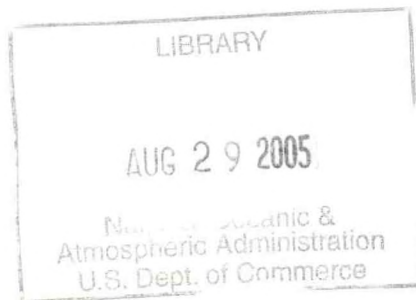


Appendix B  
ARANSAS PASS SOLID WASTE SYSTEM

TD  
195  
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C63  
1979  
v.2

DC

1705 Guadalupe Austin, Texas 78701 512/472-7765



Appendix B

ARANSAS PASS SOLID WASTE SYSTEM

U. S. DEPARTMENT OF COMMERCE NOAA  
COASTAL SERVICES CENTER  
2234 SOUTH HOBSON AVENUE  
CHARLESTON, SC 29405-2413

Property of CSC Library

TD 195.E49 c63 1979 v.2  
SEP 15 1997

## Appendix B

### ARANSAS PASS SOLID WASTE SYSTEM

As part of the Coastal Energy Impact Program Study for Aransas Pass, a special investigation of the city's current solid waste system was conducted. This factor was isolated as a special issue as a result of uncertainties posed by the city administrative staff concerning the efficiency and effectiveness of the system.

A brief analysis of the existing solid waste system was conducted focussing on:

1. The collection system and routes
2. Landfill cost and disposal sites
3. Volume of solid waste collected
4. Collection costs and service fees
5. Disposal and collection alternatives

#### Collection System and Routes

Each residence is serviced in Aransas Pass twice weekly. Commercial and multi-family dwellings are serviced three or more days per week.

The solid waste collection routes for commercial and multi-family are shown on Map 1. Single-family service routes however appear to be very poorly designated. In fact, it is apparent that the routes followed for single-family collections are somewhat arbitrary, at the discretion of the driver. A lack of clearly defined routes, and the uncertainties associated with such a system, are probably the factors most directly responsible for inefficiencies in the existing system.

The City is presently utilizing two trucks on a full-time basis with a three man crew each. One truck is available on a part-time basis. The number of vehicles utilized is comparable to other communities of similar size and similar volumes of waste collected.

#### Landfill Costs and Disposal Sites

The City is using a county landfill located at Gregory. This landfill is approximately 105 acres in size and is projected to be adequate for 20-25 years. The cost to the City is \$1.05 per cubic yard disposed. This rate is considerably cheaper than the estimated cost of operating a city-owned landfill--approximately \$2.50 per cubic yard.

Due to the difficulties encountered in locating a site of permittable quality, the existing disposal site appears to be the best alternative, even though the vehicle trip-time is considered excessive.

The City also operates a brush disposal site which is open on call and Saturdays to the public.

#### Volume of Solid Waste Collected

A total of 44 pounds of solid waste is collected per household per week. This amounts to 2.3 pounds per capita per day. Compared to other localities of similar size, the amount of solid waste collected in the City is very near and slightly below average.

#### Collections Costs and Service Fees

Total expenditures for solid waste services in the City have risen steadily each year from a total of \$71,663 in 1972-73 to \$106,866 in 1975-76,



and a budgeted total of \$154,310 in 1978-79. The only exception to this trend is a decline in 1976 in expenditures of \$100,834 from the previous year's \$106,866. The principle factor in this reduction was lower expenses for salaries, materials and supplies, and a reduced capital outlay for a packer unit and container. As is characteristic of most communities, salaries and wages and disposal services account for the largest percentage of the total operating budget.

Revenues resulting from the solid collection fees and sale of garbage bags in the City have also steadily increased from \$67,470 in 1971 to \$126,009 in 1976-77 with a projected revenues of \$162,500 in 1978-79. As Table 1 shows, revenues have exceeded expenditures in the solid waste system for all years between 1971 and 1977 except fiscal years 1972-73 and 1974-75. Fiscal year 1974-75 showed the largest deficit of approximately \$4,000.

The fact that the existing solid waste system appears to be paying for itself and actually may be generating some revenue is significant. According to data compiled by the Texas Municipal League (TML) in 1972, out of the 56 largest coastal communities greater than 66% were operating their solid waste systems at a loss.

A similar comparison of rate structures in the community was made. The residential rates charged by Aransas Pass at \$4.25 per month are considerably higher than five coastal communities of similar population size surveyed. The lowest rate of the communities was \$1.75 per month and the highest residential rate surveyed was \$3.25 per month. The mean rate was \$2.50 per month. In a 1978 update of the TML survey, only seven percent of 338 Texas communities had residential rates higher than \$4.25.

Commercial rates in Aransas Pass at a minimum of \$6.00 per month and a dumpster fee of \$37.50 per month is slightly higher than communities of similar size, but slightly lower than most cities in Texas.

#### Disposal and Collection Alternatives

There are a number of alternative methods of collection and disposal of solid waste open to a community the size of Aransas Pass. Some of these alternatives are fairly simple and do not require a high capital expenditure while others require a sizable initial investment with return realized over a much longer period. Two alternatives that are most frequently considered to cut costs include encouraging the use of disposable containers and totally mechanized collection systems.

The City has initiated both of these alternatives. Wholesale purchase of plastic bags for garbage disposal with sell back to the public is an attractive method for encouraging their use. It has been estimated that use of plastic bags for collection purposes can cut collection costs by as much as 50%. To maximize the efficiency of such a system it is important to ensure that the cost to the public is set high enough to cover the City's expenditures for the bags but low enough to encourage public use. At present the City is receiving revenues from sales of garbage bags at or slightly below the City's cost.

An additional consideration for the use of garbage bags, if voluntary purchase from the City is not enticing at least 60-75% participation, is a move to mandatory use of disposable containers.

Table 1  
Aransas Pass  
Solid Waste Revenues & Expenditures 1971 - 79

	<u>Revenues</u> <sup>1</sup>	<u>Expenses</u>
1971-72	67,466	57,005
1972-73	70,531	71,663
1973-74	84,302	80,093
1974-75	89,408	93,579
1975-76	117,046	106,866
1976-77	126,009	100,834
1977-78 <sup>2</sup>	161,303	130,233
1978-79 <sup>2</sup>	162,500	154,310

<sup>1</sup> Collection fees and garbage bags

<sup>2</sup> Budgeted items



The other major alternative to reduce collection costs is the use of containers and mechanized collection. The City is currently experimenting with this option: dumpsters for commercial use have been installed. Most larger communities are now using mechanized containers for all commercial collections, particularly high volume collections such as groceries and food service establishments. Mechanized collection containers certainly are cost effective, however, the capital outlay for both the container and collection vehicle must be carefully weighed against: (1) the existing cost of non-mechanized container systems; (2) the efficiency of devoting a vehicle to mechanized containment collections; (3) the ultimate cost advantage in being able to incrementally service all customers including residential with the mechanized collection containers. Having incurred the initial cost of a mechanized collection vehicle, it is recommended that the City incrementally expand the mechanized containers to all commercial areas focussing on the highest volume customers first.

Another low capital cost option open to a community is the location of collections, particularly residential. At present virtually all residential areas in the City have alleys. Most garbage collection is in the alley however some alley ways are inaccessible and collections must be made at curbside. It would be to the City's advantage to arrange for removal of all obstacles in the alley and consistently make all collections there. Alley collection is preferable because both sides of a block can be serviced at the same time. Collection time can also be minimized by encouraging the use of disposable containers, or mandatory usage if necessary as discussed previously, but also encouraging or requiring the use of fixed container racks and mandatory can covers to minimize the time spent in col-



lecting individual parcels. Collection of all containers other than plastic bags or 30 gallon cans should be immediately discontinued (do not accept refuse in 55 gallon drums).

Other alternatives that are available to a community include restructuring of the landfill site, segregating refuse and recycling, alternatives to landfill such as incineration, and use of commercial disposal services.

It is clear at this time that use of the County landfill is considerably more cost-effective than trying to operate its own landfill. Studies on recycling and reclamation have indicated that, except in high density population centers, it is not a cost-effective alternative. Typical recycling/reclamation costs range from \$7.00-\$20.00 per ton with a recoverable of \$10.00-\$25.00 per ton. At a compaction rate of 500 pounds per cubic yard, the City is presently paying \$4.20 per ton for disposal.

It is entirely feasible however that the city can initiate a system of segregating used tires which are currently presenting a disposal problem. It is likely that the City could arrange with a recycler in the area to collect and dispose of tires either by retrieving them from the point of origin or from a central depository serviced by the City.

Contracting with a private disposal service to collect commercial waste may also be feasible. The fees charged by the disposal service would be passed on to the establishment, plus a City administrative fee. However, this alternative must be carefully considered in terms of the resulting reduction in revenues to the City. It may be necessary to continue to service commercial customers with City equipment if wages and capital expenditure cannot be supported on residential rates alone.

## CONCLUSIONS AND RECOMMENDATIONS

The overall conclusion of this brief study of the solid waste disposal system in the City of Aransas Pass is that, from a financial standpoint, the system is operating effectively; the system is generally financially self-sufficient and while the rates are slightly higher than most comparable communities, some communities in Texas charge \$4.50 to \$5.00 per residential unit and at least one community charges \$7.50 per residential unit. In comparison to other communities in Texas rates for commercial collections are slightly lower than average. The frequency of collection and number of vehicles utilized is appropriate.

The areas in greatest need of refinement are the routes and collections procedures.

1. Collection procedures. To improve the efficiency of collection the following steps are recommended:
  - a. Provide accessibility to all alleys and discontinue curbside pick up.
  - b. Continue the wholesale purchase of plastic bags and resale to public. Make bags available in central locations and phase in mandatory use of plastic bags within the next two to three years.
  - c. Immediately discontinue collection of refuse in containers other than plastic bags, paper bags, or thirty-gallon cans with lids.
  - d. Investigate the availability of a suitable recycling agent for tires. If such a recycler can be identified,

arrange for collection at either the point of origin or at a central depository.

- e. Continue phasing in of mechanized collection containers, first expanding to all commercial service, apartment complexes, and trailer parkers; second expand to residential areas.

2. Routes. It is evident that a comprehensive study of the solid waste collection routes in Aransas Pass is needed. It is recommended that the following steps be taken:

- a. The public works superintendent should review all existing routes with the drivers and produce a route map for each vehicle for each day of service and type of service (residential, commercial, cans, containers, etc.) These routes should be enforced by concentrated observation of the vehicles during a one to two week period and examination of trip tickets.
- b. Identification and enforcement of existing routes should improve the efficiency of collections. However, it is also recommended that a more comprehensive analysis of the entire collection system including routes as well as service days, a schedule for phasing in containers, brush collection and disposal service, and residential and commercial rates, should be conducted. This study should include the following:

- (1) An analysis by city sector of the areas to be served and the trip time associated with each sector, including the identification of



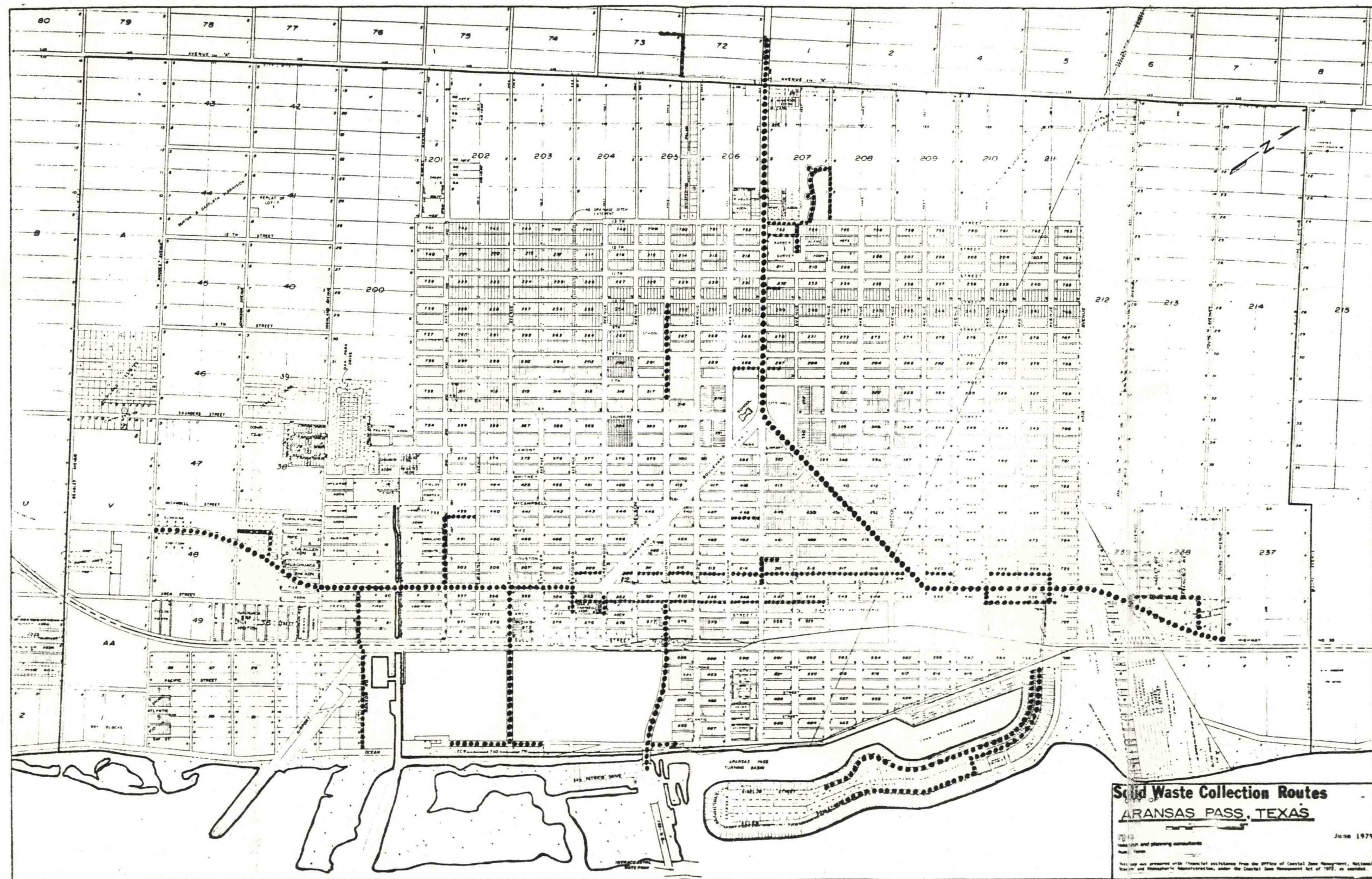
- the optimumly-sized areas which can be served with a minimal number of trips to the landfill.
- (2) A re-evaluation of the service days, under the objective of maintaining two-day service to all single family residences while eliminating Saturday residential service.
  - (3) Preparation of a schedule for purchase of additional containers matched with fund availability (revenue sharing, garbage collection fee revenues) and the ability to dedicate a truck to containerized pick up (containerized and manual collection on the same route is not advised due to the fact that the advantage of utilizing only one person per truck is lost if manual collections must be included).
  - (4) Prepare a comprehensive rate analysis including a study of the actual collection costs by customer type (collection minutes for residential and commercial, containerized versus can, etc.), preparation of a sliding commercial collection fee scale based on volume of refuse collected and type of container, and a projected rate scale based on anticipated increase and operating cost.

It is recommended that the City begin to identify and pursue sources of funding for such an analysis at the present time. Two potential sources



that have been identified include the forthcoming HUD 701 grants and the NOAA CEIP Funds. Applications under the NOAA program should be initiated within the next four to eight weeks.





..... Daily or 3 pickups a week

Unmarked areas have 2 pickups a week