- Sweetwater Authority
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- Westec Services, Inc. (Salt Lake City)
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- San Diego/Imperial Counties Labor Council AFL-CIO
- PRC Engineering
- RECON, Incorporated
- Christiansen and Wallace
- Stevens Planning Group
- Brian Mooney and Associates--Urban Planners
- MNA Consulting Services
- Stoorza, Ziehaus, & Metzger--Public Relations
- Ault, Deuprey, Jones, Danielsen, & Gorman--Attorneys at Law
- Higgs, Fletcher & Mack--Attorneys at Law
- O'Neill, Huxtable & Abelson--Attorneys at Law

## **Selected Publications**

### Books

Designing and Conducting Survey Research: A Comprehensive Guide (with Richard A. Parker), Ph.D., 1992 (2<sup>nd</sup> edition 1997—3<sup>rd</sup> edition 2004). Jossey-Bass, Inc., Publishers, San Francisco.

### Monographs/Research Reports

The Fiscal Impact of Undocumented Immigrants Residing in San Diego County, State of California, Office of the Auditor General, 1992, 129 pp.

Illegal Immigration in San Diego County: An Analysis of Costs and Revenues, State of California, State Senate Office of Reproductions, 1993, 172 pp.

An Arts Plan for the San Diego Region — Region 1: An Inventory of Artists, Organizations, Facilities, and Economic Impact

Louis M. Rea, Ph.D. & James A. Clapp, Ph.D.

State-Local Partnership of the San Diego Region, August 1982

### Articles

"The Retail Commercial Strip in Transition: A Case Study in San Diego," The Western Governmental Researcher (with Richard A. Parker, Ph.D.), Fall, 1989.

"A Quantitative Comparison of Second Generation Rent Control Ordinances"

Louis M. Rea, Ph.D. and Dipak K. Gupta, Ph.D.

Urban Affairs Quarterly, Vol. 19, No. 3, March 1984.

"Direct Benefit Financing: An Opportunity for Local Government"

Louis M. Rea, Ph.D., Glen W. Sparrow, Ph.D., and Dipak K. Gupta, Ph.D.

Public Administration Quarterly, Vol. 7, No. 3, Fall 1984.