



CITY OF SACRAMENTO

DEPARTMENT OF PUBLIC WORKS

October 14, 1985

ENGINEERING DIVISION

Transportation and Community Development Committee
Budget and Finance Committee
Sacramento, California

THOMAS M. FINLEY
Engineering Division Manager

Honorable Members In Session:

SUBJECT: Solid Waste Disposal Planning

SUMMARY

Council has directed the Department of Public Works to provide recommendations for a long-term solid waste disposal program. The planning process outlined by staff was endorsed by the Transportation and Community Development Committee at its June 26, 1985 meeting. This process included three parallel activities:

- o Waste-to-Energy Feasibility
- o Solid Waste Disposal Options RFP
- o Landfill Alternatives Evaluation

These three activities have each reached a significant stage of completion. A summary of the overall evaluation is shown as a matrix on Attachment A.

Results support the following conclusions and recommendations:

1. Waste-to-energy is not economically feasible at this time due to air emission control permitting difficulties, uncertain revenue potential and relatively high costs to the rate payer. Consideration of this option should be deferred until feasibility appears more attractive. Staff recommends continued tracking of the following activities:
 - Air emission testing results proving experimental technology.
 - Power and/or steam sales contract possibilities with P.G.& E. and/or SMUD.
 - Impacts of the President's proposed tax revisions.
 - Potential renewed interest for SMUD participation in a project.
2. The co-composting option should be deferred from further consideration at this time. The project poses the following major uncertainties and deficiencies:
 - High disposal costs to the City without guaranteed revenues to offset costs.
 - Low potential for market revenues. Conversations with Caltrans have led staff to the conclusion that major market agreements with that agency are remote.

- The proposed site is generally unsuitable for waste processing purposes. Obtaining a suitable site will likely be difficult.
- 3. Further consideration of the waste processing/fuel preparation option should be deferred until additional information on costs and markets become available.
- 4. Expanding the vegetal waste processing plant with private capital and operation deserves further consideration. However, certain aspects of the proposal dealing with the City's current commitments to, and agreements with the State will take some study. Also, financial aspects must be clarified.
- 5. The North Sacramento, South Sacramento and Granite Gravel Quarry sites are generally unsuitable for use as a conventional landfill. This is based on potential land use conflicts, high cost of meeting environmental protection and traffic impact.

Also, hauling wastes in refuse collection vehicles directly to Yolo County, Sacramento County and other remote landfills was confirmed to be highly expensive.

- 6. A transfer station with disposal at a remote landfill appears to be the most feasible option for the interim period (next 5-10 years). This option will allow flexibility to implement waste-to-energy or other waste processing options when feasibility allows. It is recommended that a detailed economic and siting evaluation be completed to compare the three major transfer station options and associated landfill options. Staff proposes to use an independent consultant to assist in the comparison between the following options:
 - City owned/operated transfer station.
 - Privately owned/operated transfer station.
 - Expansion of the two County transfer stations.

BACKGROUND

An expanded discussion of the results of the Solid Waste Disposal Planning Program is included as Attachment B.

FINANCIAL

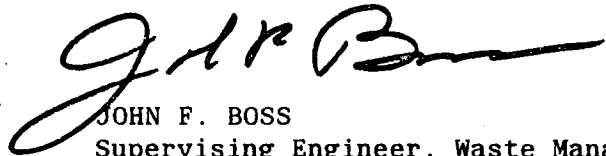
There are no direct financial implications to the current City Budget reflected in the recommendations presented. However, the selection of a solid waste disposal option will have a significant impact on future

budgets of the Solid Waste Division (after closure of the 28th Street Landfill). Based on preliminary cost estimates, even the least costly alternatives to the 28th Street Landfill will likely lead to Solid Waste Division budget increases of at least 10% to 15%. Other options evaluated would lead to double (or more) these increases. The recommendations proposed at this time are designed to minimize the impact on the solid waste operating budget.

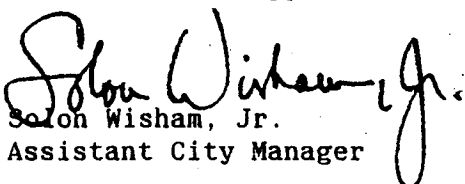
RECOMMENDATION

1. Endorse the conclusions and recommendations presented in the Summary.
2. Direct staff to conduct a detailed economic and siting evaluation of the transfer options, using an independent consultant to analyze the preference of either a City operation or contracting with a private vendor. Staff will report back to the Transportation and Community Development Committee within four months.
3. Direct staff to continue tracking the feasibility of waste-to-energy, reporting back to the Transportation and Community Development Committee semiannually.
4. Direct staff to investigate the potential of transferring the operation of the vegetal waste facility to a private operator, and report back to the Transportation and Community Development Committee within four months.
5. Submit the above recommendations to City Council for their endorsement at the October 29, 1985 meeting.

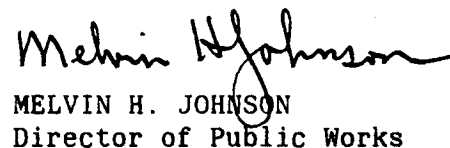
Respectfully submitted,


JOHN F. BOSS
Supervising Engineer, Waste Management

Recommendation Approved:


Solon Wisham, Jr.
Assistant City Manager

Approved:


MELVIN H. JOHNSON
Director of Public Works

JFB:vr
JB134CD3a

Attachment

October 22, 1985
All Districts

ATTACHMENT A
Solid Waste Disposal Options Evaluation Matrix

	Policy	Objectives	Capital Cost	Tip Fee	Reliability	Land Use	Permits	Traffic	Air Quality	Water Quality	Overall
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Landfills - Direct Haul

North Sacramento	●	●	◐	◐	◐	●	●	●	◐	○	●
South Sacramento	●	●	●	●	○	●	●	◐	◐	●	●
Granite	●	●	●	●	○	●	●	●	◐	●	●
Yolo County (existing)	●	●	◐	●	◐	○	◐	●	●	○	●
Sacramento County (existing)	●	●	◐	●	◐	○	◐	●	●	○	●

Landfills w/Transfer Station

Yolo County	◐	○	○	○	◐	○	○	○	○	◐	○
Sacramento County	○	○	○	○	◐	○	○	○	○	◐	○
New-City Owned	○	○	◐	○	○	○	◐	○	○	◐	○

Transfer Stations

City	○	○	◐	○	○	○	○	○	○	○	○
County	○	○	◐	○	○	○	◐	◐	○	○	○
Private	○	○	◐	○	○	○	○	○	○	○	○

Waste Processing

Co-compost - CCSI	◐	◐	●	●	◐	●	◐	●	◐	●	●
Fuel pellets - CAG	○	◐	●	◐	◐	◐	◐	○	○	○	◐
Vegetal waste - Organic By-Products	○	◐	◐	○	◐	○	○	◐	○	○	◐

Waste-to-energy

Granite	◐	◐	●	●	◐	◐	●	◐	◐	○	◐
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ATTACHMENT B

SOLID WASTE DISPOSAL OPTIONS EVALUATION

A. Solid Waste Disposal Planning Process

In June, 1985, the Transportation and Community Development Committee authorized the Department of Public Works to proceed with a three part planning process designed to identify preferred solid waste disposal options. Each of these activities had their genesis as independent studies. Through slight restructuring, however, staff was able to schedule a common completion time, thereby allowing comparison and evaluation of a wide array of options before the end of 1985. A summary of each of three planning activities is presented below:

1. Waste-to-energy Feasibility

A successful waste-to-energy project depends on resolution of several issues identified by staff. Therefore, issuance of a request-for-proposal from full service vendors was postponed to study these issues and obtain the following:

- a. Identification of a general range of tip fees to be expected;
- b. Clearer understanding of proposed Federal Tax changes and their impact (could raise tip fee by \$15-\$25 ton);
- c. Clearer definition of potential energy markets and revenue;
- d. Clearer understanding of air emission control requirements and EPA policy as it impacts projects to be built in the Sacramento area;
- e. Comparison of waste-to-energy feasibility with other options under investigation;
- f. Resolution of status of viable competing non-combustion proposals. This will result in better responses from a wider range of responsible bidders when RFP's are issued.

2. Solid Waste Disposal Options "Request-for-Proposal"

A number of private vendors/project developers have approached City Council with unsolicited proposals for solid waste disposal/transfer/processing. In order to allow comparison of these options, with concurrence from the Transportation and Community Development Committee, the City issued a request-for-proposals in July, 1985, with submittals due in September. Over 80 RFP's were distributed to interested vendors.

A selection committee, including Councilmember Tom Chinn, was established to review all proposals submitted according to evaluation criteria published in the RFP. Attractive proposals, if any, would then be compared against the City owned/operated landfill/transfer station options and against waste-to-energy feasibility.

3. Landfill Alternatives Evaluation

At the time of approval of the expansion of the 28th Street Landfill, Council directed staff to proceed with the technical study and EIR for conversion of the Granite Gravel Quarry into a landfill. This study was expanded by staff to allow evaluation of additional landfill alternatives and associated transfer alternatives. Staff and consultants (Jones & Stokes Associates/Cooper Engineers) presented a list of alternatives and evaluation criteria for Council endorsement early in the alternatives evaluation. The comparison of these alternatives will be presented as a matrix. Two public meetings have been held to discuss the alternatives, evaluation criteria and the Granite Gravel Quarry geotechnical results. Results of this effort are summarized and discussed in more detail under Section D below.

B. Waste-to-Energy Feasibility

The issuance of a request-for-proposal for waste-to-energy was postponed to allow staff to study several issues impacting WTE feasibility. The results of these issue analyses indicate that the feasibility of WTE is not confirmed at this time. Results are summarized below:

1. An air emission control permit will be difficult, if not impossible to obtain from the local Air Pollution Control District and EPA. Since Sacramento has been identified as a "non-attainment" area for certain pollutants, a facility must meet one of the following conditions to obtain a permit:
 - a. Abate emissions to levels below published daily emission limits.
 - b. Obtain emission offsets at least equal to the net emission increases.

Currently, proven emission abatement technologies are not capable of reducing the emission rates sufficiently for a project of Sacramento's size to mitigate the need for offsets. A cursory review indicates that few offsets are available and the firms controlling these offsets are unwilling to sell them. New technology is being tested that might provide the emission reductions necessary. But these must be tested and operated for a sufficiently long time to be acceptable to the permitting agencies

and thereby assure the City that the large amount of money necessary to build a WTE plant would not be at risk. Staff recommends tracking the testing and operations of these new technologies, and periodically reporting results back to Council.

Other waste-to-energy projects which are proceeding in California either have obtained special exemptions from EPA (no longer available), are in an "attainment area", or have been able to obtain offsets.

2. Evaluating the costs, revenues and tip fees of other projects in the U.S., and adjusting for the generally lower energy prices locally, the tip fees for a projected Sacramento facility would be considerably higher than other options under consideration.
3. The economic impacts of the President's proposed tax programs are still unknown. It will likely be another six months before a final tax revision package is adopted. With current provisions, net disposal costs could increase by \$15 to \$25 per ton.
4. Due to relatively low electricity rates, revenues from power sales to SMUD based on current avoided costs will be insufficient to reduce tip fees to acceptable levels. SMUD may, however, in the future agree to higher prices for power or steam if new power sources must be found.
5. The contract provisions available for sale of power to P.G. & E. are not conducive to attracting private investors or yielding sufficient guaranteed revenues. Standard Offer 4, which provided for levelized, guaranteed revenues, has been withdrawn by the PUC. A revised Standard Offer may be adopted next year, but with less attractive provisions. Also, at this time, the Sacramento project would only be able to negotiate an interruptible contract due to transmission line capacity limits. With an interruptible contract, the City's project would be subject to shut-down whenever P.G. & E. determined that their transmission lines would be reaching capacity. This would negatively impact incoming revenues.
6. With the difficulty in abating emissions to below trigger limits for offsets, the City should investigate the possibility of several smaller projects. A centralized transfer station could distribute waste to these projects as necessary. This would reduce siting problems, since the waste-to-energy units would not need front-end storage, or would be subject to the refuse collection vehicle traffic.

C. Solid Waste Disposal Options RFP

In July, 1985, the City issued a request-for-proposals for solid waste disposal options, including transfer, processing, materials recovery and landfilling. This solicitation was reviewed with and endorsed by the

Transportation and Community Development Committee. Seven proposals were received which generally met the requirements of the RFP. Staff assembled a proposal review committee, which includes Councilmember Tom Chinn, to evaluate the proposals. All seven proposal teams were given the opportunity to provide oral statements at interviews held during the end of September. The proposals are described below in the order of general preference given by the review committee:

1. Transfer Stations: Four transfer station proposals were received. As a group, the transfer station proposals were rated higher than the other proposals received. All transfer proposals were based on locating the transfer station at the City's existing 28th Street Landfill complex. All four companies submitting proposals are highly qualified and have proven experience in building and operating transfer stations for municipalities. Cost proposals were under \$20 per ton and differed in price less than \$2/ton. All proposals would require additional discussions and negotiations to resolve the following issues:

- o Specific design features of the station.
- o Long-term contracts with receiving landfill.
- o Escalation factors for tip fees.
- o Buy-back terms for shorter term contracts.
- o Length of contract.

The following companies presented transfer station proposals:

- o Browning Ferris, Inc.
- o Genstar Waste Technology Group
- o Empire Waste Management
- o Sacramento Valley Environmental Waste Disposal Company

The review committee rated each transfer station based on the proposals submitted and the interviews. These ratings will be kept confidential until the City has completed an evaluation of private vs. public operation. If City Council decides to pursue the option of contracting with a private vendor, the committee evaluation results will be used to select firms for contract negotiation.

2. Expanded Vegetal Waste Processing: Organic By-Products of Woodland proposes to modify and operate the City's vegetal waste shredding facility. The review committee and staff believe the

concept as proposed deserves further consideration. However, there are a number of issues that must be resolved prior to proceeding with this option. The major issues are the following:

- a. Contract agreements with the State.
 - b. Value to be assigned to the City's equipment. Organic By-Products assumes the City will transfer all of the City's fixtures at no cost.
 - c. Performance bonds.
3. Waste Processing/Fuel Pellets: CAG Partners of San Antonio, Texas proposes to locate a waste processing facility at the 28th Street Landfill. This facility would separate out the recyclables, pelletize the combustible fraction and compost or dispose the heavy residues. The proposed plant would be similar to one the company operates in Richmond, Virginia. Several fuel markets have been identified within a 100 mile radius of Sacramento, although no market agreements have been finalized, and no fuel specifications issued. This process needs considerably more evaluation before it can be recommended. However, the review committee considered it an idea that deserved additional scrutiny. Staff recommends this possibility be evaluated in concert with waste-to-energy.
4. Co-composting: California Co-Compost Systems, Inc. proposes to process solid wastes and co-compost the shredded wastes with sewage sludge. The plant is proposed to be located at the Granite Gravel Quarry. CCSI proposes to sell the compost to the State of California (Caltrans) for construction of freeway noise barriers. CCSI is basing its revenue projections on a State law requiring purchase of recycled materials, if any, and if equivalent in price and character to virgin materials. However, no contract commitments from Caltrans or any other State agency have been presented. The Caltrans Laboratory is preparing a testing program which is expected to take a minimum of four years to complete. At this time, Caltrans is reviewing the research proposal prior to submittal for potential Federal funding. Caltrans officials in the sound wall program indicated there are diminishing funds available for sound wall construction, and that plans for sound walls in the Northern California area were a fraction of the size needed to support the revenue projections estimated by CCSI. The review committee and staff are recommending to defer consideration of this option at this time. The basic factors leading to this recommendation are as follows:
- a. The tip fees to be guaranteed by the City are very high - over \$35/ton during the first year of operation.

- b. The revenues guaranteed by CCSI are less than \$5/ton of refuse accepted. Therefore, the City must assume the risk that sufficient additional revenues are available to offset the tip fee guarantees. Discussions with Caltrans officials (the prime market indentified by CCSI) indicate that revenues are problematic at best. First, the amount of funds programmed for sound wall construction in the Sacramento market area (Northern California) is considerably lower than the revenue projections of CCSI. Second, Caltrans will not complete the assessment of suitability of compost for sound walls for at least four years.
- c. The proposed location at the Granite Gravel Quarry brings with it the same problems associated with the operation of a landfill at that site. These include refuse truck traffic, noise, dust, odor, etc. By letter dated September 30, 1985, (see Attachment C) the County Board of Supervisors indicated they were not amenable to using the Regional Waste Water Treatment Plant for the CCSI plant, preferring it to be at some other location. CCSI would therefor need to supply another site. Since the two sites available to the City (28th Street and Granite) are generally unsuitable, obtaining a suitable site may be difficult.

D. Landfill Alternatives Evaluation

A preliminary evaluation of landfill alternatives, including City/County transfer station options, has been completed by the City's consultants - Jones & Stokes Associates/Cooper Engineers, and a draft report has been presented. Cooper Engineers also has completed a geotechnical field investigation for the Granite Gravel Quarry. The results of this investigation are summarized on Attachment D - Landfill Alternatives Matrix. The basic conclusions to be drawn from the study are as follows:

1. The Granite Gravel Quarry is unsuitable for conventional sanitary landfill for the following reasons:
 - a. The level of ground water occurs near the surface of the pit bottom, requiring extensive and expensive engineering remedies to meet ground water protection standards. These remedies include a large scale ground water pumping system, a clay liner and a leachate collection system.
 - b. The high groundwater table will require extensive long-term dewatering, even long after site closure.
 - c. All daily and final soil cover would have to be imported, adding to the expense of operations.

- d. Even though modern sanitary landfill techniques and stringent regulatory standards are designed to mitigate impacts on surrounding land uses, there is a potential for intermittent, although generally minor impacts on the nearby residential community.
2. The proposed North Sacramento site was eliminated from further consideration due to a landuse conflict with air traffic operations at McClellan Air Force Base. No other potential locations in North Sacramento were found for evaluation which met the size, land acquisition cost and general plan criteria.
3. The proposed South Sacramento site is unsuitable for the following reasons:
 - a. The local high groundwater table.
 - b. Conflict with the Regional Sanitation Plant buffer zone criteria.
 - c. Conflict with proposed nearby residential and commercial development.

No other potential locations in South Sacramento were found for evaluation which met the size, land acquisition cost and general plan criteria.

4. Direct haul to existing landfills (Sacramento County and Yolo County) has high costs due to the long haul distances. In addition to the high mileage costs, the City would need to add collection vehicles and crews to account for reduced collection time per crew (due to longer travel time to landfill). This option had been rejected earlier by Council at the time of the decision to expand the 28th Street Landfill.
5. Construction of a transfer station at the 28th Street Landfill site, or use of the County's two transfer stations (with modifications) appears to be the most feasible of the options considered under this planning segment. These options yielded the lowest net costs consistent with acceptable and manageable impacts. A transfer station can easily be used as a front-end for waste-to-energy or other waste processing options. Therefore, a transfer station would not foreclose on other options.

E. Overall Evaluation

All of the results presented above were compared to prepare general recommendations for the City's long range solid waste disposal program. At this time, staff believes there is sufficient information available to allow a "first-cut" screening of proposals. This will allow staff to

concentrate on detailed evaluations of a narrower range of options. Another screening of alternatives will be scheduled for early 1986. At that time, environmental assessments, permitting and preliminary design could begin.

Based on the information developed and analysis completed, the following findings and conclusions are evident:

1. Waste-to-Energy feasibility is not attractive for the City of Sacramento at this time. This option should be carefully monitored by staff for potential in the future. The following issues remain unresolved:
 - Difficulty in obtaining an air emission permit.
 - Estimates of net tipping fees are high.
 - Impacts of President's tax program could drive tip fees up an additional \$15 to \$25 per ton.
 - Energy and/or steam contracts with P.G.& E. and/or SMUD will be unattractive.
2. Due to the following factors, the proposal for co-composting should be deferred from consideration at this time:
 - Unconfirmed market potential for products.
 - High cost risks to the City.
 - Lack of suitable site.
3. Staff should investigate further the proposal to expand the vegetal shredding facility and turn over operations to a private operator. Certain aspects of the proposal, and the potential to incorporate existing agreements with the State must be evaluated. A progress report will be issued within four months.
4. Waste processing for fuel pellets cannot be recommended at this time due to lack of cost and market data. This option should be re-evaluated when more specific data is made available.
5. The three proposed new landfill sites in the northern, eastern (Granite Gravel Quarry) and southern sections of the City were found to be generally unsuitable for conventional sanitary landfill for the following reasons:
 - Incompatible landuse
 - High cost
 - Need for stringent measures to provide groundwater protection
 - Traffic impact
6. A transfer system with haul to remote landfills appears to be the most feasible solution at this time. This option provides the flexibility to convert to other options (WTE, etc.) later.

Additional economic, technical and siting studies are needed to present a recommendation to Council on the preferred transfer options and associated landfill. The three transfer options to be compared in more detail are the following:

- City owned/operated
- Privately owned/operated
- Use of expanded County stations

The detailed evaluation should be completed within a four month time frame. The private transfer station proposals received in response to the City's RFP were evaluated by a five member review committee. All firms exhibited strong qualifications and comparable bids for tipping fees. Ratings for these proposals will be held confidential until Council supports the private transfer station option.



COUNTY OF SACRAMENTO

DEPARTMENT OF PUBLIC WORKS

COUNTY ADMINISTRATION BUILDING • ROOM 304 • 827 SEVENTH STREET
SACRAMENTO, CALIFORNIA 95814

September 30, 1985
R300.300

Joaquin E. Acosta, Jr., President
California Co-Composting Systems, Inc.
P.O. Box 10998
Marina Del Rey, CA 90295

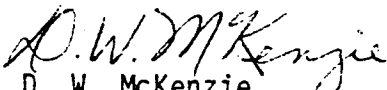
Dear Mr. Acosta:

On September 24, 1985, the Sacramento Regional County Sanitation District Board of Directors heard your presentation regarding the use of District land for a co-composting facility utilizing municipal solid waste from the City of Sacramento combined with sewage solids from the Sacramento Regional Wastewater Treatment Plant process.

At that meeting the Board agreed to support supplying sewage solids from the plant for use by the co-composting facility, if that process is selected by the city. Technical and financial details would have to be resolved regarding the manner of supplying the sewage solids.

The Board however, was not amenable to using the plant site itself for the co-composting operation, preferring to see it at some other location.

Very truly yours,


D. W. McKenzie
District Engineer

DWM/RLN:cc

cc: John F. Boss, City of Sacramento
W. C. Wanderer, Jr.
F. I. Hodgkins
R. L. Nelson

RECEIVED

OCT 2 1985

PUBLIC WORKS
ADMINISTRATION