CITY OF OAK HARBOR

TRANSFER STATION STUDY

Prepared for:

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INTRODUCTION AND GENERAL REQUIREMENTS

As a possible means to reduce the cost of solid waste disposal for the citizens of the City of Oak Harbor, the City Council is evaluating the cost of building and operating a solid waste transfer station and waste export system. If the City were to build and operate this facility Island County has made it clear that they would likely require the City to undertake all of the other solid waste services the County currently provides to the City. This study provides an overview of the solid waste system required to provide the level of service mandated by the Washington State Department of Ecology (DOE), and the level of service citizens/businesses of Oak Harbor are accustomed to.

Under state law the jurisdiction responsible for disposal of solid waste generated within that jurisdiction must prepare a Comprehensive Solid Waste Management Plan (Chapter 70.95 RCW). The content of the plan is regulated under this same law. This law also requires establishment of a standing Solid Waste Advisory Committee.

The cost of preparing a CSWMP ranges from $15,000 to 75,000 for very basic plans. For a city such as Oak Harbor the cost is assumed to be $45,000. The plan must be updated every three years, if there are changes in the solid waste system. For Oak Harbor the solid waste system is assumed to not change therefore no updates to the CSWMP are assumed. The cost of solid waste planning is currently borne by Island County.

All solid waste facilities in the state must acquire a solid waste handling permit from DOE. For Island County DOE has delegated responsibility for issuing these permits to the Island County Health Department. Before a solid waste handling permit can be issued the associated solid waste facility must be identified in the Comprehensive Solid Waste Management Plan (CSWMP). Once the solid waste facility is identified in the CSWMP the health department must issue a solid waste handling permit if the facility complies with the requirements in the state solid waste regulations (173-351 WAC). The cost of securing the solid waste handling permit is included in the Transfer Station section below.

An interlocal agreement currently exists between the City of Oak Harbor and Island County. The agreement provides for the County to take the lead in providing solid waste disposal services, preparation of a comprehensive solid waste management plan, implementing waste reduction programs, and providing a hazardous waste program. The agreement has a remaining term of 14 years but includes a termination clause. The implications of that clause are beyond the scope of this study and left to be addressed separately.

This study is separated into two major sections: Proposed Transfer Station and Waste Export System; and Required Solid Waste Programs.

PROPOSED TRANSFER STATION AND WASTE EXPORT SYSTEM

1. WASTE STREAM

This section presents the composition and quantity of the City of Oak Harbor's waste stream. The composition and quantity are used in the following sections to evaluate the size and cost of the applicable solid waste system components. The City of Oak Harbor waste stream composition is estimated to be as shown on Table 1. The quantity of waste disposed in Oak Harbor in 1997 was 6,600 tons. This waste was disposed at the Island County transfer station. The waste was compacted at the transfer station and shipped to Gilliam County, Oregon where it was placed in a landfill owned and operated by Waste Management, Inc.

For the purposes of this study an annual population growth rate of 2% for the next 20 years is assumed. This increase in population will result in a like increase in solid waste quantities. As a result, the annual disposal amount is estimated to be as follows.

Year	1997	2000	2003	2006	2009	2012	2015
Tons	6,600	6,732	6,867	7,004	7,144	7,287	7,433

To evaluate a 20 year solid waste disposal capacity this study is based on annual disposal of 7,100 tons of solid waste. This disposal quantity is representative of an average over the 20 year period.

The 6,600 tons of disposed waste in 1997 did not include yard waste, construction, demolition and landclearing debris (CDL), asbestos waste, petroleum contaminated soil (PCS), white goods, tires, biomedical wastes, biosolids, moderate risk waste (MRW), or recyclables. Each of these materials were handled separately from solid waste disposal. Using the percentages in Table 1 and an annual disposal amount of 6,600 tons the quantities of various waste stream components can be calculated. The quantities calculated for use in the sections that follow are:

Waste Stream	1997 Tons/Year	Planning Tons/Year
Recyclables, drop-off	350	375
Yard Waste	550	591
Special Wastes		
CDL	1,360	1,462
White Goods	7	8
Tires	7	8
Moderate Risk Waste	60	65

For planning purposes the quantity of asbestos disposal was assumed as 1 ton per year (estimated at 0.002% of solid waste quantity) for this study.

CITY OF OAK HARBOR
SOLID WASTE COMPOSITION *

TABLE 1

MATERIAL		MEAN PERCENTAGE OF TOTAL DISPOSAL
Paper		29.5
	Newspaper	4
	Corrugated Paper	7.3
	Computer Paper	0.4
	Office Paper	1.1
	Mixed Recyclable Paper	8.2
	Milk/Juice Cartons	0.6
	Aseptic Juice Containers	0
	Frozen Food Containers	0.3
	Other Paper	7.7
Plastic		10
	PET Containers (#1)	0.4
	HDPE Containers (#2)	0.7
	LDPE Containers (#4)	0
	Polystyrene (#6)	0.8
	Plastic Bags	4
	Other Coded Plastic Packaging	0.6
	Other Plastics	3.4
Glass Containers		4.6
	Clear	2.4
	Green	0.6
	Brown	0.8
	Refillable	0.1
	Other Glass	0.7
Ferrous Metals		5.6
	Tin Cans	1.5
	Bi-metal Cans	0
	Mixed Metal & Other Materials	1.4
	White/Brown Goods	0.1
	Other Ferrous Metals	2.6
Non-Ferrous Metals		1.1
	Aluminum Cans	0.6
	Other Aluminum	0.1
	Other Non-Ferrous Metals	0.3
Organics		24.3
	Food	11.8
	Yard Wastes	7.7
	Other Organics	4.8
Construction Debris		17
	Wood Wastes	10.9
	Gypsum Wallboard	0.7
	Inert Solids/Fines	1.8
	Other Construction Debris	3.6
Other Wastes		7
	Disposable Diapers	2.5
	Textiles	3.4
	Rubber Products (except Tires)	0.4
	Large Bulky Items	0.5
	Other Materials	0.1
Hazardous Waste		0.9
	Paint/Adhesives/Solvents	0.3
	Cleaners	0
	Pesticides/Herbicides	0
	Non-Vehicle Batteries	0
	Other Hazardous Wastes	0.5
Special Wastes		0.1
	Used Oil	0
	Tires	0
	Vehicle Batteries	0
	Ferrous Vehicle Parts	0

* Based on 1992 Washington State Waste Characterization Study, Table II-7.

2. PROPOSED TRANSFER STATION

2.1. INTRODUCTION

If the City of Oak Harbor were to undertake responsibility for solid waste disposal from the city, a transfer station would be necessary. The following description and drawings are intended to illustrate a possible transfer station configuration and operation.

2.2. OPERATING PLAN

Waste will be accepted at the transfer station between the hours of 8:00 a.m. and 5:00 p.m., six days per week. Loaded transfer vehicles will be removed from the transfer station within 24 hours, except under the most extreme circumstances.

All transfer vehicles will be supplied by the Transport and Disposal Contractor complete with support frame and wheels such that it can be pulled or pushed to/from the staging area with a "yard goat".

2.3. PROPOSED TRANSFER STATION

Proposed Transfer Station Location

For the purposes of this study the transfer station will be located adjacent to the intersection of Goldie Road and Gun Club Road west of the closed landfill site in the City of Oak Harbor. A 6½ acre portion of land will be needed for the station.

Proposed Transfer Station Type

A tipping floor type of transfer station will be constructed. Solid waste will be unloaded from customer vehicles by the customers onto the transfer station tipping floor (waste storage area). The customer unloading area and tipping floor will be enclosed within a building to control wind blown debris, minimize uncontrolled dust, minimize noise, and minimize contaminated waste water.

Facility Capacity

The facility will be sized to accommodate peak daily flows of 55 tons per day and 25 tons per day average. This capacity equates to 300% of Oak Harbor's current waste stream which should allow for 20 years of population growth (at 2% per year). The transfer building will be approximately 50 feet by 50 feet, and will accommodate simultaneous tipping of 4 customer vehicles. Customer queues will not exceed 30 minutes for self haul customers and 10 minutes for commercial customers. The tipping floor will be designed with surge capacity, and will store approximately one peak day of waste should emergency shutdown of the waste transport system occur.

Traffic Flow

The flow of traffic will be as shown on Drawing C-1 Site Plan. Both commercial and public customers will enter the site and proceed to the vehicle weigh scale. After passing over the scale, the commercial and self-haul customer vehicle traffic will be routed to the transfer building. Approximately 200 feet of in bound lane length will be available ahead of the scales for the customer vehicle queue generated. Customers will exit the transfer building, pass over the exit scale and exit the site. All queuing activity will be within view of the scale attendant.

Transfer Operation

Once waste is tipped onto the floor, a rubber tired front end loader will be used to push the solid waste across the tipping floor to an opening in the tipping floor through which the solid waste will fall. The waste will fall into a preload compactor where compaction is accomplished. The preload compactor then loads compacted waste into the transfer vehicle. The transfer vehicles will be located in an area of the building called the waste transfer area. This compaction method can result in approximately 27 tons of waste in each transfer vehicle, provided the maximum sized vehicle is used.

Filling of transfer vehicles will be monitored by transfer station staff based on a status display on the preload compactor. Once full, the transfer vehicle will be moved to allow the next transfer vehicle to be loaded.

A staging area will be included at the transfer station where the City (Contractor) may temporarily store up to three empty or loaded transfer vehicles. During operations at the transfer station, the City (Contractor) will move empty transfer vehicles from the staging area to the transfer station, open the vehicle covers, load Acceptable Waste into transfer vehicles, close the doors, and return them to the staging area prepared for transit to the disposal site.

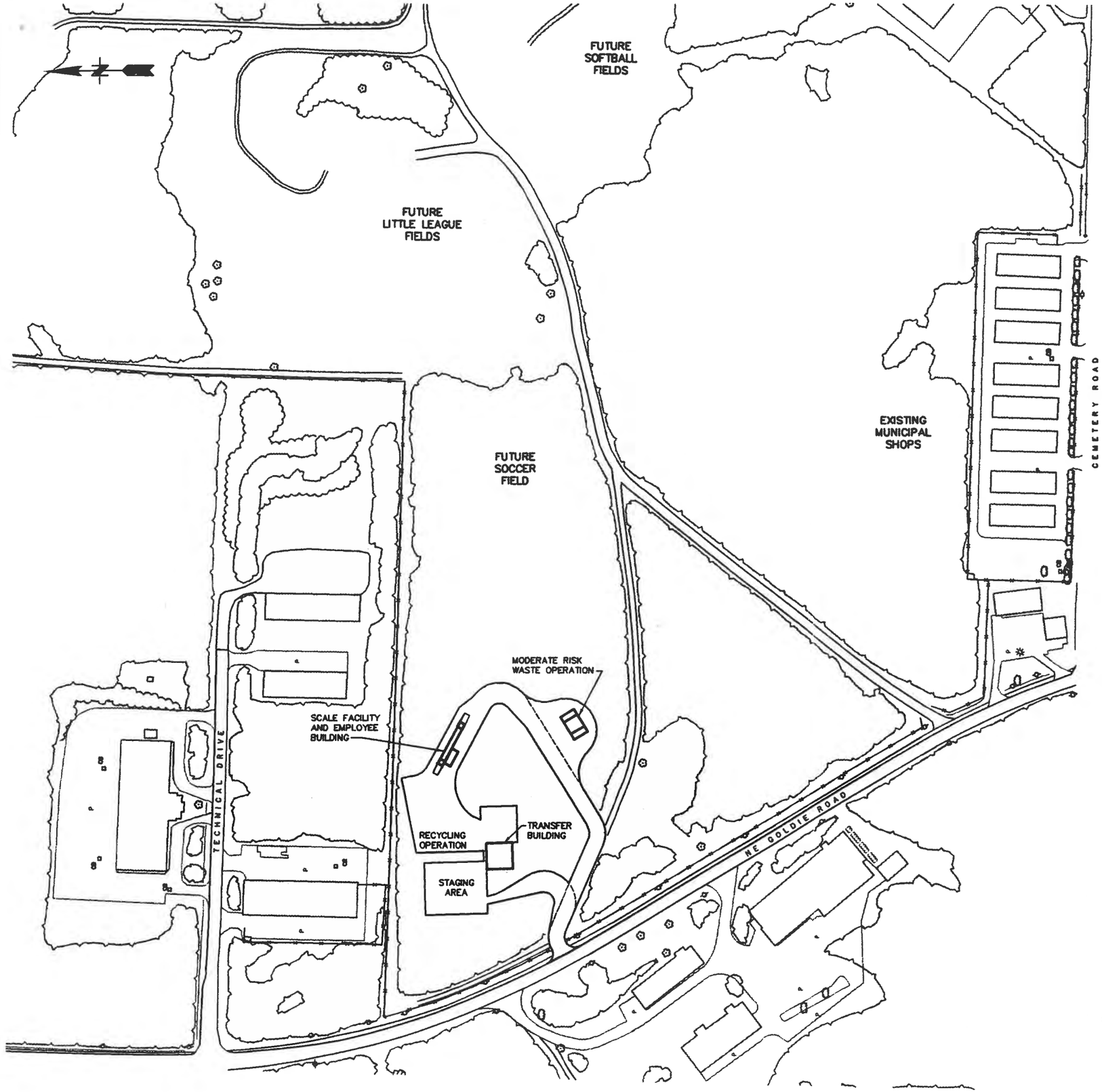
A staff of three is estimated to be required for station operation.

Transfer Building Materials of Construction

The transfer building will be a pre-engineered metal building supported on a reinforced concrete foundation. The transfer building walls and roof will be metal. The architectural treatment of the building is depicted on Drawing A-1 Building Elevations. The transfer building floor plan is shown on Drawing M-1 Mechanical Plan.

Waste Receiving and Handling Description

Customer vehicles will enter the site and be weighed at the scale facility on an 80 foot long vehicle scale. Once weighing is complete, the customer will be directed by the scalehouse attendant to the transfer building. Generally, commercial customers and self-haul customers will enter the transfer building at opposite ends of the building. Once at the transfer building, customers will turn their vehicles and back into one of the unloading bays in the transfer building. A transfer station employee will direct the customer to the bay and where to unload waste once in the transfer building.



CONCEPTUAL ONLY

NO.	REVISION	DATE

SHEET TITLE: SITE PLAN

PROJECT TITLE: TRANSFER STATION STUDY

CITY OF OAK HARBOR

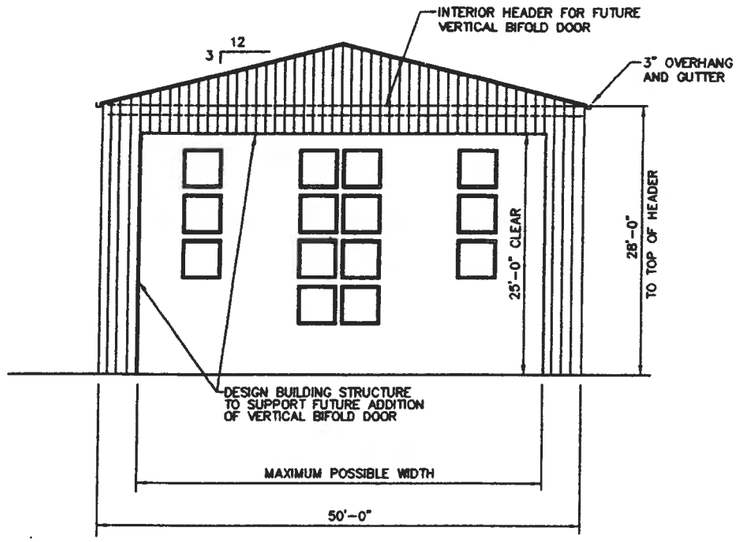
SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.

PROJ. NO. 0408015.00 | DRN. BY: LEL | ASSO PLAN: OAK00001
DSN. BY: EEC | CHK. BY: EEC | APP. BY:

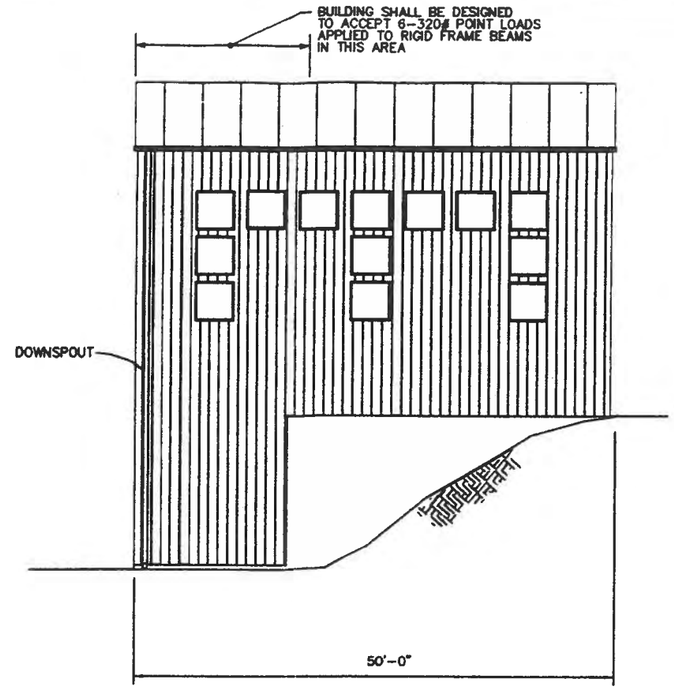
DATE: NOV 1998

SCALE: 1" = 100'

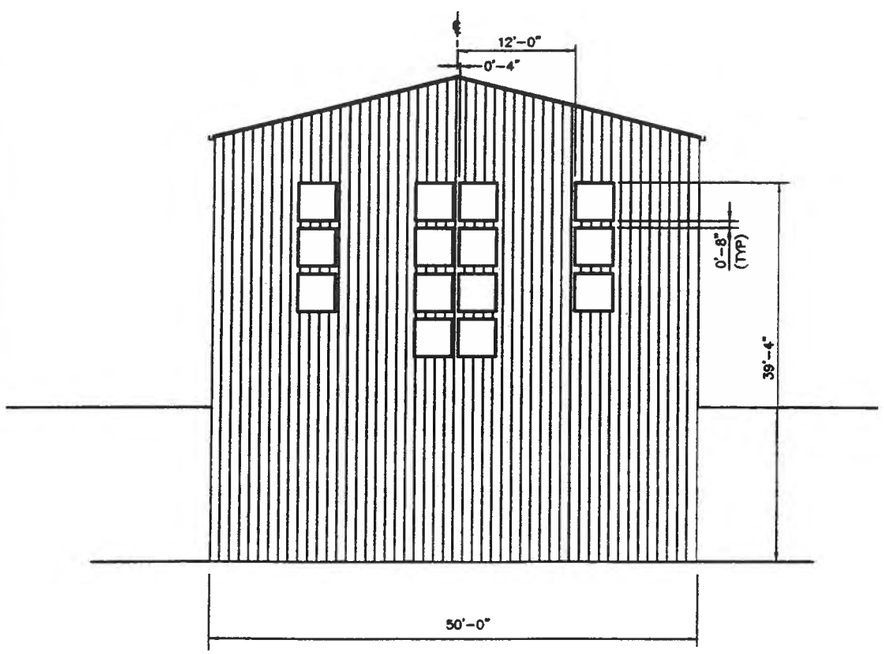
DRAWING NO. C1



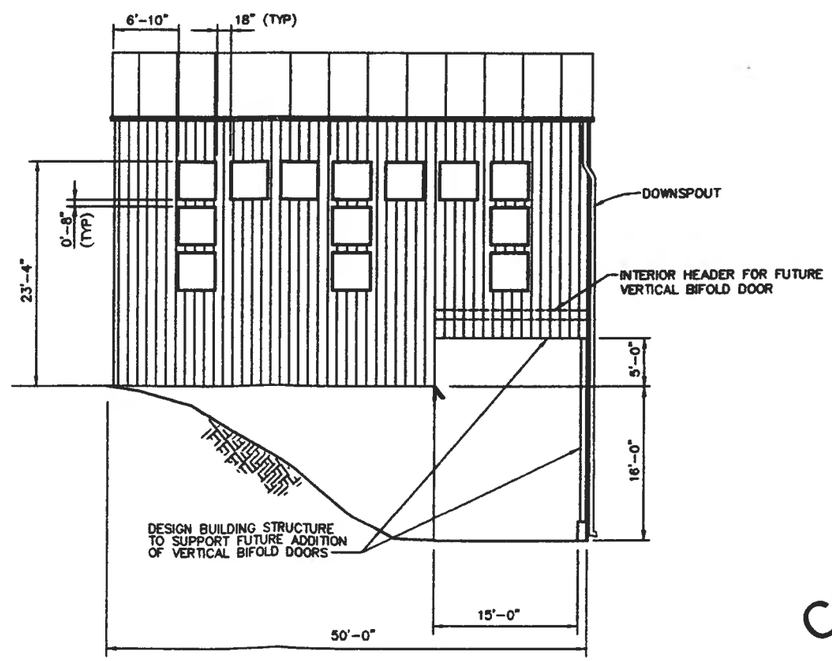
EAST ELEVATION
SCALE: 1/8" = 1'-0"



SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



WEST ELEVATION
SCALE: 1/8" = 1'-0"



NORTH ELEVATION
SCALE: 1/8" = 1'-0"

CONCEPTUAL ONLY

NO.	REVISION	DATE

SHEET TITLE: TRANSFER BUILDING ELEVATIONS

PROJECT TITLE: TRANSFER STATION STUDY

CITY OF OAK HARBOR

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.

PROJ. NO. 04980013.00 | DSN. BY: EEC | DWN. BY: LEL | CHK. BY: EEC | ACAD FILE: OAK00002 | APP. BY:

DATE: NOV 1998

SCALE: AS SHOWN

DRAWING NO. A1

The customer will unload their vehicle contents onto the tipping floor in the waste storage area of the transfer building. The tipping floor area will be large enough so that customer waste unloading can proceed while full transfer vehicles are replaced with empty vehicles, or for a period of one day without the solid waste "pile" extending beyond the tipping floor confines. Waste will be contained on the tipping floor by the rubber tired front end loader operator.

Once the customer waste has been unloaded onto the tipping floor the waste will be pushed by a rubber tired front end loader to an opening in the transfer building tipping floor where it will fall into a preload compactor below. After unloading the customer will exit the transfer building and exit the site after passing over the 80 foot vehicle scale located at the scalehouse.

Maximum, legal transfer vehicle payloads will be accomplished by the preload compactor compressing the waste into a bale which then is pushed into the enclosed transfer vehicle.

Once a transfer vehicle is full, it will be moved from the transfer building waste transfer area to the transfer vehicle staging area. An empty transfer vehicle will be moved into place in the waste transfer area of the transfer building and filling will again commence.

Water and Wastewater Systems

Water and wastewater systems are divided into four subsystems:

- Washdown Water
- Fire Protection Water
- Wastewater
- Surface Water Control

Washdown Water System

The washdown water system includes washdown hose stations located inside and adjacent to the transfer building.

Fire Protection System

The fire protection system includes a fire hydrant located outside the transfer building and hand held fire extinguishers located throughout the transfer building, employee building and scalehouse. Water will be supplied from a connection to the municipal water system.

Wastewater System

The wastewater system will include trench drains installed at the outer edge of the tipping floor, floor drains installed in the waste transfer area, and a connection to the City sanitary sewer system. The floors will be sloped to drain to the trench/floor drains.

Surface Water Control System

The surface water control system will include site grading to cause rain water falling on the site to drain by gravity to a stormwater detention pond. The stormwater pond will be sized to detain the 25 year, 24 hour storm and release the water to the pre-development release location at a rate no greater than water left the site prior to development as a transfer station.

Scale Facility and Employee Building

The scale facility will consist of a scalehouse/employee building and a vehicle weigh scale. The scalehouse/employee building will be a wood framed structure approximately 13 feet by 32 feet in size. It will include an attendant area with customer service windows, a restroom and an employee break room. The scalehouse/employee building will be heated and air conditioned. An additional feature will be a back-up generator to allow the scale facility to continue in operation should there be an electrical outage. The architectural appearance of the scalehouse/employee building will be congruous with the transfer building. The scalehouse/employee building floor plan and building elevations will be as shown on Drawing A-2.

There will be a single vehicle weigh scale, 10 feet wide and 80 feet long with a capacity of 60 tons. It will be a fully electronic pitless scale complete with loadcells and digital weigh indicator.

Recycling Operation

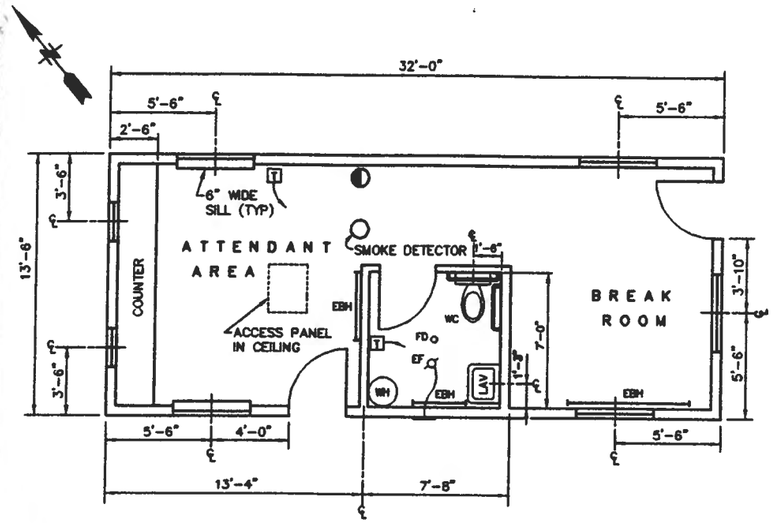
As customers enter the site they will be presented with opportunities to drop off recyclable materials in the recycling area. The recyclables to be collected in the area will vary with market conditions and will be determined by the City. Space for a number of 25 foot long containers and a waste oil tank will be provided. No processing of the recyclable materials is anticipated to be performed on-site. The recycle area will be sized and configured as shown on Drawing C-1 Site Plan. The recycling operation is intended to be unstaffed but will be monitored primarily by the scalehouse attendant with assistance from the other transfer station staff.

Moderate Risk Waste Operation

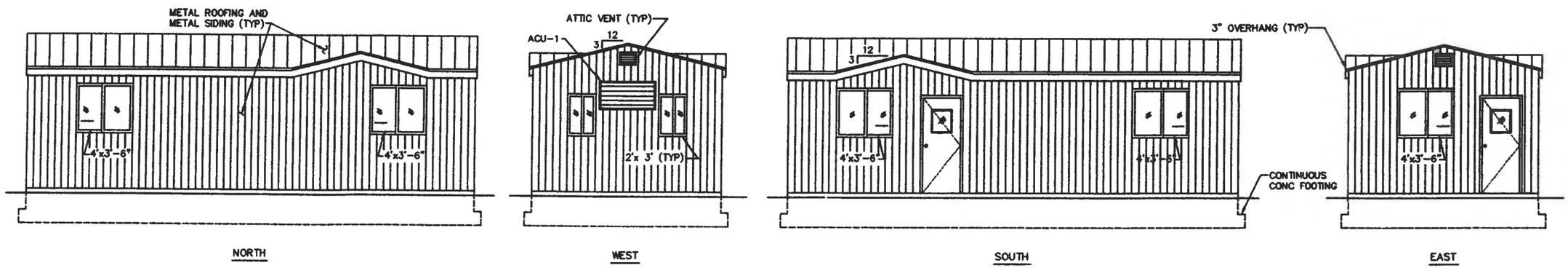
An area specifically designed for receipt, sorting and storage of household hazardous waste and small quantity generator hazardous waste will be included. The operation will include a roofed area for receipt and sorting of wastes. Once sorted the wastes will be placed into drums. The drums will be stored in one of two pre-fabricated hazardous waste storage buildings. The area will be fenced for security, and personnel safety equipment, such as eye wash and safety shower, will be included. One employee is estimated to be required to staff the area. The costs for the moderate risk waste area are presented in Section 9

Yard Improvements

Both the upper and lower areas of the site will be illuminated by yard lighting. The lower area will be surfaced with gravel to allow for ease of litter clean-up and maneuvering of transfer vehicles. All customer roadways and parking lots will be paved with asphalt concrete pavement.



FLOOR PLAN
SCALE: 1/4" = 1'-0"



ELEVATIONS
SCALE: 1/4" = 1'-0"

CONCEPTUAL ONLY

NO.	REVISION	DATE

SHEET TITLE: SCALE HOUSE AND EMPLOYEE BUILDING PLAN AND ELEVATIONS

PROJECT TITLE: TRANSFER STATION STUDY

CITY OF OAK HARBOR

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.

PROJ. NO. 0408015.00 | DSN. BY: LEL | ACAD FILE: OAK00003
DWN. BY: EEC | CHK. BY: EEC | APP. BY:

DATE: NOV 1998

SCALE: AS SHOWN

DRAWING NO. A2

A landscaped perimeter area around the site will provide visual screening from off-site locations. Other unpaved areas of the site disturbed during construction will contain low maintenance hydroseeded landscaping.

2.4. TRANSFER VEHICLE STORAGE

A staging area will be provided at the Transfer Station where the Transport and Disposal Contractor will deliver empty transfer vehicles and accept loaded transfer vehicles. The staging area will consist of a large maneuvering area with space for vehicle storage. Sufficient space will be available in the staging area for three transfer vehicles, or one peak days waste storage. The staging area configuration will be as shown on drawing C-1 Site Plan.

2.5. CONSTRUCTION COST

The project construction costs for the proposed transfer station are presented in Table 2 in Section 3.

3. WASTE EXPORT

Since the City of Oak Harbor does not have a landfill to receive solid waste generated within the city, waste will need to be exported from the city to a disposal site. Currently, waste generated in the City is disposed at the Island County Transfer Station and exported to a regional landfill in Gilliam County, Oregon. This is accomplished under a contract between Island County and Waste Management, Inc. This Section describes the components and costs of a waste export system should the City of Oak Harbor assume responsibility for providing solid waste services to the city.

The need for environmentally-sound, cost-effective solid waste disposal has resulted in the development of a system of large regional landfills owned and operated by private companies. Increasingly, regional landfills within the Pacific Northwest are replacing the disposal capacity traditionally provided by smaller local landfills. In siting and developing major regional landfills, private companies have selected sites which are isolated from urban development and located in areas which provide maximum environmental protection (arid conditions, high depth to groundwater, naturally occurring clay layers, etc.). In order to utilize these facilities communities must export their waste long distances. As a result, solid waste export requires the development of both transfer stations to containerize the waste material, and a transport component (truck, barge, or rail) to move the containers to and from the regional landfill.

3.1. SYSTEM DESCRIPTION

The City of Oak Harbor waste export system will consist of three elements:

- A regional landfill
- Waste transfer system capable of loading waste into transport containers
- Waste transport system with truck, rail, or barge transport capability

Each of these system elements is described in detail below.

Regional Landfills

For this option it is assumed that waste would be shipped to a privately owned and operated regional landfill located near the Columbia River. Major regional landfills are described below.

- Columbia Ridge Landfill and Recycling Center. Located in Gilliam County, Oregon, the landfill is owned and operated by Oregon Waste Systems, a division of Waste Management. The facility is located on 2,000 acres of former rangeland and receives an annual average of 9 inches of precipitation. The landfill has an estimated capacity of 60 million tons. The site is accessible by rail, barge, or truck.

- Roosevelt Regional Landfill. Located in Klickitat County, Washington, the landfill is owned and operated by the Rabanco Regional Disposal Company. The landfill site is approximately 2,005 acres in size and has a permitted capacity of 120 million tons over 40 years. The site receives 6-9 inches of precipitation a year. The site is accessible by rail, barge or truck.

- Wasco County Regional Landfill. Located in Wasco County, Oregon, near the Dalles, the landfill is owned and operated by Waste Management, Inc. The landfill is accessible by truck.

- Finley Buttes Landfill. Located in Morrow County, Oregon, the landfill is owned and operated by the Finley Buttes Landfill Company, a subsidiary of Tidewater Barge Lines. The facility is located on 1,200 acres of rangeland which receives about 9 inches of precipitation annually. The landfill has an estimated capacity of 40 million tons. The landfill is accessible by rail, truck or barge.

Waste Transfer System

The recommended transfer system established for waste export would consist of a single waste export transfer station located in the City of Oak Harbor. This proposed station is described in detail in Section 3

Waste Transport System

Solid waste transport from Oak Harbor to a regional disposal site can be accomplished by either rail or truck using common intermodal shipping equipment. The use of sealed containers allows MSW to be handled at established intermodal facilities where truck transported containers can be reloaded onto railcars. Private disposal companies have established several intermodal hubs along the primary rail lines serving the Puget Sound region. As a result several communities can access the intermodal yards where entire trains are assembled for direct delivery to a regional landfill.

3.2. IMPLEMENTATION STEPS

Implementation of a waste export system would consist of a number of critical steps consisting of the following:

- Predevelopment Planning - Further analysis would be needed to refine design requirements and costs. Specific design issues include size, location, and capability of the waste export transfer station.

- Transfer Station Siting - Siting efforts would be limited to the development of a waste export transfer station. As described, the facility should be located somewhere in the City of Oak Harbor.

- Transfer Station Permitting - The newly developed waste export transfer station would need to acquire necessary permits for operation consisting of a conditional-use permit and a solid waste permit. Specific permits for waste transport and disposal would be acquired by the private companies performing the service.

- Facility Design and Engineering - Technical design and engineering would be required to develop the waste export transfer station concept into detailed design drawings and specifications adequate for bidding and construction.

- Facility Development and Operation - With the completion of the final design and bid documents, the City would issue a call for bids from qualified construction companies to construct the waste export transfer station.

- Waste Export Service Bid Document Development, Review, Selection, and Negotiation - Procurement of waste export services would include waste disposal at a regional landfill and transport of wastes to that facility. Procurement of waste disposal services is typically accomplished through development of bid documents, and solicitation of proposals from reputable experienced service providers. Technical and legal assistance would be required to prepare procurement documents and to select and negotiate with the successful bidder.

3.3. SYSTEM COST

Conceptual level cost estimates have been prepared for the waste export system which include the following:

- Initial development
- Annual operating costs

Initial Development

Initial development costs represent one-time costs associated with pre-development planning, siting, permitting, design of the waste export transfer station, and procurement of waste export services. Estimated cost for initial development is provided in Table 2.

Annual Operating Costs

Annual operating costs represent recurring costs for the day-to-day operation of the waste export transfer station, and payment for waste transport and disposal services. Table 2 presents the annual operating costs for the waste export system.

System Cost Estimate

The system cost estimate includes the cost of the waste export transfer station and waste export to a regional landfill. Waste export to a regional landfill includes the cost to transport and dispose of waste at the facility. The cost of transport is a function of the distance to the landfill and the transport method. Transport by rail is generally less expensive than by truck but is dependent upon how accessible rail is to the waste export transfer station. The current cost per ton for waste transport ranges from $25 to $40

when normalized to the distance Oak Harbor is from the regional landfills. Disposal cost at regional landfills ranges from $16 to $25 per ton.

Bidding for waste export services in the last two years has resulted in reduced costs per ton when compared to bidding just five years ago. While waste export services were being bid from $43 to $58 per ton (1998 dollars) they are now being bid from $38 to $45 per ton (1998 dollars). Island County recently renegotiated their waste export contract at $45 per ton. Based on recent bid results, the anticipated cost for waste export services for Oak Harbor is estimated at $46 per ton (refer to Table 2).

Table 2	Waste Export Transfer Station Initial Development Cost Estimate
Pre-Development	**Estimated Cost**
Planning, Siting, and Permitting	$95,000
Procurement of Disposal and Transport Services	$50,000
Land	0
Total Pre-Development	$145,000
One-Time Capital Expenditures	
Site Development	$255,000
Transfer Station Facility	$200,000
Scalehouse and Scale	$90,000
Subtotal	$545,000
Engineering and Administration @ 15%	$82,000
Contingencies @ 25%	$136,000
Sales Tax @ 7.9%	$5,000
Total One-Time Capital Cost	$768,000
Equipment	
Compactor	$500,000
Front end loader	included in O&M
Yard Jockey	$25,000
Total Equipment Cost	$525,000
Total Bond Cost	
Bond Reserve @ 10%	$144,000
Bond Fee @ 4%	$58,000
Total Bond Cost	$202,000
Total Initial Development Cost	$1,640,000
Total Cost Per Year (at 6% for 20 yrs.)	$143,000
Notes: Compactor has less than six year payback	

Table 2	Waste Export Transfer Station Annual Operating Cost Estimate
Operation and Maintenance	**Estimated Cost**
Labor (3 staff members)	$156,000
Equipment, Fuel and Maintenance	$47,000
Utilities	$15,000
Grounds Maintenance and Supplies	$25,000
Insurance, Taxes and Permits	$11,000
Engineering, Administration, and Legal Services	$10,000
Total Operation and Maintenance	$264,000
Notes: Includes front end loader capital cost.	

REQUIRED SOLID WASTE PROGRAMS

4. WASTE REDUCTION

If the City of Oak Harbor were to become the agency responsible for their solid waste, a waste reduction program would have to be developed and implemented. The State of Washington identifies source reduction of waste as a fundamental strategy and top priority for solid waste management. As such, waste reduction must be a critical element of all local comprehensive solid waste management plans. Waste reduction involves diminishing the generation of waste as well as reducing its toxicity. The motivation for promoting waste reduction is two-fold. One is to reduce the risks associated with all solid waste management methods by reducing toxicity. Reducing the toxicity of solid waste would make all solid waste management methods safer and help develop public confidence in waste management methods. Reducing the quantity of discarded materials would extend the useful life of existing and future facilities, and conserves natural resources.

While waste reduction is to be emphasized, it is less understood and consequently less used than any other waste management strategy. The major problem associated with waste reduction is that it requires a change in personal habits and attitudes. Given these obstacles it is uncertain just how much waste reduction can be achieved, and thus to what extent a community can rely on waste reduction as a proven technique. Nonetheless, the objective of this Section is to identify waste reduction actions that are reasonable for implementation in the City.

4.1. WASTE REDUCTION PROGRAM OPTIONS

The Department of Ecology Planning Guidelines identify thirteen local options for waste reduction, which for discussion purposes can be divided into the following seven principal alternatives:

- Public Awareness Education
- School Curricula
- Nonresidential Educational and Technical Assistance
    - Waste Exchange
    - Technical Assistance Program
- On-Site Composting
    - Home Composting
    - Nonresidential Composting

- In-House Government Programs
- Incentive/Disincentive-Based Programs

    Variable Rates

    Product Bans

- Government and Business Procurement

Detail about each of these seven principal alternatives can be found in the Appendix.

The City of Oak Harbor will need to develop a comprehensive waste reduction program. This program should be developed and implemented by a consultant but managed and tracked by the City. The annual cost of this effort is estimated to be less than $5,000.

5. RECYCLING

The City of Oak Harbor currently has a curbside collection program for recyclables. The program serves both single and multi-family residential customers. The program has been in operation for nearly three years. It has been operated by the City since 1997. The estimated quantity of recyclables to be collected in 1998 through the curbside program is 600 tons.

Commercial and industrial recycling is currently the responsibility of those customers. The City plans to implement a commercial and industrial recycling program in 1999.

The proposed waste export transfer station will include a drop-off recycling area to handle materials not collected curbside. It will also provide opportunity for businesses to participate in recycling within the City.

The cost to provide for recycling drop-off at the transfer station is estimated to be $20,000 for 5% of the waste stream (375 tons per year).

6. COLLECTION

Collection of solid waste within the City of Oak Harbor occurs under a franchise agreement with a private collection company. No change to this method of collection is assumed in this study.

7. YARD WASTE

Yard waste is estimated to account for 7.7% of the City waste stream. As one of the largest waste streams, the potential for diversion of this waste from the solid waste disposal system is high. The City currently collects yard wastes from March through November. The collected material is transported to Skagit Soils, near Burlington, in City

vehicles. The current yard waste program has had low participation. As a result, the City plans to improve that program to increase participation.

8. SPECIAL WASTES

8.1. INTRODUCTION

Special wastes are those materials which require special or separate handling due to their unique characteristics, such as bulk, water content, or dangerous constituents. Special wastes generated in Oak Harbor may need to be handled separately from MSW. This chapter discusses the management needs and opportunities associated with each special waste stream and recommends management strategies to encourage recovery and reduce environmental impacts. Special wastes discussed in this chapter are:

- Construction, Demolition and Land-Clearing Waste
- Asbestos Wastes
- Petroleum Contaminated Soil
- White Goods
- Tires
- Biomedical Wastes
- Biosolids

8.2. CONSTRUCTION, DEMOLITION AND LAND-CLEARING WASTE (CDL)

Construction waste is defined as materials resulting from the construction, remodeling, and repair of buildings and other structures. Generally, waste generated during construction consists of new materials which may include: wood, concrete, brick, glass, dirt, gravel, steel, copper piping, aluminum, galvanized piping, plastic piping, sheetrock, and paper. Construction waste does not include dangerous wastes or food waste.

Demolition waste is defined as largely inert waste, resulting from the demolition or razing of buildings, roads, and other man-made structures. Demolition waste is typically mixed and size reduced, and consists of: concrete, asphalt, brick, wood and masonry, composition roofing and roofing paper, steel and minor amounts of other metals such as copper. Plaster, sheetrock and any other material (other than wood), which is likely to produce gases or a leachate during the decomposition process, are not considered to be inert. Asbestos wastes are also not considered to be inert.

Land-clearing waste is defined as brush, stumps, limbs, rock, and dirt resulting from land clearing operations.

Export to a Regional Landfill

The City should include disposal of CDL in the waste export system. A problem with this approach is its cost as compared to the current situation with disposal at the Island County

Landfill. Construction and demolition waste disposal has traditionally been inexpensive compared to municipal solid waste disposal. Should costs increase dramatically, illegal disposal may be a direct result.

With 1,462 tons per year for disposal this would cost $67,252 at $46 per ton.

Enhanced Reuse and Recycling Opportunities

CDL waste generators have the potential to significantly reduce the quantity of material they dispose through waste reduction and source-separation efforts thereby reducing the cost of disposal. Existing opportunities are not fully utilized because generators are not adequately informed about these techniques. To answer this need, the City, in conjunction with existing or new CDL processors, should develop educational materials for distribution to local builder's associations, contractors, and haulers. CDL waste processors can promote source-separation through reduced tipping fees, providing contractors and haulers with an economic incentive to balance the increased cost of handling the material. Oak Harbor can further this effort by working actively with construction/demolition contractor associations and permitting agencies to promote the development of a recovery/disposal plan before a project begins for large construction/demolition projects.

8.3. ASBESTOS WASTES

Asbestos is a group of naturally occurring minerals that have a fibrous structure and heat resistant properties. These unique properties allow asbestos to be made into useful products but also allow it to break down into microscopic fibers that can become airborne. Depending on its physical state, asbestos can be classified as friable or non-friable. Friable asbestos can easily break apart and become airborne and thus it presents a much greater risk to human health, while non-friable asbestos has less of a tendency to break apart.

Oak Harbor should develop a procedure rule for asbestos disposal. This rule would require the asbestos wastes hauler to obtain a clearance form directing the disposal facility to accept the material. The rule would also require that the hauler provide a 24 hour notice, identify the amount to be disposed, how it is contained, and the name and location of the generator. Asbestos waste should be disposed of through the waste export system.

With less than 1 ton per year for disposal the cost is negligible.

8.4. PETROLEUM CONTAMINATED SOILS (PCS)

Soil is considered contaminated if it contains significant quantities of fuel oil, gasoline, or other volatile hydrocarbons. It is possible that lead, benzene, polynuclear aromatic hydrocarbons, or contaminants such as polychlorinated biphenyls in the soils could trigger a designation as dangerous waste. Treatment, transportation, and disposal of dangerous wastes are subject to the State dangerous waste regulations. Dangerous wastes can only be transported to specifically permitted facilities for treatment, storage, or disposal. See the Appendix for more information about PCS.

Oak Harbor should work with the Island County Health Department to establish a program for handling PCS which complies with the Ecology management policies described above.

For the purposes of this study disposal of PCS is assumed to be handled separately from other solid wastes, as it currently is.

8.5. WHITE GOODS

The term "white goods" refers to large appliances such as refrigerators, washers, and dryers. These items typically contain large amounts of steel and are a traditional source of ferrous scrap. Because these wastes are very bulky and extremely difficult to compact in a landfill, they consume significant landfill space.

There are two environmental problems associated with recycling white goods, the handling of polychlorinated biphenyls (PCBs) and the recovery of chlorflurocarbons (CFCs). PCBs are present in the electrical capacitors of some appliances produced or repaired prior to 1979. When these appliances are shredded, the capacitors are crushed and leak PCB-contaminated oil over the shredder fluff. The presence of PCBs in white goods has resulted in scrap dealers accepting only appliances which do not contain PCBs.

The Clean Air Act prohibits releasing refrigerants into the atmosphere beginning July 1, 1992. EPA is currently developing regulations that would require recycling of ozone depleting compounds during the servicing, repair and disposal of air conditioning and refrigeration equipment. The proposed rule would also require the refrigerant in appliances, machines and other goods be recovered from these items prior to disposal. In addition, EPA is considering requiring contractor and reclaimer certification.

Oak Harbor should establish contracts with local or regional white goods recycling contractors to provide for handling of white goods generated within the City. The cost of recycling white goods is currently approximately $20 per item. Revenue from recycling these white goods varies depending on market conditions for scrap metal. For the purposes of this study the revenue is assumed to be $0 and cost is assumed to be offset entirely by a recycling fee. The cost per year for recycling white goods is estimated to be $4,000 based on 200 items per year (8 tons) and $20 per item.

8.6. TIRES

Waste tires present a variety of management problems ranging from storage to disposal. The storage of tires may present a potential fire hazard, and provide protected spaces which encourage the breeding of rodents and mosquitos. The disposal of tires into sanitary landfills also presents numerous problems. Because of their bulkiness and resilience, they tend to rise to the surface, damaging the cover materials which allows water to seep into the landfill.

The City has few alternatives for the handling and proper disposal of waste tires, they are as follows:

- Transport Tires to an Established Tire Processor.
- Education and Promotion.

Oak Harbor could establish a tire collection drop box at the proposed waste export transfer station. A disposal cost would be charged to cover the cost of handling and transport to a waste tire processor. Collection and processing costs can be reduced through contract

negotiation. Alternatively, the City could require that generators of tires be responsible for identifying tire disposal services on their own.

The City should establish an education campaign to inform businesses and the public that most tire piles and all tire dumping are illegal. Opportunities for appropriate disposal or recycling within the City should be clearly identified.

Enhanced regulation of tire piles by the Island County Health Department would help to reduce stockpiling. If necessary the ICHD should ask Ecology to assist in specific enforcement actions.

For this study 1,000 tires per year are assumed to require disposal at a cost of $6 each for an annual cost of $6,000.

8.7. BIOMEDICAL WASTE

Biomedical waste is defined and limited to the following types of waste:

- Animal Waste
- Biosafety Level 4 Disease Waste
- Cultures and Stocks
- Human Blood and Blood Products
- Pathological Waste
- Sharps Waste

For this study, no change to the current biomedical waste disposal practices are assumed. Additional information about biomedical waste can be found in the Appendix.

8.8. BIOSOLIDS

Biosolids are generated by sewage treatment plants. Biosolids have traditionally been disposed of through a separate contract. For the purposes of this study, no change to the past disposal practice for biosolids is assumed.

9. MODERATE RISK WASTE

Local governments are required by the Washington State *Hazardous Waste Management Act* (HWMA, Chapter 70.105 RCW) to address moderate risk waste management in their jurisdictions. "Moderate risk waste" is hazardous wastes produced by households, and by businesses and institutions in small quantities. The Legislature has assigned this responsibility to local governments because waste quantities, risks, and management options vary significantly at the local level. Local governments are required to present their management recommendations in the form of a plan that meets requirements stated in the Act (RCW 70.105.220) and that follows planning guidelines

established by the Washington State Department of Ecology (Ecology). Refer to the Appendix for more information about the requirements for a moderate risk waste program.

The following table lists the MRW management programs and estimated annual budgets which need to be established in Oak Harbor. The programs include a variety of household and SQG education and hazardous waste collection activities, maintenance of health and safety programs, and compliance activities.

Table 3	Moderate Risk Waste Collection Program Initial Development Cost Estimate
Pre-Development	**Estimated Cost**
Planning, Siting, and Permitting	$5,000
Procurement of Disposal and Transport Services	$5,000
Land	0
Total Pre-Development	$10,000
One-Time Capital Expenditures	
Site Development	Incl. in transfer station
MRW Facility	$100,000
Subtotal	$100,000
Engineering and Administration	Incl. in transfer station
Contingencies @ 20%	$20,000
Sales Tax @ 7.9%	$10,000
Total One-Time Capital Cost	$130,000
Total Bond Cost	
Bond Reserve @ 10%	$14,000
Bond Fee @ 4%	$6,000
Total Bond Cost	$20,000
Total Initial Development Cost	$160,000
Total Cost Per Year (at 6% for 20 yrs.)	$14,000

Table 3	Moderate Risk Waste Collection Program Annual Operating Cost Estimate
Operation and Maintenance	**Estimated Cost**
Labor (1 staff member)	$52,000
Equipment and Supplies	$10,000
Medical Monitoring, and Training	$6,000
Disposal	$15,000
Insurance, Taxes and Permits	$11,000
Administration and Management Services	$8,000
HHW Education Program	$3,000
SQG Education Program	$11,000
Total Operation and Maintenance	$116,000

10. ADMINISTRATION AND ENFORCEMENT

Administration and enforcement of solid waste regulations in Island County is currently the joint responsibility of the Island County Health District (ICHD) and the County. This

study addresses the possibility of the City of Oak Harbor assuming the role the County has traditionally held. Solid waste regulations and policies, which drive administration and enforcement, change frequently but continue toward comprehensive regulation and standardization of solid waste handling. Though regulations change, the subject and nature of solid waste administration and enforcement remain consistent.

Addition detail regarding the existing administration and enforcement conditions is presented in the Appendix.

The annual cost of administration and enforcement is assumed to be $77,000. This is based on the cost of one full time equivalent staff person plus a share of City administrative costs.

11. SUMMARY OF COSTS

A summary of costs is provided in Table 4 for the new services the Oak Harbor solid waste system would be required to provide. The costs are presented on an annual cost basis as well as a cost per ton. The cost of the existing curbside recycling program, yard waste program, and biosolids disposal program, as well as those services assumed to be provided by the private sector, are not included in this summary.

CITY OF OAK HARBOR
SUMMARY OF COSTS

TABLE 4

COMPONENT		ANNUAL COST	TONS	COST PER TON
Transfer Station				
	Capital	$143,000	8953	$15.97
	O&M	$264,000	8953	$29.49
Waste Export				
	Transport	$177,500	7100	$25.00
	Disposal	$149,100	7100	$21.00
Waste Reduction		$5,000	8953	$0.56
Recycling				
	Curbside	baseline		baseline
	Drop-off	$20,000	375	$53.33
Collection		baseline		baseline
Yard Waste		baseline		baseline
Special Wastes				
	CDL	$67,252	1462	$46.00
	Asbestos	negligible		
	White Goods	$4,000	8	$500.00
	Tires	$6,000	8	$750.00
	Biomedical Waste	baseline		baseline
	Biosolids	baseline		baseline
Moderate Risk Waste				
	Capital	$14,000	65	$215.38
	O&M	$116,000	65	$1,784.62
Admin and Enforcement		$77,000	9018	$8.54
	TOTAL	$1,042,852	9018	$115.64

APPENDIX

WASTE REDUCTION PROGRAM OPTIONS

The Department of Ecology Planning Guidelines identify thirteen local options for waste reduction, which for discussion purposes can be divided into the following seven principal alternatives:

Public Awareness Education

Voluntary waste reduction can be achieved through public education and media campaigns which promote the necessity and purpose of waste reduction. Without an understanding of these basic elements, waste reduction efforts are not likely to succeed.

Public education and awareness efforts may include use of local media news articles, public service announcements, distribution of annual waste reduction awards, displays at county-wide events and distribution of brochures and similar materials to businesses and households.

Waste reduction opportunities for consumers are often emphasized at shopping centers by the recommended purchase of durable long-lasting goods and buying in bulk. Some stores allow customers to bring their own containers to refill from bulk bins. Other stores pay customers for bringing their grocery bags back to the store for reuse. Another selective shopping technique includes learning to choose products that use recycled, or less packaging. Product packaging is a significant portion of the residential waste stream.

School Curricula

Many jurisdictions around the country have developed materials and tools to educate students about responsible solid waste management including waste reduction and recycling. The Washington State Department of Ecology has developed an extensive K-12 school curricula. Some counties within Washington have effectively used special school presentations in classrooms or assemblies, including plays or skits, magic shows and hands-on science exhibitions.

Field trips to local industries and agencies that practice waste reduction also help students learn responsible solid waste management techniques for home, school and play. Field trips to local landfills and recycling facilities can emphasize the importance and need to practice waste reduction and recycling.

Nonresidential Educational and Technical Assistance

The Washington State SWMP recognizes the importance of involving nonresidential waste generators in waste reduction activities. Specifically, nonresidential waste generators could prepare internal waste reduction/recycling plans and conduct a waste audit.

Programs which the City may implement to assist nonresidential waste generators include the following:

Waste Exchange—There are statewide waste exchange programs based in Seattle and Spokane. The City could promote these waste exchange opportunities by informing local businesses of these services and encouraging them to participate.

Technical Assistance Program—Educational and technical assistance can be provided to businesses and public agencies on an informal or formal basis. Informal education might include informational flyers, distribution of program "success" reports on the benefits of reducing waste, or telephone conversations on how to get started. Formal waste reduction technical assistance often includes conducting an audit to determine sources of waste, possible uses for waste materials, and ways to reduce the amount and toxicity of waste. Appropriate waste reduction options are then selected based on technical and economic feasibility. Incentives for implementing a formal waste reduction program include the potential for reduced disposal costs, development of a better public image and the preservation of natural resources.

On-Site Composting

Home Composting—Residents can significantly reduce their waste through home composting. Two methods commonly employed include yard waste in backyard piles or bins, and food waste in worm bins. Backyard composting is a low technology, low cost option that provides the advantages of citizen participation and waste reduction at its source. Several counties have worked with non-profit groups to develop Master Composter programs to assist with the distribution of information and hands-on education about composting. Some programs provide demonstration sites residents can visit to gather ideas for their own households.

A common food waste composting technique is the use of a worm bin. Special worms are placed in a closed chest-type box along with shredded newsprint. The worms are fed non-fatty household food scraps. Worms digest the food and produce worm castings which are a rich soil amendment. Design sheets and brochures can be distributed to residents to provide instructions for building a compost pile or worm bin. Some jurisdictions are able to provide bins to their residents at a special rate as an incentive to reduce waste by composting.

Nonresidential Composting—Businesses which generate compostable waste may be able to practice on-site composting. Compostable waste materials generated by businesses include food wastes from restaurants and groceries, wood waste from the timber industry, and agricultural waste from farmers and food processors. All materials can be composted on-site depending on space availability and specific permitting requirements.

In-House Government Programs

Before jurisdictions can effectively emphasize private sector and general public participation in waste reduction and recycling programs, they should start with internal implementation of similar programs. For example, government offices can use double-sided copies instead of single-sided, and use ceramic coffee mugs instead of disposable

substitutes. Oak Harbor could set an example and promote local waste reduction efforts by publicizing its own efforts to reduce the amount of waste produced in all departments.

Incentive/Disincentive-Based Programs

Variable Rates—Waste reduction program incentives include the provision of financial and/or other types of rewards for achieving behavior that reduces waste generation or disposal. An example of this is the implementation of variable can rates. Variable can rates may encourage waste reduction because they are a method which rewards customers who are generating less waste. Incorporated municipalities which regulate solid waste collection would implement variable rates. Municipalities choosing not to regulate solid waste collection may comment to the WUTC during rate proceedings, but it will be up to the WUTC to establish variable rates.

Product Bans—Disincentive programs at the local level typically include bans on certain products. Local governments may consider the banning of materials, packaging, and products that significantly hinder efforts to meet waste reduction goals after the Solid Waste Management Act's "ban on bans" expired on July 1, 1993. It is generally recognized, however, that product/container deposits and/or product/packaging prohibitions would require state or national implementation to be successful.

Government and Business Procurement

Another area local government can be a leader in waste reduction through example is in the procurement of products with recycled content. Procurement standards can be developed which require a certain percentage of recycled content in widely used products and packages. Government procurement of any product should investigate the opportunity to purchase products that are made with recycled materials, and are durable, recyclable, and nontoxic. The Clean Washington Center, through the Department of Trade and Economic Development is an excellent source of information on available recycled products.

Businesses can also take a lead in instituting procurement procedures that encourage the use of recycled and recyclable materials. Utilizing the information developed by agencies in implementing procurement standards businesses can assist waste reduction efforts without having to invest significant resources in experimenting with new products.

PETROLEUM CONTAMINATED SOILS (PCS)

Soil is considered contaminated if it contains significant quantities of fuel oil, gasoline, or other volatile hydrocarbons. The primary statute governing cleanup of petroleum contaminated soil in Washington State is the Model Toxics Control Act (MTCA), Chapter 70.105D RCW. Chapter 173-340 WAC contains regulations to implement MTCA, including sections on corrective action requirements for leaking underground storage tanks, and cleanup standards.

It is possible that lead, benzene, polynuclear aromatic hydrocarbons, or contaminants such as polychlorinated biphenyls in the soils could trigger a designation as dangerous waste. Treatment, transportation, and disposal of dangerous wastes are subject to the State dangerous waste regulations, Chapter 173-303 WAC. Dangerous wastes can only be transported to specifically permitted facilities for treatment, storage, or disposal.

Under the Minimum Functional Standards (MFS) petroleum contaminated soils which are not dangerous wastes are called "problem wastes" (Chapter 173-304 WAC). The MFS does not have specific treatment or disposal standards for problem wastes. However, Ecology's policy is that county health departments are responsible for any necessary solid waste permitting for PCS.

Ecology's policy is that PCS which contain contaminants above the Model Toxics Control Act (MTCA) Method A cleanup standards are to be regulated as solid wastes. Specifically:

- The local health department should be notified of on-site treatment of greater than 100 cubic yards of PCS.
- The local health department should be notified if any PCS are to be transported into or within their area for treatment at a temporary treatment facility.
- The local health department should permit regional treatment centers.
- If Class 3 soils from more than one site are placed in a single location, the location should be permitted as a new solid waste disposal facility.
- Class 4 soils must be treated or disposed of in a permitted solid waste facility.

Ecology has established management polices for PCS through the Toxics Cleanup Program, and the Solid and Hazardous Waste Program. Specifically, Ecology encourages on-site treatment as long as the actions themselves will not cause a threat to human health. The Model Toxics Control Act established a hierarchy for selecting treatment technologies (WAC 173-340-360). The list of management methods is as follows:

1. Reuse or recycling
2. Destruction or detoxification
3. Separation or volume reduction, followed by reuse recycling, destruction, or detoxification
4. Immobilization
5. On-site or off-site disposal at an engineered facility
6. Isolation or containment

Oak Harbor should work with the Island County Health Department to establish a program for handling PCS which complies with the Ecology management policies described above.

For the purposes of this study disposal of PCS is assumed to be handled separately from other solid wastes, as it currently is.

BIOMEDICAL WASTE

Within the medical industry a number of definitions exist for biomedical waste brought about by overlapping and inconsistent local, state, and federal regulations governing its management. This has a critical impact on the management of the material since each generator's quantity of biomedical waste is greatly influenced by how inclusive the definition may be.

In response the State of Washington has developed a state-wide definition of biomedical waste to simplify compliance with local regulations while preserving local control of biomedical waste management (Substitute House Bill 2391, adding a new chapter to Title 70 RCW). The definition of biomedical waste is to be the sole state definition for biomedical waste within the state, and will preempt biomedical waste definitions established by a local health department or local government. Biomedical waste is defined and limited to the following types of waste:

Animal Waste—is waste animal carcasses, body parts, and bedding of animals that are known to be infected with, or that have been inoculated with, human pathogenic microorganisms infectious to humans.

Biosafety Level 4 Disease Waste—is waste contaminated with blood, excretions, exudates, or secretions from humans or animals who are isolated to protect others from highly communicable infectious diseases that are identified as pathogenic organisms assigned to biosafety level 4 by the centers for disease control, national institute of health, biosafety in microbiological and biomedical laboratories, current edition.

Cultures and Stocks—are wastes infectious to humans and includes specimen cultures, cultures and stocks of etiologic agents, wastes from production of biologicals and serums, discarded live and attenuated vaccines, and laboratory waste that has come into contact with cultures and stocks of etiologic agents or blood specimens. Such waste includes but is not limited to culture dishes, blood specimen tubes, and devices used to transfer, inoculate, and mix cultures.

Human Blood and Blood Products—is discarded waste human blood and blood components, and materials containing free-flowing blood and blood products.

Pathological Waste—is waste human source biopsy materials, tissues, and anatomical parts that emanate from surgery, obstetrical procedures, and autopsy. Pathological waste does not include teeth, human corpses, remains, and anatomical parts that are intended for interment or cremation.

Sharps Waste—is all hypodermic needles, syringes with needles attached, IV tubing with needles attached, scalpel blades, and lancets that have been removed from the original sterile package.

In general, the major sources of biomedical waste include: hospitals, medical laboratories, research laboratories, commercial diagnostic laboratories, outpatient medical clinics, dental clinics, nursing homes, and veterinary hospitals and schools. These businesses traditionally contract with private medical waste disposal contractors for disposal services.

MODERATE RISK WASTE

Local governments are required by the Washington State *Hazardous Waste Management Act* (HWMA, Chapter 70.105 RCW) to address moderate risk waste management in their jurisdictions. "Moderate risk waste" is hazardous wastes produced by households, and by businesses and institutions in small quantities. The Legislature has assigned this responsibility to local governments because waste quantities, risks, and management options vary significantly at the local level. Local governments are required to present their management recommendations in the form of a plan that meets

requirements stated in the Act (RCW 70.105.220) and that follows planning guidelines established by the Washington State Department of Ecology (Ecology).

Although local governments are authorized to address household hazardous waste (HHW), these wastes are *categorically exempt* from regulation by Ecology under the HWMA. Similarly, commercial and institutional generators of hazardous waste are *conditionally-exempt* from full regulation under the HWMA provided that they do not produce or accumulate hazardous waste above specified quantities defined by Ecology (quantity exclusion limits). These "small quantity generators" produce hazardous wastes in quantities that do not exceed the following state regulatory limits:

- 220 pounds of dangerous waste per month or per batch
- 2.2 pounds of acute or extremely hazardous waste per month or per batch

In addition, to maintain its status as a small quantity generator (SQG), a business or institution may not accumulate more than 2,200 pounds of dangerous waste or more than 2.2 pounds of acute or extremely hazardous waste at one time.

Businesses or institutions producing or accumulating hazardous waste above the quantity exclusion limits are required to meet a stringent set of regulations when storing, handling and disposing of their hazardous wastes. In addition, these hazardous waste generators must comply with extensive waste tracking and reporting requirements. SQGs must meet certain requirements for identifying and managing their hazardous wastes, but are exempt from some of the waste tracking and reporting requirements.

In 1991 the *Used Oil Recycling Act* (Chapter 70.95I RCW) was enacted by the Washington State Legislature. Among other requirements, this statute required that MRW plans more specifically address needs for collection and recycling of used motor oil produced by residential "do-it-yourselfers"--individuals who change the oil in their own vehicles. The Act required that plans establish appropriate goals for improving collection, recycling and re-refining of used oil, for educating citizens, and for meeting reporting requirements.

ADMINISTRATION AND ENFORCEMENT

Administration

Washington State

Solid waste handling of in Washington state is regulated by the Solid Waste Management Recovery and Recycling Act, Revised Code of Washington (RCW) 70.95. The Department of Ecology has developed a solid waste management plan and best management practices for the state. Minimum standards for solid waste management are stated in Washington Administrative Code (WAC) 173-304.

Island County

The County has the authority to own and operate solid waste disposal facilities or to contract for their ownership and operation. Depending on ownership and lease conditions, the County may have authority to administer facilities, including setting rates and hours of operation and limiting access. The County may contract disposal of solid waste generated in all unincorporated areas of the county, and it may require collection

service in unincorporated areas. County control of disposal of solid waste generated within incorporated jurisdictions requires interlocal agreements between the County and the incorporated jurisdiction.

The County has the authority and responsibility to prepare comprehensive solid waste management plans (CSWMP) for unincorporated areas and for jurisdictions that agree to participate in the planning process. Island County Solid Waste Division (ICSWD) is responsible for revising the CSWMP.

Cities

Cities may develop, own, and operate solid waste handling systems and are responsible for providing collection services within their jurisdictions. A city may elect to prepare its own CSWMP. In the past, all of Island County's cities have agreed to participate with County staff in developing a single CSWMP.

Island County Health Department

In Island County, ICHD issues solid waste facility permits and enforces solid waste handling regulations. Also, ICHD inspects solid waste facilities and regulates the storage, treatment, transportation, and disposal of special waste materials, including medical wastes, asbestos, sewage sludge, and bulky materials.

Island County Solid Waste Advisory Committee

The Island County Solid Waste Advisory Committee (SWAC) was formed in accordance with the provisions of RCW 70.95.165. The SWAC consists of appointed members and alternates from the County and all incorporated cities. The SWAC performs several functions:

- Advises County Council and city council members about solid waste planning activities.
- Reviews and comments on solid waste plans and proposed actions.
- Assists in the formation of County policies, ordinances, and rules related to solid waste.
- Assists in the dissemination of public information on solid waste issues.

Enforcement

Island County Health Department

The ICHD is the primary regulatory response agency illegal dumping and solid waste complaints in Island County or complaint response.

The Health Department's permit system regulates the construction and operation of all solid waste facilities in the county. The permit program includes:

- Conducting scheduled inspections.
- Reviewing and issuing facility permits based on WAC 173-304.
- Evaluating monitoring data for existing and closed facilities.

- Reviewing and commenting on all facility development and closure plans.
- Conducting limited monitoring of closed or abandoned landfills.