

# Barbara J. Stevens, PhD

**Years of Experience: 33**

**Education:**

PhD, Urban Economics and Econometrics, MIT

B.A., Economics, Wellesley College, Wellesley, MA

**Awards:**

Phi Beta Kappa,

Durant Scholar

**Notable Publications:**

"Developing a Recycling Program – Considerations, Decisions, and Procedures," in The Recycling Handbook, ed. Herb Lund. New York, NY: McGraw Hill, 1992), pp. 32-1–32-36. Second edition, 2000.

## Distinguishing Qualifications

- Directs each of Ecodata's engagements
- Experienced in commercial, residential, and construction and demolition areas of solid waste management, including econometric modeling
- Also modeled (econometrically) collection of wastewater and treatment, for WERF
- Have conducted scores of surveys of commercial and residential customers and haulers with a view towards estimating recycling by sector, waste exports, and other policy
- Advised numerous communities how best to obtain competitive proposals for local government services, including residential and commercial solid waste and recycling collection, transfer, processing, and disposal

## Relevant Expertise

Related research and hands on consulting in ways to improve urban service delivery for the past twenty five years. Founded Ecodata in 1977. Prior to that, was Assistant Professor of Business Economics at Columbia University in New York. Has conducted several major national studies of the solid waste collection industry, including one funded by the U.S. Department of Housing and Urban Development and one funded by the National Science Foundation. Has developed methodologies for surveying institutions, commercial and residential establishments, as well as recyclers and waste haulers to determine quantities of materials generated and hauled as well as satisfaction with services provided. Has published in academic and trade journals, spoken at national conferences, and provided expert testimony about research findings.

## Key Projects

### **Portland Metro, Oregon:**

Provided economic analysis of solid waste markets in Portland area, with specific analysis regarding the impact of public sector transfer station ownership on prevailing prices for transfer, transport, and disposal. 2005-6.

### **Arlington County, Virginia:**

Conducted survey of commercial customer and benchmarked Arlington County against twenty other communities to evaluate options for improving commercial and multi-family recycling. Found that high levels of commercial recycling not associated with any specific organizational arrangement, such as contracting or exclusive franchising. 2005-6.

**USEPA:** Developed a recycling model for use by local government officials to determine expected impacts of program changes (such as variations in set out requirements, addition of materials to the program, reduced collection frequency, etc.) on recycling costs and diversion rates. 2006.

**Seattle Public Utility, WA:** Assessed economic characteristics of each segment of the solid waste industry and made recommendations for procurements, including number of districts, number of processing plants, and options for obtaining competitive bids for long haul and disposal. Provided on going input to procurement preparation. 2005-2006

**New York City Department of Sanitation, New York:** Conducted several surveys, of recycling facilities, out of state disposal facilities, property managers, and licensed garbage collectors to determine quantity of commercial waste and construction and demolition debris. Created three different estimates: based on records of processors and transfer stations, based on employment, and based on collectors records to determine the accuracy of the estimates. First estimate ever prepared of commercial sector recycling. 2002-5.

**USEPA:** Evaluated the Decision Support Tool created to allow local governments to model the impacts of alternate configurations of solid waste collection, recycling, transfer, processing, and disposal in the residential and commercial sectors. 2002-2004.

**Redondo Beach, California:** Assessed profitability of existing contract with private hauler for residential and commercial refuse collection and recycling services, to enable City to decide whether to re bid contract or negotiate an extension to the term. Evaluated proposals. 2000-2004

**Seattle Public Utility, Washington:** Provided economic assessment of alternatives for long term capital investments for solid waste, including transfer stations and intermodal facility. Modeled rail haul expenses. 2003-4

**King County, Washington:** Assessed economic structure of local solid waste industry and its ability to provide competitively priced services for long haul transfer and disposal of waste. 2003-4.

**Alameda County, California:** Prepared benchmark reports on innovative recycling programs in communities, regional agencies, and for the commercial sector. 2002.

**Business Integrity Commission, New York City, New York:** Surveyed commercial establishments in six major metropolitan areas to determine prevailing rates for solid waste disposal and extent of recycling. 2002.

**Metro, Oregon:** Assessed the options for economic regulation of the solid waste system, and, in particular, the transfer station network serving the Portland Metro area. 2002

**King County, Washington:** With Black and Veatch, implemented plan for Solid Waste Utility to assess performance and opportunities for improvement via competitive benchmarking. Modeled costs of transfer, transport, and disposal in King County and other utilities. 2001.

**New York City Council, New York:** Prepared an independent assessment of the feasibility of retrofitting the Marine Transfer Stations to receive containerized solid waste, as a component of the long term plan to close NYC's landfill and contract for waste disposal. 2000

**ECODATA, Inc. EXPERIENCE**  
**97 North Compo Road**  
**Westport, CT 06880**  
**(203)-454-1700**

A. Background Information About Ecodata, Inc.

ECODATA, Inc. was founded in 1977 by Barbara J. Stevens. The firm provides consulting services to local governments interested in improving the efficiency with which municipal services are delivered. Ecodata's reputation was made in the field of solid waste and sludge management, and over half its activities are in this field.

Ecodata's approach involves working with the client through implementation. Ecodata's extensive data base regarding the costs, management and technology of residential and commercial refuse collection, recycling services, transfer, processing and disposal is an invaluable aid to an assessment of the relative efficiency of a particular client's operations. These assessments determine not only if a particular system is relatively efficient and effective but also where there are significant differences between the client system and other similar systems. For example, efficiency differences can be caused by equipment specification, equipment maintenance, staffing patterns, fringe benefit programs, wage levels, work loads, work rates, and local constraints such as route density. Our analyses pinpoint the sources for any exceptionally high or low efficiency or effectiveness ranking.

We frequently work with cities to evaluate contract versus municipal service. Ecodata has designed innovative procurements for cities such as San Jose, CA, Seattle, WA, Hillsborough, FL, Oklahoma City, OK, and Babylon, NY, and East Brunswick, NJ. The firm's services in this area include strategic analysis of local markets to maximize competition, expert counsel on prevailing practices in other jurisdictions, structure of procurement documents, and assistance in the procurement process (pre bid conferences, answer of questions, evaluation of proposals and proposing firms, and presentation of results to local government officials). Ecodata's extensive data base allows us to evaluate proposed prices for cost coverage.

Most of our engagements involve evaluation of policy options. We have recently worked with Seattle, WA to develop plans to encourage competition in the procuring of residential and commercial solid waste and recycling sectors, sizing the territories to capture economies of scale in the various segments of the market. We have recently conducted performance audits of the solid waste collection and disposal departments in Tacoma, WA, Garland, TX, Montgomery County, MD, and Hillsborough County, FL. These audits involve assessment of programs for waste collection, recycling, and disposal in comparison to national standards, and, as appropriate, recommending alternatives which would increase system efficiency or effectiveness.

ECODATA has a good track record in gathering data from both the public sector and the private sector. We have recently completed a successful data gathering effort from all of the local haulers serving the San Diego, CA and the Town of Babylon, NY markets. We have surveyed residential and commercial customers to determine prices paid for sanitation services and satisfaction with service. These surveys, completed most recently for Hempstead, NY, Arlington, VA, Newark, NJ, Los Angeles, CA, Westchester County, NY, Miami, FL, and Chicago, IL also indicate satisfaction with recycling opportunities. Such surveys, appropriately designed, are an important measure of system effectiveness.

Our work involves not only the residential sector of solid waste management, but also the non residential sectors. For Montgomery County, for example, we recently completed an econometric study of refuse generation by eight distinct non residential sectors. This study, which related generation to employees, square footage, and overall firm size, included a sector specific composition study. Data was used to develop sector specific recycling programs. For Seattle, we evaluated the costs of commercial solid waste management, as an input to initiating a contract in this sector. For Babylon, we established a commercial district and obtained proposals from private contractors to service these customers, and, when the contract came due, evaluated proposals and recommended the firm to receive the contract.

#### B. Corporate Experience Summary

ECODATA has extensive and intensive experience in evaluating and recommending alternatives for management of solid waste. ECODATA:

- Maintains in-house files on the over 490 United States cities in which we have evaluated the efficiency of solid waste collection and disposal;
- Has up to date records on waste to energy facilities located throughout the United States;
- Develops fee schedules necessary to meet policy objectives and program costs;
- Advises cities in ways to initiate recycling services most efficiently;
- Maintains a proprietary statistical model to estimate waste composition of individual communities, when detailed composition studies are not available, to assist in planning for recycling;
- Advises cities in ways to generate competition for bids, including managed competition, elastic borders, and pre-procured disposal facilities;
- Is experienced in estimating the impact of service alternatives on collection costs;
- Is experienced in soliciting bids from the private sector;
- Implements collection systems, including vehicle specification and routing.

ECODATA has advised many localities about the impact of various programs on waste collection and disposal costs. For example, we recently completed an analysis for Portland, OR on the impact of three alternative recycling programs on expected fees to customers. We have analyzed the impact of additional regulatory costs on customer fees for both commercial and residential solid waste customers. For Seattle, for example, we recently estimated non residential solid waste fees under alternative rate regulation systems. We reorganized the refuse collection system in Babylon, New York, so that curbside recycling could be offered to residents -- at no price increase.

As for analysis of the costs of refuse collection and recyclables collection, and design of vehicle and routing systems for implementing such a system, Ecodata:

- Has an in-house data bank containing information on the work rates of municipal refuse collection crews, the costs of municipal collection (by component, such as maintenance, etc.), and performs cost analysis as a task component on virtually all projects; these data are useful in evaluating the relative efficiency of any collection operation;
- Has a data bank on work rates for non residential refuse collection crews, by type of collection technology;
- Has a methodology to assess costs of transfer and transport of waste and sludge.
- Has drafted path routes for Newark, New Jersey, New Haven, Connecticut, Stone Harbor, New Jersey, Montclair, New Jersey, Fort Worth, Texas, Norwalk, Connecticut, New York City, Pittsburgh, Pennsylvania, and Tacoma, Washington;
- Has developed a computerized simulation model for optimizing refuse, recyclable, and yard waste collection systems, considering the community's refuse composition and generation, participation rates for recycling, set out restrictions for recycling, prevailing wage and fringe benefit rates, tip fees, population density, climate, street configuration, geography, and the location and nature of the materials processing center or disposal site; The model predicts the cost of collection and disposal, allowing clients to play Awhat if@ scenarios regarding which materials to include in the recyclables bin, what size and type of vehicles to deploy, what crew size and what type of container to specify, and what frequency and location of collection service to offer.

Specific project descriptions follow.

Project: Construction of a Recycling Calculator

Client: US EPA

Scope: Described factors affecting the economics of residential recycling and constructed a desk top model for use by local governments. Model provides look up information, such as work rates for crews on various types of equipment collecting materials with different set out rates. , vehicle operating and cost information, pro forma waste composition tables, and fringe benefit data.

Users provide information specific to their communities – including quantities of solid waste and recyclables, number of households, distance to tip locations, wage rates, crew and vehicle size, materials included in the recycling program, and frequency of collection.

The model computes the cost per household and per ton collected of solid waste, recyclables, and yard waste collection. It also computes the implied participation rate and the cost which could be expected if participation rates were increased by 50%. Users can ask “what if” questions to explore how program changes would impact program costs and diversions. Examples of typical questions include:

*How do costs per household change if we added mixed waste paper to the program?*

*How does changing collection frequency from weekly to every other week affect recycling costs and diversion?*

*How does changing the set out from a two-sort to a single stream affect recycling costs and diversion rates?*

Project: Evaluation of the Commercial and Multi-Family Solid Waste Management Systems in Arlington County, VA

Client: Department of Environmental Services, Solid Waste Bureau, Arlington County, VA

Scope: Analyzed the existing solid waste and recycling arrangements for commercial and multi family entities in the County, evaluating the recycling diversion rates achieved, prices charged, accuracy of reporting systems, and education and outreach.

Conducted a telephone survey of 300 customers of private sector firms, determining for the first time the prices prevailing for solid waste and recycling services, customer satisfaction, extent of recycling, and waste generation rates.

Compared Arlington County to twenty other communities, including ten with contracts or franchises for commercial and/or multi-family solid waste collection and ten with alternative solid waste management practices. Highlighted the best practices found in each community for each evaluation criterion. Recommended changes to existing system to improve diversion rates, reporting, provide long term funding, and enhance education and outreach.

Project: Evaluate Public versus Private Transfer Station Operation

Client: Metro, Oregon

Scope: Prepared an economic evaluation of the existing markets in the three county area (including Portland, OR) for which Metro is the regional planning agency. Characterized the degree of competition and expected prices and profits in the collection , transfer, transport, and disposal segments of the solid waste market.

Analyzed data to determine the extent to which Metro ownership of transfer stations had an impact on prevailing prices for transfer, transport, and disposal. Testified before Council and presented recommendations resulting from analysis of three different ownership options: all public, all private, and a hybrid auction-based system for allocating waste to the system's transfer stations.

Project: Contract Procurement of Solid Waste Collection, Transfer, Processing, Transport, and Disposal Services

Client: Seattle Public Utility Department, Washington

Scope: Created an economic model of each segment of the solid waste and recycling industries, including an investigation of the extent of economies of scale, degree of competition, barriers to entry, and expected levels of prices and profits.

Based on these analyses, made recommendations of how to procure solid waste services in Seattle: collection to be procured separately from disposal, to maximize number of competitors; residential and commercial collection services to be procured together in eight separate territories, with a single firm allowed to serve up to six territories, to maximize the ability of a low priced competitor to impact on overall system costs; a single procurement for processing of recyclables; a single procurement for transport and a single procurement for disposal, with options to combine these services in a single contract, for administrative ease.

Project: Vehicle routing

Client: Norwalk, CT; New Haven, CT; The Metropolitan District, Hartford, CT; New York City, Pittsburgh, PA, Fort Worth, TX

Scope: Conducted an assessment of work rates of crews providing service, such as solid waste collection, recycling services, or water meter reading. Based on observed work rates, mapped customers to receive service, using a variety of data sources, including direct observation, interviews with forepersons, and GIS maps. Divided the service area into daily service territories, balancing the daily work loads (macro routing).

Prepared individual path routes through each day's macro routed area, drawing paths to observe traffic and work load constraints (e.g. one way streets; streets which can be serviced only one side at a time or both sides at a time, etc.), to minimize distance traveled while servicing all customers. Prepared documentation of the routes, including a written listing of street segments, in the order in which they are to be served, mileage along each segment and cumulatively along the route, and estimated time required to service each segment; maps showing the path to be followed. Divided each path route into individual assignments for specific crews. Conducted training sessions for forepersons in the use of the routes.

Most communities were able to save 10-25% of crews, as a result of balancing workloads, reducing miles driven, and greater ease of crew supervision.

- Project:** Estimation of the Commercial Solid Waste and Recycling Generation and a Waste Flow Analysis of the Stream for New York City/ Commercial Waste Hauler Survey.
- Client:** New York City Department of Sanitation (Ecodata, Inc., Hydroqual, subcontracted to HDR, Inc.)
- Scope:** Developed a methodology to determine the quantity of commercial waste generated in New York City and the quantities of commodities recycled by the commercial sector. Several independently derived and sourced estimates were made: 1) based on a survey of transfer stations, disposal facilities, and recycling facilities within and outside of New York City; 2) based on a survey of all licensed solid waste and recycling collection firms; and 3) based on estimated numbers of employees by industry sector and generation per employee for each industry sector. These methodologies created four independent estimates of commercial sector solid waste and recyclables (each within 5% of the other).

The survey of the 164 firms licensed by the New York City Business Integrity Commission to collect solid waste and recyclables from commercial customers was conducted in a very compressed time frame. Ecodata designed the data collection instrument, conducted training sessions for individuals from NYC DOS and BIC and four participating firms, managed the allocation of the interviews among the firms, checked all completed forms for consistency and accuracy, conducted over 80 of the surveys, prepared the data analysis file, and finalized the analysis all within a two month time frame.

The survey of licensed collection firms involved obtaining data about truck fleet by type and deployment in the boroughs of NYC, numbers of customers, types of waste and recyclables collected, miles driven, and facilities where the materials are tipped. These data enabled a computation of a truck-load based estimate of quantities collected, which was compared with transfer station records to assess the reliability of the data. Additional follow ups were conducted to resolve any discrepancies.

This effort resulted in the first estimate ever made of commercial sector recycling in New York City (30+%, all market driven). The estimates were completed in a very short time frame – less than two months for the survey of licensed haulers. In compiling the estimated total generation by the commercial sector, estimates were made of quantities of waste first tipped within New York City, and quantities directly exported to neighboring states. Eventually, of course, all New York City putrescible waste is exported.

- Project: Estimation of the Commercial Solid Waste and Recycling Generation and a Waste Flow Analysis of the Stream for New York City/ Survey of Recycling Facilities and Disposal Facilities and State and Local Government Officials.
- Client: New York City Department of Sanitation (Ecodata, Inc. subcontracted to HDR, Inc.)
- Scope: Developed a methodology to determine the quantity of commercial waste generated in New York City and the quantities of commodities recycled by the commercial sector. Several independently derived and sourced estimates were made: 1) based on a survey of transfer stations, disposal facilities, and recycling facilities within and outside of New York City; 2) based on a survey of all licensed solid waste and recycling collection firms; and 3) based on estimated numbers of employees by industry sector and generation per employee for each industry sector. These methodologies created four independent estimates of commercial sector solid waste and recyclables (each within 5% of the other).

The survey of recycling facilities was designed to obtain information regarding the quantity of each type of commodity recycled by the commercial sector in NYC. NYC had never previously obtained an estimate of the extent of commercial recycling, only regularly collecting data on recyclables diverted from the putrescible transfer stations operated within the boundaries of the City. Most commercial sector recycling in NYC consists of full loads of a specific material, such as corrugated cardboard, mixed office paper, or ledger paper. These loads are delivered directly to a processing facility or a transfer station dedicated to shipping materials.

Over 80 firms were contacted, and careful questioning employed to assure that recyclables were collected within the geographic limits of New York City. Careful records were made of the location where each load was tipped, by commodity. These data on recycling were used together with information from disposal facilities located within a 50 mile radius of the City's boundaries, and NYC data on putrescible waste tipped in NYC transfer stations, to develop a complete waste stream profile: tons of waste and recyclables generated, the county and state in which each material is first tipped.

This effort resulted in the first estimate ever made of commercial sector recycling in New York City (30+%, all market driven). A waste flow estimate was made, showing tons of waste and recyclables first tipped within New York City, and tons directly exported to neighboring states. Eventually, of course, all New York City putrescible waste is exported.

- Project:** Creation of a Construction and Demolition (C&D) Market Model and Trend Analysis for New York City
- Client:** New York City Department of Sanitation (Ecodata, Inc., subcontracted to HDR, Inc.)
- Scope:** Created a market model of the generation of C&D debris and alternative options for disposal and recycling of these materials. The model was based on economic factors such as construction growth and employment trends. Regression analysis was used to estimate equations for projections to the year 2024.

Estimating the quantity of construction and demolition (C&D) waste generated in New York City was based on a stratified model. Commercial and residential and building-related construction, demolition, and renovation debris were estimated based on generation per square foot constructed, demolished, or renovated, and projected over a twenty year planning period. Waste generation per square foot of construction, demolition, and renovation was estimated separately for the residential and commercial sectors, using extensive literature searches and interviews with engineers at demolition firms. The quantities obtained for the base year were projected through 2024, using econometric techniques on data provided by F.W.Dodge for previous years.

Non-building related debris was estimated for baseline years, and projected forward as a function of data from F.W.Dodge for this category of construction activity.

Preliminary on site observations and data collection and analysis at transfer stations determined the density of incoming C&D debris, according to the type of facility – non putrescible transfer stations and clean fill transfer stations – and type of material in the load.

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Project: Data Collection and Analysis – Survey of Private Firms, Municipalities, and Customers

Clients: New York City (see above); USEPA; USHUD; Town of Babylon, NY; Tacoma, WA; Montgomery County, MD; and over twenty other communities.

Scope: Select a sample of communities and design a data collection instrument, and gather data, process, and create a model to answer pertinent policy questions. For USEPA conducted study of 40 communities with multi family recycling programs, gathering data on multi family solid waste and recycling programs and their costs and data on the single family solid waste and recycling programs and their costs in these same communities. Analyzed the data to determine relative costs of recycling and solid waste collection, factors associated with successful programs.

For USHUD, created a sample of matched pairs of cities delivering each of eight local government services (asphalt overlay construction, street sweeping, landscaping, park maintenance, refuse collection, janitorial services, payroll preparation, and traffic signal maintenance). Designed survey instruments to record costs, management information, quantity of work performed, quality of work performed, and technical approach to performing the work. Gathered data, conducted statistical and econometric analyses for each service and for grouped services. Determined factors which most influence cost and quality of service delivery.

Conducted surveys and analyses of commercial haulers in Montgomery County, MD and New York City to determine quantities of waste and recyclables collected, disposed or tipped in the community, and exported to other communities. For Tacoma, WA, Babylon, NY, and Montgomery County, MD conducted telephone surveys of customers to determine satisfaction with services and prices paid to private sector firms for commercial solid waste services. Customers and providers of services surveyed in over twenty other communities.

Project: Analysis of Options for New York City Waste Disposal, Using Technical, Economic and Regulatory Criteria

Client: New York City Council

Scope: Evaluated the Solid Waste Management Plan Draft Modification prepared by the New York City Department of Sanitation (NYC DOS) under Mayor Giuliani. At the Council's request, Ecodata evaluated assumptions and analyses relating to the potential to retrofit NY's marine transfer stations for long term disposal at landfills and other disposal sites outside of New York City. Reviewed previous analyses from economic, technical, waste flow and regulatory perspectives.

Evaluated alternatives proposed for contracts with private firms and recommended alternatives to DOS plans, including more contracts and less reliance on single firms to containerize and transport and dispose of waste. Agreed with DOS plans to encourage recycling.

Reviewed alternative waste combustion and disposal technologies proposed by private sector firms. These included various proposals for the gasification of waste and pyrolysis.

Testified at hearings relating to plan and its proposed modifications.

Project: Market Assessment for Processed Sludge

Clients: Westchester and Nassau Counties, New York; Erving Regional Sludge Management District (MA).

Scope: Assessed the market for composted or co-composted sludge, compared to the market for pelletized sludge in the greater New York Area for Westchester and Nassau Counties and in the New England area for the Erving Regional Sludge Management District. The projects involved extensive literature review, survey of other composting/pelletizing facilities, survey of user groups, and projections to the future. The detailed marketing study for a planned sludge processing facility in Massachusetts included comparisons of the projected costs of producing the sludge products to prices prevailing in recent years for the substitutes for the sludge products. The market area included significant in ground farming sectors. Several sludge products were evaluated, including compost, pellets, and chemically fixated products.

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Project: Recycling and Refuse Program Design

Client: Seattle Solid Waste Utility

Scope: Prepared analyses to integrate the various components of the City of Seattle's solid waste management plan. Components analyzed included residential and commercial solid waste collection and disposal, composting, and commercial and residential recycling.

Revised RFP's for residential waste and yard waste collection and composting. Devised methodology for district size to vary according to the competitiveness of submitted prices for refuse and recyclables collection. Developed language in collection contracts to allow for easy implementation of future recycling programs, with prices based on prevailing prices for refuse collection. Refuse collection costs to decrease as the quantity of waste recycled increases. Negotiated with proposers and assisted City employees in understanding the implied profit in submitted proposals. Prepared pro-forma statements of the costs of municipal operations, to use in negotiations with private sector proposers. Reviewed proposals for user fees.

Estimated the costs of providing yard waste collection using municipal employees, including a specification of required equipment, containers, and supervisory personnel.

Estimated the expected change in costs to the city if frequency of yard waste collection were changed from weekly to biweekly. Negotiated yard waste component of overall collection agreement.

Project: Evaluation of Market for Long Term Disposal of Waste

Client: King County Division of Solid Waste, WA

Scope: Conducted an extensive economic analysis of the solid waste collection, transport, processing, and disposal markets in the Seattle/King County area. Long term disposal involves the closure of the County landfill, and the analysis assessed the impact that the departure of this supplier in the disposal market would have on disposal prices.

Surveyed potential firms for long term disposal if waste were delivered by rail or barge. Evaluated the costs of rail transport, and assessed the economies of scale. Prepared a rail transport model.

Recommended continued County presence as means of avoiding a market which would be characterized by two vertically integrated providers of transfer, transport, and disposal service – which would be expected to be characterized by monopoly profits. Testified before Council as to analyses and recommendations.

Project: Benchmarking of Local Government Services

Clients: Arlington County, VA, Alameda County, CA; King County, WA; Hillsborough County, FL; Montgomery County, MD; Tacoma, WA; Portland, OR; San Diego, CA; Maui, HI; San Jose, CA.

Scope: Evaluated service delivery via direct observation of operations and by comparison to results achieved (costs and productivity and quality of service) in other jurisdictions. Data were gathered to facilitate specific comparisons of particular services, including extensive analyses to determine the service costs of other communities where services were provided by municipal employees.

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Project: Model Construction – Simulating a Market

Clients: Seattle, WA (residential solid waste and recycling model; commercial sector model; long term transfer, transport via rail, and disposal model);  
Portland, OR (commercial sector model);  
WERF (waste water treatment, waste water collection, and biosolids treatment)  
US HUD – model of eight local services, including solid waste, parks maintenance, janitorial services, payroll processing, road maintenance, and traffic signal maintenance

Scope: Gathered data as necessary: evaluated rate filings in Seattle and evaluating the Lurito Galliger cost plus methodology used by the Washington Utilities and Transportation Commission to set commercial refuse and recycling rates; gathered time and motion data in Seattle and Portland; analyzed income and balance sheet statements and financial audits for Portland; designed and analyzed a 38 page data collection instrument for WERF.

Created separate simulation models incorporating data specific to the Seattle and Portland markets providing answers to various policy questions such as: What is the impact on overall system costs if the capture rate for corrugated cardboard reaches 50%? What would the impact on costs be if there were exclusive territories for commercial refuse collection? How many collection vehicles would be needed if a split body truck were employed? What would the capital costs be if an expanded list of commodities were included in the residential recycling program?

For WERF, data were compiled and analyzed and an econometric model was estimated to determine the relationship between waste water collection and treatment and relatively high and low efficiency utilities.

# Louis N. "Lou" Garcia

## EXPERIENCE:

### **1999-CITY MANAGER**

#### **2004** *City of Redondo Beach*

Redondo Beach is a full-service city on the Santa Monica Bay. There are 66,500 residents in a well-balanced residential community which supports tourism and the aerospace industry. The City employs 600 and operates with a budget of \$86 million in FY 2003-2004.

### **1998-The Garcia Group**

**1999** The Garcia Group provided management consulting services to public agencies and non-profit organizations. The Garcia Group specialized in strategic planning, organizational improvement, negotiations and interim management. From April 1998 to November 1999, consulting clients included the District of Columbia in Washington, DC, the City of Laguna Beach, California, and Monterey County, California.

### **1992-DIRECTOR, Department of Environmental Services**

#### **1998** *City of San Jose*

The Department of Environmental Services (ESD) was created in 1992 to preserve a vibrant quality of life for the San Jose community in which public health and a sound economy are sustained by a healthy environment. In 1994-95, ESD employed over 440 employees with a budget exceeding \$108M.

#### **Responsibilities:**

- Provide executive leadership for operation of the San Jose/Santa Clara Water Pollution Control Plan that serves a million people in eight Santa Clara cities.
- Provide executive leadership for operation of the San Jose Municipal Water System.
- Provide executive leadership for the administration of solid waste management activities including residential and commercial garbage collection, recycling and yardwaste programs for 250,000 households and 49,000 businesses.
- Provide executive leadership for energy and water conservation programs, and the enforcement of all local regulations in municipal operations and the community.

- Reoriented the police department from traditional to community oriented policing rooted in community participation.
- Strengthened Hayward's resistance to major earthquakes by improving emergency response planning, initiating tough seismic retrofit ordinances, creating a financing loan pool for the retrofitting of unreinforced masonry buildings and developing a program to upgrade all the essential municipal facilities.
- Established a comprehensive program to revitalize Hayward downtown core. Components include: adoption of a downtown master plan; acquisition of three blocks adjacent to the BART station for redevelopment; provision of financial support for two housing projects; and a program for upgrading and retrofitting fifty URM structures in the redevelopment area.
- Developed a comprehensive strategy to deal with traffic and transportation. Components include: a traffic demand management program; a city-wide circulation system, including extension of Route 238, an Industrial Boulevard Expressway, and an industrial area improvement program.

## **1985-DEPUTY CITY MANAGER**

### **1989** *City of San Jose, California*

San Jose is the nation's 14<sup>th</sup> largest city with a 1988 population of 732,792. San Jose is a charter city which operates under the council-manager form of government. The City Council is composed of 10 members elected from districts and a mayor elected at large. The City operates with a 1988-89 budget of \$90M and employs 5,200 employees.

#### **Responsibilities:**

- Served as City Manager's representative to the City Council standing committees.
- Negotiated as City Manager's representative with public, private and labor organizations.
- Managed the implementation of city programs as directed by the City Manager.

#### **Accomplishments:**

- Negotiated master airline lease agreement amendments with seven major airlines for sale of \$85M in airport revenue bonds to construct new terminal facility.
- Served as City's chief negotiator and arbitrator in binding interest arbitrations with Police Officers Association (1000 members) - \$60M payroll, and Firefighters Union (650 members) - \$35M payroll.

- Authorized retired state employees to continue charitable contributions deductions.

**1972-ASSISTANT DIRECTOR**

**1977** *League of California Cities*

The League of California Cities is a state association of California cities.

**Responsibilities:**

- Directed League's policy development process.
- Managed Bay Area office.
- Acted as Special Projects Director

**Accomplishments:**

- Directed development of League policy statements on redevelopment, housing, child care, affirmative action and human service planning.
- Designed and implemented project to assist six city councils and city managers with team building and strategic planning.
- Conceived and managed program to assist 100 cities in implementing the Housing and Community Development Act of 1974 and Section 8 housing programs.
- Supervised preparation of League publications on program budgeting; needs assessment; policy planning; program implementation; preparation of social element to general plan; and handbook on planning and managing community development.

**1970-1972 ASSISTANT CITY MANAGER, Pittsburg, California**

**1968-1970 ASSISTANT TO CITY ADMINISTRATOR, Lompoc, California**

**1965-1968 ADMINISTRATIVE AIDE, Upland, California**

**1964-1965 MUNICIPAL ADMINISTRATION INTERN, Burbank, California**

**City Management Experience Included:**

- Budgeting, finance administration, personnel administration collective bargaining and grantsmanship.
- Developed and administered Pittsburg's \$3.6M annual operating budget; coordinated budget with \$4M in federal aid.
- Instigated and managed merger of Pittsburg, Antioch and West Pittsburg fire departments resulting in better service, lower cost, and tax savings of \$0.68 per \$100 assessed valuation.

## Firm Information

R3 Consulting Group, Inc. ("R3") specializes in management consulting services for solid waste and water / wastewater utilities. We provide a range of services to our municipal clients, including competitive procurement of collection, processing and disposal services; development, implementation and monitoring of service contracts and franchise agreements; rate reviews and cost-of-service studies; financial and technical analysis of programmatic and policy alternatives; operational reviews and performance assessments; and management studies and compliance audits.

R3 was incorporated in California in 2002 and maintains its offices in Sacramento and Rancho, California. We can be contacted at:

R3 Consulting Group, Inc.  
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**Resources, Responsibility and Respect** – these are the guiding principles of R3 Consulting Group. Our mission is to assist municipal clients in identifying challenges, evaluating alternatives, and implementing cost-effective, environmentally sound and "community-friendly" solutions. For more than 30 years, R3 team members have assisted municipal clients to implement a variety of programs, services and facilities.



## R3 Firm Qualifications

### RFP Preparation and Management and Financial Analysis

ACWMA, CA	Rancho Cordova, CA
Alameda, CA	Rancho Murieta CSD, CA
Albuquerque, NM	Rancho Palos Verdes, CA
Barlett, TN	Redlands, CA
Bradbury, CA	Redwood City, CA
CCCSWA, CA	Rolling Hills Estates, CA
Citrus Heights, CA	Sacramento County, CA
Clovis, CA	Sacramento, CA
Colton, CA	San Anselmo, CA
Douglas County, NV	San Bernardino County, CA
Duarte, CA	San Bernardino, CA
Dublin, CA	San Francisco, CA
El Cerrito, CA	San Gabriel, CA
El Dorado County, CA	San Jose, CA
Inwindale, CA	San Leandro, CA
Lexington County, SC	Santa Barbara County, CA
Livermore, CA	Santa Cruz County, CA
Manteca, CA	Santa Rosa, CA
Maricopa County, AZ	SBWMA, CA
Memphis, TN	Scottsdale, AZ
Millbrae, CA	South Kingstown, RI
Monrovia, CA	South Pasadena, CA
Montebello, CA	Tucson, AZ
Monterey County, CA	Union City, CA
Norfolk, VA	Upland, CA
Oakland, CA	Vallejo, CA
Oxnard, CA	Waco, TX
Phoenix, AZ	WCCIMWA, CA
Pleasanton, CA	West Columbia, SC
Puerto Rico	Windsor, CA

### Solid Waste Planning and Operations

Calaveras County, CA	Monrovia, CA	Santa Cruz County, CA
Citrus Heights, CA	Monterey County, CA	Scottsdale, AZ
Contra Costa County, CA	Oakland, CA	Seminole County, FL
Dana Point, CA	Phoenix, AZ	State of Arizona
Dana Point, CA	Rancho Cordova, CA	State of California
Dana Point, CA	Rancho Cordova, CA	State of New Mexico
Dana Point, CA	Sacramento County, CA	Tucson, AZ
Dana Point, CA	Sacramento, CA	Tustin, CA
Dana Point, CA	San Bernardino, CA	U.S. Navy, San Diego
Dana Point, CA	San Clemente, CA	
Dana Point, CA	San Jose, CA	

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## R3 Firm Qualifications

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## Practice Areas

### PROCUREMENT ASSISTANCE SERVICES

R3 provides a range of procurement assistance services for our municipal clients, ranging from assisting jurisdictions with “sole-source” negotiations with an existing service provider to managing all aspects of a competitive procurement process for refuse collection, recycling, processing and disposal services. We typically provide “full-service” procurement assistance, meaning that we work closely with our client staff on all aspects of a competitive procurement project. R3 first works with staff and community members to develop the scope and design of programs, facilities and services. Once this is complete, R3 prepares the Request for Proposals package, drafts the franchise agreement or operating contract, conducts pre-proposal meetings with potential contractors and written responses to questions, assists the evaluation team with proposal evaluations, and prepares staff reports and presentations to support the committee recommendations. Finally, we typically prepare and conduct workshops and community forums to solicit direct input on program design from residents, business groups, and elected officials.

Our procurement services include the following:

- Development and evaluation of policy and programmatic alternatives that meet the specific needs of the community;
- Design of performance standards, incentives and penalties related to Contractor performance;
- Development of an annual adjustment mechanism to the Contractor compensation and user rates and fees;
- Preparation and distribution of the Request for Proposals package, including the franchise agreement and operating contracts;
- Assistance with the technical and financial evaluation of proposals; and
- Negotiation, development and monitoring of contracts and franchise agreements.

### FINANCIAL AND RATE ANALYSIS

R3 staff members have broad experience in performing financial and rate structure analysis projects for municipalities, public utilities and regional authorities. As a result, we provide our

## R3 Firm Qualifications

clients with the financial information and comparative analysis required to make sound, informed decisions. In addition, our understanding of the fundamental challenge of local governments to balance complex services and programs with the realities of budget constraints allows us to provide effective and meaningful financial consulting services to our clients. Finally, our primary goal on financial and rate analysis projects is to strike a balance of representing the interests of our municipal clients with ensuring that the contractor(s) are compensated fairly and in accordance with the terms of their Contract.

Our financial and rate analysis services typically include the following:

- Rate audits and rate structure analysis;
- Cost-of-service and revenue requirement studies;
- Financial modeling and analysis of funding alternatives;
- Development of refuse vehicle impact fees;
- Audits of billing systems and franchise fee payments; and
- Budgeting and long-term financial planning.

### OPERATIONS AND PERFORMANCE REVIEWS

R3 staff has extensive experience both operating and evaluating solid waste management systems, and we use that experience to assist our clients with the review and analysis of both municipally operated and franchised solid waste operations. We understand the challenges associated with operating municipal systems, as well as administering franchised solid waste services. In either case, we strive to generate meaningful recommendations based on documented analysis with a focus on opportunities to improve safety and customer service, increase productivity and reduce costs.

Our operations and performance review services include the following:

- Review of Contract compliance by a private operator;
- “Time and motion” analysis of collection and transfer operations;
- Development of “target-productivity” standards and performance enhancement strategies;
- Analysis of vehicle routing systems;

The logo consists of the letters 'R3' in a large, stylized, handwritten-style font. The 'R' is tall and has a curved top, while the '3' is smaller and positioned to the right of the 'R'.

# R3 Firm Qualifications

- Review customer service and billing functions; and
- Development of “performance benchmarking” metrics to measure system performance and improvements.

## MANAGEMENT CONSULTING

R3 provides management consulting services to public agencies and local governments charged with implementation of business practices and public/private partnerships. The primary objective of our management consulting service is to maximize our clients return on the investment of financial and human resources. R3's management consulting practice provides objective assessments geared towards helping our clients arrive at effective business decisions in a timely and informed manner.

Our management consulting services include the following:

- Strategic and long-range planning services;
- Organizational design and information flow analysis;
- Management audits and “process-mapping” exercises;
- Consensus building and decision-making techniques;
- Allocation of resources to meet stated objectives;
- Tracking and monitoring of performance metrics; and
- Information system assessments and design.

## SOLID WASTE PLANNING

R3 staff have designed and implemented numerous solid waste collection, recycling, composting and disposal programs and facilities for cities, counties and regional authorities in California and throughout the United States. R3 emphasizes the creation of technically and financially sound solutions that can be effectively implemented and maintained over the long-term. Our broad experience has allowed R3 to address a variety of issues that typically confront our municipal clients during the implementation of programs and facilities, including regulatory compliance, community outreach and public education, land-use planning and permitting, inter-jurisdictional coordination, AB 939 planning requirements and diversion mandates, labor issues and customer service and billing functions.

Our solid waste management planning services include the following:

The logo for R3, consisting of the letters 'R' and '3' in a stylized, handwritten font.

## R3 Firm Qualifications

- Evaluation, design and implementation of collection, processing, marketing and disposal programs and facilities;
- Design and implementation of public education and outreach programs, community workshops and public opinion surveys;
- Development of local ordinances to support contract requirements and new programs, including Construction and Demolition ordinances;
- Preparation and adoption of AB 939 planning documents, including SRRE's and HHWE's, new base-year studies and annual reports ; and

### R3 Provides Solutions

We are committed to completing our work assignments in an objective and comprehensive manor. By following this principal, our work products result in the best combination of programs and price that best meets the needs of the customer and our public sector clients. ***As a result of a recent competitive procurement project completed by R3, one San Francisco Bay Area community will receive an additional \$750,000 in franchise fee payments over the contract term, customer rates were reduced by over 20%, and diversion was increased from 37% to over 50%.***

### Conflict of Interest

R3 understands the sensitive nature of conducting competitive procurement projects for public agencies. We are strongly committed to providing our clients with unbiased opinions and recommendations. Accordingly, R3 only provides services to public agencies. ***R3 does not have any relationship and/or employment agreement with any private waste haulers, and R3 does not provide services to any private waste haulers.***

### Project Summary Table

The following summary table cross-references the services that R3 team members have provided for public agencies over the past 30 years. This is followed by project descriptions of selected projects.

The logo consists of the letters 'R3' written in a large, bold, handwritten-style font. The 'R' is a simple block letter, and the '3' is a simple numeral.

# R3 Firm Qualifications

	Financial & Rate Analysis	Procurement Services	Operations & Performance Review	Management Consulting	Solid Waste Planning
Alameda County Waste Management Authority, CA	✓	☐	✓	☐	✓
Albuquerque, NM	☐	☐	☐	☐	✓
Amador County, CA	✓	☐	☐	✓	☐
Arlington, TX	✓	☐	☐	✓	☐
Atherton, CA	✓	☐	☐	☐	☐
Bell Gardens, CA	✓	☐	✓	✓	☐
Belmont, CA	✓	☐	☐	☐	☐
Bradbury, CA	✓	✓	✓	☐	☐
Brevard County, FL	✓	✓	☐	✓	☐
Burlingame, CA	✓	☐	☐	☐	☐
Central Contra Costa County Solid Waste Authority, CA	✓	☐	☐	☐	☐
Citrus Heights, CA	✓	✓	✓	☐	☐
CIWMB					✓
Clayton, CA	☐	☐	☐	☐	✓
Clovis, CA	✓	☐	☐	☐	☐
Colton, CA			✓	✓	
Cooper City, FL	✓	✓	☐	☐	✓
Dania Beach, FL	✓	✓	☐	☐	✓
Deerfield Beach, FL	✓	✓	☐	☐	✓
Douglas County, NV	✓	✓	☐	☐	✓
Duarte, CA	✓	✓	✓	☐	✓
Dublin, CA	✓	✓	✓	☐	✓
East Palo Alto, CA	✓	☐	☐	☐	☐
El Cerrito, CA	✓	☐	☐	☐	☐
El Dorado County, CA	✓	✓	✓	☐	✓
El Dorado Hills Community Services District, CA	✓	☐	☐	☐	☐
Elk Grove, CA	✓	✓			✓
Folsom, CA	✓		✓	✓	✓
Foster City, CA	✓	☐	☐	☐	☐
Garden Grove, CA	✓	☐	✓	✓	✓
Gilbert, AZ	☐	☐	✓	☐	
Guam EPA	☐	☐	☐	☐	✓
Hillsborough, CA	✓	☐	☐	☐	☐
Irwindale, CA	✓	✓	✓	☐	✓
Kansas City, MO	✓	✓	✓	☐	
Laguna Nigel, CA					✓

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# R3 Firm Qualifications

	Financial & Rate Analysis	Procurement Services	Operations & Performance Review	Management Consulting	Solid Waste Planning
Lake County, FL	✓	✓	✓	✓	□
Lake Forest, CA		✓			
Livermore, CA	✓	✓	□	□	✓
Los Angeles, CA		□	□	□	✓
Lubbock, TX	✓	✓	✓	□	□
Manteca, CA	✓		✓	✓	✓
Maricopa County, AZ	□	□	✓	□	✓
Marin County, CA	✓	□	✓	✓	✓
Martin County, FL	✓	✓	□	□	✓
Menlo Park, CA	✓	□	□	□	□
Merced, CA	✓		✓		✓
Monrovia, CA	✓	✓	✓	□	✓
Montebello, CA	✓	✓	□	□	✓
Monterey County, CA	✓	✓	□	□	✓
Novato, CA	✓		✓		✓
Oakland, CA	✓	□	□	□	□
Oakley, CA	✓	□	□	□	✓
Palm Beach County, FL	✓	✓	□	✓	□
Phoenix, AZ	✓	✓	✓	✓	✓
Placer County, CA	✓	✓	✓	□	□
Pleasanton, CA	✓	□	✓	□	□
Puerto Rico Infrastructure Finance Authority	✓	✓	✓	✓	
Rancho Cordova, CA	✓	✓	✓	□	✓
Rancho Murieta, CSD, CA	✓	✓			
Rancho Palos Verdes, CA	✓	✓	✓	□	✓
Redlands, CA	✓	✓	□	□	□
Redwood City, CA	✓	□	□	□	□
Rolling Hills Estate, CA	✓	✓	□	✓	□
Sacramento County, CA	✓	✓	✓	✓	✓
Sacramento, CA	✓	✓	✓	□	✓
San Bernardino County, CA	✓	□	✓	✓	✓
San Bernardino, CA	✓	✓	✓	✓	✓
San Carlos, Ca	✓	□	□	□	✓
San Clemente, CA					✓
San Gabriel, CA	✓	✓	✓	✓	
San Jose, CA	✓	✓	□	□	✓
San Leandro, CA	✓	□	✓	□	✓
San Mateo County, CA	✓	□	□	□	✓

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# R3 Firm Qualifications

	Financial & Rate Analysis	Procurement Services	Operations & Performance Review	Management Consulting	Solid Waste Planning
San Mateo, CA	✓	☐	☐	☐	✓
San Rafael, CA	✓	☐	☐	☐	✓
San Ramon	✓	✓			✓
Santa Barbara	✓	✓	✓		
Santa Barbara County, CA	✓	✓	☐	☐	✓
Santa Rosa, CA	✓	✓	✓	☐	✓
Scottsdale, AZ	✓	☐	✓	✓	✓
Seminole County, FL	✓	✓	☐	✓	☐
South Lake Tahoe Basin JPA, CA	✓		✓		
South Pasadena, CA	✓	☐	☐	☐	✓
State of Arizona	✓			✓	✓
State of California	☐	✓	☐	☐	✓
State of New Mexico	☐	☐	☐	☐	✓
Tucson, AZ	✓	✓	✓	☐	✓
Tustin, CA					✓
Upland, CA	✓	✓	☐	☐	✓
US. Navy	☐	☐	☐	☐	✓
Windsor, CA	✓	☐	✓	☐	☐

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## Ric Hutchinson—Principal

Mr. Hutchinson is a Florida Certified Public Accountant with more than 30 years of experience in the fields of accounting, auditing, and financial and management consulting for state and local governments. He has an extensive background in procurement of solid waste collection and recycling services, preparation of solid waste and construction & demolition ordinances, and rate audits and financial analysis. ***Mr. Hutchinson recently completed solid waste procurement projects for the California cities of Citrus Heights, Dublin, Rancho Cordova, San Ramon, and Santa Rosa. He is currently assisting the City of San Jose with its procurement of solid waste services.*** Mr. Hutchinson holds a Bachelor of Arts Degree in Accounting.

## Richard Tagore-Erwin—Principal

Mr. Tagore-Erwin's project work encompasses all aspects of solid waste management and environmental consulting. Over the past 18 years, Mr. Tagore-Erwin has conducted over 40 solid waste procurement and management projects for a variety of public agencies in California and Arizona. These projects include complex rate audits, performance reviews, and procurement projects. ***Mr. Tagore-Erwin has assisting the City of Rancho Palos Verdes conduct its solid waste procurement, and has conducted numerous procurement and negotiation projects for communities in California, including the cities of Bradbury, Colton, Duarte, Irwindale, Montebello, Rolling Hills Estates, Rancho Murieta Community Services District, San Bernardino, San Ramon, Santa Rosa, and Upland.*** Mr. Tagore-Erwin holds both a Bachelor and Master of Arts Degree in Political Science, and is a certified meeting facilitator.

## R3 Project Team Experience

The R3 project team routinely provides the following services to municipal clients:

- *Procurement and negotiation of contracts and franchise agreements*
- *Service rate audits and financial analysis*
- *Contract administration and compliance reviews*
- *Hands-on operations and program performance reviews*

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R3 Project  
Team  
Experience

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## Project Experience

Mr. Hutchinson has served as the project manager or materially participated in the following projects:

### **SOLID WASTE AND RECYCLING PROCUREMENT SERVICES**

**California Communities:** *Citrus Heights, Dublin, Rancho Cordova, San Jose, Santa Rosa and San Ramon*

**Florida Communities:** *Cooper City, Dania Beach, Deerfield Beach, Lake County, Lighthouse Point, Martin County, Okeechobee, Palm Beach County, Polk County, Seminole County and Volusia*

**Nationwide Communities:** *Kansas City, Missouri; Lubbock, Texas and Central Virginia Waste Management Authority*

Mr. Hutchinson prepared solid waste and recycling procurement documents for numerous cities, counties and authorities. This included developing and designing service terms and conditions, contracts for services and cost proposal forms for the solid waste and recycling programs. He reviewed proposed programs, met with citizens and local officials, designed procurement packages, developed collection contracts, analyzed responses, prepared award recommendations and drafted required Ordinances and Resolutions.

### **SOLID WASTE RATE STUDIES AND FINANCIAL ANALYSES**

**California Communities:** *Amador County, Dublin, El Dorado County, King City, Merced County Placer County Pleasanton, Redlands, San Anselmo and San Jose, ,*

**Nationwide Communities:** *Scottsdale, Arizona; Winchester Municipal Utilities, Kentucky; Kansas City, Missouri; Douglas County, Nevada; Oklahoma City, Oklahoma; and Lubbock, Texas*

Mr. Hutchinson assisted these units of local government in the review and analysis of their solid waste and recycling collection and processing costs and the structure of the related rates. As part of these projects, he reviewed contracts, analyzed collector and processor costs and related data in order to develop a COS (cost of service) rate model to determine the costs associated with the specific solid waste services being provided. This data was then used to develop a rate structure that funded the total service costs of the governmental unit while providing equitable rates for each service. In addition, he prepared reports and recommendations and made presentations to governing boards.

## R3 Project Team Experience

### Ric Hutchinson

Mr. Hutchinson has more than 30 years of experience in financial and management consulting, auditing, and accounting. He has extensive experience in procurement of solid waste and recycling services, preparation of solid waste and C&D ordinances, financial analysis and modeling, contract negotiations, cost of service studies, development of franchise areas, and rate studies.

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# R3 Project Team Experience

Ric Hutchinson

## **FINANCIAL PLANNING AND PROJECTION MODELS**

**California Communities:** Amador County, Dublin and Merced County San Jose

**Florida Communities:** DeSoto County and Polk County

**Nationwide Communities:** Scottsdale, Arizona; and Douglas County, Nevada

Mr. Hutchinson prepared long-term financial planning and projection models for residential and commercial solid waste and recycling collection programs, some of which included transfer stations and MRFs. The models normally include over 100 interactive variables for use in performing "what-if" scenarios and contain a "Historically Proactive" module that is used to develop the projections. At the end of each year, the annual data are automatically added to the historical database used to produce the projections, and all projections are reevaluated and restated.

## **COMPLIANCE REVIEW AND FINANCIAL ANALYSIS**

**California Communities:** Citrus Heights, Pleasant Hill, Santa Rosa and El Dorado County ACWMA

**Florida Communities:** Lake, Palm Beach, Polk and Seminole Counties

**Nevada Communities:** Douglas County

Mr. Hutchinson analyzed financial records to verify the accuracy of franchise fee payments made under the terms of collection service contracts. He also reviewed rate adjustment methodologies and tested the validity of customer billing systems. Mr. Hutchinson worked closely with the municipalities and contractors to prepare compliance checklists and develop reporting formats to aid in the review and resolution of contract compliance issues.

## **CONSTRUCTION AND DEMOLITION DEBRIS FRANCHISE AND ORDINANCE SERVICES**

**California Communities:** Dublin, Santa Rosa and San Ramon

**Florida Communities:** Polk, Seminole, Lake and Palm Beach Counties

**Nevada Communities:** Douglas County

Mr. Hutchinson prepared non-exclusive franchise documents for several cities and counties. As part of this process he developed the franchise application form, the franchise agreement, and the franchise fee payment form and process. He also met with local contractors and officials during the development of the franchise agreement. Mr. Hutchinson worked closely with the municipalities and their attorneys to develop the required Ordinance and assisted in the public hearing process.

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## **CONTRACT NEGOTIATIONS AND AMENDMENTS**

**California Communities:** Pleasant Hill, San Jose, Santa Rosa, El Dorado County and Placer County

**Florida Communities:** Lake, Palm Beach, Polk, Seminole and Martin

**Nevada Communities:** Douglas County

Mr. Hutchinson assisted in negotiating and amending existing solid waste and recycling collection contracts to comply with changes in law or changing needs of the client, and in negotiating the associated changes in terms, conditions and rates.

## **SOLID WASTE AND RECYCLING PROCUREMENT WORKSHOPS**

**Nationwide Locations:** Illinois Recycling Association, Solid Waste Association of North America and University of Florida

Mr. Hutchinson developed a workshop entitled "Contracting for Solid Waste and Recycling Collection Services" for the Illinois Recycling Association (IRA). He presented the workshop in several states for both the IRA and the Solid Waste Association of North America, (SWANA). In addition, he taught the course for several years for the University of Florida TREEO Center as part of the Landfill Managers Accreditation program.

## **REGISTRATIONS**

Certified Public Accountant, Florida

## **AFFILIATIONS**

Member, Solid Waste Association of North America

Faculty, Solid Waste Association of North America

Member, American Institute of Certified Public Accountants

Member, Florida Institute of Certified Public Accountants

## **EDUCATION**

Bachelor of Arts in Accounting, University of South Florida

## **PUBLICATIONS, PRESENTATIONS, AND WORKSHOPS**

**"Successfully Contracting for Solid Waste and Recycling Services"**, a training workshop presented nationally to the Illinois

# R3 Project Team Experience

Ric Hutchinson

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R3 Project  
Team  
Experience

Ric Hutchinson

Recycling Association, Solid Waste Association of North America, and the TREEO Center of the University of Florida.

***"Building A Contract in San Jose"*** Waste Age, June 2002, Co-authored with E. Leung, City of San Jose, CA.

***"Contracting Services: A Question of Needs"*** World Wastes, October 1995.

***"Financial Aspects of Solid Waste Services"***, presented to the Solid Waste Association of North America, Arizona Landfill and Solid Waste Management Seminar.

***"Designing a Solid Waste Funding System for Today"***, presented to the Solid Waste Association of North America.

***"Competitive Procurement of Solid Waste Services"***, presented to the SWANA 30<sup>th</sup> Annual Western Regional Conference.

***"Evaluating Vendor Proposals"***, presented to the Illinois Counties Solid Waste Management Association.

***"Privatization of Disposal Facilities: A Ratepayers Perspective"***, presented to the Solid Waste Association of North America.

***"An Incremental Approach to Managed Competition"*** presented to the Solid Waste Association of North America's 2<sup>nd</sup> Annual Planning & Management Symposium.

***"Financial Assurance - Is it Really a Sure Thing?"*** presented to the Solid Waste Association of North America, WASTECON

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## Project Experience

Mr. Tagore-Erwin has served as project manager or had significant involvement with the following projects:

### **SOLID WASTE AND RECYCLING PROCUREMENT SERVICES**

**California Communities:** Bradbury, Colton, Duarte, Irwindale, Monrovia, Montebello, Rancho Murieta, Rancho Palos Verdes, Rolling Hills Estates, San Bernardino, San Jose, San Ramon, Santa Rosa, Upland, Sacramento County and Santa Barbara County

Mr. Tagore-Erwin developed and designed service terms and conditions, franchise agreements and contracts, and cost proposal forms for the solid waste and recycling programs. He assisted in the preparation of the solid waste and recycling procurement documents, conducted pre-proposal conferences and interviews, prepared RFP addenda, negotiated final franchise agreements and contracts, and presented recommendations to City Councils and County Boards of Supervisors.

### **AB 939 PLANNING DOCUMENTS**

**California Communities:** Clayton, Citrus Heights, Los Angeles, Irwindale, Paso Robles, Rancho Cordova, Madera, Manteca, Marin County, Montebello, Monterey County, Napa County, Pleasanton, Rancho Cordova, Sacramento, Sacramento County, San Bernardino County, San Jose, Santa Barbara, the Sonoma County Waste Management Authority, Western Contra Costa Integrated Waste Management Authority, and the State of California

Mr. Tagore-Erwin led project teams in preparing over 100 solid waste management plans, waste characterization studies, Base Year Studies, and resource and planning manuals. He prepared state-wide, regional and local solid waste management plans, conducted multi-jurisdiction waste characterization studies, and worked with individual municipal agencies to develop in-house recycling programs. He has also prepared planning manuals and conducted workshops for jurisdictions throughout California, Arizona and New Mexico, and has advised the California and Arizona state legislatures on solid waste policies.

## R3 Project Team Experience

### Richard Tagore-Erwin

Over the past 18 years, Mr. Tagore-Erwin has worked with public agencies to design, evaluate, and implement solid waste collection, processing, disposal, and administrative operations. His work focuses on procurement, financial analysis, operational review, and sustainable development.

*The procurement work that Mr. Tagore-Erwin completed for Rolling Hills Estates resulted in implementation of single-stream recycling and containerized yard waste collection, and increasing the City's diversion from 38% to 50%.*

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R3 Project  
Team  
Experience

Richard Tagore-  
Erwin

**CONTRACT COMPLIANCE, MONITORING AND REPORTING**

**California Communities:** Irwindale, Marin County, Monrovia, Montebello, Sacramento, Sacramento County, San Bernardino County, Santa Rosa and Western Placer Solid Waste Authority

**Arizona Communities:** Phoenix, AZ

**Project Manager:** Mr. Tagore-Erwin prepared hauler monitoring and reporting programs for single jurisdictions and regional agencies. He conducted on-site audits of hauler financial and operational records. He also developed and implemented reporting databases by jurisdiction, facility used, material type, and tonnage.

**SOLID WASTE FACILITY EVALUATION AND DEVELOPMENT**

**California Communities:** Marin County, Sacramento, Sacramento County, Santa Cruz, San Gabriel, South Pasadena, Western Placer Solid Waste Authority

**Arizona Communities:** Phoenix and Tucson

**Project Manager:** Mr. Tagore-Erwin prepared feasibility plans, conducted performance testing, and evaluated processing equipment and facility layouts. He administered procurement processes for MRF and compost equipment and operators, reviewed operating contracts, provided contract language amendments, prepared secondary markets analyses, developed marketing agreements, and reviewed protocol for material acceptance. Mr. Tagore-Erwin also conducted facility tours, made presentations to community groups, City Councils, and Boards of Supervisors.

**PERFORMANCE REVIEW AND MANAGEMENT EVALUATION**

**California Communities:** Bell Gardens, Culver City, Colton, Garden Grove, Manteca, Monrovia, Rancho Palos Verdes, San Bernardino, San Leandro, Santa Barbara, Upland, Windsor, and; Amador County

**Nationwide Communities:** Tacoma, WA, and Gilbert, Glendale, Phoenix, Scottsdale, and Maricopa County AZ

Mr. Tagore-Erwin reviewed management structures, job classifications and qualification requirements, and billing and customer service systems. He also conducted on-site inspections of collection operations and maintenance procedures, and reviewed routing and route efficiency. He analyzed operational and financial impacts of implementing automated collection systems, single-stream recycling programs, and variable can rates for residential and commercial customers.

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## **RATE REVIEW AND FINANCIAL ANALYSIS**

**California Communities:** *Capitola, Fresno, Garden Grove, Rancho Palos Verdes, Redlands, Roseville, Sacramento, San Bernardino, and El Dorado County*

**Nationwide Communities:** *Scottsdale, Arizona and Douglas County, Nevada*

**Project Manager:** Mr. Tagore-Erwin assisted in reviewing rate applications for franchise haulers. As part of his efforts, he reviewed financial statements and assisted in the preparation and analysis of pro-forma rate models. He also conducted Peer Community Surveys to determine if proposed rates were consistent with surrounding market rates. He assisted in working sessions with the Cities and Counties and their franchised haulers, prepared the reports, and assisted in the presentations to City Councils and County Boards of Supervisors.

## **TUCSON ENVIRONMENTAL TECHNOLOGY PARK**

**Actlink USA Corp., Arizona**

Mr. Tagore-Erwin led the project team in assembling a development team, developing the project concept, conducting the economic and technical analysis, and preparing a project proposal to build the Tucson Environmental Technology Park (TETP). In conjunction with the project developer, Actlink USA, his efforts focused on preparing an extensive economic development analysis in terms of job creation, capital investment, payroll, and value-added. The work effort also included preparing preliminary site design, identifying and negotiating agreements with TETP's end-use manufacturers, conducting a market study, preparing a waste characterization study, and performing an environmental site review.

## **RECYCLING MARKET DEVELOPMENT STUDY**

**State of Arizona, Department of Commerce.**

Mr. Tagore-Erwin conducted this landmark study to assess the current and potential impacts of the recycling industry on Arizona's economy. His efforts focused on quantifying the amount and types of recyclables collected, processed, and used as feedstock in Arizona. Next, Mr. Tagore-Erwin analyzed the impact of recycling on Arizona's economy, in terms of jobs, investment, and value-added economic activity. The results of the study indicated that recycling accounted for over \$1.3 billion in capital investment and value added activities, and approximately 4,000 direct jobs.

## **SOLID WASTE PLANS, WORKSHOPS, AND MANUALS**

R3 Project  
Team  
Experience

Richard Tagore-  
Erwin

R3

# R3 Project Team Experience

Richard Tagore-  
Erwin

**California Communities:** Clayton, Los Angeles County, Manteca, Marin County, Monterey County, Napa County, Sacramento, Sacramento County, San Bernardino and State of California

**Nationwide Communities:** Department of Environmental Quality, State of Arizona; Department of Commerce, State of Arizona and State of New Mexico

**Worldwide Communities:** Guam, U.S. Navy

Mr. Tagore-Erwin led project teams in preparing over 100 solid waste management plans, waste characterization studies, and resource and planning manuals. He prepared state-wide, regional and local solid waste management plans, conducted multi-jurisdiction waste characterization studies, and worked with individual municipal agencies to develop in-house recycling programs. He has also prepared planning manuals and conducted workshops for jurisdictions throughout California, Arizona and New Mexico, and has advised the California and Arizona state legislatures on solid waste policies.

## EDUCATION

Bachelor of Arts in Political Science, University of Hawaii, Manoa

Master of Arts in Political Science, University of Hawaii, Manoa

## PUBLICATIONS, PRESENTATIONS, AND WORKSHOPS

**“Creating Effective Local Partnerships,”** presented to the League of California Cities Annual Conference, San Francisco, CA.

**“Linking Solid Waste Management to Sustainable Development,”** presented to the Commission on Sustainable Development, Washington, D.C.

**“Implementing Source Reduction and Recycling Programs,”** presented to regional groups in Flagstaff, Phoenix and Tucson, Arizona. **“Economic Impact of Recycling,”** presented to the Southwest Public Recycling Association, Tucson, Arizona.

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