Source Reduction and Recycling Element
City of Milpitas, California

Prepared for

City of Milpitas

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[1] This section presents a discussion of end uses for compost that applies to the alternatives discussed in Section 5.4.2.

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INTRODUCTION

Legislative Basis for the Plan

The California Integrated Waste Management Act of 1989 (Assembly Bill [AB] 939), mandates that by January 1, 1995, each California city and county must divert 25 percent of all solid waste generated within the jurisdiction from landfill or transformation facilities through source reduction, recycling, and composting activities. By January 1, 2000, the required waste diversion is 50 percent of the solid waste generated in each California city and county. AB 939 responds to the pressing need to divert materials from disposal in landfills in order to preserve decreasing site capacity and diminishing natural resources.

AB 939 and related legislation require that each city prepare, adopt, and submit to the county a source reduction and recycling element (SRRE) that includes the following:

- waste generation study (Section 2)
- source reduction component (Section 3)
- recycling component (Section 4)
- composting component (Section 5)
- special waste component (Section 6)
- education and public information component (Section 7)
- disposal facility capacity component (Section 8)
- funding component (Section 9)
- integration component (Section 10)

- household hazardous waste element[1]

The integrated waste management hierarchy established by AB 939 consists of:

- Source reduction to reduce generation of wastes
- Recycling and composting of materials
- Environmentally safe transformation of wastes, such as incineration, destructive distillation, gasification and pyrolysis
- Environmentally safe landfilling

This hierarchy served as a planning tool in the selection of programs designed to meet the City's 25 and 50 percent diversion goals by 1995 and 2000, respectively.

Goals for SRRE

The primary goal of the City's SRRE is to meet the state-mandated waste diversion goals of 25 and 50 percent by 1995 and 2000, respectively.

The following goals have guided the development of the SRRE:

1. Meet or exceed state-mandated waste diversion rates through source reduction, recycling, and composting.
2. Maximize source reduction, recycling, and composting opportunities within the City of Milpitas.
3. Minimize adverse environmental impacts and ensure public health and safety.
4. Increase public awareness of the need to reduce and recycle the solid waste stream and provide information on how to participate in the local community programs.
5. Expand and develop a sense of community pride in order to maximize participation in source reduction, recycling, and composting programs.

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[1] Following the enactment of AB 2707, the household hazardous waste component was elevated to the status of an element, to be prepared as a separate document. This element is therefore presented under separate cover.

6. Encourage and foster the participation of solid waste refuse collectors and the commercial sector in the solid waste management planning process and the implementation of necessary programs.

7. Develop and expand local and regional markets for diverted materials, including the City's purchase of products made from recycled materials.

8. Ensure proper disposal of wastes that cannot be reduced, reused, recycled, or composted.

9. Divert hazardous wastes from disposal in landfills.

10. Extend the lifetime of existing landfills in the County.

MANDATED FORMAT OF SRRE

Title 14, Chapter 9 of the California Code of Regulations (CCR) specifies the required substance and format of the SRREs to be prepared by each city and county in California. The components of the SRRE that address source reduction, recycling, composting, and special waste must contain the following sections:

- Objectives
- Existing Conditions Description
- Evaluation of Alternatives
- Program Implementation
- Monitoring and Evaluation

The regulations dictate that the alternatives considered for these four components must be evaluated in accordance with ten criteria that reflect a wide range of technical, economic, institutional, and socio-political issues.

The remaining four components of the City's SRRE—education/public information, disposal facility capacity, funding, and integration—deviate somewhat in format from the first four, as will be noted from a review of the SRRE. The apparent lack of consistency in the format is thus dictated by the regulations for Planning Guidelines and Procedures for Preparing

and Revising Countywide Integrated Waste Management Plan (Title 14, CCR, Division 7, Chapter 9, Articles 3, 6.1, 6.2, 7, and 8).

WASTE GENERATION STUDY

Waste Disposal Characterization

In compliance with AB 939, the City of Milpitas is required to identify quantities of solid waste that are currently being diverted or have the potential of being diverted from the Newby Island Landfill. In addition, the City is required to identify the composition and quantity of solid wastes disposed of in the landfill.

A summary of the City's waste quantities is presented in Table ES-1 and the composition of the wastestream is shown in Table ES-2. The results of the waste characterization study indicate that paper currently represents about 29 percent of the City's residential, commercial, industrial, and self-haul waste stream.

A total of 79,036 tons of solid waste were disposed of by the City of Milpitas in 1990 (or about 217 tons per day on a seven-day week basis).

Waste Diversion

In compliance with AB 939, the City also conducted a waste diversion study to estimate the quantities of materials diverted from the Newby Island Landfill through recycling, composting, and source reduction.

The diversion results were obtained from (1) City records, (2) the collectors of recyclable materials, and (3) a mailed survey of virtually all businesses in the City concerning their waste diversion activities.

The data from the City records and from the surveys were assumed to reflect the total diverted quantities (i.e., the data were not extrapolated). Thus, the study results reflect a conservative diversion estimate total of 7.5 percent.

Table ES-3 presents a summary of wastes disposed, diverted, and generated in Milpitas. Tables ES-4 and ES-5 present diversion by material for the residential and non-residential sectors, respectively.

Materials Targeted for Diversion

The following categories of materials currently disposed of in the City are targeted for diversion through programs identified in the source reduction, recycling, composting, and special waste components of the SRRE: paper, plastics, glass, metals, yard waste, other organics, and selected other wastes, including inert solids such as asphalt, concrete, and soil.

Overview of SRRE Components

Source Reduction

Source reduction activities reduce or prevent the generation of solid wastes that must otherwise be managed by recycling, composting, transformation, and disposal. Source reduction is achieved by changing production, packaging, and consumption practices, resulting in decreased consumption, reduced material weight and volume, and increased product durability. Production and packaging practices are changed at the state or national level, while consumption patterns are targeted locally.

The current estimated diversion from source reduction programs is 0.8 percent annually. This is a very conservative estimate that reflects the fact that source reduction efforts to a large degree occur on the national level. Manufacturers of products marketed nationally continue to reduce and modify their packaging, thereby impacting the generation of wastes within cities and counties.

The source reduction programs selected to help meet diversion goals for the City of Milpitas have the potential to effectively change consumption patterns. Specifically, the programs selected include (1) technical assistance, (2) education programs, (3) rate modifications and (4) procurement preferences and targets.

The City intends to emphasize implementing available national source reduction programs and educating the public concerning these programs. The success of the source reduction program will have positive impacts on consumption, production and packaging patterns that will ultimately contribute to a decrease in the quantity of wastes landfilled.

Recycling

As defined by the EPA-sponsored national Recycling Advisory Council (RAC), recycling is the result of "a series of activities by which materials that would become or otherwise remain waste are diverted from the solid waste stream for collection, separation, and processing and are used as raw materials or feedstocks in lieu of, or in addition to, virgin materials in the manufacture of goods sold or distributed in commerce, or the reuse of such materials as substitutes for goods made from virgin materials."

Milpitas initiated a curbside recycling program in January, 1991. In addition, the City has several drop-off and buy-back recycling centers, including the Recyclery at Newby Island Landfill. In 1990, prior to the implementation of the curbside program and the Recyclery, the City had a diversion rate of 7.5 percent. In order for the City to reach the diversion goals mandated by AB 939, the following recycling programs are proposed:

Short-term planning period (1991-1995)

- Continue source-separated recycling program for single-family dwellings (existing program)
- Develop source-separated recycling program for multi-family dwellings.
- Establish a source-separated curbside recycling program for non-residential sector.
- Develop a manual material recovery operation/mechanized material recovery operation.
- Develop non-residential recycling programs, including providing public education and technical assistance services.
- Divert inert solids generated by City public works projects to a materials processor[2].

Medium-term planning period (1996-2000)

- Separate additional waste types through the residential curbside program

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[2] Examples of inert solids include concrete and asphalt.

The successful implementation of the recycling programs listed above is projected to divert an estimated 12.6 to 17.5 percent of the City's total solid waste stream by 1995. With the expansion of the residential curbside program in the medium-term planning period, recycling programs offered by the City will divert an estimated 13.6 to 19.5 percent of the waste stream by 2000.

Composting

Composting is a process of biological decomposition of solid organic debris, such as leaves, grass clippings, and other organic materials commonly found in the municipal waste stream. The end product of composting is a stable humus or soil-like material that can be used as a soil conditioner, mulch, or fertilizer, depending on its physical properties.

In Milpitas, yard wastes comprise approximately 12 percent by weight of the total wastestream. Composting therefore makes an important contribution to reducing the amount of the City's waste that is disposed of at the Newby Island Landfill.

The composting programs selected to help meet the City's waste diversion goals are the following:

Short-term planning period (1991-1995)

- Develop residential yard waste collection program
- Establish mechanized yard waste separation

Medium-term planning period (1996-2000)

- Windrow composting system

These composting programs are projected to divert an estimated 6.7 to 7.1 percent of solid waste from disposal by 1995. The windrow composting system to be implemented by 2000 will not contribute to additional diversion of waste, but will enhance the quality of the compost.

Special Waste

Special waste is solid waste requiring collection, processing, and disposal procedures that differ from those typically needed for other municipal solid wastes. Examples of special waste are sewage sludge, ash, asbestos, tires, white goods, mattresses, abandoned vehicles, and dead animals.

White goods and a limited number of tires are the only special wastes that are accepted for disposal at the Newby Island Landfill.

The special waste program selected to help meet Milpitas' diversion goals is the prohibition of the disposal of white goods at the Newby Island Landfill. Diverted white goods will be recycled for use as scrap metal following removal of their capacitors, cooling units, insulation and wiring. White goods are currently collected and stockpiled at the Newby Island Landfill, but are also still present in the waste being disposed of at the landfill. By prohibiting the disposal of white goods, the City can divert approximately 330 tons of these wastes annually. The City's Community Development Department will be responsible for monitoring the effectiveness of this program.

Education and Public Information

Education and public information are essential to the successful implementation of the recycling, source reduction, and composting components. To reach waste diversion goals of 25 and 50 percent, Milpitas will target the non-participating sectors of the community to promote the implementation of selected waste diversion programs. The City will also inform the entire community about expansions and modifications to existing programs so that the City can effectively reach its stated diversion goals.

A key contributor to the City's public information outreach efforts is the Solid Waste Reduction Advisory Committee (SWRAC). Formed in early 1991 to provide guidance to the City in the preparation of the SRRE, SWRAC has assisted in the development of the SRRE's goals and objectives and has contributed to the development of recommended programs. SWRAC will serve as advisors to the City for an indefinite period of time following the adoption of the SRRE. The Committee will provide input to the City during the implementation phase and will help monitor the progress of programs that have been selected to meet the diversion targets mandated by AD 939.

The education and public information component presented in the City's SRRE describes a wide variety of City programs that focus on educating and informing the community about solid waste issues. Education and public information programs promoted by businesses and community groups in the City are also described.

The education and public information activities selected to enhance existing programs are multi-faceted in scope, encompassing media, community outreach, campaigns, and school curricula.

Disposal Facility Capacity

The Integrated Waste Management Act of 1989 requires that jurisdictions identify their current and future solid waste disposal capacity needs in the SRRE. Specifically, the City of Milpitas is required to identify its disposal capacity over the 15 year period 1991 through 2006. In Milpitas, there are no permitted solid waste disposal facilities within the incorporated limits of the City; all of the City's solid waste destined for disposal is currently exported to permitted solid waste disposal facilities in the City of San Jose. (It should be noted, however, that Newby Island Landfill borders the City of Milpitas.) Currently no plans exists to establish a new disposal facility in Milpitas during the short-or medium-term planning periods.

Results of the solid waste disposal facility needs projection indicate that Milpitas will not require additional disposal capacity during the 15-year planning period.

Funding

Solid waste management programs in the City of Milpitas are funded by the City's General Fund. Revenue sources for this Fund include the City's franchise fee for refuse collection by BFI; in fiscal year 1990-1991, the franchise fee is estimated to account for approximately $417,000 of the General Fund's revenues.

Programs selected by Milpitas to help meet mandated diversion goals will be funded by the City's General Fund.

Additional City staff will be required to help implement source reduction, recycling, composting, and public education programs. One staff position will be added in 1992; the need for an additional staff position will be reviewed by the end of calendar year 1992.

Integration

To reach the waste diversion goals mandated by AB 939, the City must integrate source reduction, recycling, composting and special waste programs and activities following the integrated waste management hierarchy

of (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and disposal. A combination of existing waste diversion programs, planned expansions of existing programs, and new source reduction, recycling and composting programs and activities together will contribute to the City's achieving the diversion targets mandated by law.

Currently Milpitas diverts an estimated 7.5 percent of its solid wastes from the landfill. By 1995, the City projects a diversion rate of 26.1 to 31.5 percent. A range of diversion rates is presented in order to reflect the variables involved in implementing new programs.

Summary of Diversion Programs

Summarized in Table ES-6 are the source reduction, recycling, special waste, and composting diversion programs selected for the City of Milpitas. Included is (1) date of implementation; (2) percent diversion of the total waste stream that each program would achieve; (4) planning, development, and capital costs; and (5) annual operating and monitoring costs.

Table ES-1

SUMMARY OF WASTE DISPOSAL QUANTITIES (1990)

City of Milpitas

Source	Tons Per Day-7*	Tons Per Year	Percent
Residential	36	13,032	16
Commercial	37	13,473	17
Industrial/Roll-Off	83	30,371	38
Self-Haul	61	22,160	28
Total**	217	79,036	100

* Based on a 7-day week.

** Numbers are rounded. Data reflects quantities disposed of at the Newby Island and Zanker Road landfills, and through transformation.

Table ES-2 SUMMARY OF WASTE GENERATED COMPOSITION FOR THE CITY OF MILPITAS
(WEIGHT PERCENT)

	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SELF		TOTAL	
PAPER: (total)	**44.28**		**48.61**		**28.69**		**6.61**		**28.99**	
corrugated containers		5.11		16.89		12.24		2.11		9.30
newspaper		14.15		3.73		1.86		0.13		3.69
high grade ledger paper		1.40		5.78		3.44		0.81		2.85
mixed paper		14.49		14.45		7.09		0.33		7.83
other paper		9.12		7.75		4.06		3.24		5.32
PLASTICS: (total)	**8.28**		**8.77**		**9.53**		**4.75**		**7.61**	
HDPE containers		0.83		1.24		1.70		0.00		1.03
PET containers		0.39		0.13		0.02		0.14		0.13
film plastics		2.35		3.01		2.63		1.01		2.23
other plastics		2.69		4.39		5.17		3.60		4.22
GLASS: (total)	**5.90**		**9.43**		**1.48**		**0.05**		**2.15**	
refillable bev. containers		0.96		0.53		0.10		0.00		0.29
CA Redemption Value		2.45		1.87		0.35		0.00		0.87
other recyclable glass		1.97		0.62		0.64		0.03		0.69
other non-recyclable glass		0.52		0.41		0.37		0.03		0.31
METALS: (total)	**3.28**		**6.29**		**9.78**		**9.59**		**6.06**	
aluminum cans		0.48		0.26		0.14		0.01		0.18
bi-metal containers		0.05		0.08		0.00		0.00		0.02
tin cans		1.14		0.78		0.19		0.00		0.40
other ferrous		1.07		4.71		8.09		8.98		6.60
other aluminum		0.33		0.26		0.15		0.06		0.18
other non-ferrous		0.05		0.02		0.36		0.54		0.30
white goods		0.15		0.18		0.85		0.00		0.39
YARD WASTE: (total)	**22.53**	**22.53**	**9.49**	**9.49**	**7.07**	**7.07**	**15.33**	**15.33**	**11.95**	**11.95**
OTHER ORGANICS: (total)	**16.40**		**21.28**		**27.48**		**28.43**		**24.64**	
food waste		8.91		11.54		1.14		0.55		4.12
tires/rubber		0.60		1.36		1.60		0.00		0.98
wood wastes		1.60		4.21		15.01		16.45		11.29
agricultural crop residues		0.00		0.14		0.00		0.00		0.03
manure		0.11		0.00		0.00		0.00		0.02
textiles/leather		1.33		0.74		3.81		11.07		4.77
other misc. organics		3.85		3.28		5.92		0.36		3.64
OTHER WASTES: (total)	**1.35**		**3.12**		**15.99**		**35.23**		**16.38**	
inert solids		0.85		2.83		14.54		33.68		15.27
hazardous wastes		0.51		0.29		1.45		1.54		1.11
SPECIAL WASTES: (total)	**0.00**		**0.02**		**0.00**		**0.00**		**0.00**	
ash		0.00		0.00		0.00		0.00		0.00
sewage sludge		0.00		0.00		0.00		0.00		0.00
industrial sludge		0.00		0.00		0.00		0.00		0.00
asbestos		0.00		0.00		0.00		0.00		0.00
auto shredder waste		0.00		0.00		0.00		0.00		0.00
auto bodies		0.00		0.00		0.00		0.00		0.00
other special waste		0.00		0.02		0.00		0.00		0.00
TOTAL		**100.00**		**100.00**		**100.00**		**100.00**		**100.00**

* Numbers are rounded.

Table ES-3
SUMMARY OF WASTES DISPOSED, DIVERTED AND GENERATED (1990)
City of Milpitas

Waste Category	DISPOSED		DIVERTED		GENERATED	
	Tons	%*	Tons	%*	Tons	%*
Paper	23,124	27.1	1,437	1.7	24561	28.8
Plastics	6,058	7.1	346	0.4	6404	7.5
Glass	1,473	1.7	338	0.4	1811	2.1
Metals	6,482	7.6	304	0.4	6786	7.9
Yard Waste	9,923	11.6	0	0	9923	11.6
Other Organics	18,712	21.9	2,500	2.9	21212	24.8
Other Wastes	13,263	15.5	1,455	1.7	14718	17.2
Special Wastes	2	0	1	0	3	0
Total	79,036	92.5	6,381	7.5	85,418	100

*Percent of total waste stream.
** Numbers are rounded.

Table ES-4
DIVERSION RATES BY MATERIAL FOR RESIDENTIAL WASTE (Tons, 1990)
City of Milpitas

COMPONENT	DISPOSED		DIVERTED		GENERATED		DIVERSION RATE (percent)
	Residential		Recycling	Source Reduction			
PAPER: (total)	5,887				6,057		
corrugated containers		679	0	0		679	0
newspaper		1,880	170	0		2,050	8
high grade ledger paper		186	0	0		186	0
mixed paper		1,928	0	0		1,928	0
other paper		1,214	0	0		1,214	0
PLASTICS: (total)	819				833		
HDPE containers		111	0	0		111	0
PET containers		38	14	0		52	27
film plastics		313	0	0		313	0
other plastics		357	0	0		357	0
GLASS: (total)	656				785		
refillable bev. containers		128	0	0		128	0
CA redemption value		212	114	0		326	35
other recyclable glass		247	15	0		262	6
other non-recyclable glass		70	0	0		70	0
METALS: (total)	413				437		
aluminum cans		40	23	0		64	37
bi-metal containers		7	0	0		7	0
tin cans		152	0	0		152	0
other ferrous		143	0	0		143	0
other aluminum		44	0	0		44	0
other non-ferrous		7	0	0		7	0
white goods		21	0	0		21	0
YARD WASTE: (total)	2,997	2,997	0	0	2,997	2,997	0
OTHER ORGANICS: (total)	2,119				2,183		
food waste		1,185	0	0		1,185	0
tires/rubber		80	0	0		80	0
wood wastes		213	0	0		213	0
agricultural crop residues		0	0	0		0	0
manure		15	0	0		15	0
textiles/leather		176	0	0		176	0
other misc. organics		450	0	64		514	12
OTHER WASTES: (total)	141				141		
inert solids		113	0	0		113	0
hazardous wastes		28	0	0		28	0
SPECIAL WASTES: (total)	0				0		
ash		0	0	0		0	0
sewage sludge		0	0	0		0	0
industrial sludge		0	0	0		0	0
asbestos		0	0	0		0	0
auto shredder waste		0	0	0		0	0
auto bodies		0	0	0		0	0
other special wastes		0	0	0		0	0
TOTAL		**13,032**	**336**	**64**		**13,432**	**3**

* Numbers are rounded.

Table ES-5

DIVERSION RATES BY MATERIAL FOR NON-RESIDENTIAL WASTE (Tons, 1990)

City of Milpitas

COMPONENT	DISPOSED						DIVERTED	GENERATED		DIVERSION RATE (percent)
	Commercial		Industrial		Self Haul		Recycling			
PAPER: (total)	6,236		9,534		1,466			18,504		
corrugated containers		1,784		4,066		467	823		7,141	12
newspaper		566		619		28	10		1,224	1
high grade ledger paper		656		1,143		179	236		2,214	11
mixed paper		2,033		2,356		73	198		4,660	4
other paper		1,196		1,350		719	0		3,265	0
PLASTICS: (total)	1,327		2,862		1,053			5,571		
HDPE containers		191		377		0	190		758	25
PET containers		19		5		32	0		57	0
film plastics		443		858		223	37		1,561	2
other plastics		673		1,619		798	105		3,196	3
GLASS: (total)	321		483		11			1,026		
refillable bev. containers		76		33		0	6		115	5
CA redemption value		158		115		0	130		404	32
other recyclable glass		23		213		6	73		315	23
other non-recyclable glass		63		124		6	0		193	0
METALS: (total)	948		2,997		2,126			6,350		
aluminum cans		22		45		2	17		87	20
bi-metal containers		7		0		0	5		12	42
tin cans		121		64		0	0		185	0
other ferrous		727		2,434		1,991	254		5,406	5
other aluminum		40		51		13	0		105	0
other non-ferrous		2		119		120	1		243	1
white goods		28		281		0	4		313	1
YARD WASTE: (total)	1,178	1,178	2,349	2,349	3,398	3,398	0	6,925	6,925	0
OTHER ORGANICS: (total)	3,284		6,833		6,300			19,030		
food waste		1,781		377		121	0		2,279	0
tires/rubber		387		533		0	139		1,060	13
wood wastes		650		2,689		3,645	2,298		9,283	25
agricultural crop residues		21		0		0	0		21	0
manure		0		0		0	0		0	0
textiles/leather		114		1,267		2,453	0		3,835	0
other misc. organics		507		1,966		80	0		2,552	0
OTHER WASTES: (total)	1		5,313		7,807			14,576		
inert solids		1		4,833		7,464	1,455		13,752	11
hazardous wastes		0		482		342	0		824	0
SPECIAL WASTES: (total)	2		0		0			3		
ash		0		0		0	0		0	0
sewage sludge		0		0		0	0		0	0
industrial sludge		0		0		0	0		0	0
asbestos		0		0		0	0		0	0
auto shredder waste		0		0		0	0		0	0
auto bodies		0		0		0	0		0	0
other special wastes		2		0		0	1		3	17
TOTAL		**13,473**		**30,371**		**22,160**	**5,982**		**71,986**	**8**

* Numbers are rounded.

Table ES-6
Summary of New Diversion Programs Selected for the Short-Term Planning Period (1991-1995)

SRRE Selected Program	Program Implementation[1]	Estimated Percent Diversion of Total Waste Stream for Programs During Short Term (1991-1995)	Additional Costs to the City[2]	
			Planning, Development and Capital ($)	Annual Operating and Monitoring ($)
Source Reduction				
• Public education and technical assistance	7/92	N/A	Included in Education and Public Information Component	
• Rate modifications	6/93	N/A	10,000 [3]	2,500
• Regulatory programs	7/92	N/A	10,000 [4]	2,000
Recycling				
• Residential curbside collection	Has been implemented	___1		
• The Recyclery	Has been implemented	___1		
• Develop multifamily recycling program	1/93	0.1 - 0.3	0 [5]	0 [5]
• Curbside collection program for businesses	1/93	1.5 - 2.5	TBD [6]	TBD [6]
• Divert inert solids to a materials processor	6/92	2.2 - 2.4		
• Establish City-wide commercial recycling programs	1/93	N/A	Included in Education and Public Information Component	
Composting				
• Residential yard waste collection	7/92	2.8 - 3.0	0 [5]	0 [5]
• Mechanized system	7/92	3.9 - 4.1	0 [5]	0 [5]
Special Waste				
• White goods salvaging at landfill	7/92	0.3 - 0.4	0 [5]	0 [5]
Education and Public Information	7/92	N/A	37,000	38,000
Total -- Based on New Programs		**10.8 - 12.7**	$57,000	$42,500
Total Diversion, Existing Programs (1990)		**7.5**		
Diversion Due to Programs Recently Implemented[7]		**7.8 - 11.3**		
Total Diversion, New and Existing Programs		**26.1 - 31.5**		

1 Diversion due to two programs initiated in 1991 is included as a separate line item at the bottom of this column. These recently implemented programs are: residential curbside (1/91) and The Recyclery (3/91).
2. Costs shown are in 1991 dollars; they reflect only those expenditures directly incurred by the City of Milpitas (e.g., exclude any costs to private haulers).
3. Reflects City's planning and administrative costs for implementing a variable rate structure program.
4. Reflects administrative costs associated with developing procurement program.
5 No cost to City. Costs incurred by private sector (which is expected to eventually impact rate payers).
6 To be determined.
7 The Recyclery and curbside collection were implemented in 1991, leading to an increase in diversion rates over the 1990 rates; this additional diversion supplements the 1990 diversion rate of 7.5 percent.

1 INTRODUCTION

1.1 Legislative Basis for the Plan

In September 1989, the California House and Senate passed Assembly Bill (AB) 939, the California Integrated Waste Management Act of 1989. This statute legislation was drafted in response to the need to divert materials from landfills in order to preserve decreasing landfill capacity and natural resources. AB 939 mandates that, by January 1, 1995, each California city and county must divert 25 percent of all solid waste generated in the jurisdiction from landfill or transformation facilities through source reduction, recycling, and composting activities. By January 1, 2000, the required diversion is 50 percent.

AB 939 replaces the existing County Solid Waste Management Plan (CoSWMP) process with a source reduction and recycling element (SRRE) for each city and county and an Integrated Waste Management Plan (IWMP) for each county. AB 939 dramatically restructures the solid waste management program in California with the objective of implementing an aggressive integrated waste management program, promoting, in order of priority, the following waste management practices.

- Source reduction
- Recycling and composting
- Environmentally safe transformation (incineration, pyrolysis, and biological conversion)
- Environmentally safe land disposal

1.1.1 City Requirements

By July 1, 1991, each city must prepare, adopt, and submit to the county an SRRE that includes a component focusing on each of the following areas for management of solid waste generated within the city.

- Waste generation

- Source reduction
- Recycling
- Composting
- Disposal facility capacity
- Education and public information
- Program funding
- Special wastes
- Program integration

1.1.2 County Requirements

By July 1, 1991, each county must prepare a SRRE for its unincorporated area with components identical to those required in the city elements. Each county must also prepare a county-wide integrated waste management plan and a county-wide siting element specifying areas for transformation or disposal sites to provide capacity needed for a 15-year period, so that solid wastes generated in the county that cannot be reduced or recycled will be handled safely.

1.1.3 General Requirements

The required waste diversion amounts will be based on the calculated amount of solid waste existing on the date of approval of the city or county SRRE.

To determine the base rate of solid waste from which these recycling levels will be calculated, "solid waste" includes only two categories:

- Materials that are normally disposed of at a landfill or transformation facility; and
- Solid wastes currently diverted from a landfill or transformation facility because of source reduction, recycling, or composting programs.

Agricultural wastes, and other wastes not normally disposed of at landfills are not included in this base rate calculation.

For any plan submitted after January 1, 1995, the 50 percent diversion may include up to 10 percent transformation, provided that the front-end removal of recyclable materials and other specified conditions are met.

1.1.4 Other Provisions of AB 939

Revisions to existing law in AB 939 include (1) replacement of the former Waste Management Board by the current Integrated Waste Management Board with six full-time members; (2) implementation of new requirements in the city and county waste management planning process; (3) recasting of the waste management framework; and (4) various funding mechanisms for the required programs and plans. There are six additional provisions of AB 939.

Solid Waste Facilities. AB 939 establishes a comprehensive statewide system of permitting, inspections, enforcement, cleanup, maintenance, and closure for solid waste facilities. While the system will continue to be implemented by local jurisdictions where applicable, the state's role has generally been strengthened. Specifically, local enforcement agencies (LEAs) will be subject to Board certification. The Board will prepare and adopt certification regulations specifying requirements that a local enforcement agency shall meet before being designated officially as an enforcement agency.

The Board will also adopt minimum standards for solid waste handling and disposal to protect air, water, and land from pollution. Owners or operators of solid waste landfills must also provide financial assurances for closure and postclosure maintenance.

Enforcement. AB 939 outlines a system of civil penalties, corrective actions, appeals, and judicial review for the enforcement of terms and conditions of solid waste facility permits. The Board may issue a cease and desist or cleanup and abatement order if (1) the LEA fails to issue such orders and (2) the Board agrees that such orders need to be imposed.

Solid Waste Disposal Site Cleanup and Maintenance. Every operator of a solid waste landfill required to have a permit will be assessed a fee, which will be placed in the existing Solid Waste Disposal Site Cleanup and Maintenance Account in the Solid Waste Management Fund. Money in the account will be controlled by the Board and allocated to cities and counties for uses regarding the safe operation, closure, and maintenance of solid waste landfills.

Household Hazardous Wastes. AB 939 requires the Board to develop and implement a public information program to provide information on source reduction, recycling, and proper disposal of household hazardous wastes, and technical assistance to local public agencies to establish household hazardous waste management programs.

Finances. Every operator of a solid waste landfill shall pay a quarterly fee to the Board of Equalization, based on all solid waste disposed of at each disposal site on or after January 1, 1990. The money will be used for administration and other purposes specified by the legislature, which will appropriate funds from the account.

Garbage and Refuse Disposal. AB 939 establishes criteria for (1) the formation of garbage disposal districts, funded by property taxes; (2) franchise waste management within a county; (3) contract waste management within a city; and (4) solid waste enterprises to operate within a community. It also contains restrictions on burning garbage.

1.1.5 Relationship of AB 939 to Other Legislation

Several pieces of legislation related to AB 939 have passed that modify the impact of the legislation, including the following four bills.

Senate Bill (SB) 1322. This bill establishes a comprehensive set of state programs to promote (1) integrated waste management, (2) source reduction, and (3) market development for recovered materials. SB 1322 will establish recycling market development zones with regulatory and fiscal incentives. In addition, the Board will be required to provide technical assistance to enable LEAs to conduct waste reduction evaluations and implement recovery of high-grade white office paper. A state-wide public information and education program will be initiated to encourage participation by the general public, business, government, and industry in all phases of integrated waste management.

Assembly Bill (AB) 1820. AB 1820 permits the use of pre-existing data or studies that accurately characterize the waste generated and disposed of within the jurisdiction. This bill allows for three basic changes to AB 939: (1) only the amount of seasonal sampling necessary to achieve the 25 percent diversion target for the 1995 deadline (rather than the "maximum extent possible"); (2) the constituent materials identified in the waste characterization to be representative of the solid waste generated (in contrast to the former language: to be representative "to the maximum

extent feasible;" and (3) waste quantities to be "as accurate as possible" to enable the Board to accurately measure the diversion requirements.

Assembly Bill (AB) 2707. This bill requires each city to submit a separate household hazardous waste element to the county by July 1, 1991. AB 939 had included a household hazardous waste component in the SRRE; as a result of AB 2707, this component was elevated to the status of an "Element."

Assembly Bill (AB) 3992. This bill defines "solid waste" for the purpose of determining the base amount from which diversion levels shall be calculated. It also requires the Board to consider only relevant circumstances in determining civil penalties for any city or county which fails to implement its SRRE.

1.2 Waste Diversion Efforts

The City of Milpitas disposes of its waste at the Newby Island Landfill in Santa Clara County. Residential waste collection is handled by an exclusive contract with Browning-Ferris Industries (BFI); commercial and multifamily collection is handled by several haulers under a competitive, variable rate system.

The City's contract with BFI, which expires in 2007, provides for unlimited curbside service, as well as a curbside residential recycling program initiated in early 1991.

Source Reduction

The City of Milpitas has a number of current source reduction activities ongoing within the community. These include efforts and programs by both the City government, as well as by private individuals, groups, and businesses.

The City's own source reduction program consists of a number of activities, including (1) making scratch paper tablets and two-sided copies at the City print shop; (2) and using reusable cloth shop rags and uniforms at the City garage. Additionally, there are thirty three businesses known to the City to be operating as thrift, salvage, or repair shops that refurbish or repair used items for reuse. A survey of businesses in Milpitas also revealed that a number of offices and businesses are actively pursuing source reduction activities.

Recycling

Milpitas has a weekly curbside residential recycling program collecting newspaper, glass, tin cans, aluminum cans, PET, motor oil, and HDPE. In addition, Milpitas sponsors a curbside Christmas tree collection program in conjunction with the Sierra Club[1]. The City also has an informal office recycling program for aluminum cans and scratch paper through the print shop.

The City's primary waste hauler (BFI) conducts commercial and industrial recycling activities. There is also a materials recovery facility, the Recyclery, located at the Newby Island landfill that diverts from disposal items such as corrugated cardboard, mixed paper, wood and brush, and metals. This center also accepts aluminum, paper, copper and brass, plastics, and glass, as well as junk mail, polystyrene, and telephone books.

In addition, the City has several drop-off and buy-back centers for CA redemption value materials. The Boy Scouts maintain two newspaper drop-off bins in the City and there is a pilot program for old telephone directories with two drop-off bins in Milpitas.

The City offers a 5 percent purchase preference for goods with recycled content.

Composting

The City of Milpitas is poised to take part in the development of a composting program at the Recyclery located at the Newby Island landfill. Upon approval of the requisite permits, the Recyclery will include a wood waste processing and composting system, turning wood and yard waste into wood fuel and compost. The portion of the organic waste stream that is diverted in this manner through composting qualifies as diversion under AB 939. After 1995, up to ten percent of the material diverted as wood fuel will receive credit as diverted material under AB 939.

1.3 Goals for the SRRE

Definition of Goals and Objectives

The primary goal of the City of Milpitas SRRE is to meet the state-mandated waste diversion goals of 25 and 50 percent by 1995 and 2000, respectively.

Goals are stated in general terms and are not quantified by target dates, waste types, or volumes. Goals are general statements of policy and will be used to guide the overall direction of the solid waste management program within the City of Milpitas.

Goals for the City of Milpitas

1. Meet or exceed state-mandated waste diversion rates through source reduction, recycling, and composting.
2. Maximize source reduction, recycling, and composting opportunities within the City of Milpitas.
3. Minimize adverse environmental impacts and ensure public health and safety.
4. Increase public awareness of the need to reduce and recycle the solid waste stream and provide information on how to participate in the local community programs.
5. Expand and develop the sense of community pride in order to maximize participation in source reduction, recycling, and composting programs.
6. Encourage and foster the participation of solid waste refuse collectors and the commercial sector in the solid waste management planning process and the implementation of necessary programs.
7. Develop and expand local and regional markets for diverted materials.
8. Ensure proper disposal of wastes that cannot be reduced, reused, recycled, or composted.
9. Divert hazardous wastes from disposal in landfills.
10. Extend the lifetime of existing landfills in the County.

Objectives for the City's SRRE are more specific and serve to target certain aspects of the overall goals. Objectives are based in part on local considerations necessary to achieve state-mandated diversion rates. Generally, objectives are stated in measurable and quantifiable terms. Objectives for programs are presented in the respective components of the SRRE.

1.4 Mandated Format of SRRE

Title 14, Chapter 9 of the California Code of Regulations (CCR) specifies the required substance and format of the SRREs to be prepared by each city and county in California. The components of the SRRE that address source reduction, recycling, composting, and special waste must contain the following sections:

- Objectives
- Existing Conditions Description
- Evaluation of Alternatives
- Program Implementation
- Monitoring and Evaluation

The regulations dictate that the alternatives considered for these four components must be evaluated in accordance with ten criteria that reflect a wide range of technical, economic, institutional, and socio-political issues.

The remaining four components of the City's SRRE—education/public information, disposal facility capacity, funding, and integration—deviate somewhat in format from the first four, as will be noted from a review of the SRRE. The apparent lack of consistency in the format is thus dictated by the regulations for Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plan (Title 14, CCR, Division 7, Chapter 9, Articles 3, 6.1, 6.2, 7, and 8).

1.5 Evaluation of Alternatives in the SRRE

The Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans, Section 18733.3, Chapter 9, Division 7, Title 14, California Code of Regulations, require certain criteria to be used in evaluating alternative programs that identified in the source reduction, recycling, composting, and special wastes components. These criteria reflect a broad range of technical, economic, and socio-political considerations. As presented in Section 18733.3 of Article 6.2 of Title 14, the evaluation criteria are as follows:

- Effectiveness
- Hazard

- Ability to Accommodate Change
- Consequences on the Waste Stream
- Implementation Period
- Facility Requirements
- Consistency with Local Plans and Policies
- Institutional Barriers
- Estimated Cost
- End Uses

As structured by the regulations governing AB 939, some of the criteria by which the alternatives are evaluated are positive in tone (e.g., effectiveness), while others are inherently negative (e.g., hazard). A high rating for a positive criterion implies a positive rating; a high rating for a negative criterion implies few or no impacts associated with the potential problem. A detailed discussion of the evaluation criteria and the method used to rank their impact on the alternatives is presented in Appendix A of this SRRE.

1.6 Organization of the SRRE

In accordance with the regulations implementing AB 939, the SRRE is presented in the following sections:

- Solid Waste Generation Study - **Section 2**
- Source Reduction Component - **Section 3**
- Recycling Component - **Section 4**
- Composting Component - **Section 5**
- Special Waste Component - **Section 6**
- Education and Public Information Component - **Section 7**
- Disposal Facility Capacity Component - **Section 8**
- Funding Component - **Section 9**
- Integration Component - **Section 10**

The organization of topics within each component generally follows the format presented below. The format deviates slightly for specific components.

- Introduction
- Objectives
- Existing Conditions Description
- Evaluation of Alternatives[1]
- Selection of Programs
- Program Implementation
- Monitoring and Evaluation

[1] A description of the criteria used to evaluate the alternatives is included in Appendix A.

2 WASTE GENERATION STUDY

2.1 Introduction

This section presents the results of a waste disposal and diversion characterization study performed for the City of Milpitas. The waste characterization was conducted to satisfy the requirements of an AB 939 initial study. As required by AB 939, the study was divided into two parts: a waste disposal characterization and a waste diversion characterization. When combined, the results of the disposal and diversion characterization yield the total amount of solid waste generated in Milpitas according to the equation defined by AB 939:

$$GEN = DISP + DIVERT$$

where: GEN = the total quantity of solid waste generated within the jurisdiction

DISP = the total quantity of solid waste, generated within the jurisdiction, which is transformed or disposed in permitted solid waste facilities

DIVERT = the total quantity of solid waste, generated within the jurisdiction, which is diverted from permitted solid waste transformation and disposal facilities, through existing source reduction, recycling, and composting programs.

The waste disposal characterization was performed using comparable jurisdiction data for waste disposal composition and jurisdiction specific data for waste quantities. Waste diversion quantities were determined using a material accounting system that collected information from both the generators of diverted materials and from the collectors of those materials. When combined, the information from the two sources amounted to a comprehensive accounting of solid wastes diverted from the Milpitas

waste stream. Moreover, in many cases, the combined information provided a cross-check of reported quantities from two sources.

The waste generation study also attempted to measure the amount of source reduction occurring in Milpitas. As with the diversion study, a survey technique was developed to estimate the amount of source reduction occurring with several clearly defined materials or products. Details of the source reduction, waste disposal, and waste diversion studies are presented in the following sections. Using information from the waste generation study and the other components of the SRRE, a 15-year projection is included for the amounts and types of waste expected to be generated under the current solid waste management conditions as well as those proposed in the SRRE.

2.2 Demographic Information

The City of Milpitas is located 45 miles south of San Francisco in northern Santa Clara County, adjoining the City of Fremont to the north and the City of San Jose to the south. The City is 13.5 square miles in area and consists of a mixture of residential, commercial, industrial, and open-space land use. According to information provided by the City's Planning Department, the preliminary data from the 1990 Census shows 14,465 housing units and a population of 50,686.

The preliminary census data reports the density of the population to be about 3,680 persons per square mile. Approximately 18 percent of the population is Hispanic, 33 percent Asian, 5 percent black and 42 percent white. According to ABAG Projections '90, the estimated mean family income is $51,200.

The Chamber of Commerce reports that the Milpitas business community is made up of numerous small businesses and 280 large manufacturing companies, including computer and semiconductor firms, the school district, a warehouse, City government, developers, and a large department store. Together these larger businesses employ approximately 16,000 workers. Also within City limits are a County park, a correctional facility, and two golf courses. ABAG Projection '90 estimates 37,820 jobs in the City in 1990.

2.3 Waste Stream Flow

In keeping with the requirements of AB 939, the City's waste stream has been segmented into the following sources:

- Residential: waste originating from single- and multiple-family dwellings.
- Commercial: waste originating from wholesale and retail distribution operations, institutions (e.g., hospitals and education facilities), service operations (offices and repair facilities), and governmental operations.
- Industrial/roll-off: wastes collected in roll-off containers and typically originating from industrial, commercial, construction/demolition, and other sources.
- Other: AB 939 allows other source categories to be defined. For this study, self-haul wastes were defined as a separate category; these are wastes self-hauled by residents or businesses directly to the Newby Island landfill.

Because Milpitas has a considerable amount of commercial/industrial activity, the residential waste segment is relatively small compared to the nonresidential segments (i.e., commercial, industrial, construction, demolition, and self haul). Residential waste accounts for approximately 16 percent of waste from Milpitas.

Solid wastes flow from the generators of Milpitas' wastes into disposal or recovery channels through a variety of flowpaths, including

- City-franchised residential and nonresidential garbage collection (via BFI)
- City-franchised curbside collection of selected recyclables, for all single-family dwellings in the City (via BFI)
- Refuse self-hauled to the landfill
- A landfill drop-off facility that accepts a variety of materials dropped off by self-haulers
- Several private collection programs that focus on nonresidential sources

- Numerous nonprofit and private collectors that collect a variety of recyclable materials

After collection, wastes generated in the City of Milpitas enter one of four channels: landfill disposal, transformation via incineration, composting, or recycling. Under the present regulations, channeling waste into recycling and composting qualifies as waste diversion. Details of the waste disposal and diversion studies are presented in the following subsections.

2.4 Solid Waste Disposal Characterization Study

The purpose of the solid waste disposal study was to estimate the quantities of materials that were generated by the residential and business segments within the City of Milpitas and are being disposed of by landfilling. Both waste quantity and composition information were collected during 1990 to provide baseline information for SRRE planning efforts.

2.4.1 Current Waste Collection and Disposal Practices

Most of the solid waste destined for disposal is collected by the City's franchised hauler, BFI. BFI collects both residential and non-residential garbage, including commercial, industrial, and construction/demolition wastes. All of the wastes collected by BFI for disposal are landfilled at the BFI-owned and operated Newby Island landfill, which is located nearby in San Jose. A small portion of industrial/roll-off waste is collected by other permitted haulers and is taken to the Zanker Road Landfill. A small amount of waste destined for landfilling is delivered by the City or other governmental agencies to the Newby Island Landfill, including the Elmwood correctional facility. Small haulers, residents, and contractors also self-haul wastes directly to the landfill. Self-haul wastes generally consist of bulky items that are not suitable for collection by conventional residential and commercial packer trucks.

There are no permitted waste disposal facilities located in Milpitas; all of the waste from the City that is destined for disposal is delivered to facilities located in San Jose.

2.4.2 Methodology

The waste disposal characterization consists of two elements of information that, when combined, yield the results required by AB 939. The first element is an estimate of the composition of each of the waste stream

segments defined in Section 2.3, which are residential, commercial, industrial/roll-off, and self-haul waste. Waste composition is a description of the proportions by weight of various materials in a waste stream.

The second element measures the total flow rate of each waste stream segment. Flow rate is based on scalehouse records and is expressed in units of weight per time, such as tons per day.

Multiplying the flow rate for a waste stream segment by the corresponding segment's composition yields an estimate of flowrate by material types for that segment, such as the number of tons per day of newspaper or aluminum cans.

Waste Quantity Investigations. The waste quantity investigation consisted of gathering scalehouse records from the various disposal facilities and soliciting quantity records from the private haulers. In some cases, particularly for commercial waste, quantities reported by the waste haulers were important for this study because collection routes commonly cross jurisdictional boundaries. In cases where collection routes pickup waste from more than one jurisdiction before being weighed at the disposal facility, jurisdiction specific waste quantities cannot be measured directly. As a result, the commercial waste hauler cooperated with the City and the study team by providing apportioned quantities for Milpitas, based on routing details. Similarly, waste quantities from those mixed commercial and residential routes were also apportioned by the hauler (BFI).

Quantities of industrial/roll-off and self-haul waste originating from the City were obtained from BFI - Newby Island Landfill records.

Waste Composition Investigation. Waste composition for the "disposed of" portion of the waste stream was obtained employing the use of comparable jurisdiction solid waste generation studies and data. Article 6.1, Section 18724 (Additional Requirements and Guidelines for the Initial Solid Waste Generation Study) states that a jurisdiction may use pre-existing solid waste generation studies that have been prepared subsequent to 1984, by the Board and/or by jurisdictions in California that have similar demographic, economic, and solid waste characteristics.

The following three data sources from north Santa Clara County were used for the Solid Waste Disposal Characterization for the City of Milpitas:

- *City of Santa Clara Initial Waste Characterization Study, December,* 1990 [1]

- *Solid Waste Generation Study for the City of Palo Alto,* August, 1990 [2]
- *City of Sunnyvale's Initial Waste Characterization Study,* October, 1990 [3]

Located in the north County, Milpitas is an integral part of the urban expansion that comprises Santa Clara County. Milpitas has residential, commercial, and industrial sectors similar in makeup to other cities in the north county; it is commonly referred to as the "Silicon Valley." Table 2-1 summarizes demographic data for the comparable jurisdictions included in this analysis.[1]

The three studies used as a basis for estimating the City's waste composition encompass data from three neighboring cities. Each comparable study was conducted in compliance with AB 939 guidelines within the last year, and each employed the quantitative field analysis method.

The generated waste composition database developed from these three studies and used as a basis for the generated waste composition for Milpitas is detailed in Appendix Tables B-1 through B-3.

The waste generation habits in all the cities were assumed to be similar. However, each of the cities had different recycling rates. Therefore, the comparable data used in this analysis was based on the sum of disposal plus diversion. That is, the composition of waste generated, not disposed of, in the three comparable cities was used as a basis for determining the composition of waste generated in Milpitas. More specifically, to obtain the waste-generated composition for Milpitas, the waste-generated compositions from the three data sources were averaged. The average generated waste composition from these three jurisdictions is presented in Appendix B, Table B-4. Multiplying the average generated waste composition for residential, commercial, industrial, and self-haul segments by the total waste quantity for each segment yielded a list of annual waste quantities by material type and segment. [For example, percent aluminum cans (residential) x residential waste quantities generated = tons of aluminium cans generated (residential)].

Finally, the portion of the generated waste stream that was landfilled was computed by subtracting waste diversion quantities from the list of

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[1] All tables are presented at the end of this component.

annually generated waste quantities. [For example: tons of aluminum cans generated (residential) minus tons of aluminum cans diverted (residential) = tons of aluminum cans disposed of (residential)].

Waste diversion quantities are discussed below in Section 2.5. Waste disposal quantities were also expressed as a "disposed of" waste composition by dividing the annual quantity of the material component by the total annual quantity of the respective wastestream and then multiplying by 100. [For example: 700 tons/year of aluminum cans disposed of, divided by 70,000 tons/year of all waste disposed of (residential) equals percent aluminum cans disposed of (residential)/year].

2.4.3 Results

Table 2-2 summarizes "disposed of" waste quantities for the City of Milpitas from residential, commercial, industrial/roll-off, and self-haul wastes: together these waste types totaled 79,036 tons in 1990. Expressed in terms of landfill volume, assuming an in-place density of 1,200 lbs/yd^3, the 79,036 annual tons is equivalent to 131,727 yd^3. (The source of the in-place density value is EMCON's Landfill Engineering Group, June, 1991).

Regarding the seasonal variation in disposed of waste quantities, landfill records for the Newby Island Landfill indicate that the total flow rate of waste received at the landfill varies from month to month. Compared to the average monthly flow rate, the total disposed of waste flow rate is highest in October, at 22 percent more than average month, and lowest in December, at 39 percent less than the average monthly rate. The total disposed of flow rate includes the combined effect of waste flow from residential, commercial, industrial, and self-haul sources. The usually low flow in December appears to result from the combined effect of the holiday and plant shutdowns, and a seasonal low in yard waste generation.

The average weight percentages for component materials in residential, commercial, industrial/roll-off, and self-haul wastes are presented in Table 2-3. The composition data are presented on a net (wet weight) basis. Table 2-4 presents the annual waste flow for residential, commercial, industrial/roll-off, and self-haul wastes in terms of tons.

2.5 Solid Waste Diversion Characterization

2.5.1 Objective of the Study

The objective of the waste diversion characterization study is to determine the quantity and types of materials that are currently being diverted from permitted solid waste disposal facilities. The diversion quantities reflect the amount of materials that are generated in the City and diverted from the landfill via source reduction, recycling, and composting. Only those materials normally disposed of at permitted solid waste landfills, representing at least 0.001 percent of the waste stream, count towards diversion. It is essential to document the existing level of waste reduction in order to determine what type of programs need to be implemented to reach state mandated diversion rates of 25 percent by 1995 and 50 percent by 2000.

2.5.2 Solid Waste Diversion Flow Process

The flow of materials diverted from the waste stream is more complex than that for materials destined for disposal at a landfill. This complexity occurs because the various materials follow many different paths from generators to collectors to intermediate processors to final processors end users. Collected materials must be separated and processed (e.g., contaminants removed, material baled) to meet market specifications, and the processing is often done in facilities dedicated to only one type of material. Several processors might be involved between the generator and the end user.

Much of the collected materials in the City follows a similar path, flowing from the generator to a collector, who may sell the material to a dealer. In turn, the dealer processes the material before it is ultimately sold to an end user; in some cases the dealer also acts as a collector.

2.5.3 Current Solid Waste Diversion

The following recycling programs were available to waste generators in the City in 1990. These programs were in the solid waste diversion study:

- four California certified redemption centers
- a City - sponsored source reduction program
- one non-profit program that collects newspapers

- commercial/industrial collection of inert solids, wood waste, tires and rubber
- private collectors diverting paper, plastic, glass, metals, organic material and special waste (e.g., white goods and tires).

In 1991 two recycling programs were implemented by City's hauler, BFI, that are expected to contribute significantly to diversion rates in future years. In January 1991, a residential curbside collection program for recyclables was implemented, and in March 1991, a material recovery facility (the Recyclery) went on line.

Also initiated in 1991 was a Christmas tree collection sponsored by BFI and the Loma Prieta chapter of the Sierra Club. This program will not count toward diversion until after 1995 because the waste trees are used as fuel. Pursuant to section 41783 of the Public Resources Code, incineration (transformation) can be counted toward diversion only after 1995. Another program initiated in 1991 was a drop-off program for telephone books, co-sponsored by Pacific Bell. Two telephone book drop-off bins were made available for this pilot program.

The City government and businesses within the City employ source reduction practices, as described in Section 3, Source Reduction Component. In addition, repair and reuse businesses operate within the City, including at least one diaper service.

2.5.4 Methodology

The solid waste diversion characterization used a multi-prong approach to estimate the quantity and types of materials that were diverted from disposal in the City in 1990. Waste diversion data was obtained by the following: (1) a mail survey of commercial and industrial businesses, (2) a mail survey of collectors and processors of recyclable materials, (3) City data, (4) commercial hauler data, and (5) telephone and fax communications (to clarify and supplement, whenever possible, incomplete data collected through the mail survey, as well as to obtain data from additional sources).

Mail Survey. A total of 1,500 businesses were surveyed, with 23 percent responding, and 89 private collectors of recyclable materials were surveyed. Follow-up telephone calls were made to 25 who did not respond to

the survey of private collectors. Through a County-sponsored effort, 46 additional collectors were surveyed, resulting in additional usable responses for the City.

The mailing lists used for the surveys were developed from the following sources:

- City of Milpitas business license list
- San Jose State University, Center for the Development of Recycling
- Santa Clara Valley Manufacturing Group's "Commercial Recycling Guide"
- Sierra Club's "Where to Recycle in Santa Clara County"
- City of Santa Clara's list of recyclers
- Telephone books

Landfill operators, transfer station operators, and BFI, the City's contracted waste hauler, were also contacted for data on their residential and non-residential recycling programs and scavenging activities.

The mail survey included a source reduction questionnaire that was designed to document source reduction activities in the City. In addition, telephone calls were made to a diaper service operating in the City.

Cross Checking. To avoid double counting, the material flow was charted for each waste type. The surveys requested that the businesses and the recyclers involved in recycling, collecting, or processing report the purchasers of their recyclable materials. Data from nonresidential generators that reported collectors for a waste type were eliminated from tabulation when those collectors also reported data for that waste type. Data obtained from collectors that reported purchasers for a waste type were eliminated from tabulation when those purchasers also reported data for that waste type. This approach allowed material to be counted only once and quantities to be estimated with the best available data.

Data Reduction

Waste diversion data was entered into a database. Quantities presented in this report are shown by waste type on an aggregate basis only, in order

to ensure confidentiality of the survey respondents. The following data were tallied:

- source (residential or commercial/industrial waste generators)
- program type (e.g., curbside, drop-off, buy-back)
- quantitative estimates of materials diverted

When recyclers' information was reported for the entire County, the City's share was apportioned according to population projections, as published in Association of Bay Area Governments (ABAG) *Projections '90.*

Conversion Factors

Survey data reported in volume were converted to weight using conversion factors from The National Recycling Coalition's *Measurement Standards and Reporting Guidelines*, October 31, 1989, (see Appendix C). Source reduction data for diapers was calculated using a conversion factor from *Diapers in the Waste Stream.*[2] Landfill operators and recyclers also reported the following average weights of specific materials:

battery	44 lbs
mattress	40 - 50 lbs
laser toner cartridge	4 lbs. (empty)
25 Aluminum cans	1 lb
6 PET liter bottles	1 lb
Christmas tree	19.4 lbs
tire	25 lbs
flower pot	1 lb

2.5.5 Results

The waste diversion characterization results reflect a conservative diversion estimate of 9 percent of the total solid waste stream. The data obtained from the business and the recycler surveys and from the hauler

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[2] Lehrburger, Carl, Diapers in the Waste Stream: A Review of Waste Management and Public Policy Issues, December 1988. Beaudry Communications, Washington, D.C.

and City records were assumed to be the total diversion for the City. Data were not extrapolated. The results of the diversion characterization are presented in Table 2-5 for the residential waste stream and in Table 2-6 for the non-residential waste stream. The quantities shown are estimates in annual tons for 1990. A brief discussion of the results is presented below.

Source Reduction

Except for information on cloth diapers, the source reduction mail survey and the telephone calls provided largely qualitative data on source reduction activities occurring in the City of Milpitas. A total of 63.6 tons of single-use diapers were diverted from the City's residential waste stream in 1990 through the use of reusable cotton diapers. A major diaper service operating in the City reported serving 110 households, each using 50 diapers per week[3]. Therefore, the number of cloth diapers used per year is estimated as 110 (number of household) x 50 (number of diapers per child per week) x 52 (number of weeks in year) = 286,000 diapers per year.

Dividing this number of diapers by 4,500 disposable diapers per ton of garbage yields an estimate of 63.6 tons of garbage per year that were source reduced in the City in 1990, accounting for less than 1 percent of the total solid wastes generated. Thus, 286,000 (diapers per year) divided by 4,500 (disposable diapers/ton)[4] = 63.6 tons/year approximately.

Residential Recycling

Based on the survey of recyclers and City recycling programs, an estimated 336 tons of solid wastes were diverted in the City in 1990 through residential recycling programs, not including oil (see Table 2-5). These programs include AB 20/20 California redemption programs (114 tons) and Boy Scout newspaper dropoff (170 tons). The estimated amounts by material type that were diverted in 1990 are listed in Table 2-5. The waste type accounting for the largest amount of diversion was newspaper, with 170 tons diverted. California Redemption Value glass was second, with 114 tons diverted.

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3 Data from other diaper services in Milpitas were not available.

4 See Footnote 2.

Non-Residential Recycling

The estimated quantity of solid wastes diverted from the non-residential sector was 5,982 tons (see Table 2-6). Of this quantity, 143 tons are special wastes, including tires and white goods. The results show that paper (including corrugated containers, high grade ledger paper, and mixed paper), wood wastes, inert solids, and ferrous metal comprise the majority of the diverted waste from the non-residential sector. It is likely that additional quantities of ferrous metals are also being diverted; however, some scrap metal dealers were unwilling to provide data because of proprietary concerns.

Composting

Currently, there are no operating composting programs serving the City of Milpitas; however, BFI, the City's refuse hauler, has plans for future yard waste collection and composting programs at their Recyclery facility. In addition, a composting facility is proposed at the Zanker Road Sanitary Landfill.

2.6 Solid Waste Generation Projections

The planning guidelines for preparing solid waste generation studies require a forecast of solid waste to be generated within the City of Milpitas, and that portion to be diverted and disposed of. A 15-year projection is specified following local adoption of the SRRE. Since the SRRE is due in 1991, the forecast period extends to the year 2005.

The planning guidelines specify acceptable sources of information on which to base forecasts. From the list of acceptable sources, the City elected to base projected growth in waste generation on the State Department of Finance forecast for residential population growth and on the Association of Bay Area Governments (ABAG) publication titled "Projections 90" for the growth in business and industrial activity.. The Department of Finance projects a population growth rate of 2 percent per year. ABAG projects a growth rate in employment for Milpitas of 3 percent. Combining the growth rates of 2 percent for residential and self-haul waste and 3 percent for commercial and industrial waste (in accordance with their current respective proportions in the waste stream) yields an average annual growth rate in the waste stream of 2.48 percent.

Waste generation projections are presented in Tables 2-7 and 2-8. Table 2-7 presents projections of waste diverted and disposed, assuming continuation of current programs. Table 2-8 presents projections assuming implementation of the programs selected by the SRRE.

2.7 Waste Generation Analysis

The solid waste generation analysis is based on the results of the solid waste generation study. It identifies the quantities of materials generated in the City of Milpitas, by waste category, that are currently being diverted and disposed.

The waste generation analysis contains a list of the materials that are currently being disposed of that will be diverted through the programs identified in Sections 4 through 7 of this SRRE. The analysis also addresses the materials that will not be diverted from disposal.

2.7.1 Quantities Diverted and Disposed

Table 2-9 lists, by waste category, the quantities of materials that are currently being diverted and disposed. Only those materials that are defined by AB 939 as "solid waste" are included in the quantities. Some special wastes generated in Milpitas are not considered as "solid waste" under AB 939. Therefore, those quantities are not shown in the table.

2.7.2 Materials Targeted for Diversion

The following is a list of materials that are currently disposed of in Milpitas that are targeted for potential diversion through the programs identified in the Source Reduction, Recycling, Composting, and Special Wastes components (Sections 4 through 7). Only those materials that can be counted towards the AB 939 diversion mandates are shown.

Paper:
- corrugated containers
- mixed paper
- newspaper
- high-grade ledger paper

Metals:
- aluminum cans
- other ferrous
- non-ferrous metals, including aluminum scrap
- bi-metal containers
- white goods
- steel food and beverage cans

Plastics:
- PET containers
- HDPE containers
- film plastics
- polystyrene foam
- other plastics[5]

Other organics:
- yard waste
- tires/rubber
- wood wastes
- textiles/leather

Glass:
- CA Redemption Value
- other recyclable glass
- refillable beverage containers

Other wastes:
- inert solids

2.7.3 Materials for Disposal

The following list identifies the materials that are currently being disposed of in Milpitas that will not be diverted from disposal by the programs identified in Sections 4 through 7. The programs identified in Sections 4 through 7 do not target the following list of materials because (1) the materials are either nonrecyclable, (2) the quantity being disposed of is insignificant, or (3) there is no market (existing or future). Only those materials that qualify as solid waste under AB 939 are shown.

Paper:
- other paper

Glass:
- other non-recyclable glass

Plastics:
- other plastics[5]

Other organics:
- food waste

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5 Includes plastic pipe, electrical components, and foamed plastics other than polystyrene foam.

After reviewing waste characterization data from the solid waste generation study and the solid waste generation analysis, the City proposes to target the following solid waste generators as recipients of the City's education and public information programs:

- Commercial/industrial, including institutional and local government
- Residential, including single-family dwellings, apartments and townhomes
- Schools, including education curricula for grades K through 12

The commercial and residential sectors generate different quantities and types of waste. Each sector also has its own unique needs; these differing needs will be addressed in the City's education and public information program (Section 7).

Table 2-10 presents an outline specifying sources of documentation on waste quantities generated, diverted, and disposed of.

Table 2-1

DEMOGRAPHIC DATA FOR COMPARABLE JURISIDICTIONS

CITY	COUNTY	POPULATION*	DWELLING UNITS *	PERSONS PER HOUSEHOLD *	MEAN HOUSEHOLD INCOME *	EMPLOYED RESIDENTS *	WASTE STREAM COMPOSITION **		DATE OF WASTE CHARACTERIZATION FIELD STUDY
Milpitas	**Santa Clara**	**47,600**	**14,210**	**3.16**	**51,200**	**25,200**	**14%Res**	**86% Com****	**NA ***
Palo Alto	Santa Clara	68,300	26,190	2.31	59,100	41,600	30%Res	70%Com	(8/90)
Sunnyvale	Santa Clara	120,400	50,470	2.36	49,600	76,200	46%Res	54%Com	(10/90)
Santa Clara	Santa Clara	93,400	37,400	2.42	46,800	58,000	46%Res	54%Com	(12/90)

Employment by Sector (Percent)*					
	Agriculture& Mining	Mfg & Wholesale	Service	Retail	Other
Milipitas	0.4	67.4	12.3	10.4	9.5
Palo Alto	0.5	33.3	40.3	12.1	13.8
Sunnyvale	0.2	65.0	18.6	7.1	9.1
Santa Clara	0.2	49.9	26.0	12.6	11.3

* Association of Bay Area Governments Projections 90, December 1989.
** Solid Waste Management Plan for the County of Santa Clara, 1989 Plan Revision, May 1990.
*** The City of Milpitas has chosen to use preexisting solid waste generation studies to characterize the City's waste stream.
****Commercial waste stream composition includes commercial, industrial and self haul waste.

Table 2-2

SUMMARY OF WASTE DISPOSAL QUANTITIES (1990)

City of Milpitas

Source	Tons Per Day-7*	Tons Per Year	Percent
Residential	36	13,032	16
Commercial	37	13,473	17
Industrial/Roll-Off	83	30,371	38
Self-Haul	61	22,160	28
Total**	217	79,036	100

* Based on a 7-day week.

** Numbers are rounded. Data reflects quantities disposed of at the Newby Island and Zanker Road landfills, and through transformation.

Table 2-3

SUMMARY OF LANDFILLED WASTE COMPOSITION RESULTS (Weight Percent, 1990)

City of Milpitas

	RESIDENTIAL	COMMERCIAL	INDUSTRIAL	SELF HAUL	TOTAL
PAPER: (total)	**45.17**	**48.90**	**31.38**	**8.61**	**29.32**
corrugated containers	5.21	13.42	13.39	2.11	8.87
newspaper	14.43	4.26	2.04	0.13	3.92
high grade ledger paper	1.43	4.94	3.76	0.81	2.74
mixed paper	14.79	15.28	7.76	0.33	8.10
other paper	9.31	9.00	4.45	3.24	5.68
PLASTICS: (total)	**6.38**	**9.84**	**9.42**	**4.78**	**7.86**
HDPE containers	0.85	1.44	1.24	0.00	0.86
PET containers	0.29	0.14	0.02	0.14	0.12
film plastics	2.40	3.33	2.82	1.01	2.33
other plastics	2.74	5.06	5.33	3.60	4.37
GLASS: (total)	**5.05**	**2.41**	**1.59**	**0.05**	**1.87**
refillable bev. containers	0.98	0.57	0.11	0.00	0.30
CA redemption value	1.63	1.19	0.38	0.00	0.62
other recyclable glass	1.90	0.18	0.70	0.03	0.62
other non-recyclable glass	0.53	0.48	0.41	0.03	0.33
METALS: (total)	**3.17**	**7.13**	**5.87**	**0.59**	**3.22**
aluminum cans	0.31	0.17	0.15	0.01	0.14
bi-metal containers	0.05	0.05	0.00	0.00	0.02
tin cans	1.16	0.91	0.21	0.00	0.43
other ferrous	1.09	5.47	5.01	0.98	6.71
other aluminum	0.34	0.30	0.17	0.06	0.19
other non-ferrous	0.05	0.02	0.39	0.54	0.31
white goods	0.16	0.21	0.93	0.00	0.42
YARD WASTE: (total)	**23.00**	**23.00**	**9.86**	**9.86**	**7.78**	**7.78**	**15.33**	**15.33**	**12.58**	**12.58**
OTHER ORGANICS: (total)	**16.26**	**24.70**	**22.50**	**29.43**	**25.50**
food waste	9.10	13.39	1.24	0.55	4.39
tires/rubber	0.61	1.58	1.76	0.00	1.04
wood wastes	1.63	4.89	8.86	16.45	9.13
agricultural crop residues	0.00	0.16	0.00	0.00	0.03
manure	0.12	0.00	0.00	0.00	0.02
textiles/leather	1.35	0.86	4.17	11.07	5.09
other misc. organics	3.45	3.81	6.47	0.36	3.81
OTHER WASTES: (total)	**1.09**	**0.00**	**17.50**	**35.23**	**15.82**
inert solids	0.87	0.00	15.91	33.68	15.74
hazardous wastes	0.21	0.00	1.59	1.54	1.08
SPECIAL WASTES: (total)	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**
ash	0.00	0.00	0.00	0.00	0.00
sewage sludge	0.00	0.00	0.00	0.00	0.00
industrial sludge	0.00	0.00	0.00	0.00	0.00
asbestos	0.00	0.00	0.00	0.00	0.00
auto shredder waste	0.00	0.00	0.00	0.00	0.00
auto bodies	0.00	0.00	0.00	0.00	0.00
other special wastes	0.00	0.02	0.00	0.00	0.00
TOTAL	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

*Numbers are rounded.

Table 2-4

SUMMARY OF WASTE DISPOSAL QUANTITIES (Tons, 1990)

City of Milpitas

	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SELF HAUL**		TOTAL	
PAPER: (total)	**5,887**		**6,236**		**9,534**		**1,466**		**23,124**	
corrugated containers		679		1,784		4,066		467		6,997
newspaper		1,880		566		619		28		3,094
high grade ledger paper		186		656		1,143		179		2,164
mixed paper		1,928		2,033		2,356		73		6,390
other paper		1,214		1,196		1,350		719		4,478
PLASTICS: (total)	**819**		**1,327**		**2,862**		**1,053**		**6,058**	
HDPE containers		111		191		377		0		679
PET containers		38		19		5		32		95
film plastics		313		443		858		223		1,836
other plastics		357		673		1,619		798		3,448
GLASS: (total)	**656**		**321**		**483**		**11**		**1,473**	
refillable bev. containers		128		76		33		0		236
CA redemption value		212		158		115		0		486
other recyclable glass		247		23		213		6		489
other non-recyclable glass		70		63		124		6		262
METALS: (total)	**413**		**948**		**2,997**		**2,126**		**6,482**	
aluminum cans		40		22		45		2		110
bi-metal containers		7		7		0		0		14
tin cans		152		121		64		0		337
other ferrous		143		727		2,434		1,991		5,294
other aluminum		44		40		51		13		148
other non-ferrous		7		2		119		120		248
white goods		21		28		281		0		330
YARD WASTE: (total)	**2,997**	**2,997**	**1,178**	**1,178**	**2,349**	**2,349**	**3,398**	**3,398**	**9,923**	**9,923**
OTHER ORGANICS: (total)	**2,119**		**3,461**		**6,833**		**6,300**		**18,712**	
food waste		1,185		1,781		377		121		3,465
tires/rubber		80		387		533		0		1,000
wood wastes		213		650		2,689		3,645		7,198
agricultural crop residues		0		21		0		0		21
manure		15		0		0		0		15
textiles/leather		176		114		1,267		2,453		4,011
other misc. organics		450		507		1,966		80		3,002
OTHER WASTES: (total)	**141**		**1**		**5,313**		**7,807**		**13,263**	
inert solids		113		1		4,833		7,464		12,411
hazardous wastes		28		0		482		342		852
SPECIAL WASTES*: (total)**	**0**		**2**		**0**		**0**		**2**	
ash		0		0		0		0		0
sewage sludge		0		0		0		0		0
industrial sludge		0		0		0		0		0
asbestos		0		0		0		0		0
auto shredder waste		0		0		0		0		0
auto bodies		0		0		0		0		0
other special wastes		0		2		0		0		2
TOTAL		**13,032**		**13,473**		**30,371**		**22,160**		**79,036**

* Numbers are rounded. Quantities reflect wastes disposed of by landfilling, and tires disposed of by transformation.

** Approximately 8,033 tons of the "self-haul" total is a result of the free dump day for Milpitas' residents.

*** Excepting "other special wastes", special wastes are not considered solid wastes for purposes of this study.

Table 2-5
DIVERSION RATES BY MATERIAL FOR RESIDENTIAL WASTE (Tons, 1990)
City of Milpitas

COMPONENT	DISPOSED		DIVERTED		GENERATED		DIVERSION RATE (percent)
	Residential		Recycling	Source Reduction			
PAPER: (total)	5,887				6,057		
corrugated containers		679	0	0		679	0
newspaper		1,880	170	0		2,050	8
high grade ledger paper		186	0	0		186	0
mixed paper		1,928	0	0		1,928	0
other paper		1,214	0	0		1,214	0
PLASTICS: (total)	819				833		
HDPE containers		111	0	0		111	0
PET containers		38	14	0		52	27
film plastics		313	0	0		313	0
other plastics		357	0	0		357	0
GLASS: (total)	656				785		
refillable bev. containers		128	0	0		128	0
CA redemption value		212	114	0		326	35
other recyclable glass		247	15	0		262	6
other non-recyclable glass		70	0	0		70	0
METALS: (total)	413				437		
aluminum cans		40	23	0		64	37
bi-metal containers		7	0	0		7	0
tin cans		152	0	0		152	0
other ferrous		143	0	0		143	0
other aluminum		44	0	0		44	0
other non-ferrous		7	0	0		7	0
white goods		21	0	0		21	0
YARD WASTE: (total)	2,997	2,997	0	0	2,997	2,997	0
OTHER ORGANICS: (total)	2,119				2,183		
food waste		1,185	0	0		1,185	0
tires/rubber		80	0	0		80	0
wood wastes		213	0	0		213	0
agricultural crop residues		0	0	0		0	0
manure		15	0	0		15	0
textiles/leather		176	0	0		176	0
other misc. organics		450	0	64		514	12
OTHER WASTES: (total)	141				141		
inert solids		113	0	0		113	0
hazardous wastes		28	0	0		28	0
SPECIAL WASTES: (total)	0				0		
ash		0	0	0		0	0
sewage sludge		0	0	0		0	0
industrial sludge		0	0	0		0	0
asbestos		0	0	0		0	0
auto shredder waste		0	0	0		0	0
auto bodies		0	0	0		0	0
other special wastes		0	0	0		0	0
TOTAL		**13,032**	**336**	**64**		**13,432**	**3**

* Numbers are rounded.

Table 2-6
DIVERSION RATES BY MATERIAL FOR NON-RESIDENTIAL WASTE (Tons, 1990)
City of Milpitas

COMPONENT	DISPOSED						DIVERTED	GENERATED		DIVERSION RATE (percent)
	Commercial		Industrial		Self Haul		Recycling			
PAPER: (total)	6,236		9,534		1,466			18,504		
corrugated containers		1,784		4,066		467	823		7,141	12
newspaper		566		619		28	10		1,224	1
high grade ledger paper		656		1,143		179	236		2,214	11
mixed paper		2,033		2,356		73	198		4,660	4
other paper		1,196		1,350		719	0		3,265	0
PLASTICS: (total)	1,327		2,862		1,053			5,571		
HDPE containers		191		377		0	190		758	25
PET containers		19		5		32	0		57	0
film plastics		443		858		223	37		1,561	2
other plastics		673		1,619		798	105		3,196	3
GLASS: (total)	321		483		11			1,026		
refillable bev. containers		76		33		0	6		115	5
CA redemption value		158		115		0	130		404	32
other recyclable glass		23		213		6	73		315	23
other non-recyclable glass		63		124		6	0		193	0
METALS: (total)	948		2,997		2,126			6,350		
aluminum cans		22		45		2	17		87	20
bi-metal containers		7		0		0	5		12	42
tin cans		121		64		0	0		185	0
other ferrous		727		2,434		1,991	254		5,406	5
other aluminum		40		51		13	0		105	0
other non-ferrous		2		119		120	1		243	1
white goods		28		281		0	4		313	1
YARD WASTE: (total)	1,178	1,178	2,349	2,349	3,398	3,398	0	6,925	6,925	0
OTHER ORGANICS: (total)	3,284		6,833		6,300			19,030		
food waste		1,781		377		121	0		2,279	0
tires/rubber		387		533		0	139		1,060	13
wood wastes		650		2,689		3,645	2,298		9,283	25
agricultural crop residues		21		0		0	0		21	0
manure		0		0		0	0		0	0
textiles/leather		114		1,267		2,453	0		3,835	0
other misc. organics		507		1,966		80	0		2,552	0
OTHER WASTES: (total)	1		5,313		7,807			14,576		
inert solids		1		4,833		7,464	1,455		13,752	11
hazardous wastes		0		482		342	0		824	0
SPECIAL WASTES: (total)	2		0		0			3		
ash		0		0		0	0		0	0
sewage sludge		0		0		0	0		0	0
industrial sludge		0		0		0	0		0	0
asbestos		0		0		0	0		0	0
auto shredder waste		0		0		0	0		0	0
auto bodies		0		0		0	0		0	0
other special wastes		2		0		0	1		3	17
TOTAL		**13,473**		**30,371**		**22,160**	**5,982**		**71,986**	**8**

* Numbers are rounded.

Table 2-7

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	1991				1992			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	7,193	903	8,096	11.1%	7,333	920	8,253	11.1%
newspaper	3,147	197	3,344	5.9%	3,208	201	3,409	5.9%
high grade ledger paper	2,205	259	2,464	10.5%	2,248	264	2,512	10.5%
mixed paper	6,559	217	6,776	3.2%	6,686	221	6,907	3.2%
other paper	4,576	0	4,576	0.0%	4,665	0	4,665	0.0%
Subtotal	23,680	1,576	25,256		24,139	1,607	25,746	
Plastic								
HDPE containers	672	208	880	23.7%	685	212	897	23.7%
PET containers	72	16	88	17.8%	74	16	90	17.8%
Film plastics	1,895	41	1,936	2.1%	1,932	41	1,974	2.1%
Other Plastics	3,581	115	3,696	3.1%	3,650	117	3,768	3.1%
Subtotal	6,220	380	6,600		6,341	387	6,728	
Glass								
Refillable glass	257	7	264	2.6%	262	7	269	2.6%
CA redemption glass	525	267	792	33.8%	535	273	807	33.8%
Other recyclable glass	519	97	616	15.7%	530	98	628	15.7%
Other non-recyclable glass	264	0	264	0.0%	269	0	269	0.0%
Subtotal	1,565	371	1,936		1,596	378	1,974	
Metals								
Aluminum cans	132	44	176	25.2%	134	45	179	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	352	0	352	0.0%	359	0	359	0.0%
other ferrous	5,441	279	5,720	4.9%	5,547	284	5,831	4.9%
other aluminum	176	0	176	0.0%	179	0	179	0.0%
other non-ferrous	262	2	264	0.6%	268	2	269	0.6%
white goods	348	4	352	1.1%	355	4	359	1.1%
Subtotal	6,712	328	7,040		6,842	335	7,177	
Yard Waste								
Yard waste	10,208	0	10,208	0.0%	10,406	0	10,406	0.0%
Subtotal	10,208	0	10,208		10,406	0	10,406	
Organics								
Food waste	3,608	0	3,608	0.0%	3,678	0	3,678	0.0%
Tires and rubber	992	152	1,144	13.3%	1,011	155	1,166	13.3%
Wood waste	7,248	2,520	9,768	25.8%	7,388	2,569	9,958	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,136	0	4,136	0.0%	4,216	0	4,216	0.0%
Other misc. organics	3,098	70	3,168	2.2%	3,158	72	3,229	2.2%
Subtotal	19,081	2,743	21,824		19,451	2,796	22,248	
Other Wastes								
Inert solids	12,660	1,596	14,256	11.2%	12,906	1,627	14,533	11.2%
Hazardous waste	880	0	880	0.0%	897	0	897	0.0%
Subtotal	13,540	1,596	15,136		13,803	1,627	15,430	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	81,000	7,000	88,000	7.5%	83,000	7,000	90,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-7 cont'd

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	1993				1994			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	7,515	943	8,458	11.1%	7,701	966	8,668	11.1%
newspaper	3,287	206	3,493	5.9%	3,369	211	3,580	5.9%
high grade ledger paper	2,304	270	2,574	10.5%	2,361	277	2,638	10.5%
mixed paper	6,852	227	7,079	3.2%	7,022	232	7,254	3.2%
other paper	4,780	0	4,780	0.0%	4,899	0	4,899	0.0%
Subtotal	24,738	1,647	26,385		25,352	1,687	27,039	
Plastic								
HDPE containers	702	218	919	23.7%	719	223	942	23.7%
PET containers	76	16	92	17.8%	77	17	94	17.8%
Film plastics	1,980	42	2,023	2.1%	2,029	43	2,073	2.1%
Other Plastics	3,741	120	3,861	3.1%	3,834	123	3,957	3.1%
Subtotal	6,498	397	6,895		6,659	407	7,066	
Glass								
Refillable glass	269	7	276	2.6%	275	7	283	2.6%
CA redemption glass	548	279	827	33.8%	562	286	848	33.8%
Other recyclable glass	543	101	644	15.7%	556	103	659	15.7%
Other non-recyclable glass	276	0	276	0.0%	283	0	283	0.0%
Subtotal	1,635	387	2,023		1,676	397	2,073	
Metals								
Aluminum cans	138	46	184	25.2%	141	47	188	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	368	0	368	0.0%	377	0	377	0.0%
other ferrous	5,685	291	5,976	4.9%	5,826	298	6,124	4.9%
other aluminum	184	0	184	0.0%	188	0	188	0.0%
other non-ferrous	274	2	276	0.6%	281	2	283	0.6%
white goods	364	4	368	1.1%	373	4	377	1.1%
Subtotal	7,012	343	7,355		7,185	352	7,537	
Yard Waste								
Yard waste	10,664	0	10,664	0.0%	10,929	0	10,929	0.0%
Subtotal	10,664	0	10,664		10,929	0	10,929	
Organics								
Food waste	3,769	0	3,769	0.0%	3,863	0	3,863	0.0%
Tires and rubber	1,036	159	1,195	13.3%	1,062	163	1,225	13.3%
Wood waste	7,571	2,633	10,205	25.8%	7,759	2,698	10,458	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,321	0	4,321	0.0%	4,428	0	4,428	0.0%
Other misc. organics	3,236	73	3,310	2.2%	3,316	75	3,392	2.2%
Subtotal	19,934	2,866	22,799		20,428	2,937	23,365	
Other Wastes								
Inert solids	13,226	1,667	14,893	11.2%	13,554	1,709	15,262	11.2%
Hazardous waste	919	0	919	0.0%	942	0	942	0.0%
Subtotal	14,145	1,667	15,812		14,496	1,709	16,205	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	85,000	7,000	92,000	7.5%	87,000	7,000	94,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-7 cont'd

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	1995				1996			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	7,892	990	8,883	11.1%	8,088	1,015	9,103	11.1%
newspaper	3,452	217	3,669	5.9%	3,538	222	3,760	5.9%
high grade ledger paper	2,419	284	2,703	10.5%	2,479	291	2,770	10.5%
mixed paper	7,196	238	7,434	3.2%	7,374	244	7,619	3.2%
other paper	5,021	0	5,021	0.0%	5,145	0	5,145	0.0%
Subtotal	25,980	1,729	27,710		26,625	1,772	28,397	
Plastic								
HDPE containers	737	229	965	23.7%	755	234	989	23.7%
PET containers	79	17	97	17.8%	81	18	99	17.8%
Film plastics	2,080	45	2,124	2.1%	2,131	46	2,177	2.1%
Other Plastics	3,929	126	4,055	3.1%	4,026	129	4,156	3.1%
Subtotal	6,824	417	7,241		6,994	427	7,421	
Glass								
Refillable glass	282	7	290	2.6%	289	8	297	2.6%
CA redemption glass	576	293	869	33.8%	590	301	890	33.8%
Other recyclable glass	570	106	676	15.7%	584	109	693	15.7%
Other non-recyclable glass	290	0	290	0.0%	297	0	297	0.0%
Subtotal	1,717	407	2,124		1,760	417	2,177	
Metals								
Aluminum cans	144	49	193	25.2%	148	50	198	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	386	0	386	0.0%	396	0	396	0.0%
other ferrous	5,970	306	6,276	4.9%	6,118	313	6,431	4.9%
other aluminum	193	0	193	0.0%	198	0	198	0.0%
other non-ferrous	288	2	290	0.6%	295	2	297	0.6%
white goods	382	4	386	1.1%	391	4	396	1.1%
Subtotal	7,364	360	7,724		7,546	369	7,915	
Yard Waste								
Yard waste	11,200	0	11,200	0.0%	11,477	0	11,477	0.0%
Subtotal	11,200	0	11,200		11,477	0	11,477	
Organics								
Food waste	3,959	0	3,959	0.0%	4,057	0	4,057	0.0%
Tires and rubber	1,088	167	1,255	13.3%	1,115	171	1,286	13.3%
Wood waste	7,952	2,765	10,717	25.8%	8,149	2,834	10,983	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,538	0	4,538	0.0%	4,650	0	4,650	0.0%
Other misc. organics	3,399	77	3,476	2.2%	3,483	79	3,562	2.2%
Subtotal	20,935	3,010	23,944		21,454	3,084	24,538	
Other Wastes								
Inert solids	13,890	1,751	15,641	11.2%	14,235	1,794	16,029	11.2%
Hazardous waste	965	0	965	0.0%	989	0	989	0.0%
Subtotal	14,856	1,751	16,606		15,224	1,794	17,018	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	89,000	7,000	97,000	7.5%	92,000	7,000	99,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-7 cont'd

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	1997				1998			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	8,288	1,040	9,329	11.1%	8,494	1,066	9,560	11.1%
newspaper	3,626	227	3,853	5.9%	3,716	233	3,949	5.9%
high grade ledger paper	2,541	298	2,839	10.5%	2,604	306	2,910	10.5%
mixed paper	7,557	250	7,808	3.2%	7,745	256	8,001	3.2%
other paper	5,273	0	5,273	0.0%	5,403	0	5,403	0.0%
Subtotal	27,285	1,816	29,101		27,962	1,861	29,823	
Plastic								
HDPE containers	774	240	1,014	23.7%	793	246	1,039	23.7%
PET containers	83	18	101	17.8%	85	19	104	17.8%
Film plastics	2,184	47	2,231	2.1%	2,238	48	2,286	2.1%
Other Plastics	4,126	133	4,259	3.1%	4,228	136	4,364	3.1%
Subtotal	7,167	438	7,605		7,345	448	7,793	
Glass								
Refillable glass	296	8	304	2.6%	304	8	312	2.6%
CA redemption glass	604	308	913	33.8%	619	316	935	33.8%
Other recyclable glass	599	111	710	15.7%	613	114	727	15.7%
Other non-recyclable glass	304	0	304	0.0%	312	0	312	0.0%
Subtotal	1,804	427	2,231		1,848	438	2,286	
Metals								
Aluminum cans	152	51	203	25.2%	156	52	208	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	406	0	406	0.0%	416	0	416	0.0%
other ferrous	6,270	321	6,591	4.9%	6,425	329	6,754	4.9%
other aluminum	203	0	203	0.0%	208	0	208	0.0%
other non-ferrous	302	2	304	0.6%	310	2	312	0.6%
white goods	401	5	406	1.1%	411	5	416	1.1%
Subtotal	7,733	378	8,112		7,925	388	8,313	
Yard Waste								
Yard waste	11,762	0	11,762	0.0%	12,054	0	12,054	0.0%
Subtotal	11,762	0	11,762		12,054	0	12,054	
Organics								
Food waste	4,157	0	4,157	0.0%	4,260	0	4,260	0.0%
Tires and rubber	1,142	176	1,318	13.3%	1,171	180	1,351	13.3%
Wood waste	8,351	2,904	11,255	25.8%	8,558	2,976	11,534	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,766	0	4,766	0.0%	4,884	0	4,884	0.0%
Other misc. organics	3,569	81	3,650	2.2%	3,658	83	3,741	2.2%
Subtotal	21,986	3,161	25,146		22,531	3,239	25,770	
Other Wastes								
Inert solids	14,588	1,839	16,426	11.2%	14,949	1,884	16,834	11.2%
Hazardous waste	1,014	0	1,014	0.0%	1,039	0	1,039	0.0%
Subtotal	15,602	1,839	17,440		15,988	1,884	17,873	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	94,000	8,000	101,000	7.5%	96,000	8,000	104,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-7 cont'd

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	1999				2000			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	8,705	1,092	9,797	11.1%	8,921	1,119	10,040	11.1%
newspaper	3,808	239	4,047	5.9%	3,902	245	4,147	5.9%
high grade ledger paper	2,668	313	2,982	10.5%	2,735	321	3,056	10.5%
mixed paper	7,937	263	8,200	3.2%	8,134	269	8,403	3.2%
other paper	5,537	0	5,537	0.0%	5,675	0	5,675	0.0%
Subtotal	28,655	1,907	30,562		29,366	1,955	31,320	
Plastic								
HDPE containers	813	252	1,065	23.7%	833	258	1,091	23.7%
PET containers	88	19	106	17.8%	90	19	109	17.8%
Film plastics	2,294	49	2,343	2.1%	2,351	50	2,401	2.1%
Other Plastics	4,333	139	4,473	3.1%	4,441	143	4,583	3.1%
Subtotal	7,527	460	7,987		7,714	471	8,185	
Glass								
Refillable glass	311	8	319	2.6%	319	8	327	2.6%
CA redemption glass	635	324	958	33.8%	651	332	982	33.8%
Other recyclable glass	629	117	745	15.7%	644	120	764	15.7%
Other non-recyclable glass	319	0	319	0.0%	327	0	327	0.0%
Subtotal	1,894	449	2,343		1,941	460	2,401	
Metals								
Aluminum cans	159	54	213	25.2%	163	55	218	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	426	0	426	0.0%	437	0	437	0.0%
other ferrous	6,585	337	6,922	4.9%	6,748	345	7,093	4.9%
other aluminum	213	0	213	0.0%	218	0	218	0.0%
other non-ferrous	318	2	319	0.6%	325	2	327	0.6%
white goods	421	5	426	1.1%	432	5	437	1.1%
Subtotal	8,122	397	8,519		8,323	407	8,730	
Yard Waste								
Yard waste	12,353	0	12,353	0.0%	12,659	0	12,659	0.0%
Subtotal	12,353	0	12,353		12,659	0	12,659	
Organics								
Food waste	4,366	0	4,366	0.0%	4,474	0	4,474	0.0%
Tires and rubber	1,200	184	1,384	13.3%	1,230	189	1,419	13.3%
Wood waste	8,770	3,050	11,820	25.8%	8,988	3,126	12,113	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	5,005	0	5,005	0.0%	5,129	0	5,129	0.0%
Other misc. organics	3,749	85	3,834	2.2%	3,842	87	3,929	2.2%
Subtotal	23,090	3,319	26,409		23,662	3,402	27,064	
Other Wastes								
Inert solids	15,320	1,931	17,251	11.2%	15,700	1,979	17,679	11.2%
Hazardous waste	1,065	0	1,065	0.0%	1,091	0	1,091	0.0%
Subtotal	16,385	1,931	18,316		16,791	1,979	18,770	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	99,000	8,000	106,000	7.5%	101,000	8,000	109,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-7 cont'd

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	2001				2002			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Perc
Paper								
corrugated containers	9,142	1,147	10,289	11.1%	9,368	1,176	10,544	11.1%
newspaper	3,999	251	4,250	5.9%	4,098	257	4,355	5.9%
high grade ledger paper	2,802	329	3,131	10.5%	2,872	337	3,209	10.5%
mixed paper	8,335	276	8,611	3.2%	8,542	283	8,825	3.2%
other paper	5,815	0	5,815	0.0%	5,960	0	5,960	0.0%
Subtotal	30,094	2,003	32,097		30,840	2,053	32,893	
Plastic								
HDPE containers	854	265	1,118	23.7%	875	271	1,146	23.7%
PET containers	92	20	112	17.8%	94	20	115	17.8%
Film plastics	2,409	52	2,460	2.1%	2,469	53	2,521	2.1%
Other Plastics	4,551	146	4,697	3.1%	4,664	150	4,814	3.1%
Subtotal	7,905	483	8,388		8,101	495	8,596	
Glass								
Refillable glass	327	9	336	2.6%	335	9	344	2.6%
CA redemption glass	667	340	1,007	33.8%	683	348	1,031	33.8%
Other recyclable glass	660	123	783	15.7%	677	126	802	15.7%
Other non-recyclable glass	336	0	336	0.0%	344	0	344	0.0%
Subtotal	1,989	471	2,460		2,039	483	2,521	
Metals								
Aluminum cans	167	56	224	25.2%	172	58	229	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	447	0	447	0.0%	458	0	458	0.0%
other ferrous	6,915	354	7,269	4.9%	7,087	363	7,450	4.9%
other aluminum	224	0	224	0.0%	229	0	229	0.0%
other non-ferrous	334	2	336	0.6%	342	2	344	0.6%
white goods	442	5	447	1.1%	453	5	458	1.1%
Subtotal	8,530	417	8,947		8,741	428	9,169	
Yard Waste								
Yard waste	12,973	0	12,973	0.0%	13,295	0	13,295	0.0%
Subtotal	12,973	0	12,973		13,295	0	13,295	
Organics								
Food waste	4,585	0	4,585	0.0%	4,699	0	4,699	0.0%
Tires and rubber	1,260	194	1,454	13.3%	1,291	199	1,490	13.3%
Wood waste	9,211	3,203	12,414	25.8%	9,439	3,283	12,722	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	5,256	0	5,256	0.0%	5,387	0	5,387	0.0%
Other misc. organics	3,937	89	4,026	2.2%	4,035	91	4,126	2.2%
Subtotal	24,249	3,486	27,735		24,851	3,573	28,423	
Other Wastes								
Inert solids	16,089	2,028	18,117	11.2%	16,488	2,078	18,567	11.2%
Hazardous waste	1,118	0	1,118	0.0%	1,146	0	1,146	0.0%
Subtotal	17,208	2,028	19,236		17,634	2,078	19,713	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	103,000	8,000	112,000	7.5%	106,000	9,000	115,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-7 cont'd

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	2003				2004			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	9,601	1,205	10,806	11.1%	9,839	1,235	11,074	11.1%
newspaper	4,200	263	4,463	5.9%	4,304	270	4,574	5.9%
high grade ledger paper	2,943	345	3,289	10.5%	3,016	354	3,370	10.5%
mixed paper	8,754	290	9,044	3.2%	8,971	297	9,268	3.2%
other paper	6,108	0	6,108	0.0%	6,259	0	6,259	0.0%
Subtotal	31,605	2,104	33,709		32,389	2,156	34,545	
Plastic								
HDPE containers	896	278	1,175	23.7%	919	285	1,204	23.7%
PET containers	97	21	117	17.8%	99	21	120	17.8%
Film plastics	2,530	54	2,584	2.1%	2,593	56	2,648	2.1%
Other Plastics	4,779	154	4,933	3.1%	4,898	158	5,055	3.1%
Subtotal	8,302	507	8,809		8,508	520	9,027	
Glass								
Refillable glass	343	9	352	2.6%	352	9	361	2.6%
CA redemption glass	700	357	1,057	33.8%	718	366	1,083	33.8%
Other recyclable glass	693	129	822	15.7%	711	132	843	15.7%
Other non-recyclable glass	352	0	352	0.0%	361	0	361	0.0%
Subtotal	2,089	495	2,584		2,141	507	2,648	
Metals								
Aluminum cans	176	59	235	25.2%	180	61	241	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	470	0	470	0.0%	481	0	481	0.0%
other ferrous	7,263	372	7,634	4.9%	7,443	381	7,824	4.9%
other aluminum	235	0	235	0.0%	241	0	241	0.0%
other non-ferrous	350	2	352	0.6%	359	2	361	0.6%
white goods	465	5	470	1.1%	476	5	481	1.1%
Subtotal	8,958	438	9,396		9,180	449	9,629	
Yard Waste								
Yard waste	13,624	0	13,624	0.0%	13,962	0	13,962	0.0%
Subtotal	13,624	0	13,624		13,962	0	13,962	
Organics								
Food waste	4,816	0	4,816	0.0%	4,935	0	4,935	0.0%
Tires and rubber	1,323	203	1,527	13.3%	1,356	209	1,565	13.3%
Wood waste	9,673	3,364	13,037	25.8%	9,913	3,447	13,360	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	5,520	0	5,520	0.0%	5,657	0	5,657	0.0%
Other misc. organics	4,135	94	4,228	2.2%	4,237	96	4,333	2.2%
Subtotal	25,467	3,661	29,128		26,099	3,752	29,850	
Other Wastes								
Inert solids	16,897	2,130	19,027	11.2%	17,316	2,183	19,499	11.2%
Hazardous waste	1,175	0	1,175	0.0%	1,204	0	1,204	0.0%
Subtotal	18,072	2,130	20,202		18,520	2,183	20,703	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	109,000	9,000	117,000	7.5%	111,000	9,000	120,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-7 cont'd

15 Year Waste Generation Projections
Assuming Current Diversion Rates
City of Milpitas

WASTE TYPE	2005			
	Disposal	Diversion	Generation	Diversion Percent
Paper				
corrugated containers	10,083	1,265	11,348	11.1%
newspaper	4,411	277	4,687	5.9%
high grade ledger paper	3,091	363	3,454	10.5%
mixed paper	9,194	304	9,498	3.2%
other paper	6,414	0	6,414	0.0%
Subtotal	33,192	2,209	35,401	
Plastic				
HDPE containers	941	292	1,233	23.7%
PET containers	101	22	123	17.8%
Film plastics	2,657	57	2,714	2.1%
Other Plastics	5,019	161	5,181	3.1%
Subtotal	8,719	532	9,251	
Glass				
Refillable glass	361	10	370	2.6%
CA redemption glass	735	375	1,110	33.8%
Other recyclable glass	728	135	863	15.7%
Other non-recyclable glass	370	0	370	0.0%
Subtotal	2,194	520	2,714	
Metals				
Aluminum cans	185	62	247	25.2%
Bi-metal Containers	0	0	0	0.0%
tin cans	493	0	493	0.0%
other ferrous	7,627	390	8,018	4.9%
other aluminum	247	0	247	0.0%
other non-ferrous	368	2	370	0.6%
white goods	488	6	493	1.1%
Subtotal	9,408	460	9,868	
Yard Waste				
Yard waste	14,309	0	14,309	0.0%
Subtotal	14,309	0	14,309	
Organics				
Food waste	5,057	0	5,057	0.0%
Tires and rubber	1,390	214	1,604	13.3%
Wood waste	10,159	3,533	13,692	25.8%
Crop residues	0	0	0	0.0%
Manure	0	0	0	0.0%
Textiles and leather	5,797	0	5,797	0.0%
Other misc. organics	4,342	98	4,441	2.2%
Subtotal	26,746	3,845	30,591	
Other Wastes				
Inert solids	17,746	2,237	19,983	11.2%
Hazardous waste	1,233	0	1,233	0.0%
Subtotal	18,979	2,237	21,216	
Total Other Wastes				
Ash	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%
Asbestos	0	0	0	0.0%
Auto shredder	0	0	0	0.0%
Auto bodies	0	0	0	0.0%
Other special waste	0	0	0	0.0%
Subtotal	0	0	0	
Total Waste *	114,000	9,000	123,000	7.5%

* Rounded to the nearest 1,000 tons

Table 2-8

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	1991				1992			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	7,193	903	8,096	11.1%	7,333	920	8,253	11.1%
newspaper	3,147	197	3,344	5.9%	3,208	201	3,409	5.9%
high grade ledger paper	2,205	259	2,464	10.5%	2,248	264	2,512	10.5%
mixed paper	6,559	217	6,776	3.2%	6,686	221	6,907	3.2%
other paper	4,576	0	4,576	0.0%	4,665	0	4,665	0.0%
Subtotal	23,680	1,576	25,256		24,139	1,607	25,746	
Plastic								
HDPE containers	672	208	880	23.7%	685	212	897	23.7%
PET containers	72	16	88	17.8%	74	16	90	17.8%
Film plastics	1,895	41	1,936	2.1%	1,932	41	1,974	2.1%
Other Plastics	3,581	115	3,696	3.1%	3,650	117	3,768	3.1%
Subtotal	6,220	380	6,600		6,341	387	6,728	
Glass								
Refillable glass	257	7	264	2.6%	262	7	269	2.6%
CA redemption glass	525	267	792	33.8%	535	273	807	33.8%
Other recyclable glass	519	97	616	15.7%	530	98	628	15.7%
Other non-recyclable glass	264	0	264	0.0%	269	0	269	0.0%
Subtotal	1,565	371	1,936		1,596	378	1,974	
Metals								
Aluminum cans	132	44	176	25.2%	134	45	179	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	352	0	352	0.0%	359	0	359	0.0%
other ferrous	5,441	279	5,720	4.9%	5,547	284	5,831	4.9%
other aluminum	176	0	176	0.0%	179	0	179	0.0%
other non-ferrous	262	2	264	0.6%	268	2	269	0.6%
white goods	348	4	352	1.1%	355	4	359	1.1%
Subtotal	6,712	328	7,040		6,842	335	7,177	
Yard Waste								
Yard waste	10,208	0	10,208	0.0%	10,406	0	10,406	0.0%
Subtotal	10,208	0	10,208		10,406	0	10,406	
Organics								
Food waste	3,608	0	3,608	0.0%	3,678	0	3,678	0.0%
Tires and rubber	992	152	1,144	13.3%	1,011	155	1,166	13.3%
Wood waste	7,248	2,520	9,768	25.8%	7,388	2,569	9,958	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,136	0	4,136	0.0%	4,216	0	4,216	0.0%
Other misc. organics	3,098	70	3,168	2.2%	3,158	72	3,229	2.2%
Subtotal	19,081	2,743	21,824		19,451	2,796	22,248	
Other Wastes								
Inert solids	12,660	1,596	14,256	11.2%	12,906	1,627	14,533	11.2%
Hazardous waste	880	0	880	0.0%	897	0	897	0.0%
Subtotal	13,540	1,596	15,136		13,803	1,627	15,430	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	81,000	7,000	88,000	7.5%	83,000	7,000	90,000	7.5%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 25% diversion by 1995, and 50% diversion by 2000, based on diverting the targeted waste types identified in the SRRE. See Tables 10-1 to 10-11 for a yearly estimate of the total wastes diverted and disposed of based on implementing the SRRE.

Table 2-8 cont'd

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	1993				1994			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	7,515	943	8,458	11.1%	7,701	966	8,668	11.1%
newspaper	3,287	206	3,493	5.9%	3,369	211	3,580	5.9%
high grade ledger paper	2,304	270	2,574	10.5%	2,361	277	2,638	10.5%
mixed paper	6,852	227	7,079	3.2%	7,022	232	7,254	3.2%
other paper	4,780	0	4,780	0.0%	4,899	0	4,899	0.0%
Subtotal	24,738	1,647	26,385		25,352	1,687	27,039	
Plastic								
HDPE containers	702	218	919	23.7%	719	223	942	23.7%
PET containers	76	16	92	17.8%	77	17	94	17.8%
Film plastics	1,980	42	2,023	2.1%	2,029	43	2,073	2.1%
Other Plastics	3,741	120	3,861	3.1%	3,834	123	3,957	3.1%
Subtotal	6,498	397	6,895		6,659	407	7,066	
Glass								
Refillable glass	269	7	276	2.6%	275	7	283	2.6%
CA redemption glass	548	279	827	33.8%	562	286	848	33.8%
Other recyclable glass	543	101	644	15.7%	556	103	659	15.7%
Other non-recyclable glass	276	0	276	0.0%	283	0	283	0.0%
Subtotal	1,635	387	2,023		1,676	397	2,073	
Metals								
Aluminum cans	138	46	184	25.2%	141	47	188	25.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	368	0	368	0.0%	377	0	377	0.0%
other ferrous	5,685	291	5,976	4.9%	5,826	298	6,124	4.9%
other aluminum	184	0	184	0.0%	188	0	188	0.0%
other non-ferrous	274	2	276	0.6%	281	2	283	0.6%
white goods	364	4	368	1.1%	373	4	377	1.1%
Subtotal	7,012	343	7,355		7,185	352	7,537	
Yard Waste								
Yard waste	10,664	0	10,664	0.0%	10,929	0	10,929	0.0%
Subtotal	10,664	0	10,664		10,929	0	10,929	
Organics								
Food waste	3,769	0	3,769	0.0%	3,863	0	3,863	0.0%
Tires and rubber	1,036	159	1,195	13.3%	1,062	163	1,225	13.3%
Wood waste	7,571	2,633	10,205	25.8%	7,759	2,698	10,458	25.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,321	0	4,321	0.0%	4,428	0	4,428	0.0%
Other misc. organics	3,236	73	3,310	2.2%	3,316	75	3,392	2.2%
Subtotal	19,934	2,866	22,799		20,428	2,937	23,365	
Other Wastes								
Inert solids	13,226	1,667	14,893	11.2%	13,554	1,709	15,262	11.2%
Hazardous waste	919	0	919	0.0%	942	0	942	0.0%
Subtotal	14,145	1,667	15,812		14,496	1,709	16,205	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	85,000	7,000	92,000	7.5%	87,000	7,000	94,000	7.5%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 25% diversion by 1995, and 50% diversion by 2000, based on diverting the targeted waste types identified in the SRRE. See Tables 10-1 to 10-11 for a yearly estimate of the total wastes diverted and disposed of based on implementing the SRRE.

Table 2-8 cont'd

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	1995				1996			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	6,116	2,767	8,883	31.1%	6,267	2,835	9,103	31.1%
newspaper	2,718	950	3,669	25.9%	2,786	974	3,760	25.9%
high grade ledger paper	1,879	825	2,703	30.5%	1,925	845	2,770	30.5%
mixed paper	5,709	1,725	7,434	23.2%	5,851	1,768	7,619	23.2%
other paper	4,016	1,004	5,021	20.0%	4,116	1,029	5,145	20.0%
Subtotal	20,438	7,271	27,710		20,945	7,451	28,397	
Plastic								
HDPE containers	544	422	965	43.7%	557	432	989	43.7%
PET containers	60	37	97	37.8%	62	37	99	37.8%
Film plastics	1,655	469	2,124	22.1%	1,696	481	2,177	22.1%
Other Plastics	3,118	937	4,055	23.1%	3,195	961	4,156	23.1%
Subtotal	5,376	1,865	7,241		5,510	1,911	7,421	
Glass								
Refillable glass	282	7	290	2.6%	289	8	297	2.6%
CA redemption glass	402	467	869	53.8%	412	479	890	53.8%
Other recyclable glass	435	241	676	35.7%	446	247	693	35.7%
Other non-recyclable glass	290	0	290	0.0%	297	0	297	0.0%
Subtotal	1,408	716	2,124		1,443	733	2,177	
Metals								
Aluminum cans	106	87	193	45.2%	108	89	198	45.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	309	77	386	20.0%	317	79	396	20.0%
other ferrous	4,715	1,561	6,276	24.9%	4,832	1,599	6,431	24.9%
other aluminum	154	39	193	20.0%	158	40	198	20.0%
other non-ferrous	230	60	290	20.6%	236	61	297	20.6%
white goods	305	82	386	21.1%	312	84	396	21.1%
Subtotal	5,819	1,905	7,724		5,651	1,869	7,520	
Yard Waste								
Yard waste	8,960	2,240	11,200	20.0%	9,182	2,295	11,477	20.0%
Subtotal	8,960	2,240	11,200		9,182	2,295	11,477	
Organics								
Food waste	3,959	0	3,959	0.0%	4,057	0	4,057	0.0%
Tires and rubber	1,088	167	1,255	13.3%	1,115	171	1,286	13.3%
Wood waste	5,808	4,909	10,717	45.8%	5,952	5,030	10,983	45.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,538	0	4,538	0.0%	4,650	0	4,650	0.0%
Other misc. organics	3,399	77	3,476	2.2%	3,483	79	3,562	2.2%
Subtotal	18,791	5,153	23,944		19,257	5,281	24,538	
Other Wastes								
Inert solids	10,762	4,879	15,641	31.2%	11,029	5,000	16,029	31.2%
Hazardous waste	965	0	965	0.0%	989	0	989	0.0%
Subtotal	11,727	4,879	16,606		12,018	5,000	17,018	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	73,000	24,000	97,000	24.9%	74,000	25,000	99,000	24.9%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 25% diversion by 1995, and 50% diversion by 2000, based on diverting the targeted waste types identified in the SRRE. See Tables 10-1 to 10-11 for a yearly estimate of the total wastes diverted and disposed of based on implementing the SRRE.

Table 2-8 cont'd

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	1997				1998			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	6,423	2,906	9,329	31.1%	6,582	2,978	9,560	31.1%
newspaper	2,855	998	3,853	25.9%	2,926	1,023	3,949	25.9%
high grade ledger paper	1,973	866	2,839	30.5%	2,022	888	2,910	30.5%
mixed paper	5,996	1,812	7,808	23.2%	6,145	1,857	8,001	23.2%
other paper	4,218	1,055	5,273	20.0%	4,323	1,081	5,403	20.0%
Subtotal	21,465	7,636	29,101		21,997	7,826	29,823	
Plastic								
HDPE containers	571	443	1,014	43.7%	585	454	1,039	43.7%
PET containers	63	38	101	37.8%	65	39	104	37.8%
Film plastics	1,738	493	2,231	22.1%	1,781	505	2,286	22.1%
Other Plastics	3,274	984	4,259	23.1%	3,355	1,009	4,364	23.1%
Subtotal	5,646	1,959	7,605		5,786	2,007	7,793	
Glass								
Refillable glass	296	8	304	2.6%	304	8	312	2.6%
CA redemption glass	422	491	913	53.8%	432	503	935	53.8%
Other recyclable glass	457	253	710	35.7%	468	259	727	35.7%
Other non-recyclable glass	304	0	304	0.0%	312	0	312	0.0%
Subtotal	1,479	752	2,231		1,516	770	2,286	
Metals								
Aluminum cans	111	92	203	45.2%	114	94	208	45.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	324	81	406	20.0%	333	83	416	20.0%
other ferrous	4,952	1,639	6,591	24.9%	5,074	1,680	6,754	24.9%
other aluminum	162	41	203	20.0%	166	42	208	20.0%
other non-ferrous	242	63	304	20.6%	248	64	312	20.6%
white goods	320	86	406	21.1%	328	88	416	21.1%
Subtotal	5,791	1,915	7,706		5,935	1,963	7,897	
Yard Waste								
Yard waste	9,410	2,352	11,762	20.0%	9,643	2,411	12,054	20.0%
Subtotal	9,410	2,352	11,762		9,643	2,411	12,054	
Organics								
Food waste	4,157	0	4,157	0.0%	4,260	0	4,260	0.0%
Tires and rubber	1,142	176	1,318	13.3%	1,171	180	1,351	13.3%
Wood waste	6,100	5,155	11,255	45.8%	6,251	5,283	11,534	45.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	4,766	0	4,766	0.0%	4,884	0	4,884	0.0%
Other misc. organics	3,569	81	3,650	2.2%	3,658	83	3,741	2.2%
Subtotal	19,735	5,412	25,146		20,224	5,546	25,770	
Other Wastes								
Inert solids	11,302	5,124	16,426	31.2%	11,583	5,251	16,834	31.2%
Hazardous waste	1,014	0	1,014	0.0%	1,039	0	1,039	0.0%
Subtotal	12,316	5,124	17,440		12,622	5,251	17,873	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	76,000	25,000	101,000	24.9%	78,000	26,000	104,000	24.9%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 25% diversion by 1995, and 50% diversion by 2000, based on diverting the targeted waste types identified in the SRRE. See Tables 10-1 to 10-11 for a yearly estimate of the total wastes diverted and disposed of based on implementing the SRRE.

Table 2-8 cont'd

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	1999				2000			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	6,745	3,052	9,797	31.1%	4,001	6,039	10,040	60.1%
newspaper	2,998	1,048	4,047	25.9%	1,870	2,277	4,147	54.9%
high grade ledger paper	2,072	910	2,982	30.5%	1,237	1,818	3,056	59.5%
mixed paper	6,297	1,903	8,200	23.2%	4,016	4,387	8,403	52.2%
other paper	4,430	1,107	5,537	20.0%	2,894	2,781	5,675	49.0%
Subtotal	22,543	8,020	30,562		14,019	17,301	31,320	
Plastic								
HDPE containers	600	465	1,065	43.7%	298	793	1,091	72.7%
PET containers	66	40	106	37.8%	36	73	109	66.8%
Film plastics	1,825	518	2,343	22.1%	1,174	1,227	2,401	51.1%
Other Plastics	3,439	1,034	4,473	23.1%	2,195	2,389	4,583	52.1%
Subtotal	5,930	2,057	7,987		3,703	4,482	8,185	
Glass								
Refillable glass	311	8	319	2.6%	319	8	327	2.6%
CA redemption glass	443	515	958	53.8%	169	813	982	82.8%
Other recyclable glass	480	266	745	35.7%	270	494	764	64.7%
Other non-recyclable glass	319	0	319	0.0%	327	0	327	0.0%
Subtotal	1,553	789	2,343		1,086	1,315	2,401	
Metals								
Aluminum cans	117	96	213	45.2%	56	162	218	74.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	341	85	426	20.0%	223	214	437	49.0%
other ferrous	5,200	1,721	6,922	24.9%	3,272	3,821	7,093	53.9%
other aluminum	170	43	213	20.0%	111	107	218	49.0%
other non-ferrous	254	66	319	20.6%	165	162	327	49.6%
white goods	336	90	426	21.1%	218	219	437	50.1%
Subtotal	6,082	2,011	8,093		3,828	4,466	8,294	
Yard Waste								
Yard waste	9,882	2,471	12,353	20.0%	6,456	6,203	12,659	49.0%
Subtotal	9,882	2,471	12,353		6,456	6,203	12,659	
Organics								
Food waste	4,366	0	4,366	0.0%	4,474	0	4,474	0.0%
Tires and rubber	1,200	184	1,384	13.3%	818	600	1,419	42.3%
Wood waste	6,406	5,414	11,820	45.8%	3,052	9,061	12,113	74.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	5,005	0	5,005	0.0%	5,129	0	5,129	0.0%
Other misc. organics	3,749	85	3,834	2.2%	3,842	87	3,929	2.2%
Subtotal	20,726	5,683	26,409		17,315	9,749	27,064	
Other Wastes								
Inert solids	11,870	5,381	17,251	31.2%	7,037	10,642	17,679	60.2%
Hazardous waste	1,065	0	1,065	0.0%	1,091	0	1,091	0.0%
Subtotal	12,935	5,381	18,316		8,129	10,642	18,770	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	80,000	27,000	106,000	24.9%	55,000	54,000	109,000	49.8%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 25% diversion by 1995, and 50% diversion by 2000, based on diverting the targeted waste types identified in the SRRE. See Tables 10-1 to 10-11 for a yearly estimate of the total wastes diverted and disposed of based on implementing the SRRE.

Table 2-8 cont'd

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	2001				2002			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	4,100	6,189	10,289	60.1%	[illegible]2	6,342	10,544	60.1%
newspaper	1,916	2,333	4,250	54.9%	1,964	2,391	4,355	54.9%
high grade ledger paper	1,268	1,863	3,131	59.5%	1,300	1,910	3,209	59.5%
mixed paper	4,116	4,496	8,611	52.2%	4,218	4,607	8,825	52.2%
other paper	2,966	2,850	5,815	49.0%	3,039	2,920	5,960	49.0%
Subtotal	14,366	17,731	32,097		14,723	18,170	32,893	
Plastic								
HDPE containers	306	813	1,118	72.7%	313	833	1,146	72.7%
PET containers	37	75	112	66.8%	38	77	115	66.8%
Film plastics	1,203	1,257	2,460	51.1%	1,233	1,288	2,521	51.1%
Other Plastics	2,249	2,448	4,697	52.1%	2,305	2,509	4,814	52.1%
Subtotal	3,795	4,593	8,388		3,889	4,707	8,596	
Glass								
Refillable glass	327	9	336	2.6%	335	9	344	2.6%
CA redemption glass	173	833	1,007	82.8%	178	854	1,031	82.8%
Other recyclable glass	277	506	783	64.7%	283	519	802	64.7%
Other non-recyclable glass	336	0	336	0.0%	344	0	344	0.0%
Subtotal	1,112	1,348	2,460		1,140	1,381	2,521	
Metals								
Aluminum cans	58	166	224	74.2%	59	170	229	74.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	228	219	447	49.0%	234	225	458	49.0%
other ferrous	3,353	3,916	7,269	53.9%	3,436	4,013	7,450	53.9%
other aluminum	114	110	224	49.0%	117	112	229	49.0%
other non-ferrous	169	166	336	49.6%	173	170	344	49.6%
white goods	223	224	447	50.1%	229	230	458	50.1%
Subtotal	3,922	4,577	8,500		4,020	4,691	8,710	
Yard Waste								
Yard waste	6,616	6,357	12,973	49.0%	6,780	6,514	13,295	49.0%
Subtotal	6,616	6,357	12,973		6,780	6,514	13,295	
Organics								
Food waste	4,585	0	4,585	0.0%	4,699	0	4,699	0.0%
Tires and rubber	838	615	1,454	42.3%	859	631	1,490	42.3%
Wood waste	3,128	9,286	12,414	74.8%	3,205	9,516	12,722	74.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	5,256	0	5,256	0.0%	5,387	0	5,387	0.0%
Other misc. organics	3,937	89	4,026	2.2%	4,035	91	4,126	2.2%
Subtotal	17,745	9,990	27,735		18,185	10,238	28,423	
Other Wastes								
Inert solids	7,212	10,906	18,117	60.2%	7,391	11,176	18,567	60.2%
Hazardous waste	1,118	0	1,118	0.0%	1,146	0	1,146	0.0%
Subtotal	8,330	10,906	19,236		8,537	11,176	19,713	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	56,000	56,000	112,000	49.8%	58,000	57,000	115,000	49.8%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 25% diversion by 1995, and 50% diversion by 2000, based on diverting the targeted waste types identified in the SRRE. See Tables 10-1 to 10-11 for a yearly estimate of the total wastes diverted and disposed of based on implementing the SRRE.

Table 2-8 cont'd

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	2003				2004			
	Disposal	Diversion	Generation	Diversion Percent	Disposal	Diversion	Generation	Diversion Percent
Paper								
corrugated containers	4,306	6,500	10,806	60.1%	4,413	6,661	11,074	60.1%
newspaper	2,013	2,450	4,463	54.9%	2,063	2,511	4,574	54.9%
high grade ledger paper	1,332	1,957	3,289	59.5%	1,365	2,005	3,370	59.5%
mixed paper	4,322	4,721	9,044	52.2%	4,430	4,838	9,268	52.2%
other paper	3,115	2,993	6,108	49.0%	3,192	3,067	6,259	49.0%
Subtotal	15,088	18,621	33,709		15,462	19,083	34,545	
Plastic								
HDPE containers	321	854	1,175	72.7%	329	875	1,204	72.7%
PET containers	39	78	117	66.8%	40	80	120	66.8%
Film plastics	1,264	1,320	2,584	51.1%	1,295	1,353	2,648	51.1%
Other Plastics	2,362	2,571	4,933	52.1%	2,421	2,635	5,055	52.1%
Subtotal	3,986	4,823	8,809		4,084	4,943	9,027	
Glass								
Refillable glass	343	9	352	2.6%	352	9	361	2.6%
CA redemption glass	182	875	1,057	82.8%	187	897	1,083	82.8%
Other recyclable glass	290	532	822	64.7%	298	545	843	64.7%
Other non-recyclable glass	352	0	352	0.0%	361	0	361	0.0%
Subtotal	1,168	1,416	2,584		1,197	1,451	2,648	
Metals								
Aluminum cans	61	174	235	74.2%	62	179	241	74.2%
Bi-metal Containers	0	0	0	0.0%	0	0	0	0.0%
tin cans	240	230	470	49.0%	246	236	481	49.0%
other ferrous	3,522	4,113	7,634	53.9%	3,609	4,215	7,824	53.9%
other aluminum	120	115	235	49.0%	123	118	241	49.0%
other non-ferrous	178	175	352	49.6%	182	179	361	49.6%
white goods	234	235	470	50.1%	240	241	481	50.1%
Subtotal	4,119	4,807	8,926		4,222	4,926	9,148	
Yard Waste								
Yard waste	6,948	6,676	13,624	49.0%	7,121	6,842	13,962	49.0%
Subtotal	6,948	6,676	13,624		7,121	6,842	13,962	
Organics								
Food waste	4,816	0	4,816	0.0%	4,935	0	4,935	0.0%
Tires and rubber	881	646	1,527	42.3%	902	662	1,565	42.3%
Wood waste	3,285	9,752	13,037	74.8%	3,366	9,994	13,360	74.8%
Crop residues	0	0	0	0.0%	0	0	0	0.0%
Manure	0	0	0	0.0%	0	0	0	0.0%
Textiles and leather	5,520	0	5,520	0.0%	5,657	0	5,657	0.0%
Other misc. organics	4,135	94	4,228	2.2%	4,237	96	4,333	2.2%
Subtotal	18,636	10,492	29,128		19,098	10,752	29,850	
Other Wastes								
Inert solids	7,574	11,453	19,027	60.2%	7,762	11,737	19,499	60.2%
Hazardous waste	1,175	0	1,175	0.0%	1,204	0	1,204	0.0%
Subtotal	8,748	11,453	20,202		8,965	11,737	20,703	
Total Other Wastes								
Ash	0	0	0	0.0%	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%	0	0	0	0.0%
Asbestos	0	0	0	0.0%	0	0	0	0.0%
Auto shredder	0	0	0	0.0%	0	0	0	0.0%
Auto bodies	0	0	0	0.0%	0	0	0	0.0%
Other special waste	0	0	0	0.0%	0	0	0	0.0%
Subtotal	0	0	0		0	0	0	
Total Waste *	59,000	59,000	117,000	49.8%	60,000	60,000	120,000	49.8%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 25% diversion by 1995, and 50% diversion by 2000, based on diverting the targeted waste types identified in the SRRE. See Tables 10-1 to 10-11 for a yearly estimate of the total wastes diverted and disposed of based on implementing the SRRE.

Table 2-8 cont'd

15 Year Waste Generation Projections
Assuming AB 939 Diversion Requirements
City of Milpitas

WASTE TYPE	2005			
	Disposal	Diversion	Generation	Diversion Percent
Paper				
corrugated containers	4,522	6,826	11,348	60.1%
newspaper	2,114	2,574	4,687	54.9%
high grade ledger paper	1,399	2,055	3,454	59.5%
mixed paper	4,540	4,958	9,498	52.2%
other paper	3,271	3,143	6,414	49.0%
Subtotal	15,845	19,556	35,401	
Plastic				
HDPE containers	337	897	1,233	72.7%
PET containers	41	82	123	66.8%
Film plastics	1,327	1,387	2,714	51.1%
Other Plastics	2,481	2,700	5,181	52.1%
Subtotal	4,186	5,066	9,251	
Glass				
Refillable glass	361	10	370	2.6%
CA redemption glass	191	919	1,110	82.8%
Other recyclable glass	305	558	863	64.7%
Other non-recyclable glass	370	0	370	0.0%
Subtotal	1,227	1,487	2,714	
Metals				
Aluminum cans	64	183	247	74.2%
Bi-metal Containers	0	0	0	0.0%
tin cans	252	242	493	49.0%
other ferrous	3,699	4,319	8,018	53.9%
other aluminum	126	121	247	49.0%
other non-ferrous	187	183	370	49.6%
white goods	246	247	493	50.1%
Subtotal	4,326	5,048	9,375	
Yard Waste				
Yard waste	7,297	7,011	14,309	49.0%
Subtotal	7,297	7,011	14,309	
Organics				
Food waste	5,057	0	5,057	0.0%
Tires and rubber	925	679	1,604	42.3%
Wood waste	3,450	10,242	13,692	74.8%
Crop residues	0	0	0	0.0%
Manure	0	0	0	0.0%
Textiles and leather	5,797	0	5,797	0.0%
Other misc. organics	4,342	98	4,441	2.2%
Subtotal	19,572	11,019	30,591	
Other Wastes				
Inert solids	7,954	12,028	19,983	60.2%
Hazardous waste	1,233	0	1,233	0.0%
Subtotal	9,188	12,028	21,216	
Total Other Wastes				
Ash	0	0	0	0.0%
Sewage sludge	0	0	0	0.0%
Industrial sludge	0	0	0	0.0%
Asbestos	0	0	0	0.0%
Auto shredder	0	0	0	0.0%
Auto bodies	0	0	0	0.0%
Other special waste	0	0	0	0.0%
Subtotal	0	0	0	
Total Waste *	62,000	61,000	123,000	50%

* Rounded to the nearest 1,000 tons. Totals reflect achievement of 50% diversion, based on diverting the targeted waste types identified in the SRRE.

Table 2-9

SUMMARY OF WASTES DISPOSED, DIVERTED AND GENERATED (1990)

City of Milpitas

Waste Category	DISPOSED		DIVERTED		GENERATED	
	Tons	%*	Tons	%*	Tons	%*
Paper	23,124	27.1	1,437	1.7	24561	28.8
Plastics	6,058	7.1	346	0.4	6404	7.5
Glass	1,473	1.7	338	0.4	1811	2.1
Metals	6,482	7.6	304	0.4	6786	7.9
Yard Waste	9,923	11.6	0	0	9923	11.6
Other Organics	18,712	21.9	2,500	2.9	21212	24.8
Other Wastes	13,263	15.5	1,455	1.7	14718	17.2
Special Wastes	2	0	1	0	3	0
Total	79,036	92.5	6,381	7.5	85,418	100

*Percent of total waste stream.

** Numbers are rounded.

Table 2-10
Outline of Sources for Diverted
and Disposed of Quantities and Composition of Solid Wastes[1]

Resource	Data Type
Disposal/Generation	
Browning-Ferris Industries	Residential, Commercial, Industrial, and Self Haul Quantities
Waste Management Incorporated	Industrial Quantities
Zanker Road Resource Management Company	Industrial and Self Haul Quantities
Diversion	
Browning-Ferris Industries	Residential, Commercial, and Industrial Quantities, and Recyclery Quantities
Zanker Road Resource Management Company	Commercial/Industrial Sector Quantities
Certified California Redemption Centers	CA Redemption Value Material Quantities
Waste Management Incorporated	Commercial/Industrial Sector Quantities
Private Non-Profit Groups	Residential, Commercial/Industrial Sector Quantities
Private Collectors/Recyclers	Commercial/Industrial Sector Quantities
Grocery and Department Stores	Commercial Sector Quantities
Landscapers	Composting Quantities
Survey Private Businesses	Source Reduction Information

1. The City's hauler, BFI, will submit monthly reports on waste quantities. The remaining data will be collected on an annual basis by the City.

REFERENCES

1. City of Santa Clara Initial Waste Characterization Study, Prepared by Recovery Sciences, Inc. and EcoAnalysis, Inc., December 1990.
2. Solid Waste Generation Study for the City of Palo Alto, Prepared by EMCON Associates, August 1990.
3. City of Sunnyvale's Initial Waste Characterization Study, Prepared by Cal Recovery Systems, Inc., October 1990.

3 SOURCE REDUCTION COMPONENT

3.1 Introduction

Source reduction is defined in Assembly Bill 939 (Public Resources Code, 40196) as "...any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of non-recyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce the amount of wastes that generators produce, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials. Source reduction does not include steps taken after the material becomes solid waste or actions which would impact air or water resources in lieu of land, including, but not limited to, transformation."

Source reduction precedes waste management and addresses how products are designed, manufactured, purchased, and used so as to reduce the quantity and toxicity of waste produced when the products reach the end of their useful lives. Technical options for communities considering source reduction include product reuse, reduced material volume, reduced toxicity, increased product lifetime, and decreased consumption.

Source reduction as a component of waste reduction is not currently a widely applied concept. It is, therefore, difficult to estimate the actual impact that source reduction activities will have on the solid waste stream. At the local level, source reduction activities are often limited to changes in consumer behavior and consumption patterns as well as local manufacturing and production processes. Table 3-1 presents a list of typical source reduction activities practiced at the local level. Local source reduction activities and programs can be implemented through education, financial incentives and disincentives, and regulation, as well as research and technological developments.

This component describes existing conditions and presents source reduction objectives for the City of Milpitas; evaluates a broad range of alternatives that may be used to achieve those objectives; describes the process for selecting among the alternatives; and identifies a plan of action to implement and monitor the selected source reduction alternatives. Throughout this component the terms "City," "municipality," and "community" are used inter-changeably to refer to the City of Milpitas.

3.2 Objectives

The source reduction objectives presented in this section have been developed to meet the goal of reducing the amount of solid waste generated in the City of Milpitas. These objectives are to be implemented in the short-term planning period (1991-1995) and continued during the medium-term planning period (1996-2000). Through the following objectives, the municipality anticipates reductions in the total solid waste generated.

- Reduce the use of non-recyclable materials
- Replace disposable materials and products with reusable materials and products
- Purchase products with a reduced packaging content
- Purchase repaired or repairable products
- Purchase durable products
- Increase the efficiency of materials used in the commercial and industrial sectors
- Reduce generation of yard waste by promoting backyard or on-site composting
- Reduce the amount of unsolicited mail received by Milpitas residents

Targeted Materials. Target waste types for source reduction have been identified from the results of the solid waste generation study and are based on six factors: (1) the effectiveness of meeting the source reduction objectives; and (2) the volume and weight of the material; (3) the hazard created by the material; (4) the percent content of non-renewable resources; (5) the durability of the material; and (6) the recyclability of the material. These target waste types are outlined below.

- Paper and plastic packaging materials
- Yard waste
- Construction materials, including concrete, asphalt, metals, and lumber
- Paper and plastic cups, utensils, office supplies, and personal care products
- Metal and plastic repairable products, including appliances and electronic items
- Paper, including high grade, corrugated and mixed waste paper

Source reduction alternatives, targeting the above waste types, are evaluated in Section 3.5 according to their effectiveness in meeting the source reduction objectives outlined above.

3.3 Existing Conditions Description

3.3.1 Local Source Reduction Efforts

The City of Milpitas currently has an exclusive contract for residential curbside collection with BFI that expires in the year 2007. Subscription rates for residential curbside service are based on a fixed fee, including a surcharge for the recently implemented curbside recycling program. The curbside recycling program covers newspaper, plastic containers, glass, and aluminum cans.

Collection for multi-family and commercial generators is also handled under the same exclusive contract with BFI, with variable rates charged based upon frequency of collection, type and volume of container, and other factors. Temporary refuse bins and commercial/multi-family recycling is handled through a non-exclusive, competitive bid system. Milpitas allows residents to dump self-haul wastes at the landfill twice a month free of charge. This practice results in 65,000 cubic yards of waste being added to the landfill each year and provides a strong disincentive for source reduction. A change in the disposal fee structure at the landfill to favor recyclables is currently being considered.

Milpitas has a number of current source reduction activities ongoing within the community. These include efforts and programs by both the City government as well as by private individuals, groups, and businesses. An estimated 63.6 tons of solid waste are diverted from disposal through the use of cloth diapers in the City. Milpitas has not attempted to quantify amounts of waste diverted by other existing programs because adequate records and data are not available. The current source reduction activities in Milpitas are not likely to be decreased in scope in the future and will continue to contribute to the attainment of mandated waste diversion goals. Recordkeeping in the future should allow Milpitas to quantify source reduction activities occurring in the City.

The City of Milpitas engages in the following source reduction activities:

- The City's print shop makes scratch tablets from used flyers and office paper and makes two-sided copies on 75 percent of the material sent to them.
- The City garage uses cloth shop rags and employee uniforms that are reusable.
- The City has a 5 percent purchase preference for materials with recycled content.

There are thirty-three businesses known to the City to be operating as thrift, salvage, or repair shops that refurbish or repair used items for reuse. These businesses deal in items ranging from electronics, appliances and tools, to furniture, toys, clothing, and books.

Additionally, a survey taken of businesses in Milpitas revealed that a number of offices and businesses are actively pursuing source reduction activities. Some of the activities cited in the source reduction survey conducted for the City are listed below.

- Reusing packaging material
- Creating scratch pads from blank sides of paper
- Using cloth towels and sponges in the cafeteria
- Using routing memos
- Reusing file folders

- Posting source reduction and recycling reminders on bulletin boards and memos
- Using refillable pens and mechanical pencils
- Using scrap paper for interoffice communications
- Renting equipment instead of purchasing
- Donating old equipment to schools and charities
- Storing reports on microfiche instead of paper
- Using reusable coffee filters
- Keeping binders of information shelved in the library for general staff use instead of providing copies for personal files
- Using shredded paper for packaging material
- Reusing cardboard boxes
- Instituting electronic mail

3.3.2 National Source Reduction Efforts

Many of the source reduction activities affecting the waste generated by the City of Milpitas are being conducted at the national level. These efforts can affect the products consumed by residences and businesses within the City.

The following are some examples of major national source reduction efforts:[1]

- Some manufacturers offer concentrated versions of products which use less packaging (e.g., frozen juices, concentrated pesticides, and concentrated soaps).
- Packaging changes initiated by one manufacturer include

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[1] This summary is based on information from U.S. Congress Office of Technology assessment, *Facing America's Trash - What Next For Municipal Solid Waste,* OTA-0-424, Washington, D.C.: U.S. Government Printing Office, October 1989.

  - Disposable diapers and diaper packages changed so that net total amount of materials in product and package was 50 percent less then preceding design.
  - Detergent with bleach eliminates need for separate purchase of bleach.

- One manufacturer changed the tub of a dishwasher from enameled steel to engineered plastic, which enables the warranty on the dishwasher to be increased because the tub is more durable.
- A new blow-molding tool for plastic (HDPE) milk bottles reduces their weight 10 percent while increasing strength.
- A heat-set technology makes it possible to use PET containers for liquids that must be hot-filled. The new technology allowed a juice company to switch from glass to plastic bottles, resulting in a 25 percent reduction in weight and long-term cost savings in bottling and shipping.
- Plastic bags bought by a major "fast food" chain to ship products to its stores are designed to be reused as garbage bags.
- A large video rental and sales chain, trains its sales people to reuse the distinctive plastic bags that tapes are carried in and to ask customers to return tapes in the bags. This results in a savings of about $1 million and over 25 million bags annually.

3.4 Evaluation of Alternatives

This section presents four alternatives representing a variety of approaches that can achieve the objectives identified in Section 3.2. Each of the alternatives is evaluated according to a set of criteria specified in the regulations issued by the California Integrated Waste Management Board (CIWMB) pursuant to AB 939.

For each evaluation criterion, a rating of high, medium, or low is assigned, and the potential issues are discussed. As structured by the regulations governing AB 939, some of the criteria by which the alternatives are

required to be evaluated are positive in tone (e.g ffectiveness), while others are inherently negative (e.g., hazard). A hi rating for a positive criterion implies a positive rating; however, a high rating for a negative criterion corresponds to few or no impacts associated with this potential problem. The results for the evaluation are summarized in Section 3.6, Table 3-2. Source reduction alternatives evaluated for Milpitas are described below.

Many of these alternatives are complementary to each other and depend significantly on the implementation of other alternative, programs presented in the recycling, composting, and special wastes components. Where possible, these relationships have been indicated in the criteria for evaluating the alternatives. An additional consideration in evaluating the alternatives is that their effectiveness and impact need to be considered on the basis of how several alternatives or programs will work together as a system, rather than as alternatives independent of one another.

The source reduction alternatives have been grouped into four general categories:

(1) Rate structure modifications, including local waste disposal fee modifications and quantity-based local user fees

(2) Economic incentives, including loans, grants, and loan guarantees, reduced business license fees, and deposits, refunds, and rebates

(3) Technical assistance and public education, including waste audits, technical assistance to industry and consumer organizations, educational efforts, public recognition activities, and non-procurement programs

(4) Regulatory programs, including adoption of local ordinances to enhance source reduction, procurement programs, source reduction planning requirements by waste generators, product bans, and local land-use requirements.

3.4.1 Alternative 1 - Rate Structure Modifications

Source reduction activities can be encouraged through rate structure modifications, including disposal fees and quantity-based user fees for

garbage collection services. Rate structure modifications, described below, address all source reduction objectives identified in Section 3.2 and may be applied to both residential and non-residential generators.

Disposal Fees. Disposal fees at the landfill could be modified to promote source reduction by making the cost of disposal for non-recyclable and non-reusable wastes relatively high. Fees could also be imposed for the disposal of goods and products that can be repaired, salvaged, or composted. This type of fee structure is currently being considered at the Newby Island landfill.

Quantity-Based User Fees. These fees involve calculating collection and disposal fees based upon the amount of waste collected. This is similar in principle to other service-based utility charges, such as water and electricity. Generators are charged fees according to the number of cans used, the number of bags collected, or the frequency of collection. Variable rate fees are directly proportional to actual disposal costs; consequently, residents have the opportunity to reduce costs by generating less waste.

There are a number of variants to the rate structure alternative, including:

- Use of a base subscription fee to cover fixed collection costs, plus an additional per-unit volume charge;
- Fees that rise according to increasing volume; and
- Charges based upon weight instead of volume.

Jurisdictions implementing quantity-based user fees or variable rate schemes have frequently found that they do result in reduced quantities of disposed waste. Because of the reduction in waste quantities, however, the projected revenues generated by the system (tipping fees) are often insufficient to cover fixed costs for the solid waste management program. This problem may be solved through the use of a subscription fee to cover fixed costs, plus a variable fee for the actual quantities of waste collected.

Quantity-based user fees are most successful when free or low-cost collection of recyclables is provided in addition to collection of non-recyclables for disposal.

This alternative is evaluated as follows:

Effectiveness. High.[1] Rate structure modifications can be very effective in encouraging source reduction, since the cost of disposal or collection of disposables can be high. Additionally, variable rate structures provide an incentive for increased participation in recycling and community composting programs. Studies have shown that, during the first year of operation, a volume-based rate system can reduce the volume of waste requiring disposal by 25 percent. However, there is an upper limit to the variable rate structure beyond which illegal dumping will begin to occur.

Hazard. Medium.[2] There is no direct hazard associated with rate structure modifications. However, increased disposal and collection costs could result in an increase in illegal disposal, resulting in public health concerns.

Ability to Accommodate Change. High. Modifications to rate structures, in general, are easily adapted to existing programs. Rate structures can also be further changed and modified as circumstances warrant. This alternative is flexible over both the medium- and long-term. Milpitas' contract with BFI for curbside recycling includes two "windows of opportunity" for review of the contract as well as a full-scale review in 1992 of the collection contract.

Consequences on the Waste Stream. High.[3] Rate structure modifications can be designed to reduce waste at the source and avoid substitution of a product or material that results in an equivalent or greater amount of waste being generated. The impact of this alternative, in concert with recycling and composting programs, is that the waste stream may be of lower volume, higher density, and contain much lower proportions of recyclables and yard wastes.

Implementation Period. High. This alternative could be implemented during the short-term planning period.

Facility Requirements. High.[4] No additional facilities are needed to implement rate structure modifications.

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1 Refers to relative rating of the alternative with respect to this criterion.

2 Note that several of the criteria—hazard, consequences on the waste stream, facility requirements, institutional barriers, and estimated cost—on the waste stream—are inherently negative. A rating of high for these criteria corresponds to few or no impacts associated with these potential problems.

3 See Footnote 2.

4 See Footnote 2.

Consistency with Local Plans and Policies. Medium. This alternative is generally consistent with the plans and policies of the City of Milpitas.

Institutional Barriers. Medium.[5] Although Milpitas' contract with BFI includes built-in flexibility and periodic review, implementation of this alternative would depend on the ability of BFI to provide mechanisms for administering the variable rate charge.

Estimated Cost. High.[6] The costs associated with implementing rate structure modifications are a function of the City staff time required to pursue negotiations with the waste haulers, develop the rate structure and program, seek approval for the program from the City Council, conduct public hearings, and develop a public information campaign to introduce the program to the rate payers. These costs are not expected to be high for the City of Milpitas.

End Uses. Not applicable.

3.4.2 Alternative 2 - Economic Incentives and Disincentives

Source reduction activities can be encouraged through economic incentives and disincentives. Economic incentives and disincentives address all source reduction objectives identified in Section 3.2.

Economic Incentives. Economic incentives can foster source reduction in two ways: (1) direct economic benefits provided to businesses and consumers who participate in source reduction programs, and (2) economic assistance to groups and organizations who foster source reduction and supporting the community's waste management goals and objectives.

Direct economic benefits can include tax credits and/or exemptions to businesses that implement formal source reduction activities for manufacturing or procurement. Loans, grants, and loan guarantees can provide direct economic assistance to businesses for the purpose of implementing source reduction activities. Reduced business license fees can also be granted to businesses that implement source reduction activities.

Economic assistance incentives are primarily intended to support groups and programs that contribute to the education and technical assistance efforts of the community's source reduction campaign. For example, the

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5 See Footnote 2.

6 See Footnote 2.

City could provide loans, loan guarantees, or grants to encourage the economic development of businesses, non-profit groups, or associations that promote source reduction or otherwise foster waste reduction.

This program emphasizes the provision of nominal amounts of support to facilitate volunteer efforts of local or regional groups and associations seeking to foster source reduction efforts at the community level. This alternative enables the community to take advantage of the of volunteer interest groups in the community.

Economic Disincentives. Disincentives are designed to place a penalty on the waste generator. Under this approach, two kinds of disincentives are considered: advanced disposal fees, and direct penalties or fines.

Advanced disposal fees can be imposed by the community on certain products that are either non-recyclable or non-reusable. Products offered for sale that have excess packaging could also be made economically unattractive. A state-wide program to implement advanced disposal fees is currently being considered by the CIWMB. Under such a program, a fee would be imposed on products that meet the following criteria: disposable, non-recyclable, or non-reusable provided that a substitute durable, reusable, or recyclable product is available.

Penalties and/or fines could be imposed by the municipality on businesses that do not develop and implement source reduction programs and practices. The requirements of this type of program could be restricted to large commercial or industrial waste generators and would serve to highlight the importance of community waste reduction efforts.

This alternative is evaluated as follows:

Effectiveness. Medium. The potential effectiveness of economic incentives is difficult to assess. Advanced disposal fees, however, present an excellent mechanism for creating an incentive for consumers to source reduce.

Hazard. High. There are no hazards created by the economic incentives and disincentives presented in this alternative.

Ability to Accommodate Change. High. Economic incentives can be modified to accommodate changes in consumption patterns, availability of materials, and the economy. Economic incentives are readily adaptable to

new source reduction techniques and approaches as the latter become available, and as new methods and programs are developed.

Consequences on the Waste Stream. Medium. Economic incentives should not result in shifts in waste type generation.

Implementation Period. High. Economic incentives and disincentives must be approved by the City Council. The amount of time required for the approval process and implementation of the program can be accomplished in the short-term planning period.

Facility Requirements. High. No facilities are needed to implement economic incentives in the City of Milpitas.

Consistency with Local Plans and Policies. Low. Providing economic assistance to businesses within the municipality or charging an advanced disposal fee may have no historical precedent. In this respect, this alternative may be viewed as inconsistent with local plans and policies.

Institutional Barriers. Low. This alternative presents potential problems for vendors who must collect any advanced disposal fee at the point of sale.

Estimated Cost. Medium. The costs of this alternative would include the use of the City's staff resources to develop and administer the incentive and disincentive programs. Staff resources would be necessary to develop, approve, implement, and administer each community project funded by the jurisdiction. Additional costs include the direct dollar amounts of any grants or funding provided under the incentive programs.

End Uses. Not applicable.

3.4.3 Alternative 3 - Technical Assistance, Education, and Promotion

The programs presented in this alternative address all source reduction objectives identified in Section 3.2. These activities include waste evaluations, technical assistance, educational efforts, promotional programs (i.e., public recognition and awards), and commercial procurement programs.

Waste evaluations are used to identify the waste types generated by a business that can be targeted for source reduction activities. Data collected from the waste evaluations can also be used for:

(1) Assessing waste disposal fees;

(2) Controlling the disposal of banned wastes into the waste stream (e.g., corrugated cardboard, organic wastes, and household hazardous or special wastes); and

(3) Establishing a baseline for waste generation data from which to measure future progress in waste reduction.

The primary purpose of the waste evaluation alternative is to increase commercial awareness of the need for, and benefits of, waste reduction programs and to assist businesses to design and implement programs reducing waste generation.

Technical Assistance. Technical assistance to businesses and consumers can be accomplished through workshops and seminars that address practical ways in which businesses and consumers can reduce the quantity of wastes generated. Topics to be addressed include (1) decreased consumption; (2) reuse and recycling of materials, including encouraging and assisting waste exchanges between businesses; (3) procurement practices with preferences for reduced packaging, (4) increased durability, and increased recycled materials content; (5) increased manufacturing efficiency; and (6) composting of yard wastes at the site of generation (backyard composting).

Educational Efforts. Educational efforts can be a valuable means of developing consumer awareness about the benefits of source reduction. Educational efforts include developing and sponsoring consumer awareness programs, school curricula, seminars, and public forums. The City will provide information on backyard composting to residents.

Public Recognition and Awards. Public recognition can be used by the community to acknowledge businesses that have implemented successful source reduction activities. Awards can also be presented to community groups or individuals that are promoting source reduction in Milpitas either through example or through education.

Non-procurement Programs. These programs require the City to undertake activities aimed at altering the behavior of its own staff and operations to reduce the amount of waste generated on a day-to-day basis. These activities can include education programs familiarizing people with source reduction practices such as: double-sided copying, increasing the use of scratch paper, making fewer drafts of reports, and using electronic mail. This program provides an opportunity for the City of

Milpitas itself to develop and implement a model source reduction program that can be used as an example for other private, public, and commercial entities in the area.

The following evaluation of technical assistance, education, and promotion activities for source reduction includes waste evaluations, technical assistance, composting programs, educational efforts, public recognition and awards, and non-procurement programs.

This alternative is evaluated as follows:

Effectiveness. High. An effective technical assistance program combined with education and promotion can be effective in reducing quantities of solid wastes generated. Actual quantities are difficult to estimate and are dependent upon the types of programs selected, the scope of each program, and the materials and generators targeted for program impact.

Hazard. High. There are no hazards associated with the programs presented by this alternative. The City of Milpitas may seek to ensure that proper backyard composting techniques are used so that no public health or safety concerns are created.

Ability to Accommodate Change. High. This alternative is adaptable to change as new methods and programs are developed. This alternative also readily accommodates change in the waste stream as well as changes in consumer purchasing behavior and available products and alternatives.

Consequences on the Waste Stream. High. The most likely areas for impact on the waste stream would be from programs aimed at backyard composting, commercial purchasing and procurement, office source reduction, and consumer-purchasing awareness. The waste stream materials affected by these types of programs are yard wastes and wood cuttings, office paper and plastic packaging, corrugated cardboard, and other packaging products.

Implementation Period. High. Initial efforts in technical assistance, public education, and promotional activities can be implemented in the short-term planning period. The need for additional staffing and the more involved aspects of the alternative, such as developing school curricula, are areas that can be implemented in the medium-term.

Facility Requirements. High. No additional facilities in Milpitas would be required. Existing educational facilities could serve as locations for seminars and educational workshops.

Consistency with Local Plans and Policies. High. Technical assistance, education, and promotional activities are consistent with current conditions in Milpitas. The City of Milpitas has historically considered technical assistance and educational activities for waste management to be superior to regulatory controls.

Institutional Barriers. High. There are no institutional barriers to implementing technical assistance, education, and promotional activities for source reduction.

Estimated Cost. Medium. The costs for technical assistance, education, and promotion will vary depending on the City's level of funding available for a broad spectrum of programs. Although staffing would constitute the majority of the costs of implementing technical assistance, public education, and promotional activities.

End Uses. Not applicable.

3.4.4 Alternative 4 - Regulatory Programs

Several alternative regulatory programs that address the source reduction objectives outlined in Section 3.2 are available to the City of Milpitas. These programs include local procurement ordinances, required waste reduction planning and reporting, local product bans, and local land-use planning requirements. One aspect common to all regulatory programs is that they require continuous enforcement efforts.

Local Procurement Ordinances. The City of Milpitas already has in place a five-percent purchasing preference program for recycled paper. The City may extend this program to include other products that are durable, recyclable, and reusable, and that certain recycled material content. Milpitas can require contractors with the City to have a source reduction plan or program in place and provide products or materials according to the above criteria.

Waste Reduction Plans. These plans involve establishing waste reduction planning and reporting requirements for large, commercial or industrial waste generators in the City. Waste reduction planning and reporting would require each business to establish a source reduction plan outlining

what source reduction activities will be implemented. Businesses would also be required to report quantities of wastes source reduced.

Product Bans. These are bans on targeted products and packaging techniques to the extent that the ban results in a reduction of waste at the source and has a net environmental benefit. Bans might be considered on products and packaging that do not lend themselves to easy recyclability or source reduction. Communities that pursue this kind of alternative often adopt a time limit or phase-out period for the ban to take effect, providing time for businesses and others to adjust to the policy and identify substitutes.

Land Use and Development Requirements. These requirements involve establishing incentives and disincentives to land use and development that promote source reduction. For example, regulations can be adopted that prohibit an entity from opening a new business, relocating an old one, or building or otherwise developing property for commercial or residential purposes without presenting a plan describing the wastes that will be added to the waste stream, and the programs that will be implemented to encourage source reduction on the developed area.

This alternative is evaluated as follows:

Effectiveness. Medium. The effectiveness of regulatory programs would depend on the level of regulation imposed by the City, the materials targeted, adherence to the regulations by the community, and the level of enforcement.

Hazard. High. There are no known hazards associated with regulatory programs.

Ability to Accommodate Change. Low. The regulatory measures outlined in this alternative vary in their flexibility to changing social and economic conditions.

Consequences on the Waste Stream. Medium. Changes in the waste stream composition will depend on the effectiveness of each program. Changes in the waste stream are affected by the availability of alternative products for procurement programs and the ability of institutional or commercial generators implementing a waste reduction plan to identify and target specific waste categories (such as disposable diapers, high-grade paper, or corrugated packaging and cardboard). A product ban will reduce the quantities of the banned product present in the waste stream. How-

ever, the ban will also tend to increase the presence of product substitutes in the waste stream.

Implementation Period. Medium. Procurement programs, waste reduction plans, and land-development plans can all be implemented in the short-term time period. With product bans, however, communities usually allow a period of time for consumers, producers, and retailers to adjust to the effects of the ban.

Facility Needs. High. There are no facility requirements for this alternative.

Consistency with Local Plans and Policies. Medium. Regulatory programs may be viewed as inconsistent with municipal policy given current plans for implementing voluntary waste diversion programs.

Institutional Barriers. Low. Purchasing and procurement programs within the diverse City agencies will have to be coordinated in order to achieve a City-wide impact from a source reduction procurement program. There are no institutional barriers presented by a product ban program, although there may be unknown legal ramifications associated with excluding a product from the market by implementing a local product ban. Land-use requirements and waste reduction planning can be expected to encounter stiff opposition from the affected businesses and industries.

Estimated Cost. Medium. Costs for regulatory programs largely depend on the level of regulatory programs that the City chooses to pursue. Each of the programs outlined in this alternative would require resources from the City for developing, administering, implementing, and monitoring the program.

End Uses. Not applicable

3.6 Selection of Program

This section will describe the alternatives and programs selected as well as the basis for their selection. There are two factors critical to the selection process: (1) the degree to which each alternative and program is appropriate to the conditions of the jurisdiction (i.e., goals, objectives, policy environment, waste stream, and solid waste management system), and (2) the degree to which the alternatives and programs complement

each other and form a coherent, comprehensive, and cost-effective package.

A summary of the evaluation results of each alternative can be found in Table 3-2. The selected alternatives are described below.

Selection 1: Public Education and Technical Assistance. The City of Milpitas will implement public education and technical assistance programs in an effort to foster source reduction in the City. In addition to its ranking according to the evaluation criteria, this alternative was selected because it will be uniquely effective in achieving results for a program element whose fundamental emphasis is on changing the behavior of producers and consumers.

Another factor in the selection of the public education and technical assistance alternative is the City's ability to implement this alternative in conjunction with the efforts of other jurisdictions, including the State Department of Conservation, and the CIWMB. The development of promotional and public education materials can be coordinated with neighboring jurisdictions in Santa Clara County. Joint funding for any materials to be disseminated by means of broadcast or print media covering more than one jurisdiction can be explored.

Programs implemented under this alternative will target both residential and non-residential generators and impact materials that comprise a significant proportion of the waste stream (e.g., all types and grades of paper; all types of paper, plastic and styrofoam packaging; and yard wastes).

Selection 2: Rate Modifications. The City of Milpitas will implement modifications to the current rate structure for collection and disposal of both residential and commercial wastes. These modifications will take the form of a variable rate structure designed to encourage source reduction of materials that are not reusable, recyclable, or compostable. The commercial rate modifications will provide financial incentives for source reduction and recycling.

In addition to its ranking according to the evaluation criteria, this alternative was selected because (1) the City's contract with its waste hauler (BFI) will undergo a review and revision in the near future and (2) the alternative will support alternatives and programs selected under the recycling and composting components of this SRRE.

Selection 3: Regulatory Programs. The City of Milpitas will expand and enhance its existing procurement program to encourage source reduction on the part of local government and to set an example for other non-residential generators in the City. Purchase preferences will be extended to materials and products that have packaging that is minimal, reusable, recycled, or recylable.

Estimated Quantities and Types of Wastes to be Diverted

An estimated 63.6 tons of solid waste were diverted from landfilling in 1990 by source reduction through the use of cloth diapers. Additional information on source reduction diversion quantities is not currently available. The City will pursue methods of evaluating, monitoring, and reporting on source reduction diversion as programs are implemented. The City will revise source reduction estimates when it conducts follow-up waste generation studies in 1994. Additional data will result from waste diversion reports, and program evaluation and monitoring.

The types of materials that are anticipated to be source reduced through the selected alternatives include:

- Paper and plastic packaging materials
- Yard waste
- Construction materials, including concrete, asphalt, lumber, and metals
- Plastic cups, utensils, and personal care products
- Metal and plastic non-repairable products, including appliances and electronics
- Paper, including corrugated, high grade, and mixed waste paper

3.7 Program Implementation

3.7.1 Responsibility for Implementation

The City of Milpitas Community Development Department will be responsible for implementing all of the source reduction programs and activities selected in this component.

The City currently has one staff planner assigned to develop, administer, monitor, and evaluate solid waste programs in Milpitas. However, in order to fully implement the program alternatives selected in this SRRE, the City will require one additional full-time staff member assigned to solid waste planning.

The source reduction program is based primarily upon the public education and technical assistance alternative selected in this component. Further information on program implementation can be found in Section 7.6.1 of the Education and Public Information Component of this SRRE.

3.7.2 Required Implementation Tasks

See Table 7-1 for public education implementation of source reduction programs.

See Table 3-3 for rate modification and regulatory program implementation for source reduction.

3.7.3 Implementation Schedules

See Table 7-1 for public education implementation.

See Table 3-3 for rate modification and regulatory program implementation.

3.7.4 Implementation Funding Requirements

The implementation costs for the alternatives and programs selected in this component have been combined with those for the Education and Public Information Component and can be found in Chapter 7, Section 7.6.4. Costs for Rate Structure modifications are presented in Section 9, Funding Component.

3.8 Monitoring and Evaluation

3.8.1 Methods to Measure Achievement

The objectives of the Citys' source reduction program are to increase the public's participation in source reduction programs. The following methods will be implemented in order to monitor the achievement of these objectives:

- Future waste generation studies to measure changes in both waste types and waste quantities. Such studies can be combined with future waste characterization studies.
- An annual survey of businesses and the City government to monitor procurement practices and source reduction progress in general.
- A bi-annual residential survey to ascertain the participation rates for backyard composting programs and the general level of awareness regarding source reduction issues.
- Continued monitoring of national trends in source reduction with respect to production and packaging practices resulting in volume and weight reduction. National trends will be monitored to receive "credit" for diversion resulting from reduction measures applicable to products and material types distributed, sold, or otherwise consumed in the City. The City will also monitor these trends to encourage purchase of preferred products exhibiting these reduction characteristics.
- Annual reports to monitor progress and compliance with the requirements of AB 939 will be used to monitor and measure the achievements of the City programs.

Additional monitoring activities to be implemented are described in Section 7.7.1 of the Education and Public Participation Component.

3.8.2 Evaluation Criteria

The City of Milpitas will evaluate the effectiveness of the source reduction program by regularly addressing the following issues in a written format and presenting the results in annual progress reports.

- Are the source reduction objectives being achieved?
- Do residents have a greater understanding of the concept of source reduction?
- Have businesses' procurement practices changed?

3.8.3 Responsibility for Monitoring and Evaluation

The City of Milpitas Community Development Department, Division of Planning, will be responsible for monitoring and evaluating all of the education and public information program activities selected in this component.

3.8.4 Monitoring and Evaluation Funding Requirements

Funding requirements for the monitoring and evaluation of the source reduction programs selected in this component include funds for record-keeping and surveying participation rates. These funds are included in estimates presented in Section 7.7.4 of the Education and Public Information Component.

3.8.5 Contingency Measures

The following measures will be implemented if the source reduction objectives identified in Section 3.2 are not achieved.

- Evaluate the need for increased funding for source reduction programs such as waste audits, specialized technical assistance, and more aggressive source reduction awareness campaigns.
- Modify any source reduction programs that are determined to be inadequate.
- Identify additional source reduction programs for consideration, including grant funding for technical assistance and public education, land-use requirements, modified disposal fees, and economic incentive/disincentive programs.

Table 3-1

WHAT IS SOURCE REDUCTION ?

DECREASED CONSUMPTION	MATERIAL REUSE
Reduce Material Volume • Make two-sided copies • Use routing slips • Use electronic mail • Buy in bulk • Offer waste reduction incentives to employees **Increase Product Durability** • Purchase durable goods • Design durable products • Provide/use maintenance contracts to extend the life of equipment	• Use cloth towels, retreaded tires, refillable pens, reusable air filters, returnable bottles • Reuse packaging or packing material • Provide/use returnable packaging containers • Donate used equipment • Use ceramic coffee mugs • Reuse blank sides of paper for scratch • Use silverware and dishes in the cafeteria • Compost, mulch or chip on site • Rent equipment rather than buying • Use a waste exchange program • Design for reuse or recyclability

Table 3-2
Alternatives Evaluation
for Source Reduction Programs

Program Categories	Evaluation Criteria					
	Effectiveness	Hazard	Ability to Accomodate Change	Consequences on the Waste Stream	Implementation Period	Facility Requirements
Category 1 Rate Structure Modifications	high	medium	high	high	high	high
Category 2 Economic Incentives	medium	high	high	medium	high	high
Category 3 Technical Assist. & Education	high	high	low	high	high	high
Category 4 Regulatory Programs	medium	high	low	medium	medium	high

Program Categories	Additional Considerations			
	Consistency With Local Plans and Policies	Institutional Barriers	Cost	End Uses
Category 1 Rate Structure Modifications	medium	medium	high	N/A
Category 2 Economic Incentives	low	low	medium	N/A
Category 3 Technical Assist. & Education	high	high	medium	N/A
Category 4 Regulatory Programs	medium	low	medium	N/A

Table 3-3
SOURCE REDUCTION
Implementation Activities

Program	Program Activities*	Activity Implementation Tasks	Schedule
Variable Rate Structure	Implement variable rate structure for residential collection programs	Negotiate with local haulers; determine appropriate rate structure; develop program to administer variable rates; propose program to City Council; hold public hearings; prepare public information for rate payers	Beginning Early 1993
Procurement Program	Develop City-wide procurement program for Milpitas	Develop procurement programs with every City agency; develop criteria for materials to be included in procurement program; identify vendors of materials an d products that meet source reduction criteria	Beginning Late 1991

* Program activities are described in detail in the text. See Table 7-1 for public education implementation of source reduction programs.

4 RECYCLING COMPONENT

4.1 Introduction

Recycling is defined by the National Recycling Coalition as the series of activities by which materials that would otherwise remain wastes are collected, separated, or processed and used in the form of raw materials. Recycling is an old practice that is taking on an increasingly important role in today's solid waste management programs. This form of waste diversion helps preserve natural resources and reduces the environmental impacts associated with waste disposal.

As stated in the definition, recycling goes far beyond merely collecting and separating post-consumer waste; in order to truly recycle, the materials must be remade into new products. Thus, markets are critical for the full recycling process to be complete. Accordingly, recycling planning must include market development along with program development.

The existing recycling programs in Milpitas are dedicated to the recycling of a range of materials. These programs, which represent the first step in recycling--separation and collection--are described in the following pages. In addition to the description of existing programs, this section includes an evaluation of recycling program alternatives, the selection of recommended alternatives, a discussion of end markets, and plans for implementing and monitoring recycling programs. Costs given for programs are approximate and program details should be considered preliminary. These will be refined once additional details are known.

4.2 Objectives

The City of Milpitas selected the following objectives for this component to be accomplished during the short-term planning period (1991-1995) and the medium-term planning period (1996-2000). These objectives have been established in conjunction with the objectives in the other compo-

nents of this document in order to achieve the required diversion rates of 25 percent by 1995 and 50 percent by 2000.

4.2.1 Short-Term Planning Period

In early 1991 two recycling programs were implemented: (1) residential curbside collection, and (2) a manual/mechanical material recovery facility (The Recyclery) at the Newby Island Landfill. Presented below are recycling objectives that will be met by new programs during the remainder of the short-term planning period.

A diversion of 3.8 to 5.2 percent of Milpitas' total wastestream is expected to be achieved through the following objectives. See Section 4.6.2 for a breakdown of diversion numbers by waste type and recycling program.

Residential

- Establish programs for the collection of recyclable materials from multi-family dwellings.

Non-Residential

- Establish source separation programs for small quantity non-residential waste generators.
- Increase source separation recycling programs for large quantity non-residential waste generators.
- Increase recovery of recyclable materials from City offices and programs.
- Salvage items at the Newby Island Landfill.
- Recover recyclable materials currently being collected in roll-off boxes.

4.2.2 Medium-Term Planning Period

A diversion rate of 4.8 to 7.2 percent* of the City's total wastestream is expected to be achieved as a result of continuing the two programs

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* Includes diversion expected from new programs begun in the short-term planning period; see Section 4.6.2," Quantities and Types of Waste Anticipated to be Diverted."

implemented in the short-term planning period and achieving the following objective during the medium-term planning-period:

Residential

- Increase the types of materials collected through the residential curbside program.

4.3 Waste Types Targeted for Diversion

Based on the results of the waste generation study, the following materials are targeted for diversion. Many of these waste types are currently being collected in Milpitas; these programs will continue, or be expanded to increase the quantities collected.

- mixed paper
- newspaper
- corrugated cardboard
- white ledger, computer paper, and colored ledger
- PET, HDPE, and polystyrene foam
- glass
- aluminum and tin cans
- inert solids (asphalt, concrete)
- telephone books
- magazines and catalogs

4.4 Existing Conditions Description

In 1990, an estimated 7.5 percent of the total waste stream in Milpitas was diverted. Milpitas' programs for the collection of selected recyclable materials are discussed in the following pages. Programs are provided for the residential sector and the non-residential sector. These programs will be continued, or expanded during the short-term and medium-term planning periods, as described in Section 4.5.

4.4.1 Residential Programs

Curbside collection of recyclables. A weekly curbside recycling program began on January 28, 1991 in Milpitas for all single-family homes in the city. Duplexes and townhomes were also included, as these dwellings are considered single-family dwellings in Milpitas. The program, called *RecycleNOW*, is operated by the City's hauler for residential refuse, Browning-Ferris Industries (BFI). BFI is experienced in curbside recycling programs, having established *RecycleNOW* programs in over 200 communities nationwide. Materials collected include newspaper, glass, tin cans, aluminum cans, PET, motor oil, and HDPE. All recyclables except newspaper are collected in one 14-gallon bin on the same day that refuse is collected. Newspaper must be tied or bagged separately.

The average set-out rate (number of residents putting out their recyclables *every week* for a given month) after four weeks of beginning the program was approximately 40 percent; this was the projected rate. That set-out rate corresponds to a 75 to 80 percent participation rate (number of households putting out their recyclables *at least one week* in a given month). These percentages were determined via a BFI study during which staff monitored homes in Milpitas every week for one month to monitor the number of times recycables were set out. This participation level is consistent with other curbside programs BFI has operated nationwide, including the program in the City of San Mateo. Increased participation is expected to be brought about via public education efforts. BFI has a contract with the City to provide public education for one year; see Section 7, "Education and Public Information Component" for further discussion of public education programs.

Curbside collection of Christmas trees. The Loma Prieta chapter of the Sierra Club and BFI provided a Christmas tree collection program in January 1991. Residents, at no charge, placed their trees at the curbside on their regular refuse collection day and BFI picked up the trees at no cost to the City. A portion of the trees were converted into mulch, which was used at Newby Island Landfill, as well as by the City of Milpitas. The remaining trees were sold to Western Forest Power for hog fuel. The use of trees for fuel cannot be counted toward diversion until after 1995, pursuant to Public Resources Code 41783.

4.4.2 Non-Residential Programs

City recycling program. Current City recycling activities include the informal collection of aluminum cans by employees and a scratch paper program whereby the City's print shop recycles used City fliers and office paper into scratch pads for employees' use. In addition, a collection program for white paper and mixed paper was begun in City facilities in May, 1991.

Commercial/industrial collection programs. Collection of source-separated recyclable materials from the commercial/industrial sectors is a nonexclusive portion of the BFI franchise. BFI, Zanker Road Resource Management, and Waste Management, Inc., tailor recycling collection programs to fit the needs of a particular business and make this service available to any business in Milpitas. Until March 1991, BFI programs were primarily set up by request, whereby the interested business would contact BFI and arrange the service. BFI, due to its increased collection capacity with the opening of The Recyclery™ (see Section 4.4.3, "Residential *and* Non-Residential Programs"), now contacts businesses directly to offer its collection services, in addition to continuing the on-call program. Materials collected, and fee structures for the service, vary with each company. BFI's commercial/industrial service also encompasses roll-off boxes; BFI estimates it services more than 90 percent of this business.

4.4.3 Residential and Non-Residential Programs

Drop-off and buy-back recycling centers. Several drop-off and buy-back recycling centers exist in or near Milpitas. The Recyclery, a state-certified recycling center at the Newby Island Landfill, includes a Public Recycling and Buyback Center where Milpitas residents, non-profit organizations, and small commercial recyclers bring their materials to be weighed on electronic scales in a drive-through area. Because the Recyclery is certified under AB 2020, the general public is paid California Redemption Value, as opposed to scrap value, for aluminum cans, glass, PET, and bi-metal containers that are marked "California Redemption Value." The State Department of Conservation (DOC) will certify a recycling center if it is open a minimum of 30 hours per week, of which five hours must be other than 9 a.m. to 5 p.m., Monday through Friday. The proceeds from the sale of the materials can be donated to a charity if the recycler chooses. The Center purchases many materials from the public, including numerous aluminum products (e.g., cans, foil, pots and pans,

roasting pans), paper products (e.g., colored ledger, computer paper, and white ledger; glossy paper and magazines; newspaper), copper and brass products, plastics, and glass. Junk mail, polystyrene, and telephone books are also accepted; however, the public is not compensated for these wastes.

Three additional state-certified recycling centers currently operate in Milpitas: (1) Lucky Grocery Store on Park Victoria Drive, (2) Fry's Food Store on W. Calaveras Blvd., and (3) Nob Hill Foods on Jacklin Road.

Another recycling program is offered by Goodwill Industries, which operates a state-certified collection truck on N. Milpitas Blvd. In addition to collecting the usual items at this site (e.g., clothing, books, household items), Goodwill accepts California Redemption Value containers at this location.

In addition, Boy Scouts of America has maintained two newspaper drop-off bins at Abbott and Rudyard in Milpitas since about 1988. The unstaffed bins are open at all times and are cleared weekly by the Scouts.

The Recyclery. In addition to the Public Recycling and Buyback Center described earlier, large items from the landfill are diverted at the Recyclery. These items include corrugated cardboard, mixed paper, wood and brush, and metals.

Telephone book collection. In March 1991, Pacific Bell began a pilot drop-off program for old telephone directories in Santa Clara County; two of the drop-off bins are in Milpitas. The program will run until May 15, 1991, and can be utilized by both the residential and non-residential sectors. Pacific Bell is considering making this an annual program.

4.5 Evaluation of Program Alternatives

The City of Milpitas evaluated the following ten recycling alternatives that could be implemented to meet its diversion goals. For ease of evaluation, these have been divided into alternatives for the residential sector and those for the non-residential sector. Each alternative is evaluated according to criteria specified in the regulations implementing AB 939. Program costs are approximate and program details should be considered preliminary. Cost and program details will be refined during development of the specific programs.

Many of these alternatives are complementary to each other and depend significantly on the implementation of other alternatives, programs, or SRRE Components, such as Source Reduction, Composting, and Education and Public Information. Where possible, these relationships have been indicated in the criteria for evaluating the alternatives. In addition, the effectiveness and impact of the alternatives must be considered on the basis of how several programs will work together as a system, rather than independently. In compliance with the regulations implementing AB 939, the Source Reduction Component addressed the purchase preference for goods with recycled content (see Section 3.4.4).

The following ten alternatives are evaluated within their respective categories based on the evaluation approach presented in Appendix A. For each evaluation criterion, a rating of high, medium, or low is assigned, and a discussion of potential issues is given. The results of the evaluation are summarized in Table 4-1.

Residential Alternatives

Alternative 1 - Separate additional waste types through the curbside program.

Alternative 2 - Develop mobile collection system.

Alternative 3 - Develop buy-back center.

Alternative 4 - Establish source separated recycling program: multi-family dwellings

Non-Residential Alternatives

Alternative 1 - Implement source-separated recycling program: curbside program.

Alternative 2 - Develop manual material recovery operation/mechanized material recovery operation.

Alternative 3 - Salvage at solid waste facility.

Alternative 4 - Establish City-wide recycling programs for the non-residential sector.

Alternative 5 - Divert inert solids generated from City public works projects to a materials processor.

Residential *and* Non-Residential Alternative

Alternative 1 - Drop-off recycling center

4.5.1 Residential Alternatives

Alternative 1 - Separate additional waste types through the curbside program.

This alternative addresses the objective of collecting recyclables from single family homes. Once the new curbside program is fully established, additional materials, such as corrugated cardboard, magazines, and mixed paper, should be added to the list of acceptable "collectibles" to increase recovery through curbside collection. Another option is to begin wet/dry collections at the curb, similar to systems in Europe. Because few, if any, such programs currently exist for the residential sector in the U.S., the logistics and considerations for such a program are not known at this time.

One type of wet/dry collection system that has been used in Europe involves three cans. One can contains all the recyclable materials that will go to a MRF for processing: this is essentially commingled collection. The second can contains all food scraps and other designated organic wastes. These materials would likely be composted. The third can contains all other materials that cannot be separated; these would probably be taken to the landfill.

BFI's contracts with many processors allows the hauler to offer assured markets for many waste types to its customers. In addition, the planned McMRF™ will allow for efficient processing of additional commingled waste types from the curbside program.

Effectiveness. High.[1] This alternative would be effective in reducing the amount of targeted material(s).

Hazard. High.[2] This alternative presents no known hazards.

Ability to Accommodate Change. High. This alternative is readily adaptable to changing conditions.

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1 Refers to relative rating of the alternative with respect to this criterion.

2 Note that several of the criteria—hazard, consequences on the waste stream, facility requirements, institutional barriers, and estimated cost—on the waste stream—are inherently negative. A rating of high for these criteria corresponds to few or no impacts associated with these potential problems.

Consequences on the Waste Stream. High.[3] This alternative has no known impact on the waste stream.

Implementation Period. High. This alternative would likely be completed by 1995.

Facility Requirements. Medium. The McMRF™ will provide the necessary facilities. Also, vehicle modifications might be required when adding new materials (depending on what the materials are).

Consistency with Local Plans and Policies. High. This alternative is consistent with local plans.

Institutional Barriers. High.[4]. No known barriers exist.

Estimated Cost. The cost will depend on which materials are selected.

End Uses. See Section 4.6.7, "Market Conditions."

Public vs. Private Operation. This alternative will be a private operation.

Alternative 2 - Develop Mobile Collection System

A mobile collection system, by definition, is one that moves and can service more than one area. Mobile systems are ideal for rural areas with low-density populations. Under AB 939, the City is required to evaluate this alternative. Establishing a mobile collection system does not specifically address any of the City's recycling objectives.

Effectiveness. Low. Because Milpitas has many recycling collection systems in place, a mobile collection system is expected to have negligible effects on reducing the amount of waste diverted.

Hazard. High. There are few or no potential hazards.

Ability to Accommodate Change. High. This alternative is readily adaptable to changing conditions.

Consequences on the Waste Stream. High. This alternative would not impact the waste stream.

Implementation Period. High. This alternative would likely be implemented by 1995.

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3 See Footnote 2.

4 See Footnote 2.

Facility Requirements. Medium. It is likely that existing facilities would need to be expanded or altered since a mobile collection system would require a trailer for customer transactions and a storage area for material collected. The collection site should also be secured at night to prevent scavenging.

Consistency with Local Plans and Policies. High. This alternative is consistent with City policies.

Institutional Barriers. Medium. Milpitas has many collection systems in place, establishing a mobile collection system could potentially impact the success of the existing operations.

Estimated Cost. Medium. Capital costs to establish a mobile collection system are estimated to range from $50,000 to $100,000.

End Uses. See Section 4.6.7, "Market Conditions."

Public vs. Private Operation. A mobile collection program could be operated by either a public or private entity.

Alternative 3 - Develop Buy-back Center

In compliance with AB 939, the City is required to evaluate a buy-back center alternative. A buy-back center is essentially a drop-off center at which participants are paid for the materials they deliver. These materials typically include aluminum cans, newspaper, glass, metal cans, plastic (PET and HDPE), corrugated cardboard, and high grade papers. This alternative does not specifically address any of Milpitas' recycling objectives, although it might have some minor impacts on waste diversion. At BFI's Public Recycling and Buy-back Center (a short distance from Milpitas), many materials can be sold (see Section 4.4, "Existing Conditions"). Because of the nature of the programs, buy-back centers must have regular business hours and be staffed full-time; they are often more labor intensive than drop-off centers and can require equipment not needed at drop-off centers.

Effectiveness. Low. Offering more buy-back centers in the City of Milpitas would likely be ineffective in diverting additional waste from landfilling. If anything, the waste would just be transferred from another recycling program, such as curbside, where the generator is not paid for it.

Hazard. High. Although this alternative presents few or no hazards, broken glass could potentially be a problem.

Ability to Accommodate Change. High. This alternative is readily adaptable to changes by adding more staff or equipment.

Consequences on the Waste Stream. High. This alternative would have no impact on the waste stream.

Implementation Period. High. This alternative would likely be completed by 1995.

Facility Requirements. Low. New facilities would be required. A site, facility, and processing equipment (e.g., scales, cash register, safe, calculators, hand carts) would be needed.

Consistency with Local Plans and Policies. High. This alternative is consistent with City policies.

Institutional Barriers. Medium. Some institutional barriers exist for this alternative. A location would have to be selected and any necessary permits filed. It is possible that a buy-back center could be located in a vacated building, such as a service station or small warehouse. What is important is that it be located on a well-traveled thoroughfare. In addition, the center would have to be certified by the State DOC as a buy-back center for California Redemption Value beverage containers under AB 2020. According to the DOC, this would require filing an application to become a certified recycling center.

Estimated Cost. Medium to Low. Capital costs will vary depending on the site selected (e.g., whether new construction is required) and the type and size of the facility (e.g., will any processing be done? If so, more sophisticated equipment may be needed). Labor costs would be additional and would again vary depending on the size of the facility.

End Uses. See Section 4.6.7, "Market Conditions."

Public vs. Private Operation. A buy-back center would likely be privately operated.

Alternative 4 - Establish source-separated recyc program: multi-family dwellings

This alternative addresses the objective of establishing programs for the collection of recyclable materials from multi-family dwellings. Multi-family dwellings typically house apartment renters, condominium and townhome owners or renters, residents of senior citizen homes, and mobile home park residents. In Milpitas, most duplexes and townhomes are considered single-family homes and are serviced by the curbside program. For this reason, these dwellings will not be considered in this alternative. By special arrangement, the one senior citizen residence in the City, "Terrace Gardens", will be serviced by curbside collection until at least 1993. This alternative will include Terrace Gardens, in the event that it is no longer serviced by the curbside program after 1993.

Currently there are no on-site recycling programs at the approximately 3,358 multi-family dwelling units. The number of multi-family units in the City is projected to increase approximately 15 percent by 1995, when such units will represent approximately one-third of the total number of housing units in Milpitas. Programs will likely be tailored to the particular multi-family area; for instance, a senior citizen's residence may have different needs than an apartment complex.

Effectiveness. High. A recycling program for multi-unit dwellings is expected to be effective in reducing the amount of targeted material(s) in the solid waste stream. Materials collected would likely be newspaper, glass, aluminum cans, and PET plastic. The success of the program will depend on how well the particular needs of each type of multi-unit dwelling are considered.

Hazard. Medium. Recycling programs at multi-unit dwellings present moderate hazards, which will depend on the type of program in place. For instance, broken glass or other miscellaneous items can be a problem with multi-bin or multi-compartment systems.

Ability to Accommodate Change. Medium. Multi-unit dwelling recycling programs are readily adaptable to changing conditions. If the program grows quickly, it could pose some logistical problems, due to lead times required for purchasing new collection containers, or overflowing containers from increased participation. In addition, the program is more readily adaptable to changing conditions if residents and multi-family dwelling managers are kept up-to-date on changes in the program, etc.

This task could be accomplished by the hauler, City staff, or volunteer groups.

Consequences on the Waste Stream. High. Multi-unit dwelling recycling programs would not impact the waste stream.

Implementation Period. High. This alternative would likely be completed by 1995; BFI has plans to begin servicing more multi-unit dwellings in 1991.

Facility Requirements. Medium. Existing facilities would have to be expanded or altered. Some existing multi-family facilities could have a space problem as the program grows, since space is generally at a premium. "Trade-off's" may be required in order to utilize parking areas or open areas for recycling collection containers. In addition, in Milpitas City policy may require that garbage/recycling collection areas be enclosed, a requirement that could result in changes to accommodate recycling.

Consistency with Local Plans and Policies. Medium. Minor changes to existing plans and policies would be required. These could include changes to any agreements between the City or hauler with a given multi-unit dwelling with regard to its garbage collection. In addition, City policies may need to be adapted to allow for unenclosed garbage/recycling collection areas, if this is needed, and City policies currently prohibit it. Lastly, the City could require changes to zoning and building ordinances to require that recycling collection areas be built into all new multi-unit developments.

Institutional Barriers. Medium. Moderate barriers exist. With rental property, turnover in property managers, on-site managers, and tenants often makes it difficult to keep residents apprised about recycling programs and any changes made in these programs. Also, the facility manager may have to give up parking or other space in order to accommodate recycling. This can be remedied with strong public education efforts.

Estimated Cost. BFI is currently evaluating costs for a widespread multi-family dwelling recycling program and are not available at this time. Cost considerations include type of collection container, type of collection service (e.g., door-to-door versus central locations), collection vehicle (new trucks may be needed), and labor (i.e., one or two-person crew).

End Uses. See Section 4.6.7, "Market Conditions."

Public vs. Private Operation. This will likely be a private operation.

4.5.2 Non-Residential Alternatives

Alternative 1 - Implement source separated recycling program: curbside program.

This alternative addresses the objective of establishing source separation recycling programs for small volume non-residential waste generators, such as those in downtown Milpitas, a high-density commercial area of many small businesses with little room to store recyclable materials. The potentially small volumes of waste generated from these businesses may make it unfeasible for BFI to collect from them. Other small business parks and shopping areas could also be targeted. BFI and the City will work together to set up an efficient and economically-feasible program for this downtown area. It is possible that this program will be an extension of the existing residential curbside program; trucks would drive a specified route around downtown, with stops to pick up materials left at the curb by businesses. This would be a weekly service that would coincide with the day refuse is collected.

Effectiveness. High. This alternative would be effective in reducing the amount of targeted material(s) in the waste stream. Materials collected would likely include corrugated cardboard; newspaper; PET; glass; tin and aluminum cans; white ledger, computer, and colored ledger paper.

Hazard. High. This alternative presents no known hazards.

Ability to Accommodate Change. High. This alternative is readily adaptable to changing conditions.

Consequences on the Waste Stream. High. This alternative has no impact on the waste stream.

Implementation Period. High. This alternative would likely be completed by 1995.

Facility Requirements. Medium. Existing facilities may need to be expanded or altered, i.e., at the businesses, in order to provide room for one week's worth of recyclable materials.

Consistency with Local Plans and Policies. High. This alternative is consistent with local plans and policies.

Institutional Barriers. Medium.. No known barriers exist.

Estimated Cost. This will depend on the extent of the program. Costs may include purchasing collection containers for each business, new trucks, additional staff, and processing costs.

End Uses. See Section 4.6.7, "Market Conditions."

Public vs. Public Operation. This will be a private operation.

Alternative 2 - Develop manual material recovery operation/Mechanized material recovery operation

This alternative addresses the objectives of (1) salvaging items at the Newby Island Landfill, (2) recovering recyclable materials currently being collected via roll-off boxes, and (3) increasing the types of materials recovered through established programs from the non-residential sector. A mechanized material recovery facility involves sorting loads of waste in order to recover recyclable materials. This type of a facility requires the commitment to a large capital investment for a site, buildings, and equipment. BFI has established such a facility in San Jose, where The Recyclery at Newby Island was opened in March 1991. This processing center is one of nine operated nationwide by BFI; the one at Newby Island is the second largest of any such facility in North America. As a consequence of its processing capabilities, it allows commercial entities to establish comprehensive integrated recycling programs in a cost-effective manner.

The objective of The Recyclery is to receive recyclable materials, remove the contaminants, and prepare the materials for transportation to markets. Full operations at The Recyclery will be phased in; the facility's current permit is for 210 tons-per-day (TPD), and it has the capacity to handle 800 TPD. If necessary, the facility can be expanded to 1,600 TPD. A pilot program of approximately 30 loose or compacted commercial loads per day were being processed in the first month of operations. The facility includes manual floor sorting, in addition to providing a 22-station sorting room.

The curbside residential loads go to the McMRF™, a small-scale mechanized material recovery facility, within The Recyclery. Wood loads delivered to the facility are directed to the wood processing area; those wood materials that are not recoverable as reused lumber, soil amendment, or compost are processed into fuel and transported to

cogeneration plants. As discussed above, 90 percent-plus of the roll-off boxes in Milpitas are BFI's and are, or will be, processed at The Recyclery.

Effectiveness. High. This alternative is effective in reducing the amount of targeted material(s) in the solid waste stream by creating non-recyclable, unmarketable, or otherwise undesirable materials.

Hazard. Medium. This alternative presents moderate hazards. These include the possibility of fire and explosion from any shredder operations and the possibility of explosion from compacting the residual load. Because some of the materials collected are combustible, there is a minor fire hazard associated with their storage. There are also health risks associated with manual sorting of refuse.

Ability to Accommodate Change. High. The Recyclery is readily adaptable to changing conditions, and in fact, has the capacity to process a much greater quantity of waste.

Consequences on the Waste Stream. High. This alternative does not impact the waste stream by creating non-recyclable, unmarketable, or otherwise undesirable materials.

Implementation Period. N/A; already in progress.

Facility Requirements. High. The Recyclery meets the facility requirements for this alternative.

Consistency with Local Plans and Policies. High. The Recyclery is consistent with local plans and policies.

Institutional Barriers. Medium. The Recyclery cannot expand its capacity without getting a new permit.

Estimated Cost. N/A

End Uses. See Section 4.6.7, "Market Conditions."

Public vs. Private operation. The Recyclery is a private operation.

Alternative 3 - Salvage at solid waste facility.

This alternative addresses the objective of salvaging items at the Newby Island Landfill. Salvaging at solid waste facilities refers to landfill workers removing large items from incoming loads. This activity is very similar to a

manual material recovery operation, except for the waste types separated, which include white goods, mattresses, wood pallets, and large metal pieces. Generally this type of operation takes place at the tipping area at the landfill face. Currently at Newby Island, an auditor at the scales turns trucks around if their load is salvageable. For example, trucks carrying wood loads are directed to the wood processing area. Also, a local recycler, Markovits and Fox, is currently hauling away white goods from the landfill.

Effectiveness. High. This alternative is effective in reducing the amount of targeted material(s) in the waste stream. Because the Newby Island Landfill is used by many jurisdictions, the diversion rate for such a program would have to be determined by apportioning by population.

Hazard. Medium. Workers may be at risk due to trucks coming in and out regularly and from working around large, moving equipment, such as loaders, dozers, and compactors. Also, hazards could arise from workers' exposure to potentially hazardous materials in the waste.

Ability to Accommodate Change. Medium. Salvaging at the landfill is moderately adaptable to change. Too many trucks at the tipping area could create a traffic flow problem.

Consequences on the Waste Stream. High. This alternative would not create non-recyclable, unmarketable, or otherwise undesirable materials.

Implementation Period. Medium. This alternative would likely be completed by 2000. Actually setting up the operation could be done in a matter of weeks. However, six months to one year could be required to begin salvaging at the landfill, depending on the permit revisions required.

Facility Requirements. High. This alternative can be easily integrated into existing facilities.

Consistency with Local Plans and Policies. High. This alternative is consistent with local plans and policies.

Institutional Barriers. Low. No salvaging is currently taking place at the landfill face at Newby Island because the landfill's permit does not allow it. The permit would have to be revised in order to incorporate salvaging at the face.

Estimated Cost. High. The cost of implementing this alternative is estimated to be less than $50,000.

End Uses. See Section 4.6.7, "Market Conditions."

Public vs. Private Operation. This alternative would be privately operated.

Alternative 4 - Establish City-wide recycling programs for the non-residential sector.

This alternative addresses the objective of establishing source separation recycling programs for both small and large volume non-residential waste generators. BFI offers on-call commercial collection programs tailored to the specific needs of the business; that is, interested companies must call to set up the program. In late March 1991, BFI began contacting businesses directly to offer tailored programs; this includes industrial clients as well. A number of independent recyclers and small hauling firms also offer source separation recycling programs.

In addition, a consulting program will be set up by the City, which will provide a resource for companies of all sizes to determine the most feasible and beneficial program for them. This consulting service will be offered as a public education and information service; See Section 7, "Education and Public Information Component."

Effectiveness. Not applicable.

Hazard. Not applicable.

Ability to Accommodate Change. Not applicable.

Consequences on the Waste Stream. Not applicable.

Implementation Period. Not applicable.

Facility Requirements. Not applicable.

Consistency with Local Plans and Policies. Not applicable.

Institutional Barriers. Not applicable.

Estimated Cost. Not applicable.

End Uses. Not applicable

Public vs. Private Operation. Not applicable.

Alternative 5 - Divert inert solids generated from City public works projects to a materials processor.

This alternative addresses the objective to increase recovery of recyclable materials from City offices and programs. City public works crews in Milpitas are responsible for a very small portion of the construction projects in the City; most are contracted to private construction firms. The City is unaware of any used asphalt or concrete being diverted, although it *is* recyclable and is often used as road base. This alternative assumes that the contractors hired to do the work will be responsible (under contract agreement with the City), for taking the used materials to the processor. It is further assumed that materials will be taken to an established processor. Recycling requirements for small quantities (e.g., 4 tons or less) would need to be further explored.

Effectiveness. High. This alternative is effective in reducing the amount of targeted material(s) in the waste stream.

Hazard. High. This alternative presents no known hazard.

Ability to Accommodate Change. High. This alternative can readily adapt to changing conditions, due to the fact that the local market for asphalt and concrete is stable.

Consequences on the Waste Stream. High. This alternative will have no impact on the waste stream.

Implementation Period. High. This alternative will likely be completed by 1995.

Facility Requirements. This alternative is intended to be integrated into existing processing facilities.

Consistency with Local Plans and Policies. High. This alternative is consistent with local plans and policies.

Institutional Barriers. Medium. This alternative is impacted by moderate barriers; the contractors may object to having to take the used materials to a processor; the City can include this in their bid requirements.

Estimated Cost. High. Operating costs would include transportation and tipping fees. Tipping fees at Raisch Products, one local processor (San Jose) for asphalt and concrete, vary, depending on the load; this company does not estimate costs on a per-ton basis. However, Raisch estimates a

7-ton load would cost $15 for asphalt and $30 for concrete. Zanker Road Resource Management (San Jose) also recycles concrete and asphalt and charges $5 to $6.50 per cubic yard, depending on whether the load includes mesh or rebar. Stevens Creek Quarry, Inc. (Cupertino) also recycles concrete and asphalt and charges $95 per 20 cubic yard load.

End Uses. High. Recycled inert solids are used primarily as road base; processors in the South Bay can use quantities of these materials.

Public vs. Private Operation. This would be a private operation.

4.5.3 Residential *and* Non-Residential Alternative

Alternative - Drop-off recycling center

This alternative addresses the objectives of (1) establishing source separation programs for small volume non-residential waste generators, and (2) increasing the types of materials collected through residential source separation programs. Drop-off recycling centers range in size, from "igloo" style domes, to large centers. They require that the generator source separate recyclable materials and take them to the drop-off site. These sites are often unstaffed, and must be conveniently located and easily accessible in order to be successful. For this reason, drop-off recycling centers are generally located in parking lots of grocery stores, shopping centers, churches, or schools. Participation tends to be higher in rural areas where generators are required to bring their refuse to a central location. Drop-off recycling centers can make recycling more convenient for persons who do not have curbside service and also provide a back-up for those who have curbside.

Effectiveness. Medium. Additional drop-off recycling centers in Milpitas would have a minor effect on reducing the amount of targeted material(s) in the residential solid waste stream. Given the fact that Milpitas has a curbside program in place, and that several drop-off/buy-back opportunities exist for residents (see Section 4.4, "Existing Conditions Description."), additional drop-off programs would not be expected to contribute to any important degree to additional waste diversion. In fact, the Boy Scouts have noticed a considerable decline in the newspapers collected via their drop-off bins since curbside began. For the small volume businesses (e.g., in downtown Milpitas), however, drop-off centers may be effective; this

depends on whether they are part of a larger program (please see Non-Residential Alternative 1).

Hazard. Medium. Drop-off recycling centers present moderate hazards. Because these sites are often unstaffed, they can become "dump sites." As a result, potential hazards include broken glass or other debris around the drop-off containers. In addition, for the safety of the users, sites need to be well-lit and provide adjacent parking.

Ability to Accommodate Change. Medium. Drop-off recycling centers are moderately flexible, in that material types can be added quickly, as new markets develop. Increased contamination of materials, however, would render drop-off sites less flexible.

Consequences on the Waste Stream. Medium. Adding drop-off recycling centers in Milpitas would have a moderate impact on the waste stream. The potential for contamination of materials could render these materials less marketable.

Implementation Period. High. This alternative would likely be completed by 1995.

Facility Requirements. Low. Drop-off centers would have to be built or set up in designated sites. Considerations include a central, accessible site; protection from weather (i.e., to keep paper dry); plenty of storage area for materials; good vehicle access (for both collection trucks and the public); and security (i.e., locked containers).

Consistency with Local Plans and Policies. High. Drop-off recycling centers are consistent with City plans and policies.

Institutional Barriers. Low. Store owners and property owners are often reluctant to allow a drop-off bin in their parking lot, primarily due to the mess that can result if these drop-off areas become dump sites. Drop-off programs require the stores' and property owners' approval and cooperation. In addition, a use permit from the City may be required.

Estimated Cost. Medium. The level of expense associated with drop-off centers depends on the type of center selected. Costs include those for site acquisition, preparation, capital, and operating expenses.

End Uses. Please see Section 4.6.7, "Market Conditions."

Public vs. Private Operation. Drop-off recycling centers can be owned and operated by either public agencies, or private non-profit or for-profit entities.

4.5.4 Other Program Considerations

A. Zoning and building code practices. Milpitas is aware of Recycling Market Development Zones established under SB 1322 and is considering this option in conjunction with San Jose and other local jurisdictions. A community that is a designated Zone offers state and local government incentives to draw to that community industries that use post-consumer waste as the feedstock in their manufacturing processes. Zones will help stimulate economic development in communities by increasing jobs and increasing the tax base. In addition, the City will consider a zoning ordinance that would require all new land development projects to plan and provide for recycling needs in building and site design, with the exception of single family homes.

B. Solid waste disposal rate structure. The City will consider a rate structure modification, for both the residential and commercial sectors.

C. Methods to increase markets. Since the passing of an ordinance amendment in February 1990, the City has given a price preference to vendors who provide recycled paper products for City use.

D. Handling methods. BFI leaves tags or sends letters to residents who have placed the wrong types of the materials at the curb (e.g., paint containers in the garbage can).

4.6 Selection of a Recycling Program

Milpitas' current recycling programs will continue; the programs selected and listed below are either new programs, or additions to successful existing programs. The selection of programs was based on the evaluation criteria and the ease of implementation in the City.

4.6.1 Alternatives Selected

Short-term planning period.

The programs selected to reduce the amount of waste being landfilled or incinerated during the short-term planning period include:

- Establish source-separated recycling program: multi-family dwellings
- Implement source-separated recycling program: curbside program for non-residential sector.
- Develop manual material recovery operation/mechanized material recovery operation.
- Establish City-wide recycling programs for the non-residential sector.
- Divert inert solids generated from City public works projects to a materials processor.

Establish source-separated recycling program: multi-family dwellings - Residential Alternative 4. Multi-family dwellings make up a significant portion of Milpitas' population that should have easily-accessible, on-site recycling opportunities available. Milpitas' voluntary new curbside program for single-family homes had a very successful start (approximately 40 percent set-out rate after one month) and the City's next step will be to address multi-family dwellings. BFI is pursuing recycling programs for multi-family dwellings and will begin a widespread City program upon the City's approval. However, this program will not be reflected in BFI's contract until 1993. BFI has many such programs nationwide; these can be reviewed to determine what type of a program would best fit Milpitas' needs.

Implement source-separated recycling program: curbside program - Non-Residential Alternative 1. The "Main Street" area of Milpitas, as well as other small commercial areas throughout the City, include many small businesses with little room for collection of recyclables. Given these considerations, they should be handled differently than other commercial entities in Milpitas, in order to offer the most convenient service for these businesses. BFI currently tailors collection programs to the needs of individual businesses; the Main Street area and other areas with a lot of smaller businesses would be a subset of BFI's current commercial/industrial collection program. Consideration is being given to achieving this objective through rerouting by BFI.

Develop manual material recovery operation/mechanized material recovery operation - Non-Residential Alternative 2. The Recyclery is currently in the early phases of operation and BFI is conducting a pilot

program on selected loads each day. As operations expand, BFI will work with Milpitas to tailor programs to meet the City's needs, if these programs currently do not exist.

Establish City-wide recycling programs for the non-residential sector - Non-Residential Alternative 4. BFI has had commercial/industrial programs in place for some time, and tailors these to the needs of the given business. Until March 1991 these programs were set up on an on-call basis, whereby interested companies called BFI to set up a program. Due to its increased processing capability with The Recyclery, BFI initiated a program in mid-1991 whereby businesses will be contacted directly to set up tailored programs. BFI has commercial/industrial collection programs operating nationwide, which provides valuable experience that brings an added benefit to Milpitas businesses. Small, independent haulers and recyclers may also wish to provide programs to Milpitas businesses.

Because the commercial/industrial sector will be well-served by BFI's programs as well as those offered by small independent recyclers and haulers, there is no need for the City to set up its own. For this reason, the City will support programs by offering a commercial/industrial consulting service to encourage businesses to recycle. The City will team with BFI and interested independent recyclers to offer, as part of this program, services such as visual waste compostion analyses, identification of recyclable materials, cost/benefit analyses comparing recycling to disposal, and recommendations on how to begin and maintain a successful recycling program at the workplace.

The consulting service will be offered as a public education program to businesses; please see Section 7, "Education and Public Information Component."

Divert inert solids generated from City public works projects to a materials processor - Non-Residential Alternative 5. City crews have very little involvement with public works projects involving removal and replacement of asphalt and concrete; the majority of such projects are contracted to local firms. The market for these materials is steady and local processors have been identified. Currently, asphalt and concrete are accepted for disposal at the Newby Island Landfill at no cost if the material meets the landfill's criteria; maximum size pieces of 12" x 12" x 6"; no rebar, wire mesh, or other material. Concrete and asphalt make up a large portion of Milpitas' waste stream which could be diverted by having the material

taken to one of the processors described in Section 4.5 "Evaluation of Program Alternatives." The City is amenable to including a section in its construction specifications that would require the contractor to take materials to a processor. Small quantity generators (e.g., 4 tons or less) would be exempt. Another source of comparison: the City of Santa Clara All Purpose Landfill Gate Fee Schedule (1990) lists a cost of $11.90 per cubic yard to landfill versus $5.05 to recycle concrete and asphalt.

Medium-term planning period. The programs selected to reduce the amount of waste being landfilled or incinerated during the medium-term planning period are:

- Separate additional waste types through the residential curbside program

Separate additional waste types through the residential curbside program - Residential Alternative 1. Once the new curbside program is fully up and running and both the City and BFI have a feel for the participation to be expected, etc., more materials will be added. This is not to say that *no* materials will be added until 1995; just that the materials collected will definitely be evaluated at that time. Such materials may include mixed paper, corrugated cardboard, additional plastics, and magazines. With the McMRF™ at The Recyclery, BFI has the capacity to process many more commingled materials from the residential curbside program. Another medium-term option is to begin a wet/dry curbside collection program for single-family homes (See Section 4.5, "Evaluation of Program Alternatives).

4.6.2 Estimated Quantities and Types of Wastes Anticipated to be Diverted

The recycling programs selected are expected to divert the following percentages by waste type from Milpitas' total waste stream.

The following two programs were implemented in early 1991: residential curbside collection, and The Recyclery (manual/mechanical material recovery) at the Newby Island Landfill. These programs are expected to continue through the short-term and medium term planning periods and together are anticipated to divert 23.7 to 24.7 percent of the total waste diversion stream, assuming that the percentage of waste types generated will remain constant throughout the life of the plan. Presented below are

new programs that will be implemented during the short-term and medium-term planning periods.

Short-term planning period

1. *Establish source-separated recycling program - multi-family dwellings*

Newspaper:	0.08 to 0.2 percent
Glass:	0.02 to 0.06 percent
Aluminum/ Tin cans:	0.002 to 0.03 percent
PET:	0.003 to 0.001 percent
TOTAL	**0.1 to 0.3 percent**

2. *Implement source-separated recycling program: curbside program for non-residential sector*

Newspaper:	0.2 to 0.4 percent
PET:	0.01 to 0.02 percent
Glass:	0.1 to 0.2 percent
Aluminum/ Tin cans:	0.05 to 0.2 percent
Ledger paper:	0.3 to 0.4 percent
OCC:	0.8 to 1.3 percent
TOTAL	**1.5 to 2.5 percent**

3. *Establish City-wide recycling programs for the non-residential sector* - Not applicable; primarily public education. See Section 7, "Education and Public Information Component."

4. *Divert inert solids generated from City public works projects to a materials processor*

Asphalt:	1.1 to 1.2 percent
Concrete:	1.1 to 1.2 percent
TOTAL:	**2.2 to 2.4 percent**

Total diversion from the four new programs listed above: 3.8 to 5.2 percent

Medium-term planning period

Separate additional waste types through the residential curbside program

HDPE, polystyrene foam, plastic pipe, and electrical components:	0.2 to 0.5 percent
Mixed paper:	0.6 to 1.1 percent
OCC:	0.2 to 0.4 percent
TOTAL:	**1 to 2 percent.**

Total diversion from the new programs introduced in the short-term and medium-term planning periods: 4.8 to 7.2 percent.

4.6.3 Applicable End Uses

Please see Section 4.6.7, "Market Conditions."

4.6.4 Handling and Disposal Methods

Please see Section 4.5.4, "Other Program Considerations, part D."

4.6.5 Facilities to be Utilized for Implementation

Short-term planning period.

Establish source-separated recycling program: multi-family dwellings - common areas of multi-family dwellings (e.g., parking lots, community rooms); The Recyclery (specifically, the McMRF™).

Implement source-separated recycling program: curbside program for non-residential sector - individual businesses; The Recyclery.

Develop manual material recovery operation/mechanized material recovery operation - The Recyclery.

Establish City-wide recycling programs for the non-residential sector - not applicable; primarily public education. Please see Section 7, "Education and Public Information Component."

Divert inert solids generated from City public works projects to a materials processor - None.

Medium-term planning period.

Separate additional waste types through the residential curbside program - BFI facilities, including The Recyclery.

4.6.6 Contingency Measures

In the event of unfavorable market conditions or changes in facility availability which could prevent the City from meeting its diversion goals, the City plans to employ the following measures

- consider pooling resources with other cities or counties in order to market materials cooperatively.
- investigate the existing collection and processing activities to be sure that materials are being prepared properly to meet buyer's specifications.
- conduct broad research to locate markets or end uses not previously found, both on a local level and beyond.
- establish a contingency plan for available facilities (e.g. if The Recyclery is unavailable due to earthquake damage or another such event).

4.6.7 Market Conditions

Recycling requires more than the separation and collection materials; viable markets must exist for the recovered materials. This section addresses the existing market conditions relevant to Milpitas, as well as on a broader scale (e.g., regional, statewide, national, and international). The focus is on those materials most often collected through recycling programs, such as various paper grades, plastics, metals, and glass. In addition, Milpitas is aware of the Recycling Market Development Zones established under SB 1322 and will consider this option in conjunction with San Jose and other local jurisdictions. Many resources exist which identify local markets for different materials; most of these are in the form of lists compiled by entities such as the California Department of Conservation (DOC) and the California Integrated Waste Management Board. for this reason, only highlights are addressed in this section. In addition, the DOC is in the process of preparing a statewide database called *Market Watch* which will be fully operational in approximately 9-12 months, and will include information on markets in California, among other things.

Milpitas is in the fortunate position of being able to take advantage of the contracts BFI has established with various processors nationwide, which amounts to virtually guaranteed markets for many waste types; some of these are included in the following discussion.

Old Newspaper (ONP). Old Newspaper is the main grade of waste paper collected in the residential sector. A number of other ONP markets are available in northern California, including the South Bay. Currently, the amount of ONP that is available nationwide for recycling far exceeds the demand. However, this situation is expected to change. It is estimated that the demand for ONP will almost double by 1995 due to increases in exports of ONP, increases in the paper board market, and other factors.

Because ONP is contaminated with printing inks, it is necessary to deink this raw material before it can be recycled for certain uses. The primary reason for excess ONP is the shortage of newsprint facilities that can deink the newspaper or reuse it. The deinking capacity in the United States is expected to increase in the future to meet the anticipated demand and help balance the market.

End uses for ONP include newsprint, insulation, packing, building materials, and animal bedding. Newsprint manufacture is anticipated to be the largest market for ONP and is anticipated to increase significantly through the year 2000. Other end uses are anticipated to increase only marginally.

Current market prices paid for ONP in California range from $25 to $40 per ton. However, the market price for ONP is cyclical due to decreased collection in the winter months, paper mill shutdown for maintenance repair in the summer months, economic conditions, international exchange rates, and other factors. BFI has a contract with Weyerhaeuser Paper Company (Weyerhaeuser) for newspaper.

Old Magazines (OMG). A new market is emerging for OMG; many newspaper recycling mills plan to use OMG in the production of newsprint. This will result in a lowered demand--until more newspaper recycling opportunities emerge in the next couple of years--for ONP. OMG is now being used in newspaper recycling mills due to their conversion from a simple wash process to a flotation process of de-inking. The Smurfit Companies have converted to flotation de-inking and can utilize supplies of OMG. The nearest Smurfit location for Milpitas is in Oakland. The current price paid is $20 per ton; a higher price can be negotiated, based on

volume. The main requirement for preparation of the magazines is that they be loose--not bagged or tied with string.

High-Grade Waste Paper. High-grade paper is a general description of various long-fiber grades of paper. High-grade paper includes white ledger, colored ledger, computer paper, and tab cards. These grades are more valuable for recycling because of their strength, and thus command a higher price than other paper grades.

Market prices for high-grade paper are dependent on the price of pulp. Because high-grade wastepaper is often used as a substitute for pulp, high-grade paper prices tend to fall with the price of pulp. The market prices for different paper grades vary independently. However, the market price for higher grades are generally more stable than that paid for lower grades. The higher the degree of separation from the source, the higher the price paid for the paper. High-grade paper can be used in making writing paper, computer paper, napkins, facial tissues, and paper towels. BFI has a contract with Weyerhaeuser for high-grade waste paper.

Paperboard. The Newark Group is a national producer of recycled paperboard made from a variety of paper and paperboard grades. The company produces uncoated boxboard, specialty paperboard, tube stock, coated boxboard, gypsum liner, corrugated medium, and other paperboard. The company has locations throughout the United States; the nearest to Milpitas is in Stockton.

Mixed Waste Paper (MWP). As implied in its name, MWP refers to a paper stream containing more than one grade of paper. MWP is defined in AB 939 as a mixture, unsegregated by color or quality, of at least two of the following paper wastes: newspaper, corrugated cardboard, office paper, computer paper, white paper, coated paper stock, or other paper. The housing industry and the value of the U.S. dollar overseas greatly affect the demand for MWP. A strong dollar overseas means a decrease in the demand for MWP. Secondary markets for recovered paper can be found in the U.S and abroad. MWP export has increased significantly and has allowed for growth in MWP recycling, particularly in the western United States. Local domestic markets, however, are fairly well saturated. Potential buyers for MWP in the Bay Area include: Weyerhaeuser in San Jose and DAI El Papers USA Corporation in Burlingame, but other markets need to be identified in order for recycling of MWP to be feasible in Milpitas.

The primary use of MWP is in the manufacture of combination boxboard which is used to make boxes for shoes, clothing, and dry foods. Other uses for MWP include the manufacture of roofing felt and construction paper building materials.

Old Corrugated Containers (OCC). The amount of OCC consumed in the U.S. is significant, approximately 15 million tons per year, due to its use in shipping packaging for most consumer products. The quantity of OCC in the waste stream is greater in the commercial sector than in the residential sector. OCC that has been separated properly can be used in the manufacture of new corrugated containers, cereal boxes, pad bases, and wallboard.

The market for OCC in California is very strong; more than one half of the collected OCC in California is used by mills within the state. Current market prices for OCC range from $40 to $65 per ton. Potential buyers for OCC collected in Milpitas are Jefferson Smurfit and Weyerhauser in San Jose and DAI El Papers USA Corporation in Burlingame. BFI has a contract with Weyenhaeuser for OCC.

Aluminum Cans. Approximately half of the aluminum disposed of in solid waste is in the form of cans. The waste recovery system for aluminum cans is highly successful. Compared to other recyclables, aluminum cans command the greatest price per pound.

Aluminum cans that have been separated can be used by the primary producers and are remelted and made directly into can stock. Aluminum scrap is used primarily by secondary aluminum producers. Current scrap value market prices for aluminum cans range from $0.40 to $0.55 per pound. The addition to the AB 2020 redemption value raises the total market price. Markets for aluminum cans exist in the U.S. and abroad. BFI has a contract with ALCOA Recycling Company for aluminum cans.

Steel Food and Beverage Containers. Tin cans that are used as food containers are actually steel cans with a thin coating of tin. The percentage of tin in steel cans usually totals about 0.25 percent[3] and is worth approximately $3 to $4 per pound. Even this small amount of tin can cause contamination in steelmaking. For this reason, detinning is used to both reclaim valuable tin and improve the quality of the steel scrap,

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3 "A Force in Detinning," by Tom Watson, *Resource Recovery,* January/February 1989, p. 18.

although sometimes the post-consumer steel cans and scrap are used directly as a raw material.[4] Steel can recycling is expanding, due in part to increased participation by steel mills and detinning mills in collecting and purchasing used steel cans.[5] This is despite aggressive efforts by the aluminum can industry to enter the steel-dominated food can market.[6]

The major detinning companies have opened new facilities around the U.S. to accommodate the influx of steel cans and the demand from the steel industry. This has helped decrease transportation distances for recyclers.[7]

Glass Cullet. Waste glass usage in the U.S. is estimated at 25 to 30 percent of the glass produced. Cullet is primarily traded on the U.S. market, so its market price remains fairly constant. A primary concern for end use markets is the quality of the material. In the glass plant, contaminants can cause damage to equipment or result in poor quality product. One of the problems with curbside collection of commingled glass is that it produces multi-colored shards of glass. Markets for mixed-color cullet are not as stable or lucrative as that for color-sorted containers.

The two primary end uses for recovered waste glass are cullet for new glass and as a raw material for making secondary products, such as glasphalt highway paving material, foamed insulation, and construction material. In addition, cullet is ground into sand at Zanker Road Landfill in San Jose, for use as daily cover and other applications.

Two potential markets for recovered glass in Milpitas are Owens-Brockway (a division of Owens-Illinois Corporation) in Tracy and Circo Recyclers in Newark. Neither charges a processing fee to take the materials. The glass market has become problematic for many recyclers recently due to the increased quality standards being imposed and the request for color-sorted materials. Current market prices for sorted California Redemption Value glass range from $0.03 to $0.05 per pound sometimes with a stipulation that the glass be color-sorted. The addition to the AB 2020 redemption values raises the total market price.

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4 Watson, p. 18.

5 "The Steel Can's Push for Recycling Respect," by Michael Misner, *Waste Age*, February 1991, p. 69.

6 Misner, p.70.

7 Recyclable Steel Cans: An Integral Part of Your Curbside Recycling Program, *Steel Can Recycling Institute,* Summer 1990, p.14.

Plastics. Markets for plastics are fairly new, but the EPA predicts that as processing technologies are developed, plastics recycling will grow and new markets will develop.

Most soda containers are made out of polyethylene teraphthelate (PET) which is the most recycled of all plastics. Over 160 million pounds of PET bottles were recycled in 1988. Post-consumer PET is prohibited for use in new food containers because of FDA restrictions (although certain developments are underway that may lift this restriction). The primary end use for PET is fiberfill, which is used in pillows, sleeping bags, and ski jacket insulation, among other things. The most desirable market for recycled PET is compounded, extruded, and molded plastic makers. BFI has a national contract with Wellman, Inc. for PET, although PET collected in California is not sent to Wellman.

High-density polyethylene (HDPE) is used in the manufacture of jugs (e.g., milk, cider, distilled water) and bottles (e.g., laundry and dish detergent, motor oil, antifreeze). Although the market for recycled HDPE is growing, because of sanitary restrictions, these items are not recycled back into food packaging. Major potential markets for recycled HDPE are soft drink basecups, plastics lumber, containers, drums, pails, and various types of pipes. One major West Coast processor of HDPE is Partek in Vancouver, Washington, which is adjacent to Portland, Oregon. Partek processes only HDPE Grade 2, and uses it to manufacture new containers. HDPE Grade 2 is used in its natural color for milk, water, and juice jugs; and is colored for use in laundry detergent containers, shampoo and conditioner bottles, antifreeze containers, etc.

Low-density polyethylene (LDPE). LDPE is used primarily in the manufacture of various types of film, such as food wrapping. Greater than 1,310 million pounds of it is made into trash bags. It is also used to make piping and to coat wires and cables.[8] It is also used in the manufacture of rigid items, such as food storage containers and flexible lids.[9] LDPE is used in plastic grocery bags, which is one of the fastest growing segments of recycling. Four manufacturers provide most of the grocery sacks in

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8 "Progress in Plastics Recycling", by Jim Glenn, *BioCycle*, December 1990, p. 53.

9 "All Plastics Are Not Created Equal," by Jerry Powell, *Resource Recycling,* May 1990, p.41.

North America and are committed to separating plastic grocery sacks from the waste stream to make them into new products.[10]

Some local markets for LDPE are Bay Polymer in Fremont, RPX Resins in Scotts Valley, and Tech Polymers in Berkeley. Also, Dow Chemical Company and Sealed Air Company have formed a joint venture to recycle LDPE; one of its local plants is in Hayward. At this time, the program is available to Dow and Sealed Air customers only, but expansion of the program is being considered.[11]

Polystyrene. There are various forms of polystyrene; the most familiar being the foamed or expanded polystyrene foam (EPS) commonly referred to as styrofoam. The uses for EPS foam include fast-food single serve cups and trays and packing materials in both rigid, molded form and in loose form or "peanuts," as it is sometimes called. The local market for polystyrene products includes Free-Flow Packaging Corporation in Redwood City and Bay Polymer Corporation in Fremont. Recovered polystyrene can be used in the manufacture of toys, office equipment, insulation, and cassette casings. One potential drawback to polystyrene collection is that the material occupies a high volume in collection vehicles and storage areas relative to its low weight.

Telephone Books. Louisiana Pacific Company in Oroville expects to use a steady supply of telephone books for its particle board manufacture once it has its equipment for that part of the operation in place. The company uses phone books to make up approximately 10 percent of the content of its particle board. The company is presently in the early stages of acquiring the additional equipment necessary to expand its capacity.

Inert Solids. Asphalt and concrete from construction demolition gets landfilled in many areas, although it is often recyclable. Local recyclers are Raisch Products in San Jose, Zanker Road Resource Management in San Jose, and Stevens Creek Quarry, Inc. in Cupertino.

Overseas Markets. Strong markets exist abroad (e.g., Mexico, Saudi Arabia, Pacific Rim nations) for many materials, especially mixed waste paper and newspaper. Numerous brokers on the West Coast represent these markets and are listed in various references.

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[10] "Plastic Grocery Sack Recycling," by Arthur Amidon, *Resource Recycling,* November 1990, p. 24.

[11] "Dow and Sealed Air Join to Recycle LDPE Scrap," by Susan Combs, *Recycling Times,* January 29, 1991, p. 9.

4.7 Recycling Program Implementation

4.7.1 Agencies Responsible for Implementation

Agencies responsible for implementation are shown in Table 4-2.

4.7.2 Implementation Tasks

Implementation tasks are shown on Table 4-2.

4.7.3 Short-term and Medium-term Planning Period Implementation Schedule

Implementation schedule is shown on Table 4-2.

4.7.4 Implementation Costs

Please see Section 9, "Funding Component."

4.7.5 Actions Planned to Deter Scavenging

The most effective means for deterring unauthorized removal of recyclable materials is through an ordinance prohibiting this activity. Milpitas has recently adopted such an ordinance.

4.8 Recycling Program Monitoring and Evaluation

Milpitas recognizes the need to monitor and evaluate recycling programs in order to ascertain whether diversion goals are being met. The following section includes the steps that will be taken to monitor and evaluate the selected recycling programs.

4.8.1 Methods to Quantify and Monitor Achievement of Objectives

The following tasks will be used to effectively monitor the success of the recycling programs. Solid waste diversion will be quantified by tons.

Recordkeeping. For curbside, BFI has agreed to provide the City monthly, quarterly, and annual reports including information that will help the City ascertain whether it is meeting its recycling objectives for its residential curbside recycling program. These reports will include the number of participating households and a breakdown of the materials collected. Accurate recordkeeping will be the key to determining whether recycling

objectives are being met. The City will also work with BFI and other haulers to track progress made in non-residential recycling programs, since so many of the City's objectives revolved around this sector.

Waste generation study. A future waste generation study, can be conducted in order to gauge the changes in the City's waste stream and the effectiveness of the recycling programs.

Surveys. Mailed questionnaires or telephone surveys will be conducted approximately yearly with sample groups from both the residential and commercial/industrial sectors to determine (a) the awareness level about recycling (and source reduction) programs, and (b) among those already participating, what the satisfaction level is. For instance, are recycling programs convenient? Are they being used to their capacity? Through the surveys, obstacles to recycling can be identified and participation increased.

4.8.2 Criteria for Evaluating Program's Effectiveness

The effectiveness of each recycling program will be evaluated using the following written criteria.

- **Achievement of recycling objectives**
- **Total solid waste collected.** Through the recordkeeping system and the waste generation study, a determination will be made as to whether the program is successful in achieving the estimated reduction in solid waste volume and weight.
- **Participation rate.** Regular surveying of residents and businesses will give the City an idea about the numbers of residents and businesses participating in recycling programs over time. An increase in the number of households or businesses participating over time is one measure of the success of these programs.
- **Adherence to implementation of schedule**

4.7.3 Parties Responsible for Monitoring, Evaluation, and Reporting

The City will oversee the monitoring and evaluation of recycling programs and will be ultimately responsible for their execution. In addition, the City

will work closely with the haulers to keep up-to-date about program changes, new programs, etc., which could potentially impact waste diversion goals. Volunteers or interns will be utilized for tasks such as conducting surveys.

4.7.4 Monitoring and Evaluation Funding Requirements

Additional staffing may be needed to manage the additional recordkeeping and evaluation for the recycling programs. This could be a task given to the second new staff person (1992). A more detailed database may be needed. In addition, a budget will need to be set aside for a waste generation study and for surveying costs (primarily staff time and printing/mailing costs for questionnaires).

4.7.5 Measures to be Implemented if Monitoring Shows a Shortfall

If monitoring efforts indicate that diversion objectives are not being met, the following measures will be employed.

- diversion goals will be re-evaluated to determine their feasibility, given empirical data.
- evaluate public education efforts to determine whether these need to be increased to broaden awareness of, and participation in, recycling programs.
- evaluate alternative markets for recovered materials.
- provide incentives to the commercial/industrial sector for recycling.
- address issues resulting from surveys that could potentially be affecting diversion goals.
- establish City ordinance making recycling mandatory.
- institute a rate structure modification.
- adopt more aggressive procurement ordinances.

Table 4-1
SUMMARY OF ALTERNATIVES EVALUATION

Program Alternatives	Evaluation Criteria					
	Effectiveness	Hazard	Ability to Accommodate Change	Consequences on the Waste Stream	Implementation Period	Facility Requirements
RESIDENTIAL						
Alternative 1 Separate Additional Waste	high	medium	high	high	medium	medium
Alternative 2 Mobile Collection	low	high	high	high	high	medium
Alternative 3 Buy-Back	low	high	high	high	high	low
Alternative 4 Multi-family	high	medium	medium	high	high	medium
NON-RESIDENTIAL						
Alternative 1 Source Separated	high	high	high	high	high	medium
Alternative 2 Manual/Mechanical MRF	high	medium	high	high	high	high
Alternative 3 Salvage at Newby Island landfill	high	medium	medium	high	medium	high
Alternative 4 City-wide Recycling	N/A	N/A	N/A	N/A	N/A	N/A
Alternative 5 Inert Solids	high	medium	high	high	high	high
RES/NON-RESIDENTIAL						
Alternative 1 Drop-off Facility	medium	medium	medium	medium	high	medium

Table 4-1 (cont'd)
SUMMARY OF ALTERNATIVES EVALUATION

Program Alternatives		Additional Considerations		
	Consistency with Local Plans and Policies	Institutional Barriers	Estimated Cost ($)	End Uses
RESIDENTIAL				
Alternative 1 Separate Additional Waste	high	high	medium	high
Alternative 2 Mobile Collection	high	medium	medium	high
Alternative 3 Buy-Back	high	medium	medium	medium
Alternative 2 Multi-family	low	high	high	high
NON-RESIDENTIAL				
Alternative 1 Source Separated	high	medium	high	high
Alternative 2 Manual/Mechanical MRF	high	medium	high	high
Alternative 3 Salvage at Newby Island landfill	high	low	high	medium
Alternative 4 City-wide Recycling	N/A	N/A	N/A	N/A
Alternative 5 Inert Solids	high	high	high	high
RES/NON-RESIDENTIAL				
Alternative 1 Drop-off Facility	high	low	low	medium

Table 4-2
Calendar of Recycling Tasks*
(Continued)

Program	Implementation Tasks	Date	Responsible Entity
Non-residential City-wide recycling programs	Not applicable; primarily public education. Please see Section 7.	Not Applicable	Community Development Department
Divert inert solids	Make arrangements with materials processors.	1992	Community Development Department
	Amend City contracts to include stipulation that contractor take used asphalt and concrete to materials processor.		
Separate additional waste types through residential curbside	Survey residents regarding additional waste types, dry versus wet waste collection, etc.	1996	Community Development Department
	Determine equipment needed to add more materials.		
	Identify end uses for additional collected materials.		
	Publicize broadly to residents.		

* The City's existing recycling programs will continue; this table includes implementation information for new programs selected and previously described in Section 4.5.

Table 4-2
Calendar of Recycling Tasks*

Program	Implementation Tasks	Date	Responsible Entity
Source separated recycling program: multi-family dwellings	Amend City refuse collection contract.	1993	Community Development Department
	Purchase collection containers.		
	Publicize program broadly and offer evening question/answer programs for residents.		
Source-separated recycling program: curbside program for non-residential sector	Amend City refuse collection contract.	1993	Community Development Department
	Meet with Chamber of Commerce		
	Purchase collection containers if needed.		
	Publicize broadly and sponsor informational sessions for businesses.		
Manual and mechanized material recovery operations	Keep up-to-date about new programs, etc. at The Recyclery.	1991	Community Development Department
	Work with BFI to respond to any areas the City would like to address regarding The Recyclery.		

5 COMPOSTING COMPONENT

5.1 Introduction

Composting is the controlled biological decomposition of solid organic materials. Such materials include leaves, grass clippings, food waste, and other organic materials commonly found in the municipal waste stream. The end product of composting is a stable humus or soil-like material that can be used as soil conditioner, mulch, or fertilizer, depending on its physical properties. Although biological decomposition occurs naturally, several physical and chemical parameters must be controlled to maximize the rate of microbial activity and to minimize environmental impacts. These factors include temperature, oxygen, nutrient availability, moisture, and pH. With proper controls, composting can occur rapidly, yield a quality product, and reduce the original volume of the organic material by 50 percent or greater.

Composting can play a key role in an integrated waste management program. Composting such waste can significantly reduce the amount of waste that goes to landfills or other disposal facilities. It also allows for more efficient waste collection and reduces gas and leachate problems associated with the landfilling of organic wastes. Composting activities can take place at the site of generation, i.e., backyard composting, or at a centralized facility. Backyard composting is considered a source reduction activity according to the *Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans.*

Yard wastes have been found to make up a large percentage of the waste stream in Milpitas, comprising approximately 12 percent by weight. This has made composting an obvious choice as a focus for meeting AB 939 diversion goals.

This component presents composting objectives for the City of Milpitas and identifies existing and proposed activities for achieving these objectives.

5.2 Objectives

The City's composting objectives, which apply to both short-term and medium-term planning periods, are as follows:

- Divert yard waste from the landfill by composting.
- Promote diversion techniques that emphasize source separation of organic wastes from the municipal waste stream.
- Develop local public sector and private sector markets and uses for compost in the short-term (1995) and medium-term (2000) period.

5.3 Existing Conditions Description

Although the City of Milpitas has not initiated a municipal composting program, the City is in the unique position to take part in the development of such a program. Browning-Ferris Industries (BFI), the City's franchised waste hauling and disposal firm for commercial and residential wastes, recently began pilot operations of the Recyclery, a state-of-the-art materials recovery facility (MRF). The facility is located in San Jose. Full-scale operations are expected to begin upon permit issuance. Among its various recovery activities, the MRF will include a wood waste processing and composting system, turning wood and yard waste into wood fuel and compost. Another nearby facility Zanker Road Landfill, has an existing yard waste composting and wood fuel operation, although only a very small portion of waste from Milpitas flows to that facility. However, waste quantities diverted through transformation, i.e. incineration, are not countable toward the City's 1995 goal according to the *Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans.* Up to 10 percent waste diversion through transformation is allowable towards the year 2000 goal. Therefore, this component will focus primarily on yard waste composting activities.

The City has not initiated any market development activities, local government procurement programs, economic development activities, or consumer incentives for compost. No composting programs will be decreased or phased out in the short- or medium-term planning periods.

5.4 Evaluation of Alternatives

This section presents an evaluation of alternative composting programs that can be used in Milpitas to meet the composting objectives. The following alternatives were evaluated based on the evaluation approach described in Appendix A.

For each evaluation criterion, a rating of high, medium, or low is assigned, and a discussion of potential issues is given.

As structured by the regulations governing AB 939, some of the criteria by which the alternatives are required to be evaluated are positive in tone (e.g., effectiveness) while others are inherently negative (e.g., hazard). A high rating for a positive criterion implies a positive rating; and consequently a high rating for a negative criterion corresponds to few or no impacts associated with this potential problem. The results of the evaluation are summarized in Table 5-1.

Many of these activities are complementary to each other and depend significantly on the implementation of other alternatives or programs. The alternatives are evaluated in terms of their effectiveness and impact on the entire waste management system, including public education, source reduction, recycling, and disposal, and not as alternatives independent of one another.

Every composting program consists of three parts: collecting the organic materials, processing these materials, and marketing the finished compost product.

Milpitas evaluated the following collection and processing alternatives and related options to effectively divert its compostable material from landfill disposal or transformation.

- ALTERNATIVE 1. Implement Collection Alternatives

  OPTION 1. Establish a residential yard waste collection program

  OPTION 2. Develop a commercial/industrial yard waste program

  OPTION 3. Collect alternative feedstocks

  OPTION 4. Utilize mechanized yard waste separation

- ALTERNATIVE 2. Implement Processing Alternatives

  OPTION 1. Develop a windrow composting system

  OPTION 2. Develop a in-vessel composting system

5.4.1 ALTERNATIVE 1. Collection Alternatives

OPTION 1. Establish a residential yard waste collection program. This option proposes that a residential curbside program be established to enable the production of compost from the collected material. This option may be implemented by the City or a City contractor.

While the implementation of one yard waste collection practice over another is not anticipated to have a measurable impact on the quantities collected, differing advantages, such as costs, labor, or flexibility, may be gained. Collection practices could include loose collection, containerized collection, or a bag collection system. A brief description of each of these methods follows.

A *loose yard waste collection system*, utilizing a packer truck and a "claw", could be implemented in the City. The claw, referring to a mechanical claw attached to a front-end loader, gathers up loose yard waste placed next to the curb and deposits it into the packer truck. A minimum two-person crew is required for this operation. This option is usually conducted in conjunction with a street-sweeping service to dispose of remaining debris. The claw may drop or be unable to grab up to 10 percent of the leaves and grass set out. This system has been successfully implemented in Sacramento, Davis, and San Jose in a pilot program.

Containerized collection requires that residents place their yard waste into reusable rigid containers for collection. This option proposes that residents provide their own containers, using guidelines established by the City and labeled with City-provided signs to distinguish them from ordinary trash containers. This system is being used in Palo Alto.

The *bag collection system* is very much like the containerized collection system; however, plastic or heavy-duty compostable paper bags would be used. This option proposes that the City provide residents with such bags. The paper bags are weather-resistant and made of two plies of 50-pound kraft paper coated with a water-proof, non-toxic adhesive. For both types of bags, a 30-gallon capacity bag should be used. The use of paper bags

may be more convenient because they don't split open like plastic bags sometimes do. In addition, plastic bags must be removed during yard waste processing. Shredding the paper bags during processing is not a problem. Paper bags are then simply composted along with the yard waste.

See Section 7, "Education and Public Information Component" for a full description of promotional activities to be implemented in conjunction with this option.

This option facilitates the component objective of promoting diversion techniques that emphasize source separation of organic wastes from the municipal waste stream.

Effectiveness. Medium.[1] Residential yard waste makes up approximately 4 percent of the waste stream. It is anticipated that 2,250 tons/year or approximately 3 percent of the waste stream could be diverted through a curbside program.

Hazard. High.[2] Potential hazards associated with this option are minimal. Normally, fire hazard is low; however, some risk may be associated in the loose collection practice with automobile catalytic converters starting yard debris on fire. Crew-member injuries could result from lifting heavy bags if bags are used.

Ability to accommodate change. High. Public acceptance for this option is anticipated to be moderate. Blowing yard debris or parking problems associated with yard waste piles located at the curb may be anticipated in the collection of loose yard waste. Some residents may not like being required to provide their own container for yard waste and may have trouble fitting brush and branches into the container. Changing technologies are unlikely to affect the feasibility of this option. However, seasonal variations probably have a larger effect than variations in economic, technical, and/or social conditions.

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1 Refers to relative rating of the alternative with respect to this criterion.

2 Note that several of the criteria—including, but not limited to, hazard, institutional barriers, and consequences on the waste stream—are inherently negative. A rating of high for these criteria corresponds to few or no impacts associated with these potential problems.

Consequences on the waste stream. High.[3] This option does not significantly shift solid waste generation from one type of solid waste production to another. Paper bags will be composted along with the yard waste. Rigid containers will be reused. While plastic bags will be discarded or recycled, this is not anticipated to contribute significant quantities to the waste stream.

Implementation period. High. This option will be implemented in the short-term and medium-term planning periods.

Facility requirements. Medium.[4] In order to produce compost, this option depends on the development of a composting facility. See Alternative 2 for discussion of the proposed facility options.

Consistency with local plans and policies. High. This option is consistent with local policies and does not affect existing plans or ordinances.

Institutional barriers. High.[5] No specific barriers to this alternative are anticipated; however, the City's current contracts and agreements must be considered in implementing this option.

Estimated cost. Medium. A packer truck, front-end loader and claw attachment will be needed for the loose collection system. The cost of a packer truck could range from $63,000 to $168,000 depending on the capacity required. The cost of a front-end loader could range from $40,000 to $168,000, with the mechanical claw attachment adding an additional $7,000 to $11,000. Operational and maintenance costs are anticipated to be moderate. The containerized and bag collection systems will require few additional costs. Compostable paper bags, as described above, cost approximately $0.29 each. However, only about one-half of the yard waste can be put in bags, due to the bulkiness of brush and trimmings. Assuming a 60 percent participation rate with 50 percent of the yard waste bagged in kraft bags at 60 pounds per bag, approximately 29,090 bags would be required for a total cost of $8,500 per year for bags.

Per ton collection costs are expected to be approximately $70 to $90 per ton of collected yard waste.

End uses. N/A. End uses are discussed in Section 5.4.3.

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3 See Footnote 2.
4 See Footnote 2.
5 See Footnote 2.

OPTION 2. Develop commercial/industrial yard waste program. Option 2 involves the development of a yard waste curbside collection program to include selected commercial and industrial businesses. Separate bins would be provided for each participating customer. Yard waste collection vehicles would deposit the yard wastes at the site of the proposed compost processing facility. Only companies that regularly dispose of significant quantities of yard waste would be targeted for this program. This option may be implemented by the City or a City contractor.

This option facilitates the component objective of promoting diversion techniques that emphasize source separation of organic wastes from the municipal waste stream.

Effectiveness. Low. Commercial and industrial yard waste makes up approximately 5 percent of the waste stream. Providing bins for separate collection of yard waste from yard waste-generating businesses could divert approximately 2 to 3 percent of the waste stream.

Hazard. High. No potential hazards are associated with this option.

Ability to accommodate change. Medium. As a collection program, this option would have the flexibility to adjust to changing waste quantities.

Consequences on the waste stream. High. This option does not shift solid waste generation from one type of solid waste to another and does not result in the creation of non-recyclable wastes.

Implementation period. Medium. This option would be implemented in the short-term and continued in the medium-term planning periods. Some difficulties in implementation may be encountered due to lack of additional bin space at some commercial and industrial businesses.

Facility requirements. Medium. Collection vehicles would be required for this option in servicing participating businesses. Additional bins and program monitoring would also be required. In order to produce compost, this option depends on the development of a composting facility. See Alternative 2 for a discussion of the proposed facility options.

Consistency with local plans and policies. High. This option is consistent with local policies, plans, and ordinances.

Institutional barriers. Low. A lack of space in existing buildings may prevent the placement of additional bins at some locations. The City's current ordinance, contracts and agreements must be considered in implementing

this option. Additional barriers may include the need for fenced areas to endorse the yard waste bins or lockable bins in order to prevent the addition of trash to the yard waste bins by unauthorized users.

Estimated cost. Medium. Additional collection vehicles and bins would be required for this option in servicing participating businesses. Additional costs would be involved with separate collection of yard waste. However, incremental costs are less than the actual costs since these materials are already being collected by the existing system. Depending on exact quantities and collection methods, additional collection costs could increase collection costs by 5 to 20 percent.

End uses. N/A. End uses are discussed in Section 5.4.4.

OPTION 3. Collect alternative feedstocks. This option involves the special collection of food wastes from commercial businesses such as restaurants and grocery stores. These wastes will then be transported to a processing facility, such as an in-vessel composting facility, to be co-processed with yard wastes into a high-grade compost product. This option may be implemented by the City or a City contractor.

This option meets the component objective of promoting diversion techniques that emphasize source separation of organic wastes from the municipal waste stream.

Effectiveness. Low. A program capable of collecting one-half of the food waste that is being landfilled from commercial sources would divert about 1 percent of the waste stream.

Hazard. Medium. Assuming that the wastes would be composted in an in-vessel system, there are no additional health hazards associated with this option, provided that current regulations regarding the collection and storage of food wastes are adhered to. Composting such wastes in an open windrow system would likely increase vector problems and could cause significant odor problems. For further discussion on this issue, see *Consistency with local plans and policies.*

Ability to accommodate change. Medium. Public acceptance for this option is uncertain. Changing technologies are unlikely to affect the feasibility of this option. A food-waste collection program provides the necessary feedstock to develop a high-grade, readily marketable compost.

Consequences on the waste stream. High. This option does not shift solid waste generation from one type of solid waste to another.

Implementation period. Medium. This option would be implemented in the medium-term planning period.

Facility requirements. Low. This option is dependent on the development of an in-vessel composting facility and is not recommended for use with a windrow processing system. Additional collection vehicles and dedicated containers (bins) may be required.

Consistency with local plans and policies. Medium. This option is consistent with local policies, plans, and ordinances. The implementation of this option must comply with the Santa Clara County Environmental Health Division requirements, including (1) food establishments must have a minimum twice weekly collection, or more frequent depending on the size of the business; and (2) food wastes must be stored in tight, leak-proof containers to prevent access to flies or rodents. These containers must be kept clean.

Institutional barriers. Medium. Alternative handling and storage procedures for food wastes must be implemented by participating businesses. A lack of space for additional bins may also restrict the implementation of this option.

Estimated cost. Low. Additional collection vehicles or truck trips would be required for the participating businesses. Additional costs would be similar to current costs of about $50 to $100 per additional ton.

End uses. N/A. This option provides the necessary feedstock to produce a high-grade compost product. End uses are discussed in Section 5.4.4.

OPTION 4. Utilize mechanized yard waste separation. This option involves the diversion of yard wastes through the use of a combination of a mechanized and manual yard waste separation system, such as a material recovery facility (MRF). Yard wastes would be diverted by directing loads of relatively uncontaminated yard wastes to a material recovery facility. There, yard waste would be segregated from other waste materials and processed, or transported to a processing facility. BFI, the City's franchised hauling and disposal firm for commercial and residential wastes, recently began pilot operations of the Recyclery, a state-of-the-art materials recovery facility (MRF). Full-scale operations are expected to begin upon permit issuance. Among its various recovery activities, the MRF will

include a wood waste processing and composting system, turning wood and yard waste into wood fuel and compost.

This option facilitates the component objective of diverting yard waste from the landfill by composting, if a composting system is developed in conjunction with this option.

Effectiveness. Medium. Assuming that about one half of the yard waste currently landfilled via roll-offs and self-haul loads, which have been found to frequently contain quantities of relatively uncontaminated yard waste, were diverted would account for approximately 4 percent of the waste stream.

Hazard. High. There are no additional health hazards associated with this option.

Ability to accommodate change. High. Once implemented, collection of yard waste could be increased by incorporating other program options, such as having the program operator reduce the tipping fee for clean loads of yard waste or by adding yard waste as a material to collect from mixed wastes. Similarly, yard waste quantities could be reduced by diverting less material.

Consequences on the waste stream. High. This option does not shift solid waste generation from one type to another.

Implementation period. High. This option would be implemented over the medium-term planning period.

Facility requirements. Low. This option requires the use of a MRF and the development of a processing facility.

Consistency with local plans and policies. High. This option is consistent with current local and regional planning efforts.

Institutional barriers. High. Institutional barriers are anticipated to have little impact on this option.

Estimated cost. High. Since the MRF would rely on the existing collection system to deliver wastes to the facility, collection costs are estimated to remain approximately the same. The cost of constructing and operating the MRF as well as other costs would be reflected in the facility tipping fee. Tipping fees are expected to be in the range of $30 to $50 per ton, including processing. Since the MRF would provide other functions in addition to

yard waste segregation, t costs att buted to the ection of yard waste cannot be estimated prec ly.

End uses. End uses are discussed in Section 5.4.3.

OPTION 5. Enact a County Ordinance to Ban Yard Waste From Disposal. This option proposes the enactment of a City ordinance to ban yard waste from landfill disposal. A comprehensive ban on yard waste represents an effort to increase the diversion for all yard debris generated by both residents and commercial businesses. Residents and haulers would be required to deliver yard wastes to the proposed composting facilities or drop-off sites.

A total of ten states nationwide, and many counties, have legislation banning at least some types of yard wastes from landfilling. Regulations range from banning only the landfilling of leaves to banning leaves and grass clippings, tree stumps, or all yard debris.

The following language, regarding residential compliance, is an example of such an ordinance:

- "...leaves, grass, prunings, and garden waste cannot be collected with mixed municipal wastes if that waste is going to be disposed of or processed in the metro area." Carver County, Minnesota.

This option meets the component objective of diverting yard wastes from disposal if a processing program is selected in conjunction with this option. However, without regional coordination a yard waste ban would be problematic since wastes from Milpitas flow to several facilities located outside of Milpitas.

Effectiveness. High. Bans have been demonstrated to be effective in reducing the quantities of yard waste landfilled. During the month directly following the enactment of the yard waste ban in Dakota County, Minnesota, 25 percent more yard waste was delivered to the compost site than the highest rate for any previous month. However, this rate is difficult to anticipate for Milpitas to the lack of any previous yard waste collected or drop-off programs.

A yard waste ban could perhaps divert 10 percent of the wastestream if implemented in conjunction with one or more collection options to facilitate participation. In conjunction with a yard waste ban, the residential yard

waste collection program could ultimately divert approximately 2,400 tons per year or 2.3 percent of the wastestream. The drop-off and mechanized yard waste separation program could ultimately lead to the collection of approximately 8,400 tons per year or about 8.0 percent of the wastestream.

Hazard. Medium. Potential hazards associated with this option include vector and fire hazards due to stockpiling or illegal dumping of yard waste.

Ability to accommodate change. Medium. Public acceptance of this option is uncertain. However, while such a ban has a limited ability to accommodate changing conditions, flexibility is a greater factor of the processing option chosen in conjunction with this option.

Consequences on the wastestream. High. This option does not shift solid waste generation from one type of solid waste production to another.

Implementation period. Medium. This option will be implemented in the medium-term planning period, in order to allow for the prior implementation of one or more collection alternatives.

Facility requirements. High. A new composting facility is required for the implementation of this option. See Alternative 2 for discussion of proposed composting facilities.

Consistency with local plans and policies. Low. this option does not conflict with local policies. However, it would conflict with policies in adjacent cities and at local landfills. An enforcement mechanism would have to be developed for the City since there is no such program in place.

The City could develop a random "audit" policy for enforcement of the yard waste ban. A load-checking program targeting commercial, industrial, and self-haul vehicles would be implemented at all appropriate landfill, inspecting vehicles at random to determine compliance. Warnings would be issued prior to a citation. This would be similar to the existing prohibited waste control program at the landfill. However, those audit or load checking programs may not be workable at the out-of-City landfills without similar laws in most or all nearby jurisdictions.

Institutional barriers. Low. Without coordination among other Santa Clara and Alameda County jurisdictions, monitoring and enforcement of the law would be difficult.

Estimated cost. Medium. This option could be implemented in conjunction with the existing prohibited waste control program at the landfills at the cost of hiring personnel to examine loads from Milpitas at all landfills that receive waste from Milpitas. Assuming one person placed at each of 3 landfills at $30,000 per year plus 20 percent administration cost yields $108,000 per year.

End uses. Not applicable. End uses are discussed in Section 5.4.3.

5.4.2 ALTERNATIVE 2. Processing Alternatives

OPTION 1. Develop a windrow composting system. This option proposes the development of a turned windrow system that includes post-processing operations that are capable of producing a high-grade compost. This option could be implemented by the City or a City contractor. The Recyclery will incorporate a windrow composting system into its yard waste recovery activities. Ten acres have been set aside for this purpose, and required permits for the Recyclery are currently being obtained.

Windrow composting systems involve stacking the compostable materials in piles with a triangular or trapezoidal cross-section. The turned windrow is the method most commonly used for yard waste composting. "Turning" describes the method of aeration, basically referring to tearing down the pile and reconstructing it. During the active compost stage, materials will be turned 2 to 4 times monthly to increase aeration, utilizing a compost turner made especially for this purpose. If plastic bags are used in collecting the yard waste, turning equipment that has demonstrated effectiveness in removing bags will be needed. An irrigation system will be used to maintain proper moisture levels. Following a curing period when the compost is sufficiently stabilized, the compost will be subjected to an additional stage of processing (referred to as post-processing) in which the material would be screened in preparation for producing marketable products. The fine material passing a fine screen with approximately 1/4 inch openings will be transferred to the finished compost stockpile, and oversize material will be returned to the active compost windrows, or segregated and marketed as additional products, such as mulch or wood chips.

Initially, the program should be operated on a pilot basis, accepting only limited quantities of yard waste. A full program should follow during the medium-term planning period. It is important for all of the composting

equipment and procedures to be fully operational in expanding the program to accept large quantities of yard wastes.

This option meets the component objectives of diverting yard waste from the landfill by composting.

Effectiveness. N/A. This criterion is not applicable to the processing alternatives (See Section 5.4.1, Alternative 1. Collection alternatives).

Hazard. High. Potential hazards associated with this option are minimal. Normally, fire hazard is low, due to the interior moisture content of the composting material. Thus, if the surface materials were ignited, a major fire would be unlikely. Fire safety is improved through the ready availability of water through the proposed irrigation system and the provision of open aisles between windrows.

Ability to accommodate change. High. Public acceptance for this option is anticipated to be high. Changing technologies are unlikely to affect the feasibility of the composting program. Turning and screening will enhance the marketability of the product. In addition to creating a desirable consistency, the screening process also reduces visual contamination. Visual contaminants affect the appearance of the compost and include particles of waste, such as glass, plastics, or metals, which decrease the product's marketability.

Consequences on the waste stream. High. This option does not shift solid waste generation from one type to another.

Implementation. Medium. This option will be implemented in the short-term and medium-term planning periods. The Recyclery is anticipated to begin composting operations 12 months after permits have been issued. Alternatively, composting operations may be possible at the Zanker Road Landfill.

Facility requirements. Low. This option requires development of a composting site, including the purchase of grinding, turning, and screening equipment for implementation. Necessary equipment includes a loader, grinder, compost turner, irrigation (drip) hoses, hoppers, conveyors, and a screen. Site preparation activities, such as grading for proper drainage, may also be required. Additional labor requirements will be determined. Regular lab analyses of the finished product will increase the products' marketability (See Section 5.4.3 for further discussion of this issue).

Consistency with local plans and policies. High. This option is consistent with local policies, plans, and ordinances.

Institutional barriers. Medium. AB 939 does not allow the use of transformation as a diversion measure. Therefore, AB 939 impacts the decision whether to utilize wood chips as fuel.

Estimated cost. Medium. Capital costs for a dedicated yard waste processing and composting facility are expected to be approximately $0.5 to $9 million, exclusive of land. Costs could be higher or lower depending on the specific types of equipment purchased and site preparation. Annual operating expenses, which may range from $50,000 to $100,000, include labor, fuel, equipment maintenance (parts and labor), and lab analyses. Expressed on a cost-per-ton-of-yard-waste basis, these capital and operating costs would amount to approximately $30 per ton.

End uses. High. This option produces a variety of compost products and by-products, including composted fines, mulch, and wood chips. The option has the capability of producing a high-quality compost (See also Section 5.4.3.)

OPTION 2. Develop an In-vessel Composting System. This option proposes the development of an in-vessel bin-type system for the processing of yard waste. An in-vessel system provides an enclosed or semi-enclosed environment for the composting process. This option could be implemented by the City or a City contractor.

The bin system consists of one or more rectangular troughs into which feedstock is fed by way of conveyor belts. Air is forced into the composting material through perforations in the floor of the bin. A tiller-like device, in conjunction with a travelling belt, may also be used to mix the material periodically and to discharge the material from the bins. If plastic bags are used in collecting the yard waste, equipment that has demonstrated effectiveness in removing bags will be needed. After an initial in-vessel composting period, all in-vessel systems require some "curing" or "maturation" time in order for the compost to stabilize.

The retention time of materials in the active composting stage is approximately 21 days. At that time, materials will be substantially stabilized. Then they will be moved to the curing stage where they will be further stabilized for another 42 days. Following the curing stage, the compost will be screened in a post-processing stage to prepare the material for market.

The fine material passing a 1/4-inch screen will be transferred to the finished compost stockpile, and oversize material will be returned to the active composting stage.

Because of the high level of mechanization included in an in-vessel system, no pilot program will be necessary. A brief start-up period will be required, however, in order to test equipment and procedures.

This option meets the component objectives of diverting yard waste from the landfill by composting.

Effectiveness. N/A. This is not applicable to the processing alternatives (See Section 5.4.2, Alternative 1. Collection Alternatives).

Hazard. High. There are no potential hazards associated with this option.

Ability to accommodate change. High. Public acceptance of this option is anticipated to be high. In-vessel composting has several technological advantages, including excellent capabilities to control the physical parameters of composting (e.g., oxygen content, moisture content, and temperature), high decomposition rates, reduced land requirements in comparison to windrow systems, and minimized environmental impacts. A variety of bin systems are operating successfully in the United States.

Changing technologies are unlikely to affect the feasibility of this option. Post-processing will enhance the marketability of the product. In addition to creating a more desirable consistency, post-processing also reduces visual contamination. Visual contaminants, which affect the appearance of the compost, include particles of waste, such as glass, plastics, or metals; the presence of these contaminants decreases the product's marketability.

Consequences on the waste stream. Medium. This option does not shift solid waste generation from one type to another.

Implementation. Medium. This option can be implemented in the medium-term planning period.

Facility requirements. Low. In-vessel systems are more machine intensive, thus less labor is required in their operation. A bin-type composting facility must be sited and constructed prior to implementation. This option also requires the purchase of screening equipment for post-processing activities. Necessary equipment includes hoppers, conveyors, and a screen.

Consistency with local plans and policies.. High. This option is consistent with local policies, plans, and ordinances.

Institutional barriers. Medium. AB 939 does not allow the use of transformation as a diversion measure. Therefore, AB 939 impacts the decision whether to utilize wood chips as fuel.

Estimated cost. Low. The disadvantages of the in-vessel composting system are cost and equipment maintenance. The cost of an in-vessel system can be prohibitive for use in yard waste composting. In addition to significant capital costs, an in-vessel system can also incur large operating costs. Equipment maintenance may be time consuming and costly for an in-vessel system depending on the equipment and system design. Capital costs for an in-vessel facility could be as high as $2 million, with annual operating expenses of approximately $100,000 (not including labor). Expressing capital and operating expenses on a cost-per-input ton of yard waste, an in-vessel bin system could range from $40 to $80 per ton.

End uses. High. This option produces a variety of compost products and by-products, including composted fines, mulch, and wood chips. The in-vessel system has the capability of producing a high-quality compost (See also Section 5.4.3.)

5.4.3 End Uses[6]

The availability of compost markets is a key requirement in the successful development of a composting program. Local markets should be identified whenever possible. Transportation costs are also an important consideration, because the greater the distance to market, the higher the price of the product. However, this also works in reducing outside competition when there is a local source available. The price of the product is critical in its marketability.

Potential markets include soil brokers, garden supply stores, agriculture, nurseries, landscape contractors, sod growers, tree farms, and golf courses. On-site direct marketing to residents has not been found to be a reliable end-use. Most homeowners seek a high-quality product in small quantities, usually preferring a bagged product. Residents may lack

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[6] This section presents a discussion of end uses for compost that applies to the alternatives discussed in Section 5.4.2.

appropriate containers or means of transport for bulk distribution of the product.

Soil brokers are typically the largest buyers of organic materials on the wholesale market. This market is currently very promising and especially strong for locally produced organic materials. Many of these organic materials currently purchased by soil brokers are transported, sometimes great distances, from lumber mills and other industrial processing facilities. For the most part, local soil brokers rely on imported sawdust, wood chips, bark dust, and bark chips for organic materials. Local production of compost and other organic materials could substitute for the large quantities of imported organic materials.

Public agency markets, although generally smaller than the private sector markets, are also worth considering. The City could implement procurement policies giving preference to the use of compost products in place of commercial fertilizers and soil amendments when these are purchased. Although City use of these products may be low, the value of such a decision may prove worthwhile, especially in encouraging landscapers and other businesses to use compost products.

The aim of several pieces of legislation passed in California last year was to increase public sector demand for compost. Beginning in 1991, the state's highway landscape maintenance programs will use compost in place of, or in addition to, commercial fertilizers. Beginning in 1993, the state will initiate programs to restore public lands using composted materials. In addition to these measures, any state procuring agency that requests a bid for commercial fertilizer or soil amendment must document the determination that the use of compost was not feasible. Future markets for compost may be identified by a state-funded study evaluating uses for compost. These efforts may further expand markets for the City's compost for use by the Department of Transportation, the Department of General Services, and other state and local public agencies. In addition, the City should evaluate the use of compost for land reclamation uses. These are generally one-time uses and should not be relied on in a long-term market strategy.

Flexibility in production is a key for reliable distribution of the compost product. There is currently demand for a number of different compost grades for a variety of uses. Production of varying particle sizes for the

compost product using coarser to finer screens during post-processing, allows better pricing flexibility in meeting differing market needs.

There are at least four distinct products that could result from yard waste processing activities: composted fines, mulch, wood chips, and low-grade compost. The composted fines, a higher grade compost, could be defined as mature compost with 98 percent of the particles passing through a 1/4-inch screen. Mulch consists of either mature composted or uncomposted materials, slightly larger than the fines, ranging from 1/2 to 2 inches in particle size. Wood chips are not composted and can range in size from 1 to 3 inches. Low-grade compost is a product in which there has been no screening to differentiate between the particle sizes described above or one that contains contaminants. The production of uncomposted mulch and wood chips does not involve controlled biological decomposition and therefore is not considered composting under AB 939. However, credit for the diversion of such materials can be given as a form of recycling.

The market for wood chips processed and sold as fuel is exceptional. Even though, this method of diversion constitutes transformation and is therefore not countable toward AB 939 goals, it is a viable alternative to landfill disposal. It will also count 10 percent towards the year 2000 AB 939 goals. Avoided landfill disposal costs, as well as revenues gained from the sale of wood chips, may make this an attractive option. These revenues then could be used to support AB 939 diversion programs. Marketing wood chips for mulch or other landscape dressing is not advisable unless the product is uniform in particle size and is aesthetically consistent in appearance. Bark chips are typically used by landscapers because of the consistency of these qualities, while chipped yard waste tends to appear mottled in color and inconsistent in size. This is primarily dependent on the composition of feedstock and such marketing should be considered if a consistent high-quality material is produced.

Levels of contamination, stability, nutrient content, and physical appearance also affect the quality, and thus the marketability, of compost. Market studies have indicated that the quality of the product is a primary concern for commercial buyers. Conducting regular laboratory analyses, including a Soil Fertility and Micronutrient Analysis and an Organic Amendment Analysis, is highly recommended. Laboratory results and testing parameters should be made available to potential buyers to assure them that the finished product maintains consistent levels of quality and content.

The market for compost produced from feedstocks other than yard debris (such as MSW and food-waste compost) may be limited in Milpitas and the Bay Area. Although the appearance, consistency, and nutrient content demonstrated by food-waste compost may be preferred by many landscapers and nurseries, its marketability could be limited by health concerns including disease transmission, contamination, and an uncertainty as to its contents. The production of this material has the potential of improving the yield and quality of high-grade compost; however, processing complications perhaps combined with an uncertain reception from potential buyers, may result in a limited ability to distribute the product.

There are some risks associated with identifying end uses for compost. The quantity of compost products on the market in California within the next few years is unknown, although it is expected to increase rapidly. Competition among composting programs in a number of localities could be significant. Although it is too early to project the saturation level of the compost market, flexibility in product specifications and pricing could be the key to a successful marketing strategy. The risks associated with marketing low-grade compost may be somewhat higher than those associated with high-grade compost. Compost marketing is anticipated to be competitive if adjacent regions are also compost-producers. If high-grade yard waste compost is readily available, this will out-compete a program that offers only a low-grade compost product.

5.5 Selection of Program

The selection of programs was based on the application of evaluation criteria and the ease of implementation in the City of Milpitas.

5.5.1 Alternatives Selected

The programs selected are to be implemented in the short and medium-term period:

- Establish a residential yard waste collection program (Alternative 1, Option 1)
- Utilize mechanized yard waste separation (Alternative 1, Option 4)
- Develop a windrow composting system (Alternative 2, Option 1)

These three alternatives were selected to increase the quantity of yard wastes collected and to develop a composting facility. As noted above, implementation will commence in the short term and continued into the medium-term planning periods. These alternatives meet the objective of developing a composting program, and therefore received a positive rating during the evaluation process. Yard wastes will be collected at the curb of city residences, transported to the MRF, and composted through a windrow composting system. Yard waste from self-haul and roll-off loads will also be diverted to composting. Loads having some contaminants will be sorted to yield a clean yard waste feedstock for composting. After the yard waste has been completely composted through the selected windrow system, the compost will be screened to create a variety of products and enhance its marketability. See Section 7, "Education and Public Information Component," for a full description of the selected education program. It is anticipated that the City will contract with a private firm or firms to implement this program and market resulting materials.

5.5.2 Estimated Types and Quantities of Wastes to be Diverted

In Milpitas, yard wastes comprise approximately 12 percent by weight of the City's total wastestream. By collecting residential yard waste at the curb and by processing these materials into compost, yard waste diversion could account for approximately 6.7 to 7.1 percent of the waste stream. This range of diversion could be realized by 1995.

5.5.3 End Markets and End Uses

Area soil brokers will be targeted as the primary market for compost and mulch products. Although this is anticipated to be a reliable market, secondary markets will also be identified. Secondary markets consist of additional potential large-scale users and buyers of organic material in the region, including soil brokers, garden supply stores, nurseries, landscape contractors, sod growers, tree farms, and golf courses. The development of agriculture as a primary market should also be considered.

The City will implement appropriate procurement measures for composted materials. This "internal market" will be reliable and relatively stable during periods of fluctuation in other markets.

The strategy for marketing wood chips, resulting from the screening operations, will be dependent on the size and appearance of the product. If the

wood chips are not marketable as a landscape dressing, they will be marketed as fuel. Although the diversion of wood chips for this purpose does not contribute to diversion credits under AB 939, and thus the diversion goals, revenue from the sale of wood chips, will help to defray the costs of the increased processing program. In addition, up to 10 percent transformation (as incineration is defined by AB 939) is allowed diversion credit under extreme circumstance in meeting the 50 percent diversion goal by 2000 (For further discussion of end uses, see Section 5.4.3.)

5.5.4 Materials Handling and Disposal Needs

A residential yard waste collection program will be utilized in conjunction with a MRF/drop-off facility and the development of a processing program. Disposal of additional contaminants from the screening process, including particles of glass, plastics, or metals, is anticipated to be minimal, but will be disposed by the contractor. Aside from the screened contaminants, no special materials handling or disposal needs are anticipated.

5.5.5 Facility Needs

Although the selected program is to be implemented by a City contractor, the following describes the required facilities: Collection vehicles will be needed for the yard waste collection program; depending on the system chosen, these could include a packer truck, front-end loader and claw attachment. The MRF will need to have space for a sorting operation that is capable of removing contaminants from loads of yard waste that are dropped off at the facility by self-haulers and roll-offs. In addition to collection vehicles, the program requires the purchase of shredding, turning, and screening equipment for implementation. Necessary equipment includes a loader, "tub grinder" or other hammermill units, compost turner, hoppers, conveyors, and a screen. Site preparation activities, such as grading for proper drainage, may also be required. This processing operation will require two to four employees. Regular lab analyses of the finished product will increase the product's marketability. See Section 5.4.3 for further discussion of end uses.

The cost of shredding equipment ranges from $50,000 to $400,000, depending on the type and capacity of the unit. Manufacturers of shredding equipment include Farmhand; Fuel Harvester; Jones Manufacturing; Iggesund Recycling, Inc.; Jacobsen, Inc.; Recycling Systems, Inc.; Shredding Systems, Inc.; Stumpmaster Inc.; and Universal Engineering. The

cost of screening equipment is approximately $125,000. Manufacturers of screening equipment include Heil Engineered Systems, Hobbs-Adams Engineering Co., Lindemann Recycling Equipment, Parker Manufacturing, Powerscreen of America, and Recycling Systems, Inc. The cost of a compost turner can range from $100,000 to $200,000. Manufacturers of turning equipment include Brown Bear Corp.; Eagle Crusher Co., Inc.; Kolman/Athey; Resource Recovery Systems of Nebraska, Inc.; Royer Industries; Scarab Manufacturing, Scat Engineering; and Wildcat Manufacturing Co., Inc.

5.5.6 Measures to be Taken if Diversion Rate Requirements Cannot be Met.

The City or City contractor will have several options in the event that the compost market is not viable for the diversion of organic materials. These alternatives include (1) stockpiling compost until the emergence of more favorable market conditions, (2) re-evaluating the use of alternative compost feedstocks to further improve compost quality and thus marketability, and (3) significantly increasing the quantities of compost utilized by the City to absorb compost stockpiles. While none of these options is currently recommended for implementation, they may be put into place as emergency measures to achieve the mandated diversion requirements.

5.6 Program Implementation

The following section describes the tasks necessary to implement the selected program.

5.6.1 Government Agencies Responsible for Implementation.

The City of Milpitas is currently responsible for operating the City's waste collection and disposal contracts. The Community Development Department will also be responsible for developing and managing contracts for implementing the selected program. See Section 7, "Education and Public Information component," for a discussion of the implementation of the selected education program.

5.6.2 Tasks Necessary to Implement Program

The City will develop contracts for a residential curbside yard waste collection program. In addition, compost processing operations will be estab-

lished. The processing and public education programs will be implemented in the short-term and medium-term planning period. The implementation of a marketing program for the improved compost product will continue into the medium-term planning period. Through contracts with the City, these programs will be implemented primarily by the Contractor(s).

The steps required for implementation of the collection program include:

- determine City procurements policies for compost
- determine the compost feedstock specifications
- select collection method
- obtain funding
- establish collection routes
- purchase collection vehicles and equipment
- begin collection program

Several steps will be required for implementation of the processing program , to be completed by the City or a City contractor:

- determine compost product specifications
- develop compost process and facility design
- obtain funding
- perform facility/site improvements
- purchase and install processing and screening equipment
- start-up
- perform lab analyses
- test market compost products

5.6.3 Short-term and Medium-term Planning Period Implementation Schedule

The schedule in Figure 5-1 presents the schedule for implementation of the selected program.

5.6.4 Implementation Costs

Table 5-2 summarizes the implementation costs for the selected program.

5.7 Monitoring and Evaluation

5.7.1 Methods to Quantify and Monitor Achievement of Objectives

To effectively monitor the achievement of the program in meeting the objectives, the following tasks should be undertaken:

- Record incoming yard waste quantities from the City's curbside collection programs and quantities delivered to the landfill.
- Compare and analyze disposal records from before and after the implementation of the selected program.
- Monitor market demand and trends
- If the above data is not conclusive, perform a new waste generation study, as needed.

5.7.2 Written Criteria for Evaluating Program's Effectiveness

The City will evaluate the achievement of the selected composting program by the following criteria:

- Incoming yard waste will be monitored for increases in diversion quantities.
- Marketing strategies will be evaluated for effectiveness in moving compost products and whether additional markets or specifications are needed.

5.7.3 Agencies Responsible for Monitoring, Evaluation, and Reporting

The Community Development Department for the City of Milpitas will manage contracts for the composting program, including monitoring, evaluating and reporting.

5.7.4 Monitoring and Evaluation Funding Requirements

There will be no additional funding needed to monitor and evaluate the effectiveness of the selected program.

5.7.5 Measures to be Implemented if There is a Shortfall in the Diversion Objectives

If the diversion objectives for composting are not met, or there is a shortfall in attaining the diversion mandate, the following measures may be implemented:

- See Section 5.5.6, Identification of Measures to be Taken if Requirement Cannot be Met, for alternatives in the event of a marketing shortfall.
- Increase the level of effort for public education

  Evaluate whether the City's disposal contract could include salvaging yard waste at the active dumping area of the landfill.

Table 5-1
SUMMARY OF ALTERNATIVES EVALUATION

Program Alternatives	Evaluation Critera					
	Effectiveness	Hazard	Ability to Accomodate Change	Consequences on the Waste Stream	Implementation Period	Facility Requirements
Alternative 1						
Residential Collection	Medium	High	High	High	High	Medium
Comm/Ind Program	Low	High	Medium	High	Medium	Medium
Alternative Feedstocks	Low	Medium	Medium	High	Medium	Low
MRF Separation	Medium	High	High	High	High	High
Alternative 2						
Windrow Processing Syste	N/A	High	High	Medium	High	High
In-vessel Processing Syste	N/A	High	High	Medium	Medium	Low

Program Alternatives	Additional Considerations			
	Consistency with Local Plans and Policies	Institutional Barriers	Estimated Cost	End Uses
Alternative 1				
Residential Collection	High	High	Medium	N/A
Comm/Ind Program	High	Low	Low	N/A
Alternative Feedstocks	Low	Medium	Low	N/A
MRF Separation	High	High	Low	N/A
Alternative 2				
Windrow Processing Syste	High	Medium	Medium	High
In-vessel Processing Syste	High	Medium	Low	High

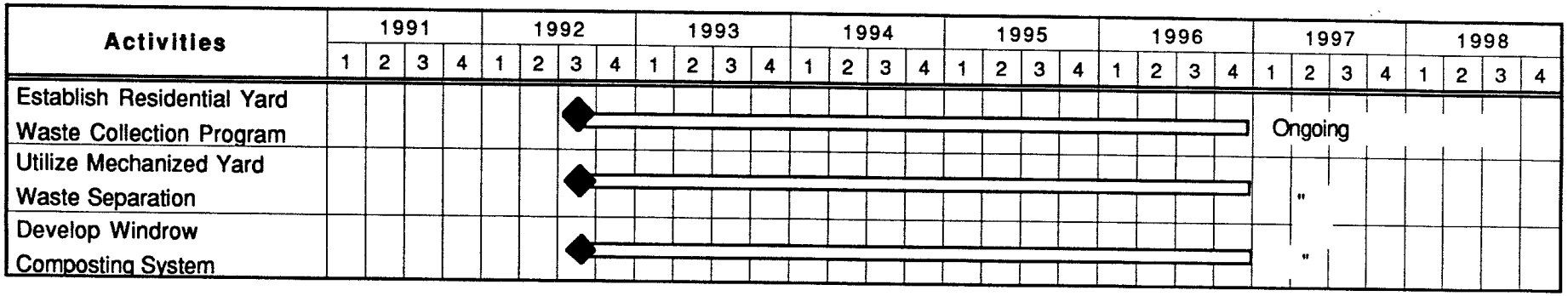
Table 5-2

Estimated Annual Costs for City of Milpitas Composting Program[1]

Residential Collection (2,250 tons/year at $70 to $90/ton)	$157,500 to $202,500
Mechanized Yard Waste Separation (2,700 tons/year at $5/ton)	$13,500
Processing and Windrow Composting (4,950 tons/year at $25/ton)	$123,750
Testing and Administration	$50,000
Public Education	$30,000
TOTAL	$374,750 to 419,750

1. Assumes operation by a private collection company.

Figure 5-1
IMPLEMENTATION SCHEDULE
FOR
COMPOSTING ALTERNATIVES



6 SPECIAL WASTE COMPONENT

6.1 Introduction

Special wastes are solid wastes that require unique handling and disposal methods because of their health hazard, environmental impact, or physical characteristics. Special wastes are defined in Section 18720, Article 3, Chapter 9, Title 14, California Code of Regulations.

Some special wastes, including sewage sludge, ash, tires, white goods (such as large appliances), abandoned vehicles, and dead animals, have recycling potential, although markets and end uses can be limited.

The special wastes addressed in this component for the City of Milpitas include sewage sludge, asbestos, tires, white goods, abandoned vehicles, and dead animals. The Solid Waste Generation Study identified that these waste types are generated in the City of Milpitas.

6.2 Objectives

Based on data from the Solid Waste Generation Study, the following objective has been developed for the special wastes currently generated in Milpitas:

- Establish a program to divert, to the extent possible, white goods from the disposal waste stream.

This objective will be implemented during the short-term planning period (1991-1995) and continued during the medium-term planning period (1996 to 2000). A diversion rate for special wastes of approximately 0.6 to 0.7 percent of the total wastestream should be achieved during the short-term and medium-term planning periods if the above objective is met.

6.2.1 Targeted Materials

White goods are targeted for diversion in Milpitas be. .se of their weight and potential hazard.

6.3 Existing Conditions Description

This section describes special wastes and some current management practices for those wastes that are utilized in the City of Milpitas. This section also provides a discussion of those special wastes for which there is currently no permitted handling or disposal facility. Current special waste management practices that divert special wastes from the landfill will continue through the short-term and medium-term planning periods. This information is summarized in Table 6-1.

6.3.1 Sewage Sludge

Sewage sludge is produced by wastewater treatment plants during secondary treatment of wastewater. In areas where wastewater systems service industrial areas, sludges may contain heavy metals and other constituents that can pose hazards to public health. Sludges with heavy metals can require special disposal. However, the potential exists for using sewage sludge as a fertilizer if contaminants such as heavy metals can be removed.

Approximately 34,000 tons per year of dry sewage sludge are generated by the San Jose/Santa Clara plant, which treats wastewater from Milpitas, San Jose, Santa Clara, Monte Sereno, Campbell, Los Gatos, and Saratoga. The City of Milpitas is responsible for generating 5 percent of the sludge, for a total of 1,700 tons of sewage sludge per year.

Wastewater generated in the City of Milpitas is exported to the San Jose/Santa Clara Water Pollution Control Plant, located in the City of San Jose. No sewage sludge is generated in the City of Milpitas. Sludge generated from the processing of Milpitas' wastewater is the responsibility of the City of San Jose for purposes of AB 939 planning.

6.3.2 Asbestos

Asbestos is a naturally-occurring fibrous substance that has been shown to cause lung cancer and other respiratory problems. Before 1970, asbestos was in widespread use in products such as ceiling and floor tiles,

and insulation for pipes, boilers, and ducts. Friable, or airborne, asbestos is known to have adverse effects on the human lung and poses a potential public health risk when inhaled. It becomes available for inhalation when the material is disturbed in processes such as building repair or maintenance.

Friable asbestos in the waste stream is considered a hazardous material and requires special handling and disposal. Asbestos waste that is generated in the City of Milpitas must be manifested and taken to a waste disposal facility permitted to accept asbestos. All friable asbestos-containing waste generated in Milpitas is taken to out-of-county facilities. The Newby Island landfill does not accept friable or nonfriable asbestos waste. How much waste asbestos is generated in Milpitas each year is not known. The Solid Waste Generation Study confirmed that asbestos is not being disposed of at the landfill.

Since asbestos poses a potential risk to public health, it is not possible to recycle or divert it from landfill disposal; the only alternative to consider in managing asbestos is disposal.

6.3.3 Tires

Used tires pose special handling and disposal problems. For example, stockpiled used tires can collect rainwater and serve as breeding grounds for disease vectors; they can also pose a fire hazard. Tires disposed of in a landfill tend to "float" to the surface, interrupting the landfill cover. They can cause differential landfill settlement if concentrated in one area in the landfill.

Tires are considered nonprutrescible waste and therefore can be accepted at Class III or unclassified landfills. The Newby Island Landfill is permitted to accept waste tires for disposal, but discourages them from being accepted at the landfill by imposing high rate fees for their disposal.

The majority of used tires generated in Milpitas are collected by Oxford Tire Recycling of Northern California (Oxford). Oxford collects tires from several gas stations and auto stores in the City of Milpitas. Oxford collected approximately 25,272 tires in 1990 from the City of Milpitas. At an average of 25 pounds per tire, approximately 316 tons of tires were diverted from disposal in 1990.

Oxford transports the collected tires to its facility in Union City, California, where the tires are separated for delivery to appropriate end use. Tires in good condition and able to be resold, and casings that can be used for retreaded tires, are taken to tire distributors.

Tires that are not reused are taken to the Tire-to-Energy Plant in Westley, California. This facility, operated by the Oxford Energy Company, incinerates whole tires to produce steam to generate electricity. This facility plant recovers incineration byproducts that include fly ash and gypsum. The fly ash containing zinc is shipped to a smelting facility. Gypsum has nonagricultural land applications. Slag from the steel and fiberglass belts in the tires is recovered and used for road base (i.e., under asphalt). The slag is 95 percent ferrous.

Oxford estimates that 11 percent of the collected tires are resold, 14 percent are used for casings, and 75 percent are used as tire-derived fuel for generation of electricity. By-products of the electricity generation process include 4 tons of gypsum, 8 tons of zinc, and 13 tons of steel for every 100 tons of tires transformed.

6.3.4 White Goods

"White goods" are large appliances (such as washers, dryers, and refrigerators) that have entered the waste stream. White goods have special handling requirements because of their size and weight and because they may contain polychlorinated biphenyls (PCBs) and chlorofluorocarbons (CFCs). PCBs are a known human carcinogen, and CFCs have been shown to break down the stratospheric ozone layer.

The electrical capacitors and cooling units should be removed before the white goods are placed in a landfill. White goods must be thoroughly crushed before burial to avoid refuse bridging, which can cause uneven compaction of the refuse fill. If the electrical capacitors and cooling units are not removed before crushing, PCBs and CFCs could be released into the environment. All CFCS will be recycled. PCBs will be properly disposed of in permitted hazardous waste disposal sites.

White goods are accepted at the Newby Island landfill for a fee of $16. BFI stockpiles these white goods at the recyclery in a 50-yard container, which is taken 3 to 4 times per week to Markovits and Fox. The average weight of each load is 5 tons. Currently 25 percent of the bin space is white goods and the remaining 75 percent is other ferrous metals.

Approximately 4 tons of white goods were diverted in 1990 at The Recyclery. An estimated 210 tons will be diverted at The Recyclery in 1991. Milpitas residents can also request BFI to pickup white goods at the curb. Pickups are done City-wide on Tuesdays. There is a fee of $29 each for the first two items, and $49 afterwards.

6.3.5 Abandoned Vehicles

Under California regulations, abandoned vehicles are considered to be an unclassified waste, thus qualifying for disposal in a Class III landfill. The Newby Island landfill does not, however, accept autobodies for disposal. Abandoned vehicles generated in Milpitas are picked up by Milpitas Towing and Garbe's Towing. In 1990, 294 abandoned vehicles were towed in Milpitas. Approximately 132 of these vehicles were processed for scrap with the remainder being picked up by the owners or resold. Using an average weight of 1.5 tons per vehicle, approximately 198 tons of scrap were recovered from abandoned vehicles. Abandoned vehicles however, are not countable under AB 939, since they are not normally disposed of at the landfill.

6.3.6 Dead Animals

The Santa Clara Valley Humane Society is primarily responsible for management of dead animals generated in Milpitas. The Humane Society contracts with Koefran of Sacramento for collection of dead animals. Koefran provides a freezer at the Humane Society for storage of animal remains. Koefran collects the remains 3 times per week. The remains are transported to Sacramento for use by a rendering company and are recycled into bone meal and used in fertilizer. According to the Humane Society, approximately 0.5 ton of dead animals per year is diverted from the Newby Island landfill.

6.4 Evaluation of Alternatives

The alternative evaluated in this section addresses the objective of establishing programs to divert, to the extent feasible, white goods from the disposal waste stream.

For each evaluation criterion, a rating of high, medium, or low is assigned, and the potential issues are discussed. As structured by the regulations governing AB 939, some of the criteria by which the alternatives are

required to be evaluated are positive in tone (e.g., effectiveness), while others are inherently negative (e.g., hazard). A high rating for a positive criterion implies a positive rating; however, a high rating for a negative criterion corresponds to few or no impacts associated with this potential problem. The results of the evaluation are summarized in Table 6-2. The special waste alternative evaluated for Milpitas is described below.

6.5 White Goods

6.5.1 Alternative 1 - Prohibit Disposal of White Goods at the Newby Island Landfill

White goods could continue to be accepted at the Newby Island Landfill, but would be prohibited from being disposed of. BFI would require waste haulers to identify white goods in incoming loads, and, after payment of fee, to deposit them at the Recyclery. At the Recyclery, electrical capacitors, cooling units, insulation, and wiring would be removed. The electrical capacitors and cooling units can be recycled and the insulation and wiring recycled. The resulting scrap metal could be sold to a scrap metal dealer.

The City of Milpitas could work with BFI to implement this activity at the landfill.

This alternative is evaluated according to the required criteria.

Effectiveness. High.[1] This alternative would be effective in diverting approximately 330 tons annually of white goods from disposal.

Hazard. Medium.[2] Potential hazards include risk of injury to Recyclery personnel from potential exposure to PCBs.

Ability to Accommodate Change. Medium. The ability of this alternative to accommodate change is limited to the amount of white goods that can be stockpiled at the Recyclery during unfavorable market conditions.

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1 Refers to relative rating of the alternative with respect to this criterion.

2 Note that several of the criteria—including, but not limited to, hazard, institutional barriers, and consequences on the waste stream—are inherently negative. A rating of high for these criteria corresponds to few or no impacts associated with these potential problems.

Consequences on the Waste Stream. High.[3] This alternative would divert white goods from the characterized waste stream. White goods represent approximately 0.34 of the total wastestream in Milpitas.

Implementation Period. High. Implementation is possible, using assets that are currently available at the Newby Island Landfill and the Recyclery.

Facility Requirements. High.[4] This alternative does not require any facilities; a stockpile for white goods at the Recyclery already exists.

Consistency with Local Plans and Policies. Medium. This alternative may be inconsistent with local plans and policies if "landfill bans" are normally opposed.

Institutional Barriers. High.[5] No known institutional barriers exist.

Estimated Cost. High.[6] No significant costs are associated with this alternative. Loadchecking and stockpiling of white goods can take place with current facility assets.

End Uses. High. White goods can be repaired and reused; they can also be used for scrap metal following the removal of electrical capacitors and cooling units. The removed units can be recycled. A relatively stable market is available locally for scrapmetal.

6.5 Selection of Program

This section (1) identifies the new program that has been selected to be implemented in the City of Milpitas, (2) discusses why the program was selected, and (3) describes the quantities and types of wastes anticipated to be diverted, applicable end uses, handling and disposal methods, and facilities to be utilized for implementation.

The selection of the program was based on the results of the alternatives evaluation and the ease of implementation in the City of Milpitas.

6.5.1 Selected Alternatives

The following alternative was selected for implementation .

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3 See Footnote 2.
4 See Footnote 2.
5 See Footnote 2.
6 See Footnote 2.

Prohibit Disposal of White Goods at the Newby Island landfill. BFI currently collects and stockpiles white goods at the landfill. White goods are still present, however, in the wastes being disposed of at the Newby Island landfill. Prohibiting disposal of white goods at the landfill will help to eliminate white goods from the disposal waste stream. Implementation of this alternative would require minimal time and effort and would require no new facilities.

6.5.2 Quantities and Types of Wastes Anticipated to be Diverted

Approximately 330 tons of white goods are anticipated to be diverted from the Newby Island Landfill annually. This quantity does not account for projected growth of this waste type.

6.5.3 Applicable End Uses.

Those white goods diverted to The Recyclery will be stockpiled. The electric capacitors and cooling units will be removed, and can be recycled. CFCs will be recycled; PCBs will be properly disposed of in a permitted hazardous waste disposal site. The remaining portion will be sold as scrap metal.

6.5.4 Handling and Disposal Methods

White goods will be diverted to The Recyclery for processing.

6.5.5 Facilities to be Utilized for Implementation

The Recyclery will be used to process white goods diverted from the disposal waste stream.

6.6 Program Implementation

This section identifies the organizations responsible for implementation, the tasks necessary to implement the selected program, the short-term and medium-term planning period implementation schedules, and the implementation costs.

6.6.1 Organizations Responsible for Implementation

The City of Milpitas can work with BFI to have this program implemented at the landfill site. This alternative may involve other cities working with

BFI also since Milpitas' waste stream is only a portion of the waste being disposed at the Newby Island Landfill.

6.6.2 Tasks Necessary to Implement Program

- Initiate discussions with BFI
- Work in cooperation with other cities pursuing the same program.
- Develop a method to identify white goods in incoming loads.
- Provide information to the public about the prohibition.

6.6.3 Short-term and Medium-term Planning Period Implementation Schedule

The implementation of the prohibition of white goods at the Newby Island Landfill could take place by 1992.

6.6.4 Implementation costs

Prohibiting white goods disposal at the landfill could take place with current landfill and Recyclery assets. Some recordkeeping costs by BFI may be incurred.

6.7 Monitoring and Evaluation

6.7.1 Methods to Quantify and Monitor Achievement of Objectives

The following methods will be used to monitor the achievement of the objective identified in Section 6.2:

- Track the quantity of white goods diverted for recycling. (The total weight of white goods diverted should average 330 tons per year at present generation quantities.)
- Monitor the markets to which the white goods are diverted to ensure that the marketed white goods are not being disposed of.
- Perform a waste disposal characterization in the future.

6.7.2 Criteria for evaluating program's effectiveness

Milpitas will evaluate the success of the special waste program by the following criteria:

- Is the objective of the special waste component being achieved?
- Was the alternative implemented on schedule?
- Are special wastes being managed so that hazards to public health and safety and the environment are minimized?
- Are special wastes managed consistent with applicable permits and regulations?

6.7.3 Responsible Parties for Monitoring, Evaluation, and Reporting

The City of Milpitas, Community Development Department, which is responsible for managing solid waste, would also be responsible for monitoring and evaluating the effectiveness of the alternative program implemented.

6.7.4 Monitoring and Evaluation of Funding Requirements

Some staff time from the City of Milpitas will be required for recordkeeping. During the first year of implementation, the City will monitor the costs of overseeing this program and identify the need for additional funding and staffing.

6.7.5 Measures to be Implemented if the Special Waste Objective is Not Achieved

The following measures will be implemented if the objective identified in Section 6.2 is not achieved:

- Implement additional waste acceptance procedures at the Newby Island landfill.

Table 6-1

SUMMARY OF
EXISTING SPECIAL WASTES CONDITIONS
MILPITAS

SPECIAL WASTE TYPE	ACCEPTED AT NEWBY ISLAND LANDFILL	HANDLING PRACTICE	ESTIMATED ANNUAL TONS GENERATED	ESTIMATED ANNUAL TONS DIVERTED	END USE/ MARKETS
ASBESTOS	No	Manifested and hauled by licensed hauler	Unknown	Unknown	Disposal
ABANDONED VEHICLES	No	Collected by towing companies	198	198	Scrap metal
DEAD ANIMALS	Yes	Collected at Santa Clara Valley Humane Society	0.5	0.5	Bone meal and fertilizer
TIRES	No	Collected by Oxford Tire	316	316	Re-use, tire-derived products, and energy
WHITE GOODS	Yes	Stockpiled at the Recyclery	540	210	Scrap metal

Table 6-2

SUMMARY OF ALTERNATIVES EVALUATION

Program Alternatives	Evaluation Criteria					
	Effectiveness	Hazard	Ability to accomodate change	Consequences on the Waste Stream	Implementation	Facility Requirements
Alternative 1 Prohibit Disposal of White Goods at the Newby Island Landfill	High	Medium	Medium	High	High	High

Program Alternatives		Additional Considerations		
	Consistency with Local Plans and Policies	Institutional Barriers	Estimated Cost ($)	Available Markets (End Uses)
Alternative 1 Prohibit Disposal of White Goods at the Newby Island Landfill	Medium	High	High	High

7 EDUCATION AND PUBLIC INFORMATION COMPONENT

7.1 Introduction

Education and public information programs serve two critical functions in implementing successful waste reduction programs. First, they explain, through increased knowledge and awareness, why waste reduction programs are vital to the community's waste management strategy. Second, public education and information programs let the public know how to effectively participate in the community's waste reduction programs. Both ongoing education and public information are essential to the successful implementation of the source reduction, recycling, composting, special waste, household hazardous waste, and funding components of the SRRE. The public education and information component is the mechanism that facilitates the success of all the other components and is critical to their implementation.

Public education and information programs seek to change the behavior of the community as a whole. It is therefore critical that the City's public education and information programs reach all of the different segments of the population in Milpitas. This requires taking into account differences in waste streams, generation rates, and communication issues inherent in a community containing diverse residential, commercial, and demographic elements. Selecting waste reduction programs without providing methods of informing and educating the complete diversity of generators in Milpitas could cause the community to fall short of the mandated AB 939 waste diversion goals.

Through public education and information, Milpitas can encourage community residents to develop patterns of behavior aimed at waste reduction. By drawing upon a sense of community and civic pride, Milpitas can develop successful participation in waste reduction programs while limiting the use of mandatory actions.

This component consists of six sections: a statement of objectives; a description of existing programs; an evaluation of alternatives; a description of selected program alternatives; an implementation plan; and a monitoring and evaluation program.

7.2 Objectives

The City of Milpitas has developed objectives for education and public information programs consistent with the needs of the waste diversion alternatives selected in the source reduction, recycling, composting, special wastes and funding components of this SRRE. The following objectives will be implemented in the short-term planning period (1991-1995). The objectives presented below will continue throughout the medium-term planning period (1996-2000). Details on specific programs and timetables associated with these objectives are presented in Tables 7-1, 7-2, and 7-3.

- Heighten public awareness of solid waste reduction issues on an ongoing basis, especially of the need to reduce, reuse, compost, and recycle waste.
- Monitor the development and integration of educational programs on reduction, recycling, and resource conservation into the curricula of schools in Milpitas.
- Provide public recognition of private and public groups, associations, businesses, or individuals that support, participate in, or implement waste reduction programs.
- Provide informational and educational materials to support the implementation of a variable rate structure for collection and disposal service in Milpitas.
- Promote and provide technical assistance on backyard composting as a source reduction effort.
- Increase participation rates in the curbside residential recycling program.
- Provide public information on collection programs for recyclables, yard waste, and special wastes.

7.3 Existing Conditions Description

The City of Milpitas has a number of education and public information programs and activities currently in place. The public awareness activities include support for the curbside recycling program initiated in early 1991, as well as solid waste curriculum used in the local school system. The City of Milpitas works very closely with its residential hauler (Browning-Ferris Industries) in developing and implementing education and public information programs. Descriptions of the ongoing public awareness activities are listed below.

Media Programs

- **Radio Programs.** Milpitas sponsors radio spots to publicize the curbside recycling program.
- **Television Programs.** Milpitas has aired video programs on solid waste issues on its public access cable television channel. These programs include videos such as the Loma Prieta Chapter of the Sierra Club video, "Re-Use It or Lose Use It" (1991).
- **Newspaper Advertisements.** Announcements alerting the public to the curbside recycling program have been placed in several local newspapers. These advertisements are a joint effort between BFI and the City and include instructions on how to effectively participate in the recycling program.
- **News Releases.** The City also prepares news releases for local newspapers that highlight new waste management initiatives and programs in Milpitas.

Education

- **Environmental Curriculum.** The Milpitas Unified School District has integrated environmental program materials into its curriculum. This includes a revised science curriculum that contains lessons on waste management and environmental issues for grades K-12. These efforts are coordinated on a countywide basis by the Santa Clara County Office of Education.

- **Facility Tours.** A material recovery facility owned and operated by the City's contract hauler (BFI's Recyclery) features a participatory learning center with "hands on" exhibits and demonstrations of recycling processes and technologies. Guided tours of the various operations will be conducted for school children, teachers, parents, and other interested individuals.
- **Waste Audits.** The City's contract hauler (BFI) currently conducts waste audits as a service to commercial customers.

Outreach

- **Hotline.** The City's hauler has established a hotline program to answer questions and provide information to the public about recycling issues in Milpitas.
- **Task Force.** The City of Milpitas has also established a Task Force (SWRAC) composed of representatives of businesses, community organizations, local government, and residents. The SWRAC was appointed as an advisory body on the SRRE and HHWE for the County. The Task Force also serves as a vehicle for feedback and ensures that the City is responsive to community concerns. Although this Task Force was created specifically to facilitate the development of the SRRE and HHWE, its function might also be useful during the implementation of SRRE and HHWE programs.

Campaigns

- **Special Contests.** As part of the first-year public awareness program, BFI is coordinating an essay, poster, and sculpture contest through the local schools.

7.4 Target Audience for Selected Programs

There are four specialized target audiences for the education and public information programs selected in this component: (1) residential generators; (2) commercial generators; (3) institutional generators; and (4) non-english speaking generators.

7.4.1 Residential Generators

The Solid Waste Generation Study identified the residential sector as a significant source of waste generation that will require an integrated approach to source reduction, recycling, composting, and special wastes. The residential waste stream consists of significant amounts of yard waste, cardboard, old newspaper, mixed and other grades of paper, glass, food and other organic wastes, and plastics. The City of Milpitas will address these materials through a number of source reduction and recycling diversion programs, all of which rely heavily on education, technical assistance, and public information.

7.4.2 Commercial Generators

The non-residential (i.e., commercial/industrial) sector consists of cardboard, newspaper, high-grade paper, lower grades of paper, plastics, food wastes, inert solids, ferrous metals, and CA Redemption glass. The City will address these materials with technical assistance and education programs.

Of special note are the top 22 employers in the City that account for over 60 percent of the employment base in Milpitas.[1] These firms are predominantly in the electronics industry and tend to generate large quantities of paper, cardboard, and plastic packaging materials. Targeting these firms through technical assistance, education, and information programs provides a tremendous opportunity for the City to reach a large proportion of the commercial/industrial sector. A speakers' bureau will be created to share and disseminate information coming commercial generators.

7.4.3 Institutional Generators

While the Solid Waste Generation Study did not target institutions (e.g., schools and government agencies), these waste generators offer special challenges and opportunities for education and public information programs. Schools and other public agencies can serve as models for selected waste reduction programs.

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[1] Based on data contained in the Community Economic Profile for Milpitas, February, 1990, prepared by the Milpitas Chamber of Commerce, and on employment data provided by ABAG in the 1989 Revision to the Solid Waste Management Plan for the County of Santa Clara, page III-8.

7.4.4 Non-English Speaking Generators

Milpitas has a significant proportion of non-english speaking residents. Preliminary reports for the 1990 census indicate that there are four primary groups that may require specialized public education, information, and outreach materials: Hispanic, Vietnamese, Philippine, and Chinese. These preliminary census figures estimate that approximately 33 percent of the City's population is of Asian descent and approximately 18 percent is of Hispanic descent. While not all of these residents will require specialized public education and outreach materials (many will be English-speakers), some will require specialized effort on the part of the City to increase their participation and overall awareness of the programs available to them.

7.5 Program Selection

The City of Milpitas will continue all of the programs and activities described above in support of the community's source reduction and recycling programs. In addition, the City will select and implement the following education and public information programs in support of the programs selected in the source reduction, recycling, and composting components.

Public Service Announcements. Virtually every radio and television station offers free air time to non-profit organizations to announce an event or present an issue. The City can take advantage of this by working with non-profit organizations to sponsor public service announcements (PSAs).

Television Programming. Most television stations offer public service announcement opportunities, as well as numerous programs that can provide promotional opportunities for the City. For example, a representative of the City can be a guest on a local program, or one of the stations can feature a City program or event as part of its programming. As with radio and newspapers, television reaches a broad audience, and extends throughout a wide geographic area.

Video Tape Libraries. A number of video resource materials are available for purchase that provide information on source reduction, recycling, composting, and other solid waste issues. Milpitas can purchase these videos for distribution to the general public through the local library system.

Coordination with Community Groups. The City of Milpitas will work closely with community groups throughout the City to disseminate information about waste management. These community groups can serve as a tremendous resource for the City in terms of volunteer staff and community outreach. The name recognition and credibility of community groups will enhance the acceptance of AB 939 programs throughout the City.

Coordination with Non-Profit Organizations. The City will utilize the volunteer services of non-profit organizations for community outreach. These organizations, such as youth groups and scouting organizations, serve to augment public education programs. For example, a public education program on source reduction, recycling, and composting could be integrated into an Eagle Scout community service project for the Boy Scouts.

Internship Program. Funding an internship program for students from surrounding universities is a cost-effective method of augmenting City staff and volunteer groups for the purpose of implementing public education programs. Milpitas will consider sponsoring a waste reduction internship, providing a community relations opportunity as well as additional staffing to assist with education and public information programs.

Participation in Local Events. Participating in local events is a highly visible method of reaching the community about waste reduction programs. The City will take advantage of the large groups present at community events to target them for educational materials about the City's waste reduction programs and practices. The City can also provide ongoing recycling programs at public facilities such as parks and at events held locally, such as fairs and ball games.

Junk Mail Reduction Program. Information is available from the Direct Marketing Association of America and other such groups regarding what can be done to minimize the large volume of junk mail each household receives each year. Many communities are disseminating this information to their residents.

Brochures. Brochures can be mailed or distributed to residents or businesses to announce new recycling programs or events. Informational brochures and fact sheets can encourage participation in existing and planned programs. This is a particularly good way to kick off a new program, such as a widespread commercial recycling program. All brochures will be printed on recycled paper (and will be marked accordingly).

How-To Information. How-to information can be provided to targeted audiences, such as to new residents, employers, churches, and community organizations. These materials can cover source reduction, recycling, and composting techniques, as well as topics such as where to take wastes requiring special handling and disposal.

Composting Education. The City may consider establishing a "hands on" composting demonstration project, perhaps in coordination with the community garden. The program can provide public education about the composting process by walking through the steps from yard waste decomposition to a finished compost product.

Technical Assistance. The City will assist the major businesses and industries in Milpitas to implement source reduction programs, establish collection and recycling programs, and buy recycled products.

Mailed Inserts. Any type of ongoing mailer for which the City is responsible (e.g., "Milpitas Connection" or the City Calendar) can be considered an opportunity for an informational or educational insert. The City can also coordinate with another organization such as the Chamber of Commerce's publication "Panorama." The insert can be a simple, one-page flyer providing recycling information or announcing upcoming recycling events in the community.

Newsletter. An "Environmental Newsletter" can be published periodically, containing information on solid waste issues, as well as other environmental issues, such as water and energy conservation, transportation, and pollution. The broader the scope of the newsletter, the more likely residents are to read it. For example, someone who is not particularly interested in recycling may read the newsletter for water conservation information and learn about solid waste issues as a side benefit. In addition, the yearly Calendar distributed to Milpitas residents can have a waste reduction theme or feature information on waste issues.

Workshops. Workshops and seminars offered to each targeted waste generator group can be very effective. These address practical ways to reduce the quantity of wastes generated and disposed of. Proposed workshop topics include decreased consumption, procurement practices, increased manufacturing efficiency, and composting of yard wastes at the site of generation.

Speakers Bureau. The City can organize a speakers bureau that would include volunteer speakers on solid waste issues. The list of speakers would then be distributed to community groups, schools, businesses, government offices, and churches interested in sponsoring a workshop or seminar on waste management.

Consumer Awareness. Milpitas can prepare a "Buy Recycled" pamphlet to be distributed with other recycling information to urge residents to "complete the loop" by buying recycled products whenever possible. The City could consider creating a source reduction shopping checklist for consumers. The checklist would focus on criteria consumers can use when buying products, including durability, reusability, recyclability, and minimal packaging. The City will work with stores to publicize environmental programs.

Waste Diversion Thermometer. The community can be kept involved in an ongoing way by publicizing the AB 939 25 and 50 percent diversion targets for 1995 and 2000, respectively. A poster board tracking the City's waste diversion percentage can be placed in highly visible areas around the community, such as libraries and City buildings. The tracking "thermometer" would serve as a constant reminder that the City is striving for a 50 percent reduction in solid waste disposal by the year 2000.

Promotional Materials. The City can distribute waste reduction promotional materials targeted at all elements of the population, including different age groups and ethnic groups. Effective materials, available from the State Department of Conservation and from other sources, include door hangers, bookcovers, poster, bookmarks, stickers, yo-yo's, recycled paper notepads, certificates, recycled plastic Frisbees, buttons, pencils, and magnets. These materials could be incorporated into many of the public information and education activities described in this section. Materials should be minimally packaged, have recycled content, and be recyclable.

New Residents Program. The City of Milpitas can immediately involve new residents in existing and planned recycling programs by preparing and distributing special informational and educational materials for new residents. These materials would explain (1) the waste reduction goals of the City and (2) how residents can assist by participating in the waste reduction programs available.

7.6 Program Implementation

7.6.1 Responsible Parties

The City of Milpitas Community Development Department, Division of Planning, will be responsible for implementing all of the education and public information programs selected in this component. These activities will support the source reduction, recycling, and composting programs selected in the respective components of the SRRE.

The City currently has one staff planner assigned to develop, administer, monitor, and evaluate solid waste programs in Milpitas. This staff planner is currently functioning at 80 percent capacity on solid waste issues and is expected to continue working on solid waste planning issues at roughly 80 percent capacity for the initial 18 months to 2 years of program implementation. After this period, the current staff planner's responsibilities could be scaled back to 50 percent capacity.

However, in order to fully implement the program alternatives selected in this SRRE the City will require one full-time staff member in addition to the current staff planner assigned to solid waste planning. Moreover, the City should consider augmenting its available staff resources by initiating an internship program with local universities and colleges wherein academic credit is granted in return for substantive and meaningful contributions to the City's efforts in waste reduction.

7.6.2 Required Implementation Tasks

See Tables 7-1 through 7-3. Educational materials can be printed in non-English languages for those populations of the community that do not speak English. Associations and groups serving non-English speaking populations can be targeted to assist in the public information effort.

7.6.3 Implementation Schedules

See Tables 7-1 through 7-3.

7.6.4 Implementation Funding Requirements

The funding requirements for the education and public information programs selected in this component consist of the cost for one additional employee plus direct costs for materials, supplies, and promotional items.

It is expected that any facilities required to conduct educational and informational programs will either be City-owned and operated or their use will be donated by businesses, organizations, and/or private individuals.

Costs are estimated to be approximately $55,000 - $65,000 per year for one additional staff person. This cost would extend through the short-term planning period into the medium-term planning period.

Direct costs for materials will vary extensively depending upon the level of program activity. It is estimated that a program budget of approximately $20,000 per year would allow for some degree of coverage across each of the selected activities in this component, including: newspaper announcements; a few radio spots; workshops; brochures; informational flyers and pamphlets; videos or other resource materials at the Milpitas Library; mail inserts; newsletters; and promotional materials. Public service announcements and news releases also provide a measure of public exposure that is free of charge to the City.

Costs for educational materials in non-English languages are included in the $20,000 budget for materials.

During the first year of the curbside recycling program, the City's public information and education campaign will be provided in conjunction with the BFI, as stipulated in their contract. This will assist the City in ensuring that residents are made aware of the curbside recycling program available to them.

7.7 Monitoring and Evaluation

7.7.1 Methods to Measure Achievement

The objectives of the City of Milpitas' education and public information program are to increase the public's participation in waste diversion programs and to heighten awareness of the need to reduce, reuse, recycle, and compost. To monitor the achievement of these objectives, residents and businesses in Milpitas will be randomly surveyed every two years by telephone and/or at major shopping centers in the City. The random survey will target a representative sample of the public and will focus on the public's awareness of various waste diversion programs available to City residents and businesses. In addition, the survey will assist in identifying the relative effectiveness of alternative education and public information techniques and approaches.

These monitoring and evaluation techniques will be applied to all target groups, including the City's non-English speaking population. In addition, special efforts to apply these techniques will be made through local community organizations, associations, and groups serving the non-English speaking community.

The number of businesses requesting technical assistance or participating in City-sponsored programs will be tracked to monitor the effectiveness of these programs. Additional methods for monitoring include mail-in response coupons from the newspaper, surveys at events, periodic surveys, and feedback from phone calls or other communications from the public. Finally, annual reports to measure progress in complying with the requirements of AB 939 will provide a means for documenting the achievements of the City's programs. Measurement tools will be an integrated component of public information and education activities, whenever possible.

7.7.2 Written Evaluation Criteria

The City of Milpitas will evaluate the effectiveness of the education and public information program by regularly addressing the following issues in a written format and presenting the results in annual progress reports:

- Have the participation rates in respective waste diversion programs increased?
- Has the City received more inquiries about waste diversion services available?
- Was there sufficient City staffing to implement the education and public information programs?
- Do the targeted generators have a greater awareness of the importance of diverting wastes from land disposal?
- Was each segment of the community (e.g., residential, commercial, industrial, schools, non-english speakers) contacted during the planning period?

7.7.3 Responsibility for Monitoring and Evaluation

The City of Milpitas Community Development Department, Division of Planning, will be responsible for monitoring and evaluating all of the edu-

cation and public information program activities selected in this component.

7.7.4 Monitoring and Evaluation Funding Requirements

Funding requirements for the monitoring and evaluation of the education and public information programs selected in this component include funds for recordkeeping and surveying the participation rates of each individual waste reduction program. These funds can be expected to be less than $3,500 per year for survey forms and computer services, if necessary[2].

7.7.5 Contingency Measures

The following measures will be implemented if the education and information objectives identified in Section 7.2 are not achieved:

- Evaluate the need for increased staffing, including a contract employee, temporary services, additional interns, or full- or part-time permanent staffing.
- Revise the job descriptions of staff responsible for education and information.
- Evaluate the need for increased funding for education and information programs such as waste audits, specialized technical assistance, and more aggressive waste reduction awareness campaigns.
- Modify the education and public information programs that seem to be inadequate.
- Identify additional education and public information programs for consideration.

7.7.6 Program Monitoring and Reporting Schedule

The City of Milpitas will monitor and report on the effectiveness of the education and public information programs on a regular basis, with frequent revisions to the schedule if needed. The City will monitor and report on City programs at least once per year as well as prior to any review or renegotiation of contracts with City waste haulers or contractors. This will

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2 Some of the monitoring tasks will be undertaken by a student intern. Approximately $10,400 is estimated for the intern's salary.

allow for the City to incorporate needed changes to education and public information programs into its agreements with its waste collection and disposal partners.

Table 7-1
SOURCE REDUCTION
Public Education Activities

RESIDENTIAL

Program	Program Activities[1]	Activity Implementation Tasks	Schedule[2]
Technical Assistance	Composting and mulching information; junk mail reduction program; environmental shopping campaign; newsletter; coordination with community groups	Publicize technical assistance services in newsletter; publicize available back yard composting and source reduction assistance; disseminate source reduction shopping checklist; coordinate above with assistance from community groups	Beginning Mid 1992
Public Education	Speakers bureau; environmental shopping campaign; promotional materials; newsletter; contests and displays; local events participation; environmental education curriculum; internship program; community organizations and non-profit groups	Develop and utilize speakers bureau; disseminate shopping tips; purchase and disseminate promotional materials; develop and print newsletter articles; sponsor source reduction awards; publicize source reduction activities at local events; coordinate with schools to include source reduction curriculum, poster contests, and promotional materials for K-12; develop internship program; coordinate above activities with assistance from community groups	Beginning Early 1992
Public Information	Newsletter; source reduction consumer guide; utility bill announcements; new resident program	Disseminate promotional materials and information publicizing available education and assistance programs; establish new resident information program; coordinate above activities with assistance from schools and community groups	Beginning Late 1991

1 Program activities are described in detail in the text.
2 Activity and task schedules begining in the short-term planning period (1991-1995) will continue through the medium-term planning period (1996-2000).

Table 7-1 (Cont'd)
SOURCE REDUCTION
Public Education Activities

COMMERCIAL/INDUSTRIAL

Program	Program Activities[1]	Activity Implementation Tasks	Schedule[2]
Technical Assistance	On-site composting and mulching assistance; speakers bureau; internship program	Offer businesses and landscapers assistance with on-site composting and mulching; develop and utilize speakers bureau; develop internship program	Beginning July 1993
Public Education	Education and information pamphlet; promotional materials; Chamber of Commerce; information required through business licensing procedures	Disseminate source reduction pamphlets and promotional materials; coordinate above efforts with Chamber of Commerce; Santa Clara County Manufacturers Group	Beginning July 1993
Promotion Activities	Public recognition and awards; promotional materials	Establish a high visibility source reduction "company of the year" award; provide promotional materials for employees	Beginning December 1992

[1] Program activities are described in detail in the text.
[2] Activity and task schedules beginning in the short-term planning period (1991-1995) will continue through the medium-term planning period (1996-2000).

Table 7-2
RECYCLING
Public Education Activities

RESIDENTIAL

Program	Program Activities[1]	Activity Implementation Tasks	Schedule[2]
Single-Family Curbside Collection	Curbside recycling public education; new residents program; public presentations; promotional materials; environmental education curriculum; environmental shopping campaign; contests and displays; utility bill inserts;newspaper advertisements;newsletter	Disseminate a recycling pamphlet; establish a "New resident" information program; conduct public presentations; disseminate promotional materials and educational materials through schools and community organizations; implement a "Buy Recycled" campaign; implement school and poster contests; publicize program	Beginning Late 1991
Multi-Family Residential recycling	Apartment and Condominium public education; promotional materials; environmental education curriculum; environmental shopping campaign; new residents program; contests and displays; utility bill announcements; newspaper advertisements; newsletter	Distribute a multi-family dwelling recycling guide and informational brochures; telephone landlords and home owners associations to offer technical assistance; disseminate promotional and educational materials through schools and community organizations; implement a "Buy Recycled" campaign; implement school and poster contests on recycling; publicize above activities	Beginning Mid 1992
Buy-Back Centers	Newsletter and brochures	Publicize locations and materials accepted in newsletter and brochures	Early 1992

1 Program activities are described in detail in the text.

2 Activity and task schedules beginning in the short-term planning period (1991-1995) will continue through the medium-term planning period (1996-2000).

Table 7-2 (Cont'd.)
RECYCLING
Public Education Activities

COMMERCIAL/INDUSTRIAL

Program	Program Activities[1]	Activity Implementation Tasks	Schedule[2]
Commercial and industrial recycling	Public presentations; business recycling public education; promotional materials; public recognition and awards; waste audit program	Disseminate promotional materials to businesses in the City; implement high publicity "Business Recycler" awards; advertise waste audit services; develop and print newsletter articles	Beginning Mid 1992

1 Program activities are described in detail in the text.

2 Activity and task schedules beginning in the short-term planning period (1991-1995) will continue through the medium-term planning period (1996-2000).

Table 7-3
COMPOSTING
Public Education Activities

RESIDENTIAL

Program	Program Activities[1]	Activity Implementation Tasks	Schedule[2]
Residential Curbside Program	Public information program; utility bill inserts; new residents program	Publicize program in newspaper and utility bill announcements include information on curbside program in new resident information program	Beginning Late 1991

COMMERCIAL/INDUSTRIAL

Program	Program Activities[1]	Activity Implementation Tasks	Schedule[2]
Business assistance	Sample composting contract; waste audit evaluations; Chamber of Commerce	Develop and disseminate sample composting contracts to businesses that require landscapers to deliver yard waste to the Recyclery for composting; promote composting as a method to reduce landfill tipping costs; promote above activities through Chamber of Commerce newsletter and during waste audits	Beginning Late 1992

1 Program activities are described in detail in the text.
2 Activity and task schedules beginning in the short-term planning period (1991-1995) will contiinue through the medium-term planning period (1996-2000).

Table 7-4
Implementation Costs[1] for
Selected Education and Public Information Programs

Public Information/Awareness/Outreach	
Planning	$ 2,000
Implementation	8,000
Operation	10,000
Monitoring	500
Subtotal	20,500
Technical Assistance	
Planning	2,000
Implementation	8,000
Operation	9,500
Monitoring	1,500
Subtotal	21,000
Education	
Planning	2,000
Implementation	15,000
Operation	15,000
Monitoring	1,500
Subtotal	33,500
TOTAL[2]	$75,000

1. Includes costs for one additional staff person and a student intern.
2. Costs include source reduction activities described in Section 3, as well as public education costs for increasing participation in recycling and composting programs. (Sections 4 and 5).

8 DISPOSAL FACILITY CAPACITY COMPONENT

Integrated waste management includes the environmentally safe disposal of solid wastes that cannot be feasibly diverted from landfilling. Because of the diminishing landfill capacity in the state of California, the Integrated Waste Management Act of 1989 requires that, in their Source Reduction and Recycling Elements, jurisdictions identify their current and future solid waste disposal capacity needs.

This component contains a description of any permitted solid waste disposal facilities within the City of Milpitas, an identification of the needed landfill capacity for 15 years, an identification of any disposal facility within Milpitas that will be closed during the next 10 years, and an identification of any plans to establish new or expanded disposal facilities within the jurisdiction during the next 10 years.

8.1 Existing Permitted Solid Waste Disposal Facilities

There are no existing permitted solid waste disposal facilities within the incorporated limits of the City of Milpitas. The City currently exports all of its solid waste for disposal to permitted solid waste disposal facilities in the City of San Jose. Section 2.4.1 identifies the owner/operator of the Newby Island Landfill in San Jose that accepts wastes from the City.

8.2 Solid Waste Disposal Facility Needs Projection

The needs projection for a solid waste disposal facility provides an estimate of the disposal capacity that is needed in order to accommodate projected solid waste generation within the City of Milpitas for a 15-year period commencing in 1991. The projected solid waste generation for this 15-year period is discussed in Section 2, the Solid Waste Generation Study.

The capacity required for disposal of solid waste generated within the City, and for waste imported to the City, was calculated using the following equation developed by the CIWMB:

$$\text{Additional Capacity}_{\text{Year n}} = [(G + I) - (D + TC + LF + E)]_{\text{Year n}}$$

where

G = The amount of solid waste projected to be generated in Milpitas.

The amount of solid waste generated in Milpitas in 1990 was approximately 85,418 tons. Accounting for projections of population growth, the estimated annual waste generation rates for the City were calculated.

I = The amount of solid waste that is expected to be imported to Milpitas for disposal.

There is no solid waste imported into Milpitas for disposal.

D = The amount diverted through current and proposed source reduction, recycling, and composting programs.

The amount of solid waste diverted from disposal through existing source reduction, recycling, and composting programs in Milpitas in 1990 was approximately 6,381 tons.

TC = The amount of volume reduction occurring though permitted transformation facilities.

The amount of solid waste generated in the City of Milpitas that was volume reduced by transformation in 1990 was approximately 177 tons.

LF = The amount of permitted solid waste disposal capacity that is available in Milpitas for solid waste generated within Milpitas.

There are no permitted solid waste disposal facilities in the City of Milpitas.

E = The amount of solid waste generated in Milpitas that is exported to solid waste disposal facilities in another jurisdiction.

Approximately 78,859 tons of solid waste that was generated in Milpitas in 1990 was exported to solid waste disposal facilities in the City of San Jose.

n = Each year of a 15-year period commencing in 1991.

Results of the solid waste disposal facility needs projection are shown in Tables 8-1 and 8-2. Results indicate that Milpitas will not require additional disposal capacity during the 15-year planning period.

8.3 Disposal Facility Phase-Out or Closure

There are no permitted solid waste disposal facilities in the City of Milpitas. Therefore, no facilities are scheduled for closure. The City currently exports all of its solid waste to waste disposal facilities in the City of San Jose. The largest portion of the City's waste stream is collected by BFI and disposed of at BFI's Newby Island Landfill in San Jose. The City's contract with BFI expires in 2007.

8.4 New or Expanded Disposal Facility

There are currently no plans to establish a new disposal facility in Milpitas during the short- or medium-term planning periods.

8.5 Contingency Plan for Exported Waste

In the event that the City of San Jose is unable to accept waste from Milpitas (at the Newby Island Landfill), the City's solid wastes will be disposed of at either the Kirby Canyon in San Jose or the Durham Road Landfill in Fremont.

Table 8-1

CITY OF MILPITAS
SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS PROJECTION (1)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Solid Waste Generated	87,327	89,493	91,712	93,987	96,318	98,706	101,154	103,663	106,234	108,868	111,568	114,335	117,171	120,077	123,055
Solid Waste Imported	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solid Waste Diverted*	6,523	6,685	6,851	7,021	7,195	7,373	7,556	7,744	7,936	8,132	8,334	8,541	8,753	8,970	9,192
Transformation Reduction	181	184	188	192	195	199	203	207	212	216	220	224	229	234	238
Solid Waste Exported**	80,623	82,624	84,674	86,775	88,927	91,134	93,395	95,712	98,087	100,520	103,014	105,570	108,189	110,873	113,624
Remaining Permitted Disposal Capacity (end of year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Additional Disposal Capacity Needed (cubic yards)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(1) All wastes in tons, except additional disposal capacity.
* Based on current estimated diversion rate of approximately 7.5%.
** Refers to solid waste exported out of the City to Newby Island for disposal.

Table 8-2

CITY OF MILPITAS
SOLID WASTE DISPOSAL FACILITY CAPACITY NEEDS PROJECTION (1)
CONSIDERING ASSEMBLY BILL 939 DIVERSION RATES

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Solid Waste Generated	87,536	89,707	91,932	94,212	96,548	98,943	101,397	103,911	106,488	109,129	111,835	114,609	117,451	120,364	123,349
Solid Waste Imported	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Solid Waste Diverted*	11,590	18,569	22,339	24,589	25,199	32,057	38,936	45,097	51,540	52,818	54,128	55,471	56,846	58,256	59,701
Transformation Reduction	181	185	190	194	199	204	209	214	220	225	231	236	242	248	254
Solid Waste Exported**	75,766	70,953	69,403	69,428	71,150	66,681	62,251	58,599	54,728	56,086	57,476	58,902	60,363	61,860	63,394
Remaining Permitted Disposal Capacity (end of year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Additional Disposal Capacity Needed (cubic yards)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

* Based on compliance with the SRRE. Assumes low end of range of tons diverted is acheived (see Section 10).
(1) All values in tons, except additional disposal capacity needed.
** Refers to solid waste exported out of the City to be disposed of.

9 FUNDING COMPONENT

The purpose of the funding component is to demonstrate that the City of Milpitas has sufficient funds and allocation of resources to plan, develop, and implement the selected SRRE programs identified in this document.

This section briefly describes (1) the current mechanisms used to fund solid waste programs for the City of Milpitas, (2) estimated costs for the component programs scheduled for implementation in the short-term planning period, (3) additional city staff resources required to implement the programs, (4) revenue sources to support the component programs, and (5) contingency funding sources.

Adequate and long-term funding is an essential component of a successful integrated solid waste management system. Inadequate funding can cause an otherwise effective program to fail. In California, local solid waste management systems are typically funded by one or more of the following methods:

- *Tipping fee* - the amount charged by a transfer station, landfill, or transformation facility to accept a specified amount of waste (usually expressed in terms of tons or cubic yards).
- *Property taxes* - those taxes that are levied on the person or corporation recorded on the deed of record. Property taxes have limitations such as (1) statutory ceilings on tax rates, (2) competing public services such as public education, (3) lack of income or economic activity to support higher taxes, and (4) lack of voter support.
- *User fees* - fees applied to household waste and industrial waste. User fees assess the actual user based on weight and volume or number of containers collected, instead of a flat fee and local tax-financial systems.

9.1 Current Funding Sources

The source of funding for solid waste management activities in Milpitas is the City's General Fund. Revenue sources for the General Fund include the City's franchise fee for refuse collection by BFI. Effective January 1, 1991, the City Council approved a 0.8 percent refuse collection fee increase over the previous year, raising the basic monthly rate per single family dwelling to $7.45. Of this amount, the franchise fee represents $0.74, or 10 percent of the basic rate. In fiscal year 1990-1991, the franchise fee is estimated to account for approximately $417,000 of the General Fund's revenues.

As of January 1, 1991, 1.5 percent of the basic monthly rate per single family was earmarked by the City Council for billing, which is a function of the City's Finance Department. The billing allocation for 1991 represents a reduction of over 150 percent from the 4 percent rate apportioned to billing activities in 1989. This reduction has occurred during a period when a growing number of waste management activities have placed increasing demands on the City's finance department.

The City's curbside recycling program was implemented on January 28, 1991, resulting in an adjustment from the January 1, 1991 rate of $7.45 per month for a single family to $8.74 per month. This increase ($1.29 per month) represents a curbside fee is that paid to the refuse collector, BFI, to provide the curbside collection service. The curbside recycling contract with BFI includes recyclable material revenue sharing. Because the program only recently began, the revenue available from this source is unknown.

9.2 Estimated Program Costs

Estimated costs have been determined for each of the new or expanded programs that have been identified in Sections 3 through 7 for implementation during the short-term planning period. Table 9-1 shows the estimated total program costs (capital and operating) for each of these programs, by year, for 1991 through 1995. Capital costs include both public and private sector equipment purchases, and new or improved structures. Operating costs include both public and private sector operations and maintenance, publications, and other promotional materials, staff time, and other expenses.

One staff position will be added to the City staff by 1992; the need for an additional staff position will be reviewed by the end of calendar year 1992. This new staff member position, along with existing staff, will be responsible for planning, developing, and implementing the programs identified in this document (see Sections 3 through 7). Costs for additional staff are included in the annual operating costs (see Table 9-1).

9.3 Revenue Source for New and Expanded Programs

The source of funding the programs to be implemented during the short-term planning period in the City of Milpitas will be the City's General Fund. It is likely that current revenue sources for the General Fund are not adequate to cover new and expanded programs beyond 1992. The City must identify additional revenue sources. One method of generating the revenues is a rate increase of 20 to 50 percent for all regular garbage service accounts. The City will have the opportunity to adjust garbage rates in 1992 when the City's contract with BFI will be reviewed.

The City can avoid the need to generate all of the additional revenue directly by allowing private operation of recycling and composting programs. However, even with private operation, garbage service accounts would likely see an increase in rates in order for the private operator to cover fixed costs.

Another potential source of funding for new and expanded programs is a Countywide AB 939 fee that would be implemented under the direction of the County's Department of Planning and Development.

9.4 Contingency Funding Sources

The majority of the programs proposed to meet the City's waste diversion targets are to be developed by the private sector and will be funded accordingly. As noted above, collection rates are expected to increase to support additional programs undertaken by the private operator.

Funding sources and mechanisms that could be explored by Milpitas if a shortfall in solid waste management funds occurs are as follows:

- Special taxes or assessment. The City could impose short-term taxes or assessments to develop source reduction and recycling programs.

- Rate structure modification. This includes a subscribed variable rate wherein the level of payment varies with a measure of the volume of waste disposed.
- Community Development Block Grants. Milpitas could apply for the Economic Development Allocation for the Community Development Block Grant Program. Grants are made from the state to local government applicants, which can then loan the funds to businesses to fund specific projects, such as a particular recycling program or business that uses or manufactures products made from recyclable materials.
- Other grant funding sources. These include grants from the California Integrated Waste Management Board for new or existing household hazardous waste management programs or from the California Department of Commerce Office of Competitive Technology to fund technological projects that show promise for commercialization. In 1989, federal, public and private agencies and institutions were awarded 29 grants from a pool of over 240 applicants.

Table 9-1
Funds Required for Planning, Operation and Monitoring of New Programs
to be Implemented in the Short-Term Planning Period[1]

	FY 1991-1992	FY 1992-1993	FY 1993-1994	FY 1994-1995	FY 1995-1996
Source Reduction-Technical Assistance/Public Awareness					
Planning	—[2]	—[2]	—[2]	—[2]	—[2]
Implementation					
Operation					
Monitoring					
Source Reduction-Variable Rate Structure					
Planning			6,000		
Implementation			4,000		
Operation			1,500	1,580	1,660
Monitoring			1,000	1,050	1,100
Source Reduction-Procurement Program					
Planning		6,000			
Implementation		4,000			
Operation		1,000	1,050	1,100	1,160
Monitoring		1,000	1,050	1,100	1,160
Recycling-Develop Multi-family Recycling					
Planning			175,000		
Implementation			100,000	105,000	110,250
Operation			1,000	1,050	1,100
Monitoring					
Recycling-Curbside Collection for Businesses					
Planning					
Implementation			350,000		
Operation			200,000	210,000	220,500
Monitoring			1,000	1,050	1,100

1 In accordance with AB 939, programs scheduled for the medium-term planning period are not included in this table. Costs are shown only for new programs and thus do not include costs for The Recyclery and Curbside Collection, which were implemented in early 1991. Costs for 1992 and beyond reflect a 5 percent inflation factor. Costs shown are total program costs.

2 Costs are included in education and public information program.

Table 9-1
Funds Required for Planning, Operation and Monitoring of New Programs
to be Implemented in the Short-Term Planning Period[1]
(Continued)

	FY 1991-1992	FY 1992-1993	FY 1993-1994	FY 1994-1995	FY 1995-1996
Recycling-Inert Solids					
Planning					
Implementation					
Operation		10,000	10,500	11,030	11,580
Monitoring		1,000	1,050	1,100	1,160
Composting-Residential Yard Waste Collection					
Planning		5,000			
Implementation		300,000			
Operation		200,000	210,000	220,500	231,530
Monitoring		1,000	1,050	1,100	1,160
Composting-Mechanized Yard Waste Separation					
Planning					
Implementation		200,000			
Operation		15,000	15,800	16,600	17,500
Monitoring		1,000	1,050	1,100	1,160
Composting-Windrow Composting					
Planning					
Implementation		1,000,000			
Operation		175,000	183,750	192,940	202,580
Monitoring		1,000	1,050	1,100	1,160
Special Waste-White Goods Salvaging					
Planning					
Implementation					
Operation		2,500	2,630	2,760	2,890
Monitoring		500	530	550	580
Education and Public Information Program					
Planning		6,000			
Implementation		31,000			
Operation		34,500	36,230	38,040	39,940
Monitoring		3,500	3,680	3,860	4,050
TOTAL		**1,994,000**	**1,308,920**	**812,610**	**853,320**

10 INTEGRATION COMPONENT

A jurisdiction must integrate source reduction, recycling, composting, and special wastes programs and activities to achieve the diversion requirements mandated by AB 939. These components must also be integrated as necessary so that solid waste management follows the integrated waste management hierarchy of (1) source reduction, (2) recycling and composting, and (3) environmentally safe transformation and disposal.

This component contains a description of the solid waste management practices that promote integrated waste management in the City of Milpitas, and an explanation of how Milpitas has integrated the source reduction, recycling, composting, and special wastes components. In addition, this component summarizes how the 25 percent and 50 percent diversion mandates will be achieved, and how priorities were established between the components consistent with the requirements of AB 939. This component also contains an integrated schedule.

10.1 Integrated Solid Waste Management Practices

The solid waste management practices described in the source reduction, recycling, composting, and special wastes components of this document (Sections 3 through 6), which are to be continued, expanded, or implemented in the City of Milpitas, are designed to comply with the integrated waste management hierarchy established by AB 939. Consistent with this hierarchy, the City will promote source reduction activities targeted at decreasing the amount of solid wastes being generated in the City. For wastes that continue to be generated in the City, recycling and composting programs will contribute to diverting wastes from disposal to the extent feasible. For wastes that cannot be diverted, the City will ensure that they are transformed or disposed of in an environmentally safe manner.

Figure 10-1 summarizes Milpitas' specific source reduction, recycling, composting, transformation, and disposal activities and practices that are designed to achieve integrated waste management.

10.2 Component Integration

The source reduction, recycling, composting, and special wastes components have been integrated so that the programs selected for implementation from each component achieve their maximum potential. Initially, mutually exclusive objectives and target materials for each component were developed to prevent overlapping or duplication of activities or programs selected for one component with those of another component. Moreover, the objectives and target materials identified for each component were structured to avoid duplicating the existing source reduction, recycling, and composting activities in the City. With its focus on mutually exclusive programs and activities, the City of Milpitas' SRRE maximizes the use of all feasible source reduction, recycling, and composting options.

Public education and information, and funding for source reduction, recycling, and composting activities and programs will be integrated for time efficiency and cost effectiveness. Staff time required for public education and information will be shared among the components. All funding requirements will be met by the General Fund until such time as a different funding mechanism for solid waste activities might be developed.

10.3 Compliance with Diversion Mandates

The City of Milpitas currently diverts approximately 7.5 percent of the solid waste generated in the City from disposal through existing diversion programs. The source reduction, recycling, composting, and special wastes activities and programs selected for implementation are designed to achieve the diversion mandates in AB 939 in coordination with existing (and planned expansions of existing) diversion programs.

Presented on the following page is a summary of the City's integration components and their corresponding diversion targets for the short-term and medium-term planning periods.

Integration Component	Diversion Percentage[1] By 1995	By 2000
Source Reduction	0.1-0.1	0.1-0.1
Recycling[2]	19.0-23.9	41.0-44.9
Composting	6.7-7.1	6.7-7.1
Special Waste	0.3-0.4	0.6-0.7[3]
Total Diversion, New and Existing Programs	26.1-31.5	48.4-52.8

1. Includes new and existing programs.
2. Includes diversion from (1) existing programs, including pre-1991 programs and those implemented in early 1991, and (2) new programs to be implemented during the short-term and medium-term planning periods.
3. Includes 0.3 percent diversion from transportation.

Note that the diversion percentage by 2000 is expected to meet or exceed 50 percent; the lower range of 48.4 shown above reflects a "worst case scenario."

Table 10-1 identifies the solid waste mass balance for 1990, which includes only diversion programs. Tables 10-2 through 10-11 identify the solid waste mass balances, by year, from 1991 through 2000, including diversion rates expected from new diversion programs. The diversion rates shown in Tables 10-2 through 10-11 are anticipated to be achieved by (1) existing, (2) planned expansions of existing, and (3) new source reduction, recycling, and composting activities and programs. A range of tons diverted (and the corresponding percent of waste stream) is shown to reflect the estimated diversion amounts identified in the recycling, composting, and special wastes components.

10.4 Component Priorities

Some materials in the waste stream may be diverted from land disposal by a variety of methods. Paper, for example, is a target material that may be diverted from landfilling through several programs, including (but not limited to) product reuse, curbside recycling, and commercial recycling.

In developing the City's SRRE, priorities had to be set between components for cases involving various available diversion options. Prioritizing

between the specific components and programs or activities for each target material was based on several regulatory, technical, institutional, and economic considerations. These included

- location of the activity or program in the integrated waste management hierarchy
- effectiveness in reducing the volume, weight, or hazard of the targeted wastes
- consistency with existing waste management practices
- cost effectiveness and ease of implementation

Based on these criteria, the components of this SRRE were prioritized to effectively achieve the mandated diversion goals of 25 percent by 1995 and 50 percent by 2000.

10.5 Integrated Schedule

The schedule for implementing programs during the short-term planning period, shown in Tables 10-12 through 10-16, includes all implementation tasks for new and expanded programs, and identifies the agency responsible for implementation, task and milestone dates, funding source availability, and the target date for achieving the diversion.

Table 10-1

SOLID WASTE MASS BALANCE FOR 1990

WASTE STREAM	TONS	% OF WASTE STREAM
SOLID WASTE GENERATED	85,418	100
SOLID WASTE DIVERTED		
Source Reduction	64	0.1
Recycling		
Drop-off	336	0.4
Comm/Ind. Collection	5,839	6.8
Composting		
Non-residential	0	0
Special Wastes	143	0.2
Subtotal	**6,382**	**7.5**
SOLID WASTE TRANSFORMED	177	0.2
SOLID WASTE DISPOSED	78,859	92.3

Table 10-2

SOLID WASTE MASS BALANCE FOR 1991

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	87,536	100
SOLID WASTE DIVERTED		
Source Reduction	53	0.1
Recycling		
Drop-off	1,199 - 2,075	1.4 - 2.4
Res. curbside collection	2,214 - 2,460	2.5 - 2.8
Comm/Ind collection	7,852 - 9,603	9 - 11
Composting		
Non-residential	114	0.1
Special Wastes	79	0.1
Subtotal	**13,585 - 14,382**	**13.2 - 16.4**
SOLID WASTE TRANSFORMED	254	0.3
SOLID WASTE DISPOSED	73,698 - 72,900	86.5 - 83.3

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-3

SOLID WASTE MASS BALANCE FOR 1992

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	89,707	100
SOLID WASTE DIVERTED		
Source Reduction	54	0.1
Recycling		
Drop-off	1,947 - 2,126	2.2 - 2.4
Res. curbside collection	2,243 - 2,512	2.5 - 2.8
Comm/Ind collection	9,419 - 12,110	10.5 - 13.5
Inert solids processing	1,974 - 2,153	2.2 - 2.4
Composting		
Non-residential	1,731 - 1,911	1.9 - 2.1
Residential curbside	897 - 1,346	1 - 1.5
Special Wastes	305 - 350	0.3 - 0.4
Subtotal	**20,480 - 22,561**	**20.7 - 25.2**
SOLID WASTE TRANSFORMED	260	0.3
SOLID WASTE DISPOSED	68,967 - 66,886	79 - 74.5

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-4

SOLID WASTE MASS BALANCE FOR 1993

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	91,932	100
SOLID WASTE DIVERTED		
Source Reduction	55	0.1
Recycling		
Drop-off	1,995 - 2,179	2.2 - 2.4
Res. curbside collection	2,298 - 2,574	2.5 - 2.8
Multi-family collection	92 - 276	0.1 - 0.3
Comm/Ind collection	11,032 - 14,709	12 - 16
Inert solids processing	2,023 - 2,206	2.2 - 2.4
Composting		
Non-residential	2,694 - 2,877	2.9 - 3.1
Residential curbside	1,839 - 2,298	2 - 2.5
Special Wastes	313 - 359	0.3 - 0.4
Subtotal	**25,217 - 27,534**	**24.3 - 30**
SOLID WASTE TRANSFORMED	267	0.3
SOLID WASTE DISPOSED	66,448 - 64,132	75.4 - 69.7

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-5

SOLID WASTE MASS BALANCE FOR 1994

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	94,212	100
SOLID WASTE DIVERTED		
Source Reduction	57	0.1
Recycling		
Drop-off	2,044 - 2,233	2.2 - 2.4
Res. curbside collection	2,355 - 2,638	2.5 - 2.8
Multi-family collection	94 - 283	0.1 - 0.3
Comm/Ind collection	11,305 - 15,074	12 - 16
Inert solids processing	2,073 - 2,261	2.2 - 2.4
Composting		
Non-residential	3,703 - 3,891	3.9 - 4.1
Residential	2,638 - 2,826	2.8 - 3
Special Wastes	320 - 367	0.3 - 0.4
Subtotal	**28,480 - 29,630**	**26.1 - 31.5**
SOLID WASTE TRANSFORMED	273	0.3
SOLID WASTE DISPOSED	65,458 - 64,309	73.6 - 68.2

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-6

SOLID WASTE MASS BALANCE FOR 1995

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	96,548	100
SOLID WASTE DIVERTED		
Source Reduction	58	0.1
Recycling		
Drop-off	2,095 - 2,288	2.2 - 2.4
Res. curbside collection	2,414 - 2,703	2.5 - 2.8
Multi-family collection	97 - 290	0.1 - 0.3
Comm/Ind collection	11,557 - 15,448	12 - 16
Inert solids processing	2,124 - 2,317	2.2 - 2.4
Composting		
Non-residential	3,794 - 3,987	3.9 - 4.1
Residential	2,703 - 2,896	2.8 - 3
Special Wastes	328 - 377	0.3 - 0.4
Subtotal	**29,158 - 30,364**	**26.1 - 31.5**
SOLID WASTE TRANSFORMED	280	0.3
SOLID WASTE DISPOSED	67,111 - 65,904	73.6 - 68.2

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-7

SOLID WASTE MASS BALANCE FOR 1996

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	98,943	100
SOLID WASTE DIVERTED		
Source Reduction	59	0.1
Recycling		
Drop-off	2,147 - 2,345	2.2 - 2.4
Res. curbside collection	3,463 - 4,749	3.5 - 4.8
Multi-family collection	99 - 297	0.1 - 0.3
Comm/Ind collection	16,791 - 20,778	17 - 21
Inert solids processing	2,177 - 2,375	2.2 - 2.4
Composting		
Non-residential	3,888 - 4,086	3.9 - 4.1
Residential	2,770 - 2,968	2.8 - 3
Special Wastes	336 - 386	0.3 - 0.4
SOLID WASTE TRANSFORMED	287	0.3
Subtotal	**32,018 - 38,330**	**32.4 - 38.8**
SOLID WASTE DISPOSED	66,925 - 60,612	67.6 - 61.2

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-8

SOLID WASTE MASS BALANCE FOR 1997

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	101,397	100
SOLID WASTE DIVERTED		
Source Reduction	61	0.1
Recycling		
Drop-off	3,214 - 3,417	3.2 - 3.4
Res. curbside collection	3,549 - 4,867	3.5 - 4.8
Multi-family collection	101 - 304	0.1 - 0.3
Comm/Ind collection	22,277 - 31,433	22 - 31
Inert solids processing	2,231 - 2,434	2.2 - 2.4
Composting		
Non-residential	3,985 - 4,188	3.9 - 4.1
Residential	2,839 - 3,042	2.8 - 3
Special Wastes	345 - 395	0.3 - 0.4
SOLID WASTE TRANSFORMED	294	0.3
Subtotal	**38,896 - 50,435**	**38.4 - 49.8**
SOLID WASTE DISPOSED	62,501 - 50,962	61.6 - 50.2

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-9

SOLID WASTE MASS BALANCE FOR 1998

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	103,911	100
SOLID WASTE DIVERTED		
Source Reduction	62	0.1
Recycling		
Drop-off	3,294 - 3,502	3.2 - 3.4
Res. curbside collection	3,637 - 4,988	3.5 - 4.8
Multi-family collection	104 - 312	0.1 - 0.3
Comm/Ind collection	28,025 - 32,212	27 - 31
Inert solids processing	2,286 - 2,494	2.2 - 2.4
Composting		
Non-residential	4,084 - 4,292	3.9 - 4.1
Residential	2,910 - 3,117	2.8 - 3
Special Wastes	353 - 405	0.3 - 0.4
SOLID WASTE TRANSFORMED	301	0.3
Subtotal	**45,056 - 51,685**	**43.4 - 49.8**
SOLID WASTE DISPOSED	58,855 - 52,226	56.6 - 50.2

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-10

SOLID WASTE MASS BALANCE FOR 1999

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	106,488	100
SOLID WASTE DIVERTED		
Source Reduction	64	0.1
Recycling		
Drop-off	3,376 - 3,589	3.2 - 3.4
Res. curbside collection	3,727 - 5,111	3.5 - 4.8
Multi-family collection	106 - 319	0.1 - 0.3
Comm/Ind collection	34,044 - 38,336	32 - 36
Inert solids processing	2,343 - 2,556	2.2 - 2.4
Composting		
Non-residential	4,185 - 4,398	3.9 - 4.1
Residential	2,982 - 3,195	2.8 - 3
Special Wastes	362 - 415	0.3 - 0.4
SOLID WASTE TRANSFORMED	309	0.3
Subtotal	**51,498 - 58,292**	**48.4 - 54.8**
SOLID WASTE DISPOSED	54,991 - 48,197	51.6 - 45.2

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-11

SOLID WASTE MASS BALANCE FOR 2000

WASTE STREAM	TONS*	% OF WASTE STREAM*
SOLID WASTE GENERATED	109,129	100
SOLID WASTE DIVERTED		
Source Reduction	65	0.1
Recycling		
Drop-off	3,459 - 3,678	3.2 - 3.4
Res. curbside collection	3,820 - 5,238	3.5 - 4.8
Multi-family collection	109 - 327	0.1 - 0.3
Comm/Ind collection	34,889 - 37,071	32 - 34
Inert solids processing	2,401 - 2,619	2.2 - 2.4
Composting		
Non-residential	4,289 - 4,507	3.9 - 4.1
Residential	3,056 - 3,274	2.8 - 3
Special Wastes	371 - 426	0.3 - 0.4
SOLID WASTE TRANSFORMED	316	0.3
Subtotal	**52,775 - 57,522**	**48.4 - 52.8**
SOLID WASTE DISPOSED	56,354 - 51,607	51.6 - 47.2

* A low and high amount is shown in order to indicate that new programs to be implemented have an estimated range of diversion amounts.

Table 10-12
1991 - 1995 Implementation Schedule

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Date	Entity Responsible	Funding Source
Recycling	All	Manual and mechanized recovery operations	Publicize program and sponsor information sessions for businesses Keep abreast of new programs at The Recyclery Coordinate with BFI regarding issues or concerns at The Recyclery.	7/91	Milpitas Community Development Department	General Fund
Recycling	Commercial/ Industrial	Expand Existing Programs	Increase education and public information program	1/93	Milpitas Community Development Department	General Fund
Education and Public Information	All	Brochures	Distribute brochures to businesses and residents announcing new recycling programs	10/91	Milpitas Community Development Department	General Fund
		Newsletter	Create a newsletter Develop community interest Disseminate to interested individuals	10/91	Milpitas Community Development Department	General Fund
		New Residents Program	Distribute material to new residents regarding recycling, source reduction, and composting services available	10/91	Milpitas Community Development Department	General Fund
		Internship Program	Develop an internship program with students from surrounding universities	3/92	Milpitas Community Development Department	General Fund
	Residents	Junk mail Reduction	Disseminate information to decrease the amount of junk mail residents receive	7/92	Milpitas Community Development Department	General Fund

Table 10-12
1991 - 1995 Implementation Schedule
(Continued)

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Date	Entity Responsible	Funding Source
		Waste Diversion Thermometer	Develop a visible program that tracks the City's waste diversion efforts	3/92	Milpitas Community Development Department	General Fund
Recycling	Industrial/ Institutional	Inert solids	Amend City contracts to include stipulation that City contractors take used asphalt and concrete to materials processor	6/92	Milpitas Community Development Department	General Fund
Source Reduction	Government	Reuse and reduce program	Establish source reduction program in all City offices and operations • employee education • double-sided copying • procurement programs	1/92	Milpitas Community Development Department	General Fund
	All	Technical Assistance	Provide workshops, seminars, and written materials on backyard composting Develop sample mulching and procurement contracts for use by businesses	7/92	Milpitas Community Development Department	General Fund
	All	Public Education	Prepare materials to heighten awareness of source reduction measures the community can adopt to reduce waste	7/92	Milpitas Community Development Department	General Fund
Composting	Residents	Mechanized yard waste separation	Establish a residential yard waste pilot program Publicize program Amend City refuse collection contract Set up program	9/92	Milpitas Community Development Department	General Fund

Table 10-12
1991 - 1995 Implementation Schedule
(Continued)

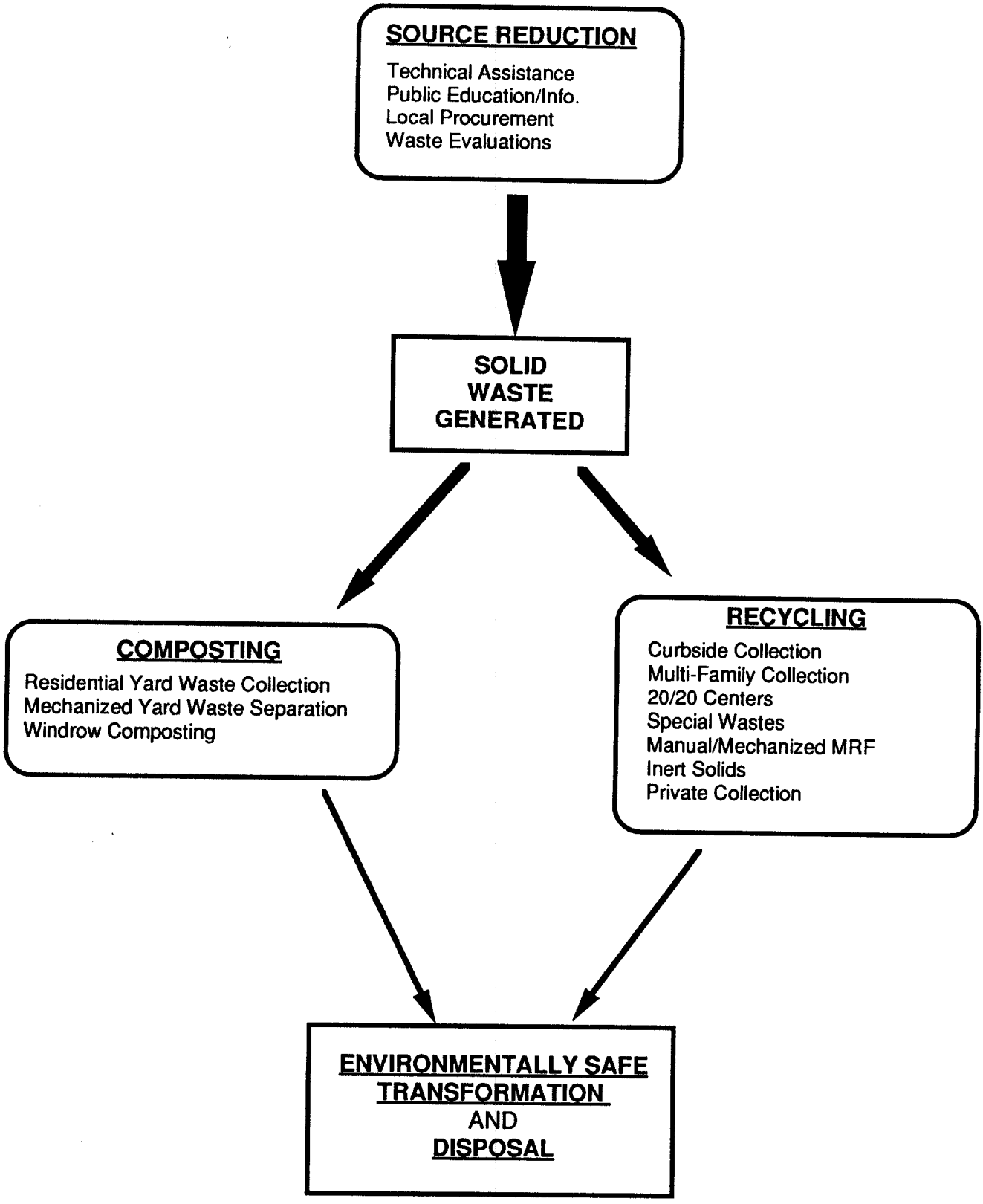
Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Date	Entity Responsible	Funding Source
Composting	Residents	Yard Waste collection	Establish city-wide yard waste collection program Publicize program	6/93	Milpitas Community Development Department	
	All	Develop windrow composting system				
Education and Public Information	All	Public service announce-, ments/tele-vision pro gramming/ video tape libraries/ coordination with community groups/partici-pation in local events/how-to-information/ composting education/tech-nical assist-ance/mailed inserts/work-shops/speakers bureau/ consumer awareness/ promotional materials	Implementation talks are described in detail in Section 7, education and public information	1/92-6/93	Milpitas Community Development Department	General Fund

Table 10-12
1991 - 1995 Implementation Schedule
(Continued)

Type of Diversion	Targeted Generator	Type of Program	Implementation Tasks	Date	Entity Responsible	Funding Source
Source Reduction	Multi-family Residents	Source-separated	Amend City refuse collection contract Set up pilot programs at different types of multi-family facilities to determine the most effective programs Purchase collection containers Publicize most-effective program	1/93	Milpitas Community Development Department	General Fund
	Commercial/ Industrial	Source separated recycling program	Amend City refuse collection contract Interface with merchants and office managers to implement recycling program Purchase collection containers	1/93	Milpitas Community Development Department	General Fund
	All	Public recognition and awards	Publicize program to gather recommendations Select recipients Publicize and award recipients	1/93	Milpitas Community Development Department	General Fund
	Residents	Variable rate structure	Perform rate study Modify contract with hauler Purchase equipment Publicize modified rate structure	6/93	Milpitas Community Development Department	General Fund

Figure 10-1

INTEGRATED SOLID WASTE MANAGEMENT
City of Milpitas



ACRONYMS

AB	Assembly Bill
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbons
CIP	Capital Improvement Project
CIWMB	California Integrated Waste Management Board (formerly the California Waste Management Board)
CoSWMP	County Solid Waste Management Plan
DOC	California Department of Conservation
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
EPS	expanded polystyrene foam
HDPE	high density polyethylene
HHW	household hazardous waste
HHWF	household hazardous waste facility
IWMP	Integrated Waste Management Plan
LDPE	low density polyethylene
LEA	local enforcement agency
MRF	material recovery facility
MSW	municipal solid waste
NRC	National Recycling Coalition

OCC	old corrugated containers
ONP	old newspaper
PCB	polychlorinated biphenyls
PET	polyethylene terephthalate plastic
SB	Senate Bill
SQG	small quantity generator
SRRE	Source Reduction and Recycling Element

GLOSSARY OF TERMS*

Ash - The residue from the combustion of any solid or liquid material.

Bottle Bill[2] - A law requiring deposits on beverage containers.

Broker[2] - An individual or group of individuals that act as an agent or intermediary between the sellers and buyers of recyclable materials.

Buy-Back Recycling Center - A facility which pays a fee for the delivery and transfer of ownership to the facility of source separated materials, for the purpose of recycling or composting.

Capital Costs - Those direct costs incurred in order to acquire real property assets, such as land, buildings and building additions; site improvements; machinery; and equipment.

Commercial Solid Wastes - Solid waste originating from stores, business offices, commercial warehouses, hospitals, educational, health care, military, and correctional institutions, non-profit research organizations, and government offices. Commercial solid wastes do not include construction and demolition waste.

Commercial Unit - A site zoned for a commercial business and which generates commercial solid wastes.

Commingled Recyclables[2] - A mixture of several recyclable materials in one container.

Composition - A set of identified solid waste materials, categorized into waste categories and waste types pursuant to 14CCR 18722.

Compost[2] - The relatively stable decomposed organic material resulting from the composting process; is also referred to as humus.

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* Footnotes citing the source of the definitions are presented at the end of the glossary.

Composting - A method of waste treatment which produces a product meeting the definition of "compost" in Public Resources Code section 40116.

Composting Facility - A permitted solid waste facility at which composting is conducted and which produces a product meeting the definition of "compost" in Public Resources Code section 40116.

Construction and Demolition Waste - Solid wastes such as building materials and packaging and rubble resulting from construction, remodeling, repair and demolition operations on pavements, houses, commercial buildings, and other structures. Construction refers to SIC Codes 152 through 1794, 1796, and 1799. Demolition refers to SIC Code 1795.

Cost-Effective - A measurement of cost compared to an unvalued output (e.g., the cost per ton of solid waste collected) such that the lower the cost, the more cost-effective the action.

Cullet[2] - Clean, generally color-sorted, crushed glass used to make new glass products.

Curbside Recycling Collection[3] - The separation of residential wastes into categories at its point of origin or commingled recyclable materials for the purpose of recycling pickup at the street curb.

Disposal - "The management of solid waste through landfilling or transformation at permitted solid waste facilities.

Disposal Capacity - The capacity (expressed in either weight in tons or its volumetric equivalent in cubic yards) which is (1) either currently available at a permitted solid waste landfill, or (2) will be needed for the disposal of solid waste generated within the jurisdiction over a specified period of time.

Disposal Site[3] - General term used for a transfer station or landfill where waste is disposed.

Diversion Alternative - Any activity existing (or occurring in the future) which has been, is, or will be implemented by a jurisdiction and could result in or promote the diversion of solid waste through source reduction, recycling or composting.

Diversion Rate[2] - A measure of the amount of waste material being diverted for recycling compared with the total amount that was previously thrown away.

Drop-Off Recycling Center - A facility that accepts delivery or transfer of ownership of source separated materials for the purpose of recycling or composting, without paying a fee. Donation of materials to collection organizations, such as charitable groups, is included in this definition.

End Market or End Use - The use or uses of a diverted material or product which has been returned to the economic mainstream, whether or not this return is through sale of the material or product. The material or product can have a value which is less than the solid waste disposal cost.

Feasible - A specified program, method, or other activity can, on the basis of cost, technical requirements and time frame for accomplishment, be undertaken to achieve the objectives and tasks identified by a jurisdiction in a Countywide Integrated Waste Management Plan.

Generator[4] - Any person, as defined by section 40170 of the Public Resource Code, whose act or process produces solid waste as defined in Public Resources Code section 40191, or whose act first causes solid waste to become subject to regulation.

Hazard - Having one or more of the characteristics that cause a substance or combination of substances to qualify as a hazardous material, as defined by section 66084 of Title 22 of the California Code of Regulations.

Industrial Solid Waste - Solid waste originating from mechanized manufacturing facilities, factories, refineries, construction and demolition projects, and publicly operated treatment works, and/or solid wastes placed in debris boxes.

Landfill[3] - A disposal site employing an engineered method of disposing solid wastes on land in a manner that minimizes environmental hazards by spreading solid wastes in layers, compacting the waste to the smallest practical volume and applying cover materials at the end of each operating day.

Manual Separation[4] - The separation of wastes by hand. Sometimes called hand-picking or hand sorting, manual separation is done in the home or office by keeping food wastes separate from newspaper, or in a recovery plant by picking out large cardboard or metal objects.

Market Development - A method of increasing the demand for recovered materials so that end markets for the materials are established, improved or stabilized and thereby become more reliable.

Market Development Zones[2] - Areas in a community primed for the establishment of new businesses that will manufacture products made from recycled materials, i.e., an economic development zone formed specifically for manufacturing activities related to recycled products.

Materials Recovery Facility - A permitted solid waste facility where solid wastes or recyclable materials are sorted or separated, by hand or by use of machinery, for the purposes of recycling or composting.

Medium-Term Planning Period - A period beginning in the year 1996 and ending in the year 2000.

Municipal Solid Waste or MSW - All solid wastes generated by residential, commercial, and industrial sources, and all solid waste generated at construction and demolition sites, at food-processing facilities, and at treatment works for water and waste water, which are collected and transported under the authorization of a jurisdiction or are self-hauled.

Non-Recyclable Paper - Discarded paper which has no market value because of its physical or chemical or biological characteristics or properties.

Non-Renewable Resource - A resource which cannot be replenished, such as those resources derived from fossil fuels.

Normally Disposed Of - Those waste categories and waste types which: (1) have been demonstrated by the Solid Waste Generation Study, conducted pursuant to CCR, Title 14, Section 18722, to be in a solid waste stream attributed to the jurisdiction as of January 1, 1990; (2) which are deposited at permitted solid waste landfills or transformation facilities subsequent to any recycling or composting activities at those solid waste facilities; and (3) which are allowed to be considered in the establishment of the base amount of solid waste from which source reduction, recycling, and composting levels shall be calculated, pursuant to the limitations listed in Public Resources Code section 41781(b).

Permitted Capacity - That volume in cubic yards or weight in tons which a solid waste facility is allowed to receive, on a periodic basis, under the terms and conditions of that solid waste facility's current Solid Waste

Facilities Permit issued by the local enforcement agency and concurred in by the California Integrated Waste Management Board.

Permitted Landfill - A solid waste landfill for which there exists a current Solid Waste Facilities Permit issued by the local enforcement agency and concurred in by the California Integrated Waste Management Board.

Purchase Preference - A preference provided to a wholesale or retail commodity dealer which is based upon the percentage amount that the costs of products made from recycled materials may exceed that of similar non-recycled products and still be deemed the lowest bid.

Rate Structure - That set of prices established by a jurisdiction, special district (as defined in Government Code section 56036), or other rate setting authority to compensate the jurisdiction, special district or rate setting authority for the partial or full costs of the collection, processing, recycling, composting, and/or transformation or landfill disposal of solid wastes.

Re-Use - The use, in the same form as it was produced, of a material which might otherwise be discarded.

Recovered Materials - Material which has been retrieved or diverted from disposal or transformation for the purpose of recycling, re-use or composting. "Recovered material" does not include those materials generated from and reused on site for manufacturing purposes.

Recyclables[2] - Materials that still have useful physical or chemical properties after serving their original purpose and that can, therefore, be reused or remanufactured into additional products.

Recycling[2] - A series of activities by which materials that would become or otherwise remain waste are diverted from the solid waste stream for collection, separation, and processing and are used as raw materials or feedstocks in lieu of, or in additional to, virgin materials in the manufacture of goods sold or distributed in commerce, or the reuse of such materials as substitutes for goods made from virgin materials.

Repairability - The ability of a product or package to be restored to a working or usable state at a cost which is less than the replacement cost of the product or package.

Residential solid waste - Solid waste originating from single-family or multiple family dwellings.

Reusability - The ability of a product or package to be used more than once in its same form.

Roll-off Container[2] - A large waste container that fits onto a tractor trailer that can be dropped off and picked up hydraulically.

Salvage - The controlled removal of solid waste materials at a permitted solid waste facility for recycling re-use, composting, or transformation.

Sanitary Landfill[2] - Land waste disposal site that is located to minimize water pollution from runoff and leaching. Waste is spread in thin layers, compacted, and covered with a fresh layer of soil each day to minimize pest, aesthetic, disease, air pollution, and water pollution problems.

Scavenger[2] - One who illegally removes materials at any point in the solid waste management system.

Scrap[2] - Discarded or rejected industrial waste material often suitable for recycling.

Seasonal - Those periods of time during the calendar year which are identifiable by distinct cyclical patterns of local climate, demography, trade or commerce.

Short-Term Planning Period - A period beginning in the year 1991 and ending in the year 1995.

SIC Code - The standards published in the U.S. Standard Industrial Classification Manual (1987).

Source Reduction[3] - The design, manufacture, acquisition, and reuse of materials so as to minimize the quantity and/or toxicity of waste produced. Source reduction prevents waste either by redesigning products or by otherwise changing societal patterns of consumption, use, and waste generation.

Source Separated - The segregation, by the generator, of materials designated for separated collection for some form of materials recovery or special handling.

Statistically Representative - Representative and random samples of units that are taken from a population sample pursuant to the procedures given in Appendix 1 of Article 6.1 of *Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans.* For the purposes of this definition, population sample includes, but

is not limited to, a sample from a population of solid waste generation sites, solid waste facilities and recycling facilities, or a population of items of materials and solid wastes in a refuse vehicle load of solid waste.

Tipping Fee[2] - A fee, usually dollars per ton, for the unloading or dumping of waste at a landfill, transfer station, recycling center, or waste-to-energy facility, usually stated in dollars per ton; also called a disposal or service fee.

Ton - A unit of weight in the U.S. Customary System of Measurement, an avoirdupois unit equal to 2,000 pounds. Also called short ton or net ton.

Transfer Station[2] - A permanent facility where waste materials are taken from smaller collection vehicles and placed in larger vehicles for transport, including truck trailers, railroad cars, or barges. Recycling and some processing may also take place at transfer station.

Transformation Facility - A facility whose principal function is to convert, combust, or otherwise process solid waste by incineration, pyrolysis, destructive distillation, or gasification, or to chemically or biologically process solid wastes, for the purpose of volume reduction, synthetic fuel production, or energy recovery.

Volume - A three dimensional measurement of the capacity of a region of space or a container. Volume is commonly expressed in terms of cubic yards or cubic meters. Volume is not expressed in terms of mass or weight.

Waste[4] - Material which is discarded by the generator as no longer useful to the generator.

Waste Categories - The grouping of solid wastes with similar properties into major solid waste classes, such as grouping together office, corrugated and newspaper as a paper waste category, as identified by the solid waste classification system contained in 14CCR 18722, except where a component-specific requirement provides an alternative means of classification.

Waste Diversion - Diversion of solid waste, in accordance with all applicable federal, state and local requirements, from disposal at solid waste landfills or transformation facilities through source reduction, recycling or composting.

Waste Stream[2] - A term describing the total flow of solid waste from homes, businesses, institutions and manufacturing plants that must be recycled, burned, or disposed of in landfills; or any segment thereof, such as the "residential waste stream" or the "recyclable waste stream."

Waste Type - Identified wastes having the features of a group or class of wastes which are distinguishable from any other waste type, as identified by the waste classification system contained in 14CCR, section 18722 of Article 6.1, alternative means of classification.

References

1. Unless otherwise noted, all definitions are from Section 18720, Article 3, Chapter 9, Title 14 of the California Code of Regulations.
2. As defined in the *Decision-Maker's Guide to Solid Waste Management,* U.S. Environmental Protection Agency, November 1989.
3. *Integrated Waste Reduction and Recycling Plan for the City of Lodi,,* February 1991, California Waste Removal Systems.
4. *Implementing AB 939 - A Manual for Preparing Source Reduction and Recycling Elements.* Prepared for Solid Waste Management Department, Sanitation Districts of Los Angeles County, January 1991.

EVALUATION APPROACH

Evaluation Criteria

The *Planning Guidelines and Procedures for Preparing and Revising Countywide Integrated Waste Management Plans, Section 18733.3, Chapter 9, Division 7, Title 14, California Code of Regulations,* require certain criteria to be used in evaluating alternative programs that are identified in the source reduction, recycling, composting, and special wastes components. These criteria reflect a broad range of technical, economic, and socio-political considerations. The evaluation criteria are described below in light of their application to integrated waste management programs. In addition, a rating system is provided for each criterion; a brief explanation of the rating is included for each of the criteria.

1. Effectiveness

Effectiveness is the relative effectiveness of the alternative in reducing the amount of targeted material(s) in the solid waste stream. This criterion is rated as follows:

High:	effective
Medium:	negligible effect
Low:	ineffective

2. Hazard[1]

Hazard refers to the potential hazards that are created by the alternative. Hazards can include health risks, injury, fire, or others identified for the alternative. A high rating corresponds to few or no potential hazards. This criterion is rated as follows:

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[1] Note that several of the criteria—hazard, institutional barriers, and consequences on the waste stream—are inherently negative. A rating of high for these criteria corresponds to few or no impacts associated with these potential problems.

High: There are few or no potential hazards. All potential hazards can be controlled.

Medium: There are some potential hazards that, for the most part, can be controlled.

Low: Potential hazards exist that are not completely understood or controllable, or the alternative increases the potential hazards.

3. Ability to Accommodate Change

Ability to Accommodate Change refers to the alternative's ability to accommodate changing economic, technological, and social conditions. This criterion is rated as follows:

High: The alternative is anticipated to be readily adaptable in meeting changing conditions. Significant changes in the program are not anticipated.

Medium: The alternative is anticipated to demonstrate a moderate ability to respond to changing conditions. Significant changes in the program may be required.

Low: The alternative has a limited ability to respond to changing conditions. Limitations may include inflexible or unpredictable markets for diverted materials, existing contracts with waste management companies, operational limitations, unwillingness of the public to participate in programs, or others identified for the alternative.

4. Consequences on the Waste Stream

Consequences on the Waste Stream reflects the impacts of the alternative on the waste stream. These impacts include shifts in the type of waste generated or the composition of the wastes, as well as other characteristic changes, such as waste density, moisture content, and heating value. This criterion is rated as follows:

High: The alternative would not result in the creation of non-recyclable, unmarketable, or otherwise undesirable materials, or materials that are not creditable under AB 939.

Medium: The alternative would result in the creation of little non-recyclable, unmarketable, or otherwise undesirable materials, or materials that are not creditable under AB 939.

Low: The alternative would significantly shift solid waste production toward non-recyclable, unmarketable, and otherwise undesirable materials; or materials that are not creditable under AB 939.

5. Implementation Period

Implementation Period refers to the potential for implementing the alternative in the short-term or medium-term planning periods. This criterion is rated as follows:

High: Implementation of the alternative is anticipated to be completed by 1995.

Medium: Implementation of the alternative is anticipated to be completed by 2000.

Low: Implementation of the alternative could not be completed until after 2000.

6. Facility Requirements

Facility Requirements refers to the need for expanding existing facilities or building new facilities to support the implementation of the alternative. This criterion is rated as follows:

High: The alternative can be easily integrated into existing facilities.

Medium: Existing facilities must be expanded or altered to accommodate implementation of the alternative.

Low: New facilities must be developed to accommodate implementation of the alternative.

7. Consistency with Local Plans and Policies

Consistency with Local Plans and Policies reflects the alternative's consistency with local conditions, including local plans, policies, or ordinances. This criterion is rated as follows:

High: There are no existing local plans, policies, or ordinances that would impede the implementation of the alternative.

Medium: The alternative would require minor changes to existing local plans, policies, or ordinances for implementation.

Low: The alternative would require major changes to existing local plans, policies, or ordinances for implementation.

8. Institutional Barriers

Institutional Barriers refers to the potential for institutional barriers (such as long-term franchise agreements or other contracts), to impact the implementation of the alternative. This criterion is rated as follows:

High: There are no existing institutional barriers to the alternative.

Medium: The alternative is impacted by existing institutional barriers over which the jurisdiction maintains some control.

Low: The alternative is impacted by existing institutional barriers that are not under the control of the jurisdiction.

9. Estimated Cost

Estimated Cost reflects the estimated order-of-magnitude implementation costs of the alternative, including capital costs and operating costs. A high rating corresponds to a relatively low order-of-magnitude cost. This criterion is rated as follows:

High:	$0-50,000
Medium:	$50,000-200,000
Low:	> $200,000

10. End Uses

End Uses reflects the availability of markets for the diverted materials. This criterion is rated as follows:

High:	Available end uses are relatively stable.
Medium:	End uses are available, but are subject to moderate fluctuations. The potential for the development of short-term markets may exist.
Low:	End uses are currently unavailable or unreliable, though the potential for the development of long-term or medium-term markets may exist.

Table B-1 SUMMARY OF WASTE GENERATED COMPOSTION FOR THE CITY OF PALO ALTO
(WEIGHT PERCENT, 1990)

	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SELF HAUL	
PAPER: (total)	**46.89**		**48.52**		**17.83**		**2.56**	
corrugated containers		4.38		10.42		5.99		0.85
newspaper		17.08		4.30		1.90		0.12
high grade ledger paper		2.32		7.77		1.42		0.00
mixed paper		14.58		19.90		6.41		0.66
other paper		10.53		6.12		2.12		0.93
PLASTICS: (total)	**5.98**		**10.05**		**4.73**		**3.72**	
HDPE containers		0.49		1.38		0.01		0.00
PET containers		0.47		0.06		0.04		0.01
film plastics		2.56		3.55		1.79		0.19
other plastics		2.46		5.06		2.87		3.52
GLASS: (total)	**6.82**		**3.70**		**1.04**		**0.05**	
refillable bev. containers		0.26		0.00		0.01		0.00
CA redemption value		3.21		2.29		0.09		0.00
other recyclable glass		2.52		0.53		0.08		0.00
other non-recyclable glass		0.83		0.87		0.87		0.05
METALS: (total)	**3.80**		**5.75**		**18.42**		**13.89**	
aluminum cans		0.50		0.32		0.04		0.02
bi-metal containers		0.01		0.23		0.00		0.00
tin cans		0.95		0.00		0.00		0.00
other ferrous		1.74		4.52		15.83		12.79
other aluminum		0.57		0.59		0.00		0.00
other non-ferrous		0.02		0.00		0.90		1.08
white goods		0.01		0.09		1.64		0.00
YARD WASTE: (total)	**23.10**	**23.10**	**14.96**	**14.96**	**10.22**	**10.22**	**18.26**	**18.26**
OTHER ORGANICS: (total)	**10.57**		**13.21**		**31.73**		**38.00**	
food waste		5.38		5.09		0.31		0.80
tires/rubber		0.35		0.81		0.00		0.00
wood wastes		1.99		5.57		21.51		18.25
agricultural crop residues		0.00		0.42		0.00		0.00
manure		0.00		0.00		0.00		0.00
textiles/leather		1.54		1.33		9.91		18.95
other misc. organics		1.31		0.00		0.00		0.00
OTHER WASTES: (total)	**0.83**		**3.75**		**16.03**		**23.52**	
inert solids		0.42		3.67		15.99		23.52
household hazardous wastes		0.41		0.08		0.05		0.00
SPECIAL WASTES: (total)	**0.00**		**0.06**		**0.00**		**0.00**	
ash		0.00		0.00		0.00		0.00
sewage sludge		0.00		0.00		0.00		0.00
industrial sludge		0.00		0.00		0.00		0.00
asbestos		0.00		0.00		0.00		0.00
auto shredder waste		0.00		0.00		0.00		0.00
auto bodies		0.00		0.00		0.00		0.00
other special waste		0.00		0.06		0.00		0.00
TOTAL		**100.00**		**100.00**		**100.00**		**100.00**

Table B-2 SUMMARY OF WASTE GENERATED COMPOSTION FOR THE CITY OF SUNNYVALE

(WEIGHT PERCENT, 1990)

	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SELF HAUL	
PAPER: (total)	**43.62**		**54.62**		**35.45**		**10.67**	
corrugated containers		5.46		22.98		13.42		3.37
newspaper		13.77		4.39		1.79		0.13
high grade ledger paper		0.80		2.57		6.20		1.61
mixed paper		14.55		13.65		8.87		0.00
other paper		9.04		11.03		5.17		5.55
PLASTICS: (total)	**6.98**		**11.72**		**16.05**		**5.79**	
HDPE containers		0.76		1.48		2.90		0.00
PET containers		0.42		0.11		0.01		0.28
film plastics		2.73		3.92		3.69		1.82
other plastics		3.08		6.21		9.45		3.69
GLASS: (total)	**5.70**		**3.31**		**2.23**		**0.05**	
refillable bev. containers		1.46		1.16		0.29		0.00
CA redemption value		1.49		1.49		0.25		0.00
other recyclable glass		2.34		0.30		1.54		0.05
other non-recyclable glass		0.42		0.36		0.15		0.00
METALS: (total)	**3.88**		**4.32**		**6.53**		**5.29**	
aluminum cans		0.66		0.33		0.17		0.00
bi-metal containers		0.00		0.00		0.00		0.00
tin cans		1.56		1.56		0.28		0.00
other ferrous		1.10		2.25		5.64		5.17
other aluminum		0.13		0.10		0.26		0.12
other non-ferrous		0.14		0.04		0.18		0.00
white goods		0.29		0.04		0.00		0.00
YARD WASTE: (total)	**23.26**	**23.26**	**4.70**	**4.70**	**2.59**	**2.59**	**12.41**	**12.41**
OTHER ORGANICS: (total)	**15.35**		**20.92**		**10.11**		**18.86**	
food waste		7.81		17.65		1.30		0.29
tires/rubber		1.35		1.28		0.21		0.01
wood wastes		0.96		0.37		7.82		14.65
agricultural crop residues		0.00		0.00		0.00		0.00
manure		0.00		0.00		0.00		0.00
textiles/leather		1.35		0.71		0.63		3.19
other misc. organics		3.88		0.91		0.15		0.72
OTHER WASTES: (total)	**1.21**		**0.41**		**27.04**		**46.93**	
inert solids		0.88		0.32		26.54		43.84
household hazardous wastes		0.34		0.09		0.50		3.09
SPECIAL WASTES: (total)	**0.00**		**0.00**		**0.00**		**0.00**	
ash		0.00		0.00		0.00		0.00
sewage sludge		0.00		0.00		0.00		0.00
industrial sludge		0.00		0.00		0.00		0.00
asbestos		0.00		0.00		0.00		0.00
auto shredder waste		0.00		0.00		0.00		0.00
auto bodies		0.00		0.00		0.00		0.00
other special waste		0.00		0.00		0.00		0.00
TOTAL		**100.00**		**100.00**		**100.00**		**100.00**

Table B-3 SUMMARY OF WASTE GENERATED COMPOSTION FOR THE CITY OF SANTA CLARA
(WEIGHT PERCENT, 1990)

	RESIDENTIAL		COMMERCIAL		INDUSTRIAL	
PAPER: (total)	**40.32**		**42.68**		**32.80**	
corrugated containers		5.47		17.28		17.30
newspaper		11.61		2.51		1.90
high grade ledger paper		1.08		6.99		2.70
mixed paper		14.35		9.79		6.00
other paper		7.80		6.10		4.90
PLASTICS: (total)	**5.82**		**4.54**		**7.80**	
HDPE containers		1.25		0.87		2.20
PET containers		0.30		0.20		0.00
film plastics		1.76		1.56		2.40
other plastics		2.51		1.91		3.20
GLASS: (total)	**5.18**		**3.30**		**1.10**	
refillable bev. containers		1.16		0.43		0.00
CA redemption value		2.64		1.82		0.70
other recyclable glass		1.05		1.04		0.30
other non-recyclable glass		0.32		0.00		0.10
METALS: (total)	**2.17**		**8.80**		**4.40**	
aluminum cans		0.28		0.12		0.20
bi-metal containers		0.14		0.00		0.00
tin cans		0.91		0.78		0.30
other ferrous		0.38		7.37		2.80
other aluminum		0.28		0.09		0.20
other non-ferrous		0.00		0.03		0.00
white goods		0.17		0.42		0.90
YARD WASTE: (total)	**21.23**	**21.23**	**5.81**	**5.81**	**8.40**	**8.40**
OTHER ORGANICS: (total)	**23.27**		**29.70**		**40.60**	
food waste		13.55		11.87		1.80
tires/rubber		0.09		2.01		4.60
wood wastes		1.84		6.70		15.70
agricultural crop residues		0.00		0.00		0.00
manure		0.34		0.00		0.00
textiles/leather		1.08		0.17		0.90
other misc. organics		6.37		8.94		17.60
OTHER WASTES: (total)	**2.01**		**5.18**		**4.90**	
inert solids		1.25		4.49		1.10
household hazardous wastes		0.77		0.69		3.80
SPECIAL WASTES: (total)	**0.00**		**0.00**		**0.00**	
ash		0.00		0.00		0.00
sewage sludge		0.00		0.00		0.00
industrial sludge		0.00		0.00		0.00
asbestos		0.00		0.00		0.00
auto shredder waste		0.00		0.00		0.00
auto bodies		0.00		0.00		0.00
other special waste		0.00		0.00		0.00
TOTAL		**100.00**		**100.00**		**100.00**

Table B-4 SUMMARY OF WASTE GENERATED COMPOSITION FOR THE CITY OF MILPITAS
(WEIGHT PERCENT)

	RESIDENTIAL		COMMERCIAL		INDUSTRIAL		SELF		TOTAL	
PAPER: (total)	**44.28**		**46.61**		**25.89**		**6.61**		**25.39**	
corrugated containers		5.11		16.89		12.24		2.11		9.30
newspaper		14.15		3.73		1.86		0.13		3.69
high grade ledger paper		1.40		5.78		3.44		0.81		2.85
mixed paper		14.49		14.45		7.09		0.33		7.83
other paper		9.12		7.75		4.06		3.24		5.32
PLASTICS: (total)	**8.28**		**9.77**		**6.69**		**4.75**		**7.61**	
HDPE containers		0.83		1.24		1.70		0.00		1.03
PET containers		0.39		0.13		0.02		0.14		0.13
film plastics		2.35		3.01		2.63		1.01		2.23
other plastics		2.69		4.39		5.17		3.60		4.22
GLASS: (total)	**5.96**		**3.43**		**1.46**		**0.05**		**2.15**	
refillable bev. containers		0.96		0.53		0.10		0.00		0.29
CA Redemption Value		2.45		1.87		0.35		0.00		0.87
other recyclable glass		1.97		0.62		0.64		0.03		0.69
other non-recyclable glass		0.52		0.41		0.37		0.03		0.31
METALS: (total)	**3.28**		**6.29**		**9.78**		**9.59**		**8.06**	
aluminum cans		0.48		0.26		0.14		0.01		0.18
bi-metal containers		0.05		0.08		0.00		0.00		0.02
tin cans		1.14		0.78		0.19		0.00		0.40
other ferrous		1.07		4.71		8.09		8.98		6.60
other aluminum		0.33		0.26		0.15		0.06		0.18
other non-ferrous		0.05		0.02		0.36		0.54		0.30
white goods		0.15		0.18		0.85		0.00		0.39
YARD WASTE: (total)	**22.53**	**22.53**	**8.49**	**8.49**	**7.07**	**7.07**	**15.33**	**15.33**	**11.95**	**11.95**
OTHER ORGANICS: (total)	**19.46**		**21.29**		**27.48**		**28.43**		**24.84**	
food waste		8.91		11.54		1.14		0.55		4.12
tires/rubber		0.60		1.36		1.60		0.00		0.98
wood wastes		1.60		4.21		15.01		16.45		11.29
agricultural crop residues		0.00		0.14		0.00		0.00		0.03
manure		0.11		0.00		0.00		0.00		0.02
textiles/leather		1.33		0.74		3.81		11.07		4.77
other misc. organics		3.85		3.28		5.92		0.36		3.64
OTHER WASTES: (total)	**1.39**		**3.12**		**19.99**		**35.23**		**16.38**	
inert solids		0.85		2.83		14.54		33.68		15.27
hazardous wastes		0.51		0.29		1.45		1.54		1.11
SPECIAL WASTES: (total)	**0.00**		**0.02**		**0.00**		**0.00**		**0.00**	
ash		0.00		0.00		0.00		0.00		0.00
sewage sludge		0.00		0.00		0.00		0.00		0.00
industrial sludge		0.00		0.00		0.00		0.00		0.00
asbestos		0.00		0.00		0.00		0.00		0.00
auto shredder waste		0.00		0.00		0.00		0.00		0.00
auto bodies		0.00		0.00		0.00		0.00		0.00
other special waste		0.00		0.02		0.00		0.00		0.00
TOTAL		**100.00**		**100.00**		**100.00**		**100.00**		**100.00**

* Numbers are rounded.

Figure 4: Sample Weight to Volume Conversion Factors for Recyclables

Material	Volume	Weight in Pounds
Newsprint, Loose	one cubic yard	360 - 800
Newsprint,compacted	one cubic yard	720 - 1,000
Newsprint	12" stack	35
Corrugated cardboard, loose	one cubic yard	300
Corrugated cardboard, baled	one cubic yard	1000 - 1200
Glass, whole bottles	one cubic yard	600 - 1,000
Glass, semi crushed	one cubic yard	1,000 - 1,800
Glass, crushed (mechanically)	one cubic yard	800 - 2700
Glass, whole bottles	one full grocery bag	16
Glass, uncrushed to manually broken	55 Gallon Drum	125 - 500
PET soda bottles, whole, loose	one cubic yard	30 - 40
PET soda bottles, whole, loose	gaylord	40 - 53
PET soda bottles, baled	30" x 48" x 60"	500
PET soda bottles, granulated	gaylord*	700 - 750
PET soda bottles, granulated	semi-load	30,000
Film, baled	30" x 42" x 48"	1,100
Film, baled	semi-load	44,000
HPDE (dairy only), whole, loose	one cubic yard	24
HPDE (dairy only), baled	30" x 48 x 60"	500-800
HPDE (mixed), baled	30" x 48 x 60"	600-900
HPDE (mixed), granulated	gaylord	800 - 1,000
HPDE (mixed), granulated	semi-load	42,000
Mixed PET & Dairy, whole, loose	one cubic yard	average 32
Mixed PET, Dairy and other rigid, whole, loose	one cubic yard	average 38
Mixed rigid, no film or Dairy, whole loose	one cubic yard	average 49
Mixed rigid, no film, granulated	gaylord	500 - 1,000
Mixed rigid & film, densified by mixed plastic mold technology	one cubic foot	average 60
Aluminum cans, whole	one cubic yard	50 - 74
Aluminum cans, whole	1 one full kraft paper grocery bag	average 1.5
Aluminum cans	one 55 gal plastic bag	13 - 20

* Gaylord size most commonly used 40" x 48" x 36"

Figure 4: Sample Weight to Volume Conversion Factors for Recyclables

Material	Volume	Weight in Pounds
Ferrous cans, whole	one cubic yard	150
Ferrous cans, flattened	one cubic yard	850
Leaves, uncompacted[8]	one cubic yard	250 - 500
Leaves, compacted	one cubic yard	320 - 450
Leaves, vacuumed	one cubic yard	350
Wood chips	one cubic yard	500
Grass clippings	one cubic yard	400 - 1500
Used Motor Oil	one gallon	7
Tire - Passenger Car	one	12
Tire - Truck	one	60
Food Waste, solid and liquid fats	55 gallon drum	412

VI. Conclusion

"Standard" is defined as "something considered by an authority or by general consent as a basis of comparison; an approved model; a rule or a principle that is used as a basis for judgement ...." [9]

While we believe that the recommendations presented here represent the best possible way of reporting and using data, we realize that complete agreement on every individual point isn't necessary for this work to serve as a "standard." Even where there may be disagreement about the application of a particular term or formula, the difference is made clearer by having a standard against which to contrast the alternative. The NRC offers these definitions, reporting guidelines, and calculation methods in that sense of the term: to serve as a common point of departure.

These concepts will have the best utility if indeed they do achieve widespread adoption, that is, if we all indeed begin to "speak the same language." To accomplish this, your participation is greatly needed to encourage the widespread testing and adoption of the NRC's National Measurement

Standards and Reporting Guidelines. Your reports of experience in applying these concepts in your programs, and your comments and criticism on this document, are invited and will be appreciated, for the preparation of future updates.

VII. Notes

1 "The National Policy on Recycling" was adopted by the National Recycling Coalition at its Fifth Annual Recycling Congress in Seattle Washington, in November of 1986. Copies of this brochure are available from the NRC.

2 At the 1989 Membership Meeting, and in workshops held during the 1989 Congress, consensus could not be reached on these terms because some members expressed the opinion that a definition for integrated waste management must also include a specified hierarchy of priorities for waste management options, whereas others argued that this should be left unspecified. Furthermore, consensus could not be reached in defining the waste management hierarchy, because of lack of agreement regarding the ranking of incineration with energy recovery versus landfilling. These comments were consistent with other comments previously received throughout several drafts of the Standards document. Unchallenged was this portion of the definition:

> "The waste management hierarchy is the prioritization of waste management strategies as follows: 1. Decreasing the generation of waste through source reduction, and 2. Decreasing disposal by maximizing materials recovery. "

3 The Glossary of Recycling Terms and Acronyms, contains more than 300 terms and is available for $5 from Resource Recycling, P.O. Box 10540, Portland, Oregon 97210; 503-227-1319

4 This description is a direct paraphrase of comments provided by the Glass Packaging Institute.

5 This is a direct paraphrase of commentary provided by Resource Integration Systems/Resource Conservation Consultants.

6 A detailed methodology for deriving current recycling rates has been developed by Gilmore Research Group and The Matrix Management Group

CITY OF MILPITAS RECYCLING SURVEY

to

Recycling Collectors and Brokers
operating within or receiving materials from within
the City of Milpitas

The information in this survey will be kept confidential and will be used to prepare a report for the City of Milpitas to comply with the California Integrated Solid Waste Management Act of 1989

COMPANY NAME:_____

ADDRESS:_____

_____TELEPHONE:_____

CONTACT PERSON:_____TITLE:_____

TYPE OF BUSINESS: (Please check all that apply.)

_____Collector/Hauler
_____Dealer/Packer
_____Convenience Zone Redemption Center
_____Buy-Back Center
_____Donation Center
_____Non-profit Organization
_____Commercial Composter
_____News Bin Operator
_____Other Commercial Recycler (Specify)_____
_____Special Waste Recycler (See listing below; specify)_____

_____Broker
_____End market/Manufacturer
_____Scrap Metal Dealer
_____Auto Wrecker
_____Asphalt/Concrete Recycler
_____Demolition Debris Recycler
_____Wood Waste Chipper
_____Confidential Paper Service

When completed, please return this survey in the enclosed postpaid envelope to:
Katherine Dever, EMCON Associates, 1921 Ringwood Avenue, San Jose, California 95131.
If you have questions regarding this survey, call Ms. Dever at 408/453-7300.

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1. On the following page, please include theTOTAL TONS of MATERIAL COLLECTED, BY TYPE, for a recent twelve month period from an aggregate of accounts WITHIN THE CITY OF MILPITAS jurisdiction ONLY, NOT from other sources.

   Twelve month period used is from_____ to _____

2. Source of the material: (Please indicate % if more than one source.)

   Residents_____Government_____Commercial Businesses_____Industry_____

3a. Anticipated <u>increase</u> in recycling tonnage for 1991:_____% or

3b. Anticipated <u>decrease</u> in recycling tonnage for 1991:_____%

4. Amount of residue:_____% of total amount collected which is not recyclable and is discarded.

Materials Collected	Total Tons Received	Purchaser of Material (if you are not the end user)
PAPER		
Corrugated cardboard		
Mixed paper		
Newspaper		
High grade ledger		
Other paper (specify)		
PLASTICS		
HDPE containers		
PET containers		
Film plastics		
Laser toner cartridges		
Other plastics		
GLASS		
Refillable glass beverage containers		
CA Redemption Value glass		
Other recyclable glass		
METALS		
Aluminum cans		
Bi-metal containers		
Ferrous metals and tin cans		
Non-ferrous metals plus aluminum scrap		
White goods (appliances, etc.)		
YARD WASTE		
including leaves, grass and prunings		
OTHER ORGANICS		
Food waste		
Tires and rubber products		
Wood waste, incl. pallets		
Agricultural crop residues		
Manure		
Textiles and leather		
INERT SOLIDS		
Rock, concrete, brick		
Sand, soil, or dirt		
SPECIAL WASTES		
Ash		
Industrial sludge		
Asbestos		
Auto shredder waste		
Auto bodies		
Other wastes		
batteries		
oil		
other (specify)		

CITY OF MILPITAS SOURCE REDUCTION SURVEY

EMCON ASSOCIATES

COMPANY NAME:_____

ADDRESS:_____ TELEPHONE:_____

CONTACT PERSON:_____ TITLE:_____

When completed, please return <u>both</u> this survey and the recycling survey <u>together</u> in the enclosed postpaid envelope to:
Katherine Dever, EMCON Associates, 1921 Ringwood Avenue, San Jose, California 95131
If you have questions regarding this survey, call Ms. Dever at 408/453-7300.

REDUCE MATERIAL VOLUME

1. Does your company have a duplex copier? Yes_____ No_____
   If yes, what percentage of the copies made are two-sided?_____%
   What quantity of white office or xerographic paper do you purchase? per year_____ per month_____
   The above is an example of reducing material volume. Using the enclosed Source Reduction chart, are you practicing any additional means of reducing your office waste? If yes, please describe below.
   _____
   _____

INCREASE PRODUCT DURABILITY

2. Does your company provide or use maintenance contracts to extend the life of facility equipment?
   Yes_____: Provide_____ Use_____ No_____: Provide_____ Use_____
   The above is an example of increasing product durability. Using the enclosed chart, are you practicing any additional means of increasing durability of products or materials you use or produce? If yes, please describe below.
   _____
   _____

MATERIAL REUSE

3. Do you provide ceramic or non-disposable coffee mugs for your employees? Yes_____No____
   Are you using silverware in your food service area? Yes_____No____
   The above are examples of materials reuse. Using the enclosed chart, are you practicing any additional means of reusing supplies in your office setting? If yes, please describe below.

   _____

   _____

MATERIAL REUSE

4. Do you/your groundskeeper mulch, chip, or compost landscape clippings on-site? Yes___No____
   If yes, please determine the number of cubic yards composted per month:_____

GENERAL SOURCE REDUCTION

5. Please refer to the enclosed chart which suggests methods for reducing solid waste disposal. If you are practicing any of these means, or any others which you think are source reduction, please describe below.

   _____

   _____

COMPANY SOURCE REDUCTION POLICIES

6. Do you have a company policy to use any of the following source reduction methods? Please place a check by all those that apply.
   - _____purchase material/products with recycled content
   - _____purchase durable materials
   - _____purchase recyclable materials
   - _____purchase reusable materials
   - _____provide source reduction educational programs for employees or for the general public
   - _____provide employee incentive program for source reduction suggestions/practices
   - _____set manufacturing goals to reduce the amount of solid waste created and save on disposal costs

CITY OF MILPITAS BUSINESS RECYCLING SURVEY

The information in this survey will be kept confidential and will be used to prepare a report for the City of Milpitas to comply with the California Integrated Solid Waste Management Act of 1989

COMPANY NAME:_____

ADDRESS:_____

_____TELEPHONE:_____

CONTACT PERSON:_____TITLE:_____

TYPE OF BUSINESS:_____NUMBER OF EMPLOYEES AT THIS SITE:_____

SITED IN: _____Commercial Zone _____Industrial Zone _____Other Zone

When completed, please return this survey, along with the Source Reduction Survey, in the enclosed postpaid envelope to:

Katherine Dever, EMCON Associates, 1921 Ringwood Ave., San Jose, California 95131
If you have questions regarding this survey, please call Ms. Dever at 408/453-7300.

Thank you for completing these surveys.
You are helping the City of Milpitas comply with State law and achieve its recycling goals!

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1. Do you currently have recycling activity at your site? Yes____No____
2. Do you plan to expand or implement recycling activity? Yes____No____
3. If yes, when? _____What materials? (Write "Planned" on the list on the following page by the material you plan to collect and estimate the amount you expect to collect next year.)
4. Do you need assisstance with your program? Yes____No____
5. Do you expect the amount of material collected for recycling to increase____ or decrease____in 1991? By what percent?_____%
6. Please select a recent twelve month period in which you have been collecting materials for recycling. Twelve month period selected is from_____ to _____
7. What was the total amount of waste sent for disposal from your facility for the reporting period selected in question number 6?_____Tons
8. Does the amount of waste your facility generates have a seasonal fluctuation or definite periods of large increases, e.g. more in summer, or annual file cleaning in January? If yes, please note here:

_____

(over)

9. On the chart below, please report the total weight, volume or number of each material collected for recycling for the twelve month period selected in question 6.

Materials Collected for Recycling	Amount Collected (specify pounds, tons, cubic yards, gallons, or number)	Name of Collector or Facility Accepting Recyclable Materials
PAPER		
Corrugated cardboard		
White ledger		
Computer paper		
Colored ledger		
Shredded, Confidential, Security		
Newspaper		
Magazines		
Mixed or other paper		
Kraft paper (e.g. paper grocery bags)		
METALS		
Aluminum (AL) cans		
Ferrous metals and tin cans		
Non-ferrous metals incl. AL scrap		
White goods (appliances, etc.)		
Bi-metal containers		
GLASS		
California Redemption Value glass		
Other recyclable glass		
Refillable glass beverage containers		
ORGANICS		
Yard waste (leaves, grass, prunings)		
Wood waste incl. pallets		
Tires and rubber products		
Textiles and leather		
PLASTICS		
HDPE containers (milk jugs)		
PET containers (soda bottles)		
Film plastics (shrink wrap, bags)		
Polystyrene (foam)		
Specify other (e.g. toner cartridges)		
INERT SOLIDS		
Rock, Concrete, Brick		
Sand, Soil, Dirt		
SPECIAL WASTES		
Batteries		
Oil		
Auto shredder waste		
Ash		
Industrial sludge		
Asbestos		
Other (specify)		
OTHER ORGANICS		
Food waste		
Agricultural crop residues		
Manure		

MILPITAS
CHAMBER OF COMMERCE

SOUTH MILPITAS BLVD., SUITE # 110 • MILPITAS, CA 95035 • (408) 262-2613

May 20, 1991

Mr. Peter McHugh, Mayor
City of Milpitas
913 Jungfrau Court
Milpitas, CA 95035

Dear Mayor McHugh:

The Milpitas Chamber of Commerce Board of Directors at their May 14th meeting approved a recommendation of the Chamber's Government Affairs Committee to support the Solid Waste Reduction Plan for Milpitas. The Chamber believes in the effort to reduce solid waste and in recycling. Furthermore, the recycling enterprise for industrial and commercial businesses should be implemented as soon as possible.

Sincerely,

MILPITAS CHAMBER OF COMMERCE

Frank De Smidt
Chairman
Government Affairs Committee

Gaye Morando
Executive Manager

Dan Youngs
President

cc: City Manager