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California Competitive Cities: A Report Card on Efficiency in Service Delivery in California's Largest Cities

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Table of Contents

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Introduction

Consumers turn to objective third-party reports for information on many of the goods and services they purchase. Likewise, citizens often turn to guides and report cards that evaluate how their governments perform on readily understood measures. *Money* magazine rates the best cities in which to retire.[1] *Fortune* magazine rates the best cities for business.[2] *Governing* magazine grades cities on how well managed they are (but does not look at service efficiency). The U.S. Conference of Mayors rates city livability.[3] Many other guides and report cards evaluate various city attributes.[4]

Yet none of these reports examines how efficiently cities deliver services—what resources does it take to pick up the trash, fix the streets, or provide fire protection? Do some cities use more or fewer resources than others? This *Competitive Cities Report Card* is a first attempt at filling that gap.

Ideally, citizens would be able to ascertain how much money and worker time are required by their governments to provide various services, and how those resources compare to those used by other cities for *the same quality of service.* Without good performance data, citizens are left without accurate means to evaluate their city governments and must rely on cruder measures. Groups such as the Government Finance Officers Association, the Governmental Accounting Standards Board, and the International City/County Management Association have long sought to aid municipal governments in measuring performance of

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1 www.money.com/money/depts/retirement/bpretire

2 www.fortune.com/fortune/bestcities/index.html

3 www.usmayors.org/USCM/uscm_projects_services/city_livability_awards

4 www2.lib.udel.edu/subj/godc/resguide/places.htm lists a bibliography of books rating cities and links to a number of sites providing comparison data.

municipal services.[5] Performance measures allow city officials and citizens to evaluate the connection between policy options and their outcomes. Without measuring results, citizens can't tell success from failure.[6] Specifically, performance measurement provides:[7]

1. An evaluation of how a program is working;
2. A method to compare contracted to in-house services; and
3. Improved communications with the public.

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[5] Joni L. Leithe, *Implementing Performance Measurement in Government: Illustrations and Resources*, (Chicago: Government Finance Officers Association, 1997); Government Accounting Standards Board, *Performance Measurement For Government*, www.rutgers.edu/Accounting/raw/seagov/pmg/index.html; and Harry P. Hatry et al. *How Effective Are Your Community Services? Procedures for Measuring Their Quality*, 2nd Edition, (Washington, D.C.: The Urban Institute and The International City/County Management Association, 1992).

[6] David Osborne and Ted Gaebler, *Reinventing Government* (New York: Plume, 1993), p. 147.

[7] Len Wood, *Local Government Dollars and Sense* (Rancho Palos Verdes, CA.: Training Shoppe, 1998), pp. 218-9.

Part 1

Approach and Summary Results

California Competitive Cities is an outgrowth of a much larger endeavor completed last year. The original project set out to evaluate the 50 largest U.S. cities, looking at 18 municipal services and testing 16 factors that might help explain differences in service efficiency, using data for 1993-1998. Due to missing, incomplete, or incompatible data we had to trim the number of the cities to 44, the number of services to 11, and the number of possible efficiency factors to six. The results and report can be viewed at www.rppi.org/compcity.

This study evaluates the 10 largest cities in California, looking at 10 services, and testing seven factors that might help explain differences in service delivery, using data from 1993–1999 (see Table 1).[8]

Table 1: Scope of California Competitive Cities Comparison

Cities Examined		
• Anaheim	• Oakland	• San Francisco
• Fresno	• Sacramento	• San José
• Long Beach	• San Diego	• Santa Ana
• Los Angeles		
Services Examined		
• Building Maintenance	• Libraries	• Solid Waste Services
• Emergency Medical Services	• Parks and Recreation	• Street Repair
• Fire Protection	• Police Services	• Water Services
• Fleet Management		
Efficiency Factors Examined		
• Average precipitation	• Minimum temperature	• Average temperature*
• Maximum temperature	• Size (sq miles) in 1990	• City manager vs. mayor structure*
• Population change 1990-96*		

*factor that had a statistically significant effect on efficiency scores.

[8] Three measures that were included in the original report card were state-based, thus they are co-linear in this analysis and were subsequently removed.

Result #1—Overall City Efficiency Rankings

We calculated overall efficiency rankings for all cities based on averaging scores for all data available for all cities. San Diego ranked most efficient, and indeed held the position of most efficient four of the seven years, twice finishing second. San Francisco ranked least efficient, holding that position each year between 1993-1999 except for 1995.

Table 2: Overall Efficiency Rankings

City
1. San Diego
2. Fresno
3. Long Beach
4. Sacramento
5. San José
6. Santa Ana
7. Los Angeles
8. Anaheim
9. Oakland
10. San Francisco

Result #2—Efficiency Ranks by Service

In addition to overall weighted efficiency scores, we ranked cities by how well they performed in each of the services we examined.

Table 3: Efficiency Ranks by Service*

Service	Most Efficient City	Least Efficient City
Building Management	Los Angeles	San José
Emergency Medical Services	Long Beach	Sacramento
Fire Protection	Long Beach	Los Angeles
Fleet Management	Santa Ana	Los Angeles
Libraries	Sacramento, Santa Ana	Oakland
Parks and Recreation	San Diego	Sacramento
Police	Anaheim, Long Beach	Los Angeles
Solid Waste	Long Beach	Los Angeles
Street Maintenance	Fresno	San Francisco
Water	Santa Ana, Fresno	Los Angeles

* Of the cities included in the analysis.

Result #3—Factors that Help Explain Efficiency Differences

We conducted an econometric analysis of the efficiency scores to see if we could determine some causes of differences in efficiency. Factors that explained some of the differences in efficiency scores are listed and explained in Table 4.[9] Note that of the factors we were able to evaluate, the one that most influenced efficiency by far was city manager vs. elected mayor governance structures—cities with city managers are far more likely to be efficient.

Some factors that we wanted to assess we could not, due to lack of data. Other factors were measured, but turned out not to influence efficiency. Among these factors were average precipitation and geographic size of the cities.

Table 4: Factors Affecting City Efficiency

Factor		Explanation
	City Manager vs. Mayor governance structure	Cities with a manager are more likely to be efficient; relative efficiency scores increase an average of 113 percent over those with a strong elected mayor.
	Average Temperature	Cities with higher average temperatures are more likely to be efficient; relative efficiency scores increase an average of almost 37 percent with each one-degree increase in average temperature.
	Population Change	Cities with increasing populations are slightly more likely to be efficient; relative efficiency scores increase an average of 9.6 percent for each 1 percent increase in population (1990-1996).

The factors listed above are simply correlated with efficiency as indicated, and aren't necessarily causal. But looking at which causal factors are relevant for each city, and the direction of their effects, may partly indicate why a city is ranked as it is. There are many possible interpretations of why factors may have the effects we found. A few include:

- **Manager vs. Mayor:** Perhaps city managers, without the political pressure of running for office, can more readily focus on efficient operations of city services.
- **Temperature:** It is unlikely that temperature directly affects efficiency in the directions indicated. It is likely proxying for some other factor we did not measure. Perhaps warmer average temperature reduces some capital and operating costs for delivering some services.
- **Population Change:** In the only departure from the original analysis, California cities have been able to cope with growth without losing relative efficiency, perhaps due to fewer restrictions on urban development.

[9] The combination of factors in Table 4 explains 48 percent of the differences in efficiency scores (R-squared for the regression is 0.874049).

Part 2

Analysis

How to Read the Tables:

1) The average over all years and cities is not the simple average of the annual scores for this city. The average rank comes from aggregating scores for all years and all cities in each service. Because it uses all years—and in some years there may be many more or much less efficient cities than in the years for which this city has scores—the average rank can vary substantially from the year-to-year ranks. The more years of data a city has for a service, the closer this average rank will be to the simple average of the annual scores.

2) The weighted overall efficiency rank is also not the average of the annual scores for this city. This ranking reflects the average calculated, with weighting that gives the most influence to the services for which there is the most data. So cities with better scores in those services where we have data from will tend to score better here.

   Furthermore, a total of 10 services were ranked. Cities that did not provide that service or contracted-out had their overall weighting adjusted accordingly.

3) The numbers in the parenthesis ( ) on the last column of the city pages reflect the total number of cities ranked for that service. For example, in Fire Protection, Long Beach ranked #1 out of seven cities. This is represented by 1 (7) in the last column.

4) Annual service ranks were based on individual efficiency scores. If two cities had identical scores, they received the same ranking. For example, in Libraries, Sacramento and Santa Ana tie for first with the highest efficiency score. San Diego had next highest score and finishes third, since it is the third best city in that service area. Much like a race, the ranking is determined by overall position and ties count for two positions.

5) This report card is measuring the efficiency of municipal government service provision. Cities that contract out services were excluded, without penalty, from the analysis for that service.

Part 3

Results and Rankings by City

Anaheim

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank:

8

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings			3	3	3	2	2	3 (8)
Fire								No Data Available
EMS								Contracted Out
Fleet			1	2	2	2	2	2 (9)
Libraries				1	5	1	1	4 (9)
Parks	4	5	5	7	4	7	5	5 (10)
Police			1					1 (9)
Solid Waste								Contracted Out
Streets								No Data Available
Water	2	2		2		4	2	4 (8)
Weighted Overall Efficiency Rank	9	9	6	7	6	6	3	

Efficiency Comments

- Anaheim's fleet department was among the top performers.

Data Availability Rating and Comments

- Anaheim was somewhat helpful in providing data, with the exception of the fire department.

Some Factors Behind the Rankings

- Cities with city managers tend to be significantly more efficient than those without.
- Anaheim has privatized EMS and solid-waste services.

Fresno

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank: 2

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings			4					4 (8)
EMS								Contracted Out
Fire		3	3	2	3	1	2	4 (7)
Fleet			6	4	3	3		4 (9)
Libraries								County Operation
Parks	5	6	6	6	7	6		7 (10)
Police	4	5	5	4	2	2	2	5 (9)
Solid Waste		2	4	4	3	3	3	4 (5)
Streets	1	1	1	1	1	1	1	1 (9)
Water					1	2	1	2 (8)
Weighted Overall Efficiency Rank	7	4	2	5	2	1	1	

Efficiency Comments

- Fresno's street maintenance department is the most efficient of those we examined for all the years data was available.
- Police and water departments were top performers over the time examined.

Data Availability Rating and Comments

- Some Fresno departments were helpful in providing data and others were not.

Some Factors Behind the Rankings

- Cities without city managers tend to be significantly less efficient than those with city managers.
- Fast-growing cities tend to be slightly more efficient—Fresno grew by 14.1 percent from 1990–96, while the average for all cities in this report was 6.67 percent growth.
- Fresno contracts out EMS and solid-waste services.

Long Beach

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank:

3

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings								No Data Available
EMS		1	1	3	3	1	1	1 (3)
Fire					1	2	1	1 (7)
Fleet		2	4	6	5			6 (9)
Libraries	5	3	2	1	1	6	2	8 (9)
Parks	7	8	7		6	8	4	8 (10)
Police	1	1	2	1	1	1	1	2 (9)
Solid Waste		1	1	2	1	1	1	1 (5)
Streets		7	8		7			7 (9)
Water	3	3	2	3	3	6		5 (8)
Weighted Overall Efficiency Rank	6	3	4	1	4	5	2	

Efficiency Comments

- Long Beach was tops in public-safety related (EMS, Fire, and Police) services.
- Efficiency peaked in 1996 and 1999, ranking Long Beach at #1 and #2 respectively.

Data Availability Rating and Comments

- Long Beach was generally helpful in providing data. Staff in most departments were very helpful.

Some Factors Behind the Rankings

- Cities with city managers tend to be significantly more efficient than those without.

Los Angeles

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank: 7

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings	1	1	2	1	2	1	1	1 (8)
EMS				1	1	2	3	2 (3)
Fire	3			5	6			7 (7)
Fleet	3	3	8	9	8	7	5	9 (9)
Libraries	1				7	1		6 (9)
Parks	2	2	2	2	2	2	2	2 (10)
Police	8	8	8	7				9 (9)
Solid Waste				5	5			5 (5)
Streets	4	2	3	3	3	3		3 (9)
Water		5	4	5	4	5		8 (8)
Weighted Overall Efficiency Rank	8	6	9	8	5	3	7	

Efficiency Comments

- Los Angeles had the highest performing building maintenance department and the second most efficient park system.

Data Availability Rating and Comments

- Los Angeles was more helpful in providing data for this project than in the first analysis.

Some Factors Behind the Rankings

- Cities without city managers tend to be significantly less efficient than those with city managers.
- Fast-growing cities tend to be slightly more efficient—Los Angeles grew by 3 percent from 1990-96, while the average for all cities in this report was 6.67 percent growth.

Oakland

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank:

9

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings	3	3	6	5				7 (8)
EMS								Contracted Out
Fire								No Data Available
Fleet	2		3	3				3 (9)
Libraries	4			6	8	8		9 (9)
Parks	3	4	4	4	5	5	7	4 (10)
Police	5	4						6 (9)
Solid Waste								Contracted Out
Streets	7	6	7	7	8	6	5	8 (9)
Water								No Data Available
Weighted Overall Efficiency Rank	2	7	10	9	9	9	9	

Efficiency Comments

- Oakland's ranking quickly declined from #2 to #7 in 1994 and bottomed out in 1995. Along with San Francisco, Oakland has been one of the poorest performers.

Some Factors Behind the Rankings

- Cities without city managers tend to be significantly less efficient than those with city managers.
- Fast-growing cities tend to be slightly more efficient—Oakland grew by 6.2 percent from 1990-96, while the average for all cities in this report was 6.67 percent growth.

Sacramento

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank: 4

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings	2	2	1	4	4			5 (8)
EMS				1	2	3	2	3 (3)
Fire	1	2	2	3	2			3 (7)
Fleet			7	8	7	6		8 (9)
Libraries					1	1		1 (9)
Parks	8	7	8	8	9	9		10 (10)
Police	3	3	4	2				4 (9)
Solid Waste			2	1	4		3	3 (5)
Streets	3	3	6	6	4			4 (9)
Water	1	1	1	1	2	3		3 (8)
Weighted Overall Efficiency Rank	3	5	3	3	3	8	6	

Efficiency Comments

- Sacramento's police department improved its relative efficiency during the period examined.
- The library department was the best performer for the two years of data available.

Data Availability Rating and Comments

- Sacramento city departments were fairly helpful in fulfilling our requests for data.

Some Factors Behind the Rankings

- Cities with city managers tend to be significantly more efficient than those without.
- Fast-growing cities tend to be slightly more efficient—Sacramento grew by 10.6 percent from 1990-96, while the average for all cities in this report was 6.67 percent growth.

San Diego

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank:

1

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings			5	2	1			2 (8)
EMS								Public-private Partnership
Fire	2	4	5		4			6 (7)
Fleet			5	7	6	5	4	7 (9)
Libraries	2	1	1	1	1	1		3 (9)
Parks	1	1	1	1	1	1	1	1 (10)
Police	7	7	7	6				8 (9)
Solid Waste			3	3	2	2		2 (5)
Streets	5	4	5	5	6	5	3	5 (9)
Water	4	4	3	6	6	8	4	7 (8)
Weighted Overall Efficiency Rank	1	1	1	2	1	2	5	

Efficiency Comments

- San Diego's library, solid-waste, and building departments were consistently some of the most efficient examined.
- San Diego ranked #1 four of the seven years examined, and twice ranked #2. Their ranking slipped to #5 in 1999.

Data Availability Rating and Comments

- Though data for earlier years was difficult to find, and not all city departments were helpful, in more recent years San Diego has adopted an outstanding citizen's budget document and has embraced performance measurement.

Some Factors Behind the Rankings

- Cities with city managers tend to be significantly more efficient than those without.
- Fast-growing cities tend to be slightly more efficient—San Diego grew by 6.3 percent from 1990-96, while the average for all cities in this report was 6.67 percent growth.

San Francisco

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank: 10

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings								No Data Available
EMS								No Data Available
Fire			1	1				2 (7)
Fleet								No Data Available
Libraries			3		6	7		7 (9)
Parks				5	8	7	6	6 (10)
Police	6	6	6	5				7 (9)
Solid Waste								Contracted Out
Streets				8	9	7	6	9 (9)
Water				4	5	7	3	6 (8)
Weighted Overall Efficiency Rank	10	10	8	10	10	10	10	

Efficiency Comments

- San Francisco's fire department's efficiency was among the top performers.
- San Francisco was the least efficient city analyzed in every year but 1995 when they finished #8.

Some Factors Behind the Rankings

- Cities without city managers tend to be significantly less efficient than those with city managers.
- Fast-growing cities tended to be slightly more efficient—San Francisco grew by 3.2 percent from 1990-96, while the average for all cities in this report was 6.67 percent growth.

San José

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank: 5

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings				7	6		4	8 (8)
EMS								No Data Available
Fire		1	4	4	5	3	3	5 (7)
Fleet				5	4	4	3	5 (9)
Libraries		2		1	4	1		5 (9)
Parks		3	3	3	3	3	3	3 (10)
Police	2	2	3	3				3 (9)
Solid Waste								Contracted Out
Streets	6	5	4	4	5	4	4	6 (9)
Water								No Data Available
Weighted Overall Efficiency Rank	4	2	7	4	7	7	8	

Efficiency Comments

- San José's efficiency peaked at #2 in 1994. In recent years their ranking has slipped to as low as #8.

Data Availability Rating and Comments

- San José's city budgets do incorporate a fair number of performance measures, but these are more internally driven and relate more to process than they do to citizen concerns.

Some Factors Behind the Rankings

- Cities with city managers tend to be significantly more efficient than those without.
- Fast-growing cities tend to be slightly more efficient—San José grew by 6.8 percent from 1990-96, while the average for all cities in this report was 6.67 percent growth.

Santa Ana

Annual Efficiency Ranks for Each Service

Overall Efficiency Rank: 6

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Buildings	4	4	6	6	5	3	3	6 (8)
EMS								No Data Available
Fire								No Data Available
Fleet	1	1	2	1	1	1	1	1 (9)
Libraries				1				1 (9)
Parks	6							9 (10)
Police								No Data Available
Solid Waste								Contracted Out
Streets	2		2	2	2	1	2	2 (9)
Water						1		1 (8)
Weighted Overall Efficiency Rank	5	8	5	6	8	4	4	

Efficiency Comments

- Santa Ana had three services finish #1, however two of those services only provided data in one or two years. Their fleet department did finish #1 in every year but one.

Data Availability Rating and Comments

- Santa Ana city documents do incorporate a fair number of performance measures, but these are more internally driven and relate more to process than they do to citizen concerns.

Some Factors Behind the Rankings

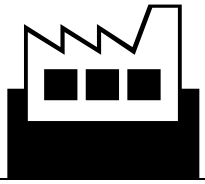
- Cities with city managers tend to be significantly more efficient than those without.
- Fast-growing cities tend to be slightly more efficient—Santa Ana grew by 4 percent from 1990-96, while the average for all cities in this report was 6.67 percent growth.

Part 4

Results and Rankings by Service

Service	Top Performers	Page
Building Maintenance	Los Angeles	20
Emergency Medical Services	Long Beach	21
Fire Protection	Long Beach	22
Fleet Management	Santa Ana	23
Libraries	Sacramento, Santa Ana	24
Parks and Recreation	San Diego	26
Police	Anaheim, Long Beach	27
Solid Waste	Long Beach	28
Streets	Fresno	29
Water	Santa Ana, Fresno	30

Building Management



Annual Efficiency Ranks for Each City

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim			3	3	3	2	2	3
Fresno			4					4
Long Beach								No Data Available
Los Angeles	1	1	2	1	2	1	1	1
Oakland	3	3	6	5				7
Sacramento	2	2	1	4	4			5
San Diego			5	2	1			2
San Francisco								No Data Available
San José				7	6		4	8
Santa Ana	4	4	6	6	5	3	3	6

Inputs Used:

1) Number of full time equivalent staff; and
2) Buildings budget ($).

Output Used:

1) The number of square feet of city building space available.

We assume that building departments use staff and money to maintain and manage buildings owned by the city. The budget variable serves as a proxy for other capital inputs.

Analysis:

We computed both variable returns to scale (VRS, meaning that efficiency changes with size) and constant returns to scale (CRS, meaning efficiency is independent of size) efficiency scores. VRS scores will be discussed here.

Los Angeles and San Diego, the two largest cities, rank as the most efficient.

Outputs that Cities Should Measure:

- Square footage maintained; and
- Number of buildings.

Performance that Cities Should Measure:

- Response time for emergency repair;
- Average days to institute routine repairs; and
- Percentage of preventive maintenance completed.[10]

[10] Patricia Tigue and Dennis Strachota, *The Use of Performance Measures in City and County Budgets* (Chicago: Government Finance Officers Association, 1994), pp. 21-153.

Emergency Medical Services

Annual Efficiency Ranks for Each City

	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim							Contracted Out
Fresno							Contracted Out
Long Beach	1	1	3	3	1	1	1
Los Angeles			1	1	2	3	2
Oakland							Contracted Out
Sacramento			1	2	3	2	3
San Diego							Public-private Partnership
San Francisco							No Data Available
San José							No Data Available
Santa Ana							No Data Available

Inputs Used:

1) Number of employees as full-time equivalents; and
2) Total city budget for EMS operations ($).

Outputs Used:

1) The inverse of reported response time for medical services, measured in minutes (using decimal fractions).

We have assumed that EMS uses assets (labor and operational budget) to reduce response time for emergency services. The budget variable serves as a proxy for other capital inputs.

Since the output is a factor to be minimized for a given city, we computed the Data Envelopment Analysis efficiency scores by inverting the index. This is a common procedure in the efficiency literature when the output is categorized as a "bad" rather than a "good."

Analysis:

Since no literature finds increasing returns to scale in EMS, we assume that EMS operations experience variable returns to scale (VRS), meaning that efficiency changes with size. VRS scores will be discussed here.

Four cities either contract out or have a public-private partnership to provide EMS. Long Beach provided the most data and was the best performer.

Outputs That Cities Should Measure:

- Number of calls responded to.

Performance That Cities Should Measure:

- Response time;
- Education programs/participants; and
- Resuscitation success rate.[11]

[11] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Fire Protection

Annual Efficiency Ranks for Each City

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim								No Data Available
Fresno		3	3	2	3	1	2	4
Long Beach					1	2	1	1
Los Angeles	3			5	6			7
Oakland								No Data Available
Sacramento	1	2	2	3	2			3
San Diego	2	4	5		4			6
San Francisco			1	1				2
San José		1	4	4	5	3	3	5
Santa Ana								No Data Available

Inputs Used:

1) Budget (in $ millions);
2) Number of staff

Outputs Used:

1) Number of civilian deaths;
2) Total fire losses (in $ millions)

We assume that fire departments use money and staff (and equipment) to prevent deaths and property damage from fires.

Analysis:

Since no literature finds increasing returns to scale in fire protection, we assume that fire protection operations experience variable returns to scale (VRS), meaning that efficiency changes with size, whereas constant returns to scale (CRS) means efficiency is independent of size. VRS scores will be reported here.

Long Beach, San Francisco and Sacramento were the top performers with Long Beach coming out on top.

Outputs That Cities Should Measure:

- Number of calls responded to.

Performance That Cities Should Measure:

- Average response time;
- Ratio of fire loss to potential fire loss;
- Number of inspections;
- Education programs/participants; and
- Community assistance.[12]

[12] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Fleet Management

Annual Efficiency Ranks for Each City

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim			1	2	2	2	2	2
Fresno			6	4	3	3		4
Long Beach		2	4	6	5			6
Los Angeles	3	3	8	9	8	7	5	9
Oakland	2		3	3				3
Sacramento			7	8	7	6		8
San Diego			5	7	6	5	4	7
San Francisco								No Data Available
San José				5	4	4	3	5
Santa Ana	1	1	2	1	1	1	1	1

Inputs used:

1) Number of full-time equivalent staff; and
2) Fleet budget ($) as a proxy for all other inputs

Output used:

1) The number of vehicles in the fleet.

We assume that fleet departments use staff and money to maintain and manage the city vehicle fleet.

Analysis:

With little guidance on the issue of returns to scale in fleet services, we used variable returns to scale (VRS), meaning that efficiency changes with size, whereas constant returns to scale (CRS) means efficiency is independent of size. VRS scores will be reported here.

Interestingly the two smallest cities in the sample, Santa Ana and Anaheim, are the top performers. With Santa Ana dominating the top slot. Los Angeles, the largest city, had the least efficient fleet services.

Outputs that Cities Should Measure:

- Breakdowns of vehicle types and maintenance needs; and
- Average miles and/or hours of use per vehicle.

Performance that Cities Should Measure:

- Daily functionality (percentage);
- Actual per unit cost for various services, such as oil change and transmission change;
- Average monthly backlog;
- Major/minor repairs completed on schedule; and
- Percentage of preventive maintenance completed.[13]

[13] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Libraries

Annual Efficiency Ranks for Each City

	1992	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim					1	5	1	1	4
Fresno									County Operated
Long Beach		5	3	2	1	1	6	2	8
Los Angeles		1				7	1		6
Oakland	5	4			6	8	8		9
Sacramento						1	1		1
San Diego	1	2	1	1	1	1	1		3
San Francisco	1			3		6	7		7
San José	1	3	2		1	4	1		5
Santa Ana	1				1				1

Inputs Used:

1) Number of library branches;
2) Operating expenditures per capita;
3) Number of librarians;
4) Number of other staff; and
5) Book holdings.

Outputs Used:

1) Number of library registrations;
2) Total number of visits; and
3) Collection turnover ratio.

We have assumed that libraries use capital assets (buildings and books) and labor (librarian and staff) to perform service. Frequently, library service is only indirectly consumed (registrations, visits), but we believe that the public still derives a benefit from the potential for actual consumption. And at other times, the service is directly consumed (turnover ratio); library output is thus a combination of services offered and services consumed.

On the input side, all inputs represent physical quantities except for operating expenditures per capita. This was included to ensure that a given library would be penalized on the efficiency measure if it spent too much on its set of inputs. All other inputs are readily identifiable factors of library production.

Analysis:

The scores we interpret assume that all libraries operate at constant returns to scale, that efficiency is independent of size. This is a reasonable assumption given the size of the cities and that library provision appears to be a decreasing cost activity.

Santa Ana and Sacramento ranked as the most efficient. However, given that they provided only two years of data, a more realistic look at the data shows that San Diego was performing overall best. Oakland consistently had one of the poorest performing systems. Fresno's system is a county government function, hence their exclusion from the analysis.

Performance That Cities Should Measure:

- Amount of fines billed/collected;
- Programs offered/attendance.[14]

[14] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Parks and Recreation

Annual Efficiency Ranks for Each City

	1993	1994	1995	1996	1997	1998	1999	Average over all years & cities
Anaheim	4	5	5	7	4	6	5	5
Fresno	5	6	6	6	7	5		7
Long Beach	7	8	7		6	8	4	8
Los Angeles	2	2	2	2	2	2	2	2
Oakland	3	4	4	4	5	4	7	4
Sacramento	8	7	8	8	9	9		10
San Diego	1	1	1	1	1	1	1	1
San Francisco				5	8	7	6	6
San José		3	3	3	3	3	3	3
Santa Ana	6							9

Inputs Used:

1) Number of full time equivalent staff; and
2) Parks budget ($).

Output Used:

1) The total number of acres of park space available.

We assume that parks departments use staff and funds to operate and maintain city parks.

Analysis:

We computed both variable returns to scale (VRS) and constant returns to scale (CRS) efficiency scores. VRS means that efficiency changes with size, whereas CRS means efficiency is independent of size. VRS scores will be discussed here. Given that some cities in the sample have much more park space (e.g., San Diego) than others in the sample, the VRS scores were reported so that we better account for this size variation.

All 10 cities were evaluated. San Diego and Los Angeles, the two largest cities with two of the largest park systems, were most efficient. Sacramento was consistently the worst performer.

Outputs That Cities Should Measure:

- Number of facilities;
- Number and type of programs offered; and
- Number of people using programs.

Performance That Cities Should Measure:

- Volunteer hours used;
- General condition of facilities (functionality);[15] and
- Customer satisfaction with programs and facilities.

[15] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Police

Annual Efficiency Ranks for Each City

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim			1					1
Fresno	4	5	5	4	2	2	2	5
Long Beach	1	1	2	1	1	1	1	2
Los Angeles	8	8	8	7				9
Oakland	5	4						6
Sacramento	3	3	4	2				4
San Diego	7	7	7	6				8
San Francisco	6	6	6	5				7
San José	2	2	3	3				3
Santa Ana								No Data Available

Inputs Used:

1) Number of sworn officers; and
2) Number of support staff.

Output Used:

1) Crime index (of all types of crime dealt with by police forces).

We assume that police departments use staff to reduce crime levels. Budget data was too inconsistent to include. Since the crime index is a factor to be minimized for a given city, we computed the efficiency scores by inverting the index. This is a common procedure in the efficiency literature when the output is categorized as a "bad" rather than a "good."

Analysis:

Due to the lack of input data (capital measures) and the ambiguities associated with any measure of police "output," our results must be interpreted with caution. Furthermore, these efficiency scores assume that police services operate at variable returns to scale (VRS), meaning that efficiency changes with size. There is little research to give us guidance on the issue of returns to scale in police services. Here, we assume that the disparity in city size in the sample makes VRS a reasonable assumption.

It is noteworthy that Los Angeles has by far the worst scores in each year. Interestingly, the largest cities tended to be the poorest performers. While Anaheim ranked as most efficient, given that they provided only one year's data, a more realistic look at the data shows Long Beach performing overall best.

Outputs That Cities Should Measure:

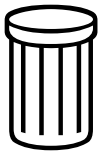
- Number of patrol hours.

Performance That Cities Should Measure:

- Average response time (emergency and non-emergency);
- Department clearance rate for various crimes (and percentage points above/below national level); and
- Crime rates per 1,000 population.[16]

[16] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Solid Waste



Annual Efficiency Ranks for Each City

	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim							Contracted Out
Fresno	2	4	4	3	3	3	4
Long Beach	1	1	2	1	1	1	1
Los Angeles			5	5			5
Oakland							Contracted Out
Sacramento		2	1	4		2	3
San Diego		3	3	2	2		2
San Francisco							Contracted Out
San José							Contracted Out
Santa Ana							Contracted Out

Inputs Used:

1) Number of full-time equivalent staff; and
2) Solid-waste budget ($) .

Output Used:

1) The number of citizens served.

We assume that sanitation departments use staff and funds to collect and dispose of solid waste from all residents.

Analysis:

Once again, there is little research to give us guidance on the issue of returns to scale in waste service, so we computed both variable returns to scale (VRS), meaning that efficiency changes with size and constant returns to scale (CRS), where efficiency is independent of size, efficiency scores. VRS scores will be reported here. The similarities between both sets of scores indicate to us that solid-waste services operate at (more or less) constant returns to scale.

Five cities contract out solid-waste services. Long Beach was the most efficient in all but one year. San Diego and Sacramento had notable efficiency, ranking second and third.

Outputs That Cities Should Measure:

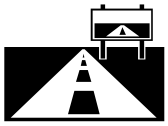
- Tons collected;
- Tons recycled;
- Tons disposed; and
- Tons per route mile.

Performance That Cities Should Measure:

- Missed routes; and
- Response time to complaints and service requests.[17]

[17] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Streets



Annual Efficiency Ranks for Each City

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim								No Data Available
Fresno	1	1	1	1	1	1	1	1
Long Beach		7	8		7			7
Los Angeles	4	2	3	3	3	3		3
Oakland	7	6	7	7	8	6	5	8
Sacramento	3	3	6	6	4			4
San Diego	5	4	5	5	6	5	3	5
San Francisco				8	9	7	6	9
San José	6	5	4	4	5	4	4	6
Santa Ana	2		2	2	2	1	2	2

Inputs Used:

1) Number of full-time equivalent employees (FTE); and
2) Total city budget for street operations.

Output Used:

1) Number of miles of streets serviced.

We assume that street-maintenance uses assets (labor and operational budget) to perform street services. Again, the budget variable serves as a proxy for other non-reported capital inputs.

Analysis:

No research exists to give guidance on the issue of returns to scale in street services, so we computed both variable returns to scale (VRS), where efficiency changes with size and constant returns to scale (CRS) where efficiency is independent of size, efficiency scores. As with many other services in this study, we focus on the VRS scores (which account for size differentials) because of the size disparity among the cities in the sample.

Fresno was the top performer across all years. Santa Ana and Los Angeles also performed very well. San Francisco and Oakland were the poorest performing cities.

Outputs That Cities Should Measure:

- A measure of amount resurfaced.

Performance That Cities Should Measure:

- Actual per unit cost to fix pothole, resurface lane mile, restripe etc.;
- Percentage of projects completed at or under budget; and
- Average response to emergency maintenance.[18]

[18] Tigue and Strachota, "The Use of Performance Measures," pp. 21-153.

Water

Annual Efficiency Ranks for Each City

	1993	1994	1995	1996	1997	1998	1999	Average over all years and cities
Anaheim	2	2		2		4	2	4
Fresno					1	2	1	2
Long Beach	3	3	2	3	3	6		5
Los Angeles		5	4	5	4	5		8
Oakland								No Data Available
Sacramento	1	1	1	1	2	3		3
San Diego	4	4	3	6	6	8	4	7
San Francisco				4	5	7	3	6
San José								No Data Available
Santa Ana						1		1

Inputs Used:

1) Number of employees; and
2) Total city budget for water operations.

Outputs Used:

1) Number of persons served; and
2) Volume of water produced (millions of gallons per day).

We have assumed that water production uses assets (labor and operational budget) to maintain water services. In this case, the budget variable serves as a proxy for other capital inputs.

Analysis:

The reported efficiency scores also assume that all water-service providers operate at variable returns to scale, where efficiency changes with size.

Santa Ana is the highest-ranking city, however, they only provided one year of data. A more realistic look shows that Fresno and Sacramento were the best-performing cities. Los Angeles is consistently among the worst ranking water-service producers.

Outputs That Cities Should Measure:

- Miles of water mains;
- Number of treatment facilities, pumping stations, etc.; and
- Percent of water from each type of source (surface, ground, purchased).

Performance That Cities Should Measure:

- Reliability (percentage);
- Fire protection rating;
- Water quality ratings; and
- Response time to complaints and emergencies. [19]

[19] Tigue and Strachota, "The Use of Performance Measure," pp. 21-153.

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Other Related Studies

Adrian T. Moore, James Nolan and Geoffrey F. Segal with Matthew Taylor, *Competitive Cities: A Report Card on Efficiency in Service Delivery in America's Largest Cities* (Los Angeles, CA: Reason Public Policy Institute, 2001).

William Eggers, *Competitive Neutrality: Ensuring a Level Playing Field in Managed Competitions*, How-to Guide No. 18 (Los Angeles, CA: Reason Public Policy Institute, 1998).

William Eggers, *Performance-based Contracting: Designing State-of-the-Art Contract Administration and Monitoring Systems*, How-to Guide No. 17 (Los Angeles, CA: Reason Public Policy Institute, 1997).

John H. Donlevy Jr., *Inter-governmental Contracting for Public Service*, How-to Guide No. 12 (Los Angeles, CA: Reason Public Policy Institute, 1994).

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