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OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS

DEQ

State of Oregon
Department of Environmental Quality

MINUTES ARE NOT FINAL UNTIL APPROVED BY THE EQC

ENVIRONMENTAL QUALITY COMMISSION

Minutes of the Special Meeting
June 12, 1987

Multnomah County Courthouse
Room 602
Portland, Oregon

Commission Members Present:

Chairman, James Petersen
Vice-Chairman, Arno Denecke
Mary Bishop
Sonia Buist
Wallace Brill

Department of Environmental Quality Staff Present:

Director, Fred Hansen
Assistant Attorney General, Michael Huston
Assistant Attorney General, David Ellis
Division Administrators and program staff members

NOTE:

Staff reports presented at this meeting, which contain the Director's Recommendations, are on file in the Office of the Director, Department of Environmental Quality, 811 S. W. Sixth Avenue, Portland, Oregon 97204. Written material submitted at this meeting is made a part of this record and is on file at the above address.

The principal purpose of this meeting was for the Commission to select a site and to order the establishment of a waste disposal site as authorized in Senate Bill 662. In addition, the Commission gave consideration to the proposed adoption of a temporary rule amending Solid Waste Permit application processing fees for large general-purpose domestic waste landfills. Although no public testimony was taken at this meeting, the EQC called upon interested persons to answer questions and to provide information.

Agenda Item 1. Selection of and Order Establishing a Waste Disposal Site as Authorized in Senate Bill 662.

Chairman Petersen opened the discussion by reading a statement on behalf of the Commission that provided an overview to the audience of the events leading up to their decision. He described what will happen after their decision is made, including the process for a contested case hearing. This statement is made a part of the record in this matter. Chairman Petersen also thanked the Department, the landfill siting staff, Director Hansen, the consultants, the citizen advisory committee, and the citizens and neighborhoods of the proposed landfill sites for all their views, concerns and efforts.

In response to questions from Commissioners Bishop and Brill, Michael Huston, Assistant Attorney General, advised that the Commission could subsequently select the second site if, in the contested case hearing process, the first selected site was rejected. He also advised that the Commission could legally select two sites, and could hold a single contested case hearing covering both sites.

Commissioner Buist read a prepared statement which is made a part of the record in this matter. She stated she was impressed with the thought that went into the development of the process for siting the landfill and how that process was followed. Although she had reservations about both sites, she believed both sites meet the requirements of SB 662. She stated there was never a clear front runner in her mind, but of the two sites, she would have to choose the Bacona Road site.

Commissioner Buist MOVED that the Commission site the landfill at Bacona Road and strongly recommend to METRO that the final decision not be made until other alternatives have been evaluated. Commissioner Brill seconded the motion.

In discussion, Commissioner Bishop expressed the view that both sites were suitable and met the requirements of Senate Bill 662. However, because of problems associated with both sites, she preferred to select both sites.

Chairman Petersen then read a personal statement which is made a part of the record in this matter. Chairman Petersen said that in his mind there had not been a clear front runner. While it is very important to pick a landfill site in the metropolitan area, he said that other sites outside of the area should be considered by METRO. He said while both sites (Ramsey Lake and Bacona Road) were suitable, Bacona Road was the most suitable. Chairman Petersen said both sites were roughly equal in environmental and technical aspects. However, when he factored in the tremendous disparity in cost factors, the potential impact on economic development, and the projected site life difference, he concluded the Bacona Road site appeared most suitable.

Chairman Petersen then expressed support for Commissioner Buist's motion and proposed to formalize the wording of the motion as follows:

> I MOVE that the Environmental Quality Commission order the Department of Environmental Quality to establish a solid waste facility at the Bacona Road site subject, however, to the condition as follows:
>
> > If the Metropolitan Service District, established under ORS 268, enters into a contractual agreement with a DEQ permitted landfill disposal site owner or operator, requiring a disposal site owner or operator to receive the solid waste from the district, then DEQ shall not be required to establish a disposal site pursuant to this order; and all authority for establishment of a disposal site pursuant to this order, shall expire upon execution of such a contract by the Metropolitan Service District.

Commissioner Buist and Commissioner Brill agreed to accept this wording as included in their motion and second.

ACTION: The MOTION was passed by a four to one vote with Commissioner Bishop dissenting.

Chairman Petersen commented that the EQC hopes that the Port of Portland will be cooperative in the development of a transfer facility if a site east of the mountains appears to be more suitable.

Chairman Petersen indicated that specific findings and conclusions needed to be adopted to support the EQC order. He said he felt the EQC should discuss the order and findings at this meeting and approve the final wording of the document over a conference call to occur sometime next week. While Chairman Petersen said he did not have any problems with the Bacona Road site findings, he did recommend that typographical errors be corrected and additional findings be included as follows:

Page 5, paragraph IV -- correct to read Bacona Road Site rather than Ramsey Lake Site, and change "...pages 2-103 through 2-105" to read 2-94 through 2-97.

Add the following under the heading Other Considerations:

Section 5 (2) of the Act directs the Commission in selecting a disposal site to review the study prepared by DEQ and the sites recommended by DEQ under Section 3 of the act. The Commission has reviewed the study and finds it relevant for the following reasons:

1. The study demonstrates that selection of the Bacona Road site complies with the criteria set forth in Section 4 of the act.

2. The study provides information and evidence in support of the Commission's other considerations set forth in subparagraph ___(to be included in final draft).

Section 2 (2)(d) of the Act directs the Commission to give due consideration to other factors the Commission considers relevant. The Commission considers the following factors relevant:

1. Cost of acquisition, development and operation of the disposal site.

2. Projected life of the disposal site.

3. Potential impacts on regional economic development.

The Commission recognizes that private interests have come forward and requested commission consideration of sites other than the sites recommended by DEQ, including sites given preliminary consideration by DEQ but not recommended by DEQ under Section 3 of the act. The Commission does not intend to consider these under its authority provided by SB 662. However, the Commission does not wish to foreclose consideration of any potential solid waste disposal site by METRO, and encourages DEQ and METRO to further evaluate these disposal options.

ACTION: Chairman Petersen MOVED that the Commission adopt the Findings of Fact and Conclusions attached to the draft order for the Bacona Road site with incorporation of the above noted corrections and additions. The motion was seconded by Commissioner Denecke and approved unanimously.

By consensus, the Commission agreed that the department should incorporate the corrections and additions into the Findings of Fact and Conclusions and circulate it to the Commission for further consideration at a special conference call meeting.

Commissioner Denecke asked about the neighborhood protection plan. He stated a concern about safety at the junction of the Sunset Highway and Vernonia Road. Commissioner Denecke indicated he was prepared to go along with the department recommendation that an overpass not be required but wondered if it would be possible to require construction later if a study by the State Police or the

Department of Transportation, conducted after the landfill had opened, demonostrated a need.

Chairman Petersen asked Edward Sullivan, Attorney for the Helvetia Mountaindale Preservation Coalition, if he or his consultants had considered the issue or would like to comment. Mr. Sullivan said he felt it was best to leave this discussion for the contested case hearing. The commission concluded that this issue could be addressed further as part of the final order following the contested case hearing.

The Commission discussed whether there was a need to specifically adopt the Neighborhood Protection Plan separately. Steve Greenwood advised that it was part of the order and had already been adopted.

Agenda Item 2. Consideration of Proposed EQC Adoption of Temporary Rule Amending Solid Waste Permit Application Processing Fee for Large General Purpose Domestic Waste Landfills.

At the May 29 EQC meeting, the Department proposed a temporary rule increasing the solid waste permit application processing fee for large domestic landfills to $85,000. The Department must fund additional staff needed to investigate and process applications for two sites in north central Oregon proposed to handle Portland area solid waste. At the May 29 EQC meeting, the Commission directed the Department to investigate the use of 662 monies for funding the additional staff and the refunding of unspent permit fees to the applicant.

Fred Hansen advised that the proposal now before the Commission had been modified from the previous proposal in the following respects:

1. The recommendation to authorize permanent rulemaking had been deleted. Instead, the Commission should direct the department to look at the whole issue of the fee structure and come back with a hearing authorization at some point in the future. The Department will work with applicants to develop a more equitable solid waste permit fee structure before requesting authorization to conduct public hearings.

2. The proposal had been modified to require the Department to account for its costs in reviewing an application and return any unused portion of the application fee to the applicant.

3. The Department is continuing to pursue a vehicle in the legislative process to accomplish a change allowing the SB 662 surcharge to be continued and applied to the review of these applications. Since this remains uncertain, the Department would suggest that if the Commission proceeds to adopt the proposed temporary rule, the department be directed not to collect the fee if legislation is enacted allowing use of SB 662 money. In such a case, the rule would be repealed at a future Commission meeting.

DIRECTOR'S RECOMMENDATION: Based upon the findings in the Summation (of the staff report), it is recommended the Commission adopt the proposed temporary rule amending OAR 340--61 as set forth in Attachment 2 (of the staff report). It is further recommended the Commission direct the Department to work with the affected parties in developing an equitable permit application fee schedule and return to the Commission for authorization to hold public hearings on permanent rule amendments.

Commissioner Denecke asked Director Hansen if the time spent by the staff to review applications will be recorded and logged. Director Hansen replied that the time will be recorded like legal, billable fees.

ACTION: It was MOVED by Commissioner Buist that the Directors recommendation be approved.

Jacob Tanzer, Attorney for Tidewater Barge Lines, expressed the view that the Department had not addressed the policy issue that was requested. He said the Department's recommendation simply provided that if funds cannot be found elsewhere, make the applicants pay. He suggested it may be more appropriate to juggle priorities within the agency, finding the necessary funds to accomplish the review or going to the Emergency Board if additional funds are necessary. Mr. Tanzer believes the proposal

is unfair to the applicant and a different solution should be found.

Chairman Petersen expressed the view that the EQC and DEQ are faced with a unique situation at this time. He said the siting of a landfill for the Metropolitan area and the current situation with large private proposals to be evaluated in a very narrow time frame is a special situation. A year ago, these plans were not apparent to the Department.

Jay Waldron, Attorney for Waste Management of Oregon, said his company supports the recommended policy (department proposal) with the provision that the unused fee will be refunded. They also support it because they expect to be asking DEQ to rapidly evaluate their application. They also note that fees reflecting the level of work that a review agency does on an application are becoming common everywhere, so this proposal is not out of the ordinary.

Chairman Petersen asked Director Hansen to comment on the suggestion that the department should divert monies budgeted for other purposes to review of landfill applications. Director Hansen noted the Department understands the Commission expects prompt, timely review of the two potential eastern Oregon landfills. It is always an option to shift funds within the existing budget as long as it is understood that other commitments must be given up; however, the Department does not recommend this. The Department has developed it's proposal on the basic premise that those people who make application and ask for a service to be provided should bear the burden of the service cost. This is consistent with the direction that the Legislature has given the department in other areas where the department collects fees.

> ACTION: Chairman Petersen noted there was a motion on the floor to approve the Director's recommendation. The motion was seconded by Commissioner Denecke and unanimously approved.

There was no further business, and the meeting adjourned at 9:40 a.m.

NEIL GOLDSCHMIDT
GOVERNOR

Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

STATEMENT OF THE ENVIRONMENTAL QUALITY COMMISSION

June 12, 1987

EVENTS LEADING UP TO DECISION

Two years ago the Oregon Legislature in an effort to solve the garbage crisis facing the Portland Metropolitan area, passed Senate Bill 662, which assigned responsibility for locating a new landfill site to the Environmental Quality Commission. That bill directed the Department of Environmental Quality to conduct a study of possible and appropriate landfill sites with a view toward coming up with a preferred site. It also directed the Environmental Quality Commission to select a solid waste disposal site by July 1, 1987.

The Department of Environmental Quality developed landfill siting criteria to guide the search for a new site. The DEQ then used these criteria to limit the landfill search to 18 potential sites. A public hearing was held on each of those 18 sites. Following the hearings, the DEQ narrowed the list of sites to three. Further study forced DEQ to eliminate the Wildwood site from further consideration after an active slide was discovered deep underground.

The DEQ conducted further technical studies on the two remaining sites and presented the Environmental Quality Commission with a feasibility analysis of the sites, neighborhood protection plans for the two sites, and an economic analysis of the two sites. This Commission visited each site and held public hearings in the neighborhood of the two final sites. We also journeyed to the Seattle, Washington area and Mountain View, California to inspect active landfills that have some of the characteristics of the two sites under consideration today.

STATEMENT CONCERNING CONTESTED CASE

The decision made today by the Commission will result in the issuance of an order to the DEQ to establish a disposal site at the site or sites we select. That order will be subject to a contested case proceeding if requested by interested parties. Representatives of opponents of each site have made it clear that such a proceeding will be requested. DEQ mailed written notice of its intent to conduct a contested case to a large number of people who have either expressed an interest or own property at or near the respective sites. The notices explain how to request party or limited party status in the contested case. Additional notices are available on the table outside if anyone in the audience wishes to request party or limited party status, but did not receive a notice.

Briefly, the contested case will commence on July 13, 1987. The hearing will be conducted by Vice-Chair Arno Denecke, under procedures prescribed by the Oregon Administrative Procedures Act and rules of the Commission. The purpose of the hearing is to allow parties to test, under these procedures, the sufficiency of the evidence supporting the Commission's order and present their own evidence.

After conclusion of the contested case, the hearings officer will issue a proposed final order. Parties will then have an opportunity to review the proposed order and file objections and arguments with the full Commission. The Commission will then review the proposed order and the objections and arguments of the parties and issue its final order.

WHAT HAPPENS AFTER THIS DECISION

The legislation which gave the Environmental Quality Commission the authority to select a landfill site did not give the Commission or the DEQ authority in other solid waste management areas. That authority belongs to Metro. Metro has what is called flow control - or control over the flow of garbage. This means that the authority to make decisions about how and where the region's garbage is disposed of lies with Metro. Metro has the authority to direct garbage to whatever disposal site it considers appropriate. Metro also has the authority to establish transfer stations and to contract for alternative disposal methods. The point of today's decision, however, is that to the extent Metro directs garbage to be landfilled in the tri-County Area, it must use the site selected by us here today.

The Department of Environmental Quality staff has been working with the staff of Metro to negotiate a transition agreement. This agreement will guide the transition of the landfill development process from the DEQ back to Metro.

The proposed transition agreement between DEQ and Metro has three main components. First, it requires Metro to take all actions necessary for site development, including acquiring the land and obtaining permits from DEQ. One permit that must be obtained is a permit to fill wetlands from the Corp. of Engineers. That permit is likely to require an environmental impact study which would be conducted by Metro.

Second, flexibility is built into the agreement. If Metro decides on options, such as a contract with a private company to take the garbage to a private landfill out of the area, it would not be required, under the proposed agreement, to develop the landfill selected by the Environmental Quality Commission.

Finally, the agreement does not limit Metro to the environmental protections outlined in the neighborhood protection plan. Metro can go beyond the protections outlined or propose alternative protections, if they are at least as effective as the ones outlined in the neighborhood protection plan.

In the meantime, Metro is considering technologies, including incineration and composting, to reduce the amount of garbage to be landfillled. If Metro selects one of those alternatives, Metro must come to DEQ to obtain a solid waste permit and in the case of incineration, an air contaminate discharge permit. Metro expects to be ready to select one of these alternatives this fall.

We also expect Metro to continue discussions with private entities such as Waste Management, Inc. and Tidewater Barge Lines about sending garbage to a privately owned and operated landfill in north central Oregon. Both of those companies have provided information on their proposals to this Commission and to the Department of Environmental Quality. In fact, we have on our agenda today, a temporary rule that would fund a position within DEQ to evaluate the applications from such private companies for the solid waste permit needed to establish and operate a landfill. We have been asked to consider a proposal for a landfill from Waste Management, Inc. as part of today's decision. Unfortunately, these proposals involving private landfills had not been made until after January 1, 1987, which was the legislative deadline for the DEQ to have made their recommendations to us of the preferred locations. As a result, there has not been enough time to prepare and evaluate detailed studies of these potential private sites in order for us to choose such a site today. Also, I am of the personal opinion that it is in the best interests of Metro and the Tri-County area to have at least identified a suitable landfill site within the Tri-County area. Having a suitable site or sites within the area should strengthen Metro's position in any negotiations involving a private landfill.

We would expect, however, that Metro will make a complete examination of the private proposals, assuming that a disposal permit can be obtained and make a comparison of those proposals and the landfill site selected today. It will be Metro's decision to either construct a landfill at the site selected today or to negotiate an agreement to send the Tri-County area's garbage requiring landfilling to a landfill outside the Tri-County area. In other words, I want to make it perfectly clear that nothing we do here today will hinder Metro's ability to make suitable arrangements with a landfill site outside the Tri-County area.

I have outlined the role of government in solving the region's solid waste problems. But these steps are not all of the solution. Each citizen of the tri-County area also has a role to play in the future of solid waste management in this region. That role begins at home. Your decisions on purchasing products that can be recycled and your efforts to recycle and your efforts to compost or recycle yard debris are a valuable part of the solid waste management system. We must all work together to solve this garbage crisis we find ourselves in. I strongly encourage you to continue your active involvement in the solutions to the garbage crisis and to support Metro and your local government in waste reduction efforts.

Now, having said all of that, I will state that the purpose of today's meeting is to make our final deliberations on the two sites and to select an appropriate site for the region's landfill. This meeting is not a public hearing and no testimony will be taken. We may, however, need to ask questions to help us make the final selection.

FY5369

NEIL GOLDSCHMIDT
GOVERNOR

Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item 1, June 12, 1987, EQC Meeting

INFORMATIONAL REPORT

REQUIREMENTS FOR THE SELECTION AND ORDERING OF THE ESTABLISHMENT OF A WASTE DISPOSAL SITE OR SITES

Background

The purpose of this report is to provide the Environmental Quality Commission (EQC) with information that can be used by Commission members in selecting and ordering the establishment of a waste disposal site as authorized in Senate Bill 662. This includes information that:

(a) Demonstrates that both Ramsey Lake and Baccna Road meet the minimum requirements outlined in SB 662 for selection as a landfill site; and

(b) Provides a summary comparison of the environmental, technical, and cost information compiled on the sites.

The 1985 Legislature, through passage of Senate Bill 662, gave DEQ and the Environmental Quality Commission (EQC) the responsibility and authority to site a solid waste disposal facility to serve the Portland metropolitan area. The siting of a sanitary landfill is only one part of that legislation, which also requires the development and implementation of a comprehensive waste reduction program for the Portland region. The timely siting of a landfill is seen as critical because St. Johns Landfill, the Portland area's existing general purpose landfill, is expected to be full by 1991.

In response to Senate Bill 662, DEQ began a process to study and recommend to the Commission preferred locations for disposal sites, in accordance with Section 3 of Senate Bill 662. DEQ's time frame for the site selection process included development of a comprehensive list of potential sites by May 1986; the completion of a study identifying 12 to 18 preferred and appropriate sites in June 1986; and the selection by DEQ of three final sites by November 1, 1986. Information on the siting process up to and including the selection of three sites for final feasibility studies was provided to the Commission at their December 12, 1986 meeting. Each of the three sites have been subjected to detailed The feasibility analyses

including comprehensive hydrogeologic, geologic, and geotechnical investigations, conceptual design and site planning, a neighborhood protection plan, and cost analyses.

One of the three final sites, the Wildwood site was determined to be (during the course of the feasibility study) infeasible for the construction of an environmentally sound landfill and was dropped from further consideration. Information from the Final Feasibility Studies is summarized in this report, and the copies of the full studies have been provided to Commission members.

This report is divided into two sections, which reflect the two decisions that need to be made by the EQC:

Section 1: SB 662 Requirements.

The first section addresses the most critical question facing the EQC, which is whether or not the two sites meet the minimum requirements of Senate Bill 662. The site, or sites, ordered by the Commission must meet all of these requirements. Information included in this section includes:

- Draft orders for both sites.
- Draft Findings of Fact and Conclusions for both sites (with respect to the requirements of SB 662).
- Applicable statutes and rules.
- Draft Land Use Goal Findings for both sites.
- Summary Report: DEQ's Response to Public Comments for both sites.
- Senate Bill 662.

Section 2: Comparison of the two sites

The second section focuses on the relative comparison of the sites on environmental, technical, and cost considerations, to aid the Commission in its final decision. Information included in this section includes:

- A summary of new work performed by DEQ since the Draft reports.
- Answers to the 25 questions asked by the EQC at its April 22, 1987 meeting.

The information and findings contained in this report are drawn from three sources: (1) The May 1987 Final Feasibility Study Reports conducted on each site, (2) Information received during consultation with local governments, and (3) Information received from the public through either written or oral testimony. Information received from local governments and from public testimony has been summarized and responded to in the Summary Report: DEQ's Response to Public Comments (May 1987) prepared for both sites.

The conclusions of Section 1 of this report are that both the Ramsey Lake site and the Bacona Road site are environmentally suitable and meet all of the requirements outlined in Senate Bill 662. Specifically, both sites, with the proposed design and Neighborhood Protection Plan features, will:

(a) Comply with applicable state statutes, rules of the Commission, and applicable federal regulations;

(b) Be sufficiently large to allow buffering for mitigation of adverse effects by natural or artificial barriers;

(c) Not significantly contribute to dangerous intersections or traffic congestion considering road design capacities, existing and projected traffic counts, speed limits and the number of turning points;

(d) Be located such that facilities necessary to serve the disposal site can be available or planned for the area;

(e) Be designed and operated to the extent practicable so as to mitigate conflicts with surrounding uses; and

(f) Comply with all applicable statewide planning goals adopted under ORS 197.005 to 197.430.

Section 2 of this report concludes that, while both sites are environmentally suitable, Ramsey Lake received a higher (better) score on the environmental and technical criteria ratings. However, in a cost comparison, the Ramsey Lake site was found to be substantially more expensive than the Bacona Road site, due primarily to the greater capital costs of developing the Ramsey Lake site.

Senate Bill 662 requires that the Commission must order the establishment of a disposal site. This order will not only specify the site to be established, but will also establish the conditions which will be attached to the development, operation, and maintenance of the site. Draft Orders are included in Section 1 of this report. These conditions, which will consist primarily of the conceptual plan and Neighborhood Protection Plan developed for each site, will become part of the permit conditions required and monitored by DEQ.

The Commission's Order will be subject to a contested case hearing, to be held in July of this year. At the end of the contested case the hearings officer will issue a proposed final order and the parties will have an opportunity to file written objections and argument with the Commission. The Commission must then adopt, reject, or amend the hearings officer's proposed order and issue its final order. That order is then subject to judicial review by the Oregon Supreme Court pursuant to Section 6 of Senate Bill 662.

Responsibilities for acquiring and developing the site will transfer to Metro, including the responsibility to obtain required federal and state permits. Per Senate Bill 662, Metro will be responsible for operation of the site. A draft transition agreement has been developed by DEQ which provides Metro flexibility in choosing other sites in the event that additional disposal site options are available.

Fred Hansen

Attachment A: Section 1: SB 662 Requirements Discussion
Bacona Road Draft Order
- Draft Findings and Conclusions
  Exhibit A - Statutes and Rules
  Exhibit B - Goal Findings
  Exhibit C - SUMMARY REPORT: DEQ's Response to Public Comments

Ramsey Lake Draft Order
- Draft Findings and Conclusions
  Exhibit A - Statutes and Rules
  Exhibit B - Goal Findings
  Exhibit C - SUMMARY REPORT: DEQ's Response to Public Comments

Senate Bill 662

Attachment B: Section 2: Comparison of the Two Sites

Summary of New Work
EQC Landfill Questions - Response

Steve Greenwood:m
SM1069
229-5782
June 1, 1987

SECTION 1: COMPLIANCE WITH SB 662 REQUIREMENTS

The site selected by the Environmental Quality Commission must meet all of the requirements of Senate Bill 662. Sections 2 and 4 of Senate Bill 662 (made part of ORS 459.005 to 459.285) outline several requirements for the site selected by the Environmental Quality Commission, and the process for selecting the site. These requirements are reviewed and evaluated below. Attached to this section of the staff report are draft orders, findings and landuse goal findings supporting selection of either site under the standards of SB 662. A copy of SB 662 is also attached.

Section 2 of SB 662 states that "due consideration" be given to:

(a) The statewide planning goals,
(b) Information from local governments, and
(c) Information received from public comment and hearings.

Section 4 states that the Commission must find that the following conditions exist:

- The site will comply with applicable state statutes, rules of the commission, and applicable federal regulations.
- The size of the disposal site is large enough to allow buffering for mitigation of adverse effects, through natural or artificial barriers.
- Projected traffic will not significantly contribute to traffic congestion or dangerous intersections.
- Facilities necessary to serve the site can be available or planned for the area.
- The site is designed and operated to the extent practicable to mitigate conflicts with surrounding uses.

A. Section 2 Standards of SB 662

Consideration of Statewide Planning Goals

Section 2 of Senate Bill 662 states that the Commission must give due consideration to the statewide planning goals. State land-use planning goal findings for both the Ramsey Lake site and the Bacona Road site are attached to this report. In addition, consideration of the state land-use planning goals was integrated into the rating system of the Landfill Siting Criteria.

As the attached goal findings indicate, both the Ramsey Lake site and the Bacona Road site meet the requirements for each of the 19 statewide planning goals. Many of the goals, such as Goal 19 (Ocean Resources), are not applicable. In other cases, the use of modern landfill technology combined with the mitigation measures of the Neighborhood Protection Plan ensure that the land-use goals are not violated.

Consideration of Information from Local Governments

Information was received from local governments throughout the process, including the public hearings. Numerous meetings were held with the City of Portland, Multnomah County, Washington County, and the City of Banks on these two sites. In addition, several meetings were held with the Unified Sewerage Agency in Washington County. Responses to comments were included in the SUMMARY REPORT: DEQ's Response to Public Comments for each site.

Consideration of Information from Public Comment and Hearings

A significant amount of oral and written testimony was received on both sites. Due consideration was given to these comments and responses are included in the SUMMARY REPORT: DEQ's Response to Public Comments, for each site. Numerous revisions and additional work were done as a result of the testimony provided.

B. Section 4 Standards of SB 662

Section 4(1)(a): Compliance with Applicable State Statutes, Rules of the Commission, and Applicable Federal Regulations

The Commission is required to determine that the site chosen will comply with all federal and state statutes and regulations. In conducting the feasibility study and developing the Neighborhood Protection Plans for each site, thirteen state statutes and fourteen federal statutes were considered and evaluated.

A listing of the applicable state and federal laws and regulations is attached to the Draft Findings of Fact and Conclusions contained in this section of the staff report. Both sites will comply with applicable statutes, rules, and regulations.

Particular concern has been expressed by the Commission in determining the ability of both sites to receive a federal 404 wetlands fill permit. At the Ramsey Lake site, previous testimony had included a letter from the U.S. Fish and Wildlife service which indicated that they would not "at this time" recommend issuance of the permit. Subsequent work on each of the sites included developing more detailed wetland mitigation options, and a series of meetings with federal and state agencies (including U.S. Fish and Wildlife) to discuss those options.

These meetings resulted in a clear confirmation that both sites are "permittable." There is, however, a distinct difference in the actions and cost that would be required to receive the 404 permit. At Ramsey Lake, there was greater agency concern over the size and value of the wetlands to be filled, even though the Port of Portland has a permit to fill this area for industrial purposes. Mitigation requirements would be substantially greater and more expensive for Ramsey Lake than Bacona Road. Besides the amount of mitigation planned, a major consideration for the federal and state agencies is whether or not DEQ can demonstrate that other, non-wetland areas were considered within the tri-county area. The process

leading up to selection of the two final sites was extremely thorough in its evaluation of alternatives, examining every acre of land within the tri-county region. Documentation of this process would become part of the permit application.

At the Bacona Road site, studies indicated that most noise impacts will be sufficiently reduced to meet state noise standards. However, even with the Neighborhood Protection Plan features, some homes along Genzer Road and Highway 47, and one home near the site boundary, will experience significant noise increases. These homes will either be purchased and residents relocated, or if residents choose to stay, a variance adopted to ensure that state noise regulations are not violated.

Section 4(1)(b): Size of the Site is Sufficiently Large to Allow Buffering

The 300 acre minimum size was established by DEQ in the Landfill Siting Criteria, in order to ensure that all sites would have sufficient size to allow an adequate buffer area. Both sites have a minimum 200-foot buffer area between the active landfill area and adjacent property. At the Bacona Road site the average width of the buffer area is 865 feet. At Ramsey Lake, the average width of the buffer area is 445 feet.

At Bacona Road, the surrounding land use is primarily forest and the buffer area consists of forested land. At Ramsey Lake, there are industrial properties to the west, south, and north. These properties will be buffered by a berm and planted trees and grass in the buffer area.

Section 4(1)(c): Projected Traffic Will not Significantly Contribute to Dangerous Intersections or traffic congestion

One of the conditions recommended for operation at either site is limiting access to transfer and special load vehicles vehicles only, which substantially reduces the amount of traffic going to the site. The DEQ study indicates that landfill related traffic on the major routes to the sites will not increase traffic by more than 10%.

At Ramsey Lake, the existing route, along North Marine Drive, is adequate to handle the additional traffic, and is currently planned for significant improvements. A turn lane has been designed for intersection with the site access road (see report) to ensure safety.

At Bacona Road, a new access road is planned to connect the site with Highway 47. This route was planned because, among other things, the intersection of Highway 47 and Hoffman road was deemed too dangerous. After consideration of public testimony, DEQ included widening of Highway 47 to the access road, in order to provide greater safety for vehicles and pedestrians. In addition several slow-vehicle turn-outs are proposed along Highway 47. Public testimony indicated a desire to have an overpass at the intersection of Highway 47 and Highway 26. Further analysis by DEQ resulted in a conclusion that such an overpass would not be warranted for safety reasons. However, if the Commission ordered such an overpass as part of the Neighborhood Protection plan, the cost would be $400,000.

Section 4(1)(d): Facilities Necessary to Serve the Disposal Site can be Available.

The DEQ study found that facilities can be made available to serve both the Ramsey Lake and Bacona Road sites. One advantage of the Ramsey Lake site, reflected in the criteria ratings, is the availability of roads, sewers, and other services currently at or near the site. At the Bacona Road site, all services can be made available. An access road will need to be built and a 15.2 mile leachate transmission line will be needed to connect with the USA Hillsboro Treatment plant.

Concern was expressed during public testimony on the Bacona Road site that the Unified Sewerage Agency (USA) may be reluctant to allow connection to their system. Subsequent discussion with USA officials confirmed that the sewerage agency would allow a hook-up to their system if the Bacona site was chosen.

Section 4(1)(e): The Disposal Site is Designed and Operated to the Extent Practicable so as to Mitigate Conflicts With Surrounding Uses.

DEQ has proposed state-of-the-art landfill design at both the Bacona Road and Ramsey Lake landfill sites, going far beyond the design and technology previously used in Oregon and the northwest. In addition, the reports contain a major Neighborhood Protection Plan for each site, which has been developed to mitigate potential conflicts to the extent practical. Following is a summary of how effective the major components of the Neighborhood Protection Plan will be. (See Section 4 of the feasibility reports for a complete summary of the Neighborhood Protection Plans.)

WATER QUALITY:

Bacona Road - Water quality will be protected. The Neighborhood Protection Plan features are state-of-the-art technology with demonstrated effectiveness and reliability.

Ramsey Lake - Water quality will be protected. The Neighborhood Protection Plan features are state-of-the-art technology with demonstrated effectiveness and reliability. In addition, the site's hydrogeologic conditions provide good natural water quality protection.

NOISE:

Bacona Road - Most noise impacts will be sufficiently reduced to meet state noise standards. However, even with the Neighborhood Protection Plan features, some homes along Genzer Road and Highway 47 and one home near the boundary will experience significant noise increases. Proposed solutions are purchase of the affected properties, construction of sound barriers, or receipt of a variance to exceed the 10 dba limits in this area.

Ramsey Lake - The proposed protection measures will substantially reduce noise generated by landfillling activities.

Ramsey Lake - The proposed protection measures will substantially reduce noise generated by landfillling activities.

AIR QUALITY:

Bacona Road - NPP measures will substantially reduce emissions into the air and odor from the landfill.

Ramsey Lake - NPP measures will substantially reduce emissions into the air, and odor from the landfill.

INCLEMENT WEATHER:

Bacona Road - Landfill operations will continue safely during periods of inclement weather with equipment on-site for snow removal and road sanding.

Ramsey Lake - Not an issue at this site.

WETLANDS:

Bacona Road - Any wetlands areas displaced by the landfill will be replaced by enhancing existing wetlands or developing new wetlands, as specified by Federal guidelines. New wetland development may occur on and off the site.

Ramsey Lake - Any wetlands areas displaced by the landfill will be replaced by enhancing existing wetlands or developing new wetlands, as specified by Federal guidelines. One mitigation alternative, though expensive, would substantially improve water quality in the Columbia Slough and Smith and Bybee Lakes complex.

UNWANTED BIRDS AND ANIMALS:

Bacona Road - The most important control feature is daily covering of refuse. This has been an effective means of controlling nuisance wildlife at other sites. Gulls and other birds will be attracted at the site.

Ramsey Lake - The most important control measure is daily covering of refuse. This has been an effective means of controlling nuisance wildlife at other sites. Gulls and other birds will be attracted to the site.

FIRE PROTECTION:

Bacona Road - Fires at landfills with similar design features are rare. The measures employed to prevent and suppress fires will provide good protection for the landfill facilities and adjacent forst land.

Ramsey Lake - Not an issue at this site.

TRAFFIC CONGESTION:

Bacona Road - Truck traffic on Highway 26, Highway 47, and the site access road can be accommodated safely and efficiently. Peak hours for transfer truck traffic will not coincide with peak commuter traffic hours.

Ramsey Lake - Transfer truck traffic can be accommodated safely and efficiently on north Marine Drive, which is a major industrial road.

ECONOMIC DEVELOPMENT:

Ramsey Lake - Over 400 acres of land suitable for heavy industrial development would be lost. While recent demand for heavy industrial land has been low, the site represents a significant portion of this type of land in the Portland area. Marketing and development of adjacent properties could also be affected by the landfill; although these impacts are likely to be short-term and would be reduced by proper site screening, noise and odor control, and other design features.

Bacona Road - Not an issue at this site.

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

In the Matter of the Establishment of a Solid Waste Disposal Site to Serve Clackamas, Multnomah and Washington Counties.	))))))	ORDER

1. Introduction

The Legislative Assembly charged the Environmental Quality Commission (EQC) and Department of Environmental Quality (DEQ) with the responsibility for locating and establishing a solid waste disposal site to serve the Clackamas, Multnomah and Washington tri-county area. Oregon Laws 1985, Chapter 679 (the Act). The Act requires EQC to issue its order not later than July 1, 1987, directing DEQ to establish the disposal site.

DEQ and its prime consultant, the firm of CH2M Hill have prepared a report entitled the Final Feasibility Study Report for the Bacona Road landfill site (the "Feasibility Study"). The Feasibility Study is comprised of six sections and Appendices A through H.

The sections address introductory materials (Section 1), the existing environment at the Bacona Road site (Section 2), the conceptual site plan for development of a landfill at the Bacona Road site (Section 3), the Neighborhood Protection Plan (NPP) for the Bacona Road site (Section 4), the cost estimate for development of the Bacona Road site (Section 5) and references (Section 6). The appendices contain the technical information, assumptions, DEQ ratings and other information supporting the six narrative sections of the Feasibility Study.

2. Conditions

a. The findings of fact and conclusions of EQC, including all exhibits thereto, attached to this order are hereby incorporated into this order.

b. The Feasibility Study for the Bacona Road site, including all appendices is hereby adopted as findings and conclusions of EQC, and by this reference incorporated into this order.

c. The environmental protection features of the design criteria set forth on page 3-3 of the Feasibility Study are hereby adopted by the EQC and shall be incorporated into the facility design and required by the DEQ as a condition of issuance of the solid waste disposal permit.

d. The requirements of the NPP (Section 4 of the Feasibility Study) are hereby adopted by EQC. All of the measures designed to eliminate or minimize adverse effects of the development and operation of a solid waste disposal facility at Bacona Road, contained in the NPP, shall be incorporated into the design and operation of the facility, except that measures may be replaced with alternative measures which provide a standard of protection or mitigation which is equal to or greater than the measure replaced. DEQ shall require implementation of the NPP as a condition of issuance of the solid waste disposal permit.

e. All NPP measures which specify operational standards or methods shall be required conditions of the solid waste disposal permit issued by DEQ.

f. DEQ or any local government unit under contract with DEQ to establish the disposal site pursuant to Section 7(1)(a) of the Act, shall obtain all state and federal permits necessary to establishment,

development and operation of the disposal facility, and comply with all applicable state and federal laws and regulations.

3. Order

Based upon the above-referenced findings and conclusions of EQC, and subject to the conditions set forth above, the Environmental Quality Commission for the State of Oregon hereby orders the Department of Environmental Quality to establish a solid waste disposal facility at the Bacona Road site.

DATED this ____ day of ____ 1987.

Mary V. Bishop
Commissioner

Wallace B. Brill
Commissioner

A. Sonia Buist
Commissioner

Arno H. Denecke
Commissioner

James E. Peterson
Chairperson

NOTICE: Interested parties may seek EQC review of this order by contested case. Petitions for review must be filed with the Environmental Quality Commission or or before June 26, 1987. Petitions must contain the information required by Oregon Administrative Rule 137-03-005(3) (copies of this and other applicable procedural rules may be obtained from the Department of Environmental Quality, telephone (503 229-5731). If no contested case is requested, this Order shall become final on June 29, 1987. Judicial review of this order is governed by Oregon Laws 1985, Chapter 679, Section 6.

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

In the Matter of the Establishment of a Solid Waste Disposal Site to Serve Clackamas, Multnomah and Washington Counties.	))))))	FINDINGS OF FACT AND CONCLUSIONS

I.

INTRODUCTION

The 1985 Legislature, through passage of 1985 Or Laws, ch 679 (the Act) vested the Department of Environmental Quality (DEQ) and the Environmental Quality Commission (EQC) with the responsibility to site a solid waste disposal facility to serve the Portland Metropolitan Tri-County area. The Act also requires the Metropolitan Service District (MSD) to develop and implement a comprehensive waste reduction program for the Tri-County area. The timely siting of a solid waste disposal facility to serve the Tri-County area is of critical concern because of the imminent closure of the St. Johns Landfill which now serves as the areas only existing general purpose landfill.

In order to carry out its responsibility, DEQ began a process which involved the development of a comprehensive list of potential disposal sites by May 1986; the completion and submission to EQC of a study

identifying 12 to 18 preferred and appropriate sites in June 1986; and the selection by DEQ of three recommended sites for detailed feasibility analysis by November 1, 1986. The Feasibility Study Report for the Bacona Road potential landfill site (Feasibility Study) was prepared for DEQ by the firm of CH2M Hill, with assistance from EMCON Associates; Cooper Consultants, Inc.; Sweet, Edwards and Associates, Inc.; Jones and Jones; and Kittelson and Associates.

II.

FINDINGS

A. These findings are made pursuant to section 4 of 1985 Or Laws ch 679, in support of EQC's order directing DEQ to establish a solid waste disposal site at the Bacona Road site. (The Order).

i. In performing its study, DEQ and its consultants have reviewed applicable state and federal environmental laws and regulations. The laws and regulations reviewed include those listed in Exhibit A to these findings, and by this reference incorporated herein. The Feasibility Study presents technical data and analyses sufficient for a determination of the feasibility of establishment of a disposal site at the Bacona Road site. The EQC finds that the provisions of ORS Chapter 467 and the Oregon Administrative Rules promulgated thereunder will be complied with if the disposal site is built and operated according to the standards set forth in Chapters 3 and 4 of the feasibility study. Enforcement or final judgment concerning actual compliance with

other specific state or federal laws or regulations is not within the EQC's authority. The order requires DEQ (or its contractor) to obtain all necessary state and federal permits and comply with all applicable state and federal laws and regulations. The order requires DEQ (or its Contractor) to implement all measures contained in Sections 3 and 4 of the Feasibility Study (or substitute measures with greater or equal levels of protection) in development and operation of the disposal site, including the environmental protection features of the design criteria set forth on page 3-3 of the Feasibility Study. The order prohibits DEQ from issuance of a solid waste disposal permit unless all applicable state and federal laws and regulations and the Section 3 and 4 standards of the Feasibility Study are complied with.

CONCLUSION

The Commission finds that the establishment of a disposal site at the Bacona Road site will comply with applicable state statutes, rules of the Commission and applicable federal regulations.

ii. Adverse noise, odor and visual impacts of landfilling can be minimized by use of natural and/or artificial barriers between the active landfill and adjacent properties. Buffering features of this site will be those set forth on pages 4-81 through 4-87 of the Feasibility Study.

The effects of buffering and other mitigation measures on noise will be those described on pages 4-58 through 4-68 of the

Feasibility Study.

The effects of buffering and other mitigation measures on odor will be those described on pages 4-21 through 4-26.

The effects of buffering features and other mitigation measures on visual resources will be those described on pages 4-81 through 4-87 of the Feasibility Study.

The order requires implementation of the measures set forth on pages 4-21 through 4-26, 4-58 through 4-68, and 4-81 through 4-87 of the Feasibility Study, which will mitigate adverse noise, odors and visual effects of landfilling at the location.

CONCLUSION

The Commission finds that the size of the disposal site is sufficiently large to allow buffering for mitigation of adverse effects by natural or artificial barriers.

iii. Transportation characteristics of the Bacona Road site are set forth on pages 2-79 through 2-86 of the Feasibility Study. The location of the disposal site will have the impacts described on pages 4-72 through 4-77. The order requires implementation of the measures set forth on pages 4-78 through 4-79 of the Feasibility Study.

CONCLUSION

The Commission finds that projected traffic will not significantly contribute to dangerous intersections or traffic congestion considering road design capacities, existing and

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projected traffic counts, speed limits and the number of turning points.

iv. The ~~Ramsey Lake~~ Buena Rd site has or is served by the public services and facilities described on pages 2-103 through 2-105 of the Feasibility Study. The necessary public facilities for development and operation of the site are either in place at the site or near by, or can be extended or constructed for the site as set forth on pages 4-89 through 4-91 of the Feasibility Study.

CONCLUSION

The Commission finds that facilities necessary to serve the disposal site can be available or planned for the area.

v. Forestry is the dominant land use in the site area, and increased fire potential is a significant potential conflict as a result of landfill operation. The Neighborhood Protection Plan includes twenty-seven fire prevention and suppression measures that address this issue. (See pages 4-39 through 4-45).

Some residential development also exists in the area (see pages 2-69 through 2-76).

Conflicts with surrounding uses resulting from landfilling may include:

- o Site screening.
- o Odors.
- o Safety and security risks.
- o Noise levels.

- o Dust and other air pollution.
- o Bird and vector problems.
- o Damage to fish and wildlife habitats.

The conceptual and final design, construction and operation of the landfill will incorporate the following environmental protection features:

- o A double-lined landfill.
- o A leachate collection system with leachate treatment.
- o A leak detection system between liners.
- o A gas control system, installed as the landfill is constructed.
- o Daily cover of the active landfill face.
- o Groundwater monitoring.

The design, construction and operation of the landfill will incorporate the measures and standards of the Neighborhood Protection Plan summarized on Table 4-1 and explained in Chapter 4 of the Feasibility Study.

CONCLUSION

The Commission finds that the Bacona Road disposal site may be designed and operated to mitigate conflicts with surrounding uses to the extent practicable.

B. Statewide land use planning goal findings.

i. Section (2)(a) of the Act requires the EQC to give due consideration to the statewide planning goals.

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CONCLUSION

The Commission finds selection of the Bacona Road site complies with applicable statewide planning goals, as set forth in attached Exhibit B.

C. Other considerations.

The Commission has given due consideration to information received from public comment and hearings as evidenced in the findings under statewide planning goals 1 and 2 (see Exhibit B) and in the attached Response Summary hereby incorporated as Exhibit C.

III.

CONCLUSIONS

Based upon the findings set forth above and in the final Feasibility Study Report and its appendices, the Commission concludes that selection of the Bacona Road site satisfies the statutory criteria set forth in the Act.

EXHIBIT A

STATE STATUTES

- ORS 448 (Oregon Drinking Water Quality Act)
- ORS 459 (Solid Waste Control)
- ORS 197.005-430 (Statewide LCDC Goals)
- ORS 527 (Oregon Forest Prac. Act)
- ORS 477 (Fire Protection)
- ORS 281 (Condemnation)
- ORS 105 (Property Rights)
- ORS 541 (Removal and Fill Law)
- ORS 467 (Noise Control)
- ORS 468 (Air and Water Quality)
- ORS 509, 540 and 551 (Dam Construction)
- ORS 466 (Hazardous Waste Management)

FEDERAL STATUTES

- Resource Conservation and Recovery Act
- Superfund Amendments and Reauthorization Act (1986)
- Uniform Relocation and Real Prop. Acq. Act.
- Clean Water Act
- National Environmental Protection Act--1969
- Clean Air Act
- Executive Order 11593 (Protect. and Enhancement of the Cult. Env.)
- Executive Order 11988 (Floodplain Mgt.)
- Executive Order 11990 (Protection of Wetlands)
- Endangered Species Act
- Fish and Wildlife Coordination Act
- Historic Sites Act
- Preservation of Historic and Archaeological Data Act
- Discharge of Dredged or Fill Material [404(b)(1)]

ATTACHMENT A

EXHIBIT B

BACONA ROAD GOAL FINDINGS

GOAL 1: CITIZEN INVOLVEMENT

"To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

1. Citizen Involvement--To provide for widespread citizen involvement

Effective implementation of Senate Bill (SB) 662 requires understanding of the current metropolitan area garbage disposal problem and a commitment from the community to solving the problem.

The Department of Environmental Quality (DEQ) developed a citizen involvement program to maximize citizen and agency communication during the landfill siting process. The primary objectives of the program were to: (1) inform the community about the landfill siting program and opportunities for participation; (2) create educational materials on solid waste management issues; and (3) provide opportunities for open public dialogue on the proposed landfill locations and development plans.

In January 1986, the Director of DEQ appointed a 14-member Facility Siting Advisory Committee (FSAC) to advise the Department on landfill siting administrative and policy matters. Issues considered included: siting criteria, number of sites selected for analysis, neighborhood protection plans, community involvement, and public education.

Commissioners from each of the tri-counties, representatives of garbage hauling and recycling industries, business, and environmental and civic groups served on FSAC. The committee met 20 times in evening or weekend sessions--all of which were open to the public. Meetings involving significant deliberations were reported in The Oregonian. A mailing list was maintained for individuals requesting meeting notices and copies of FSAC minutes.

As part of its review and evaluation of the DEQ siting process, the FSAC provided two forums where site opposition group representatives provided recommendations to improve the siting process. Each committee member attended one or more of 20 public hearings held on the sites evaluated.

2. Communication--To assure effective two-way communication with citizens

To establish a foundation for communication between the public and DEQ on landfill siting matters initially, a

public opinion survey was conducted, a graphic identity was developed, a mailing list was created, and a Landfill Telephone Hotline was established.

As part of the Community Involvement Program, a number of mechanisms were employed during the three phases of the project to ensure effective two-way communication between DEQ and the community. These included:

Landfill Hotline--730 calls received
Property Owners Survey--400 distributed
Adjacent Property Owner Survey--500 distributed
Neighborhood Protection Plan Survey--200 distributed
Newspaper Display Ads/Notices (regional and local publications)--10
Trashy Story Newspaper Advertisement Series--7 in series (regional and local publications)
Direct mail to mailing list--3,500 entries/14 separate mailings including 11 Informational Bulletins, meeting notices, progress reports
Carrier Route Mailing to areas adjacent to the three proposed final landfill sites--17,000 properties/ 2 separate mailings including meeting notice and tabloid on draft feasibility report results
DEQ Speakers Bureau--42 presentations to civic and government groups
New conferences--4
News releases--7
Community meetings--11
Community workshops--3
Public Hearings--22
Facility Siting Advisory Committee meetings--20
Video Tapes on siting process and Draft Feasibility Report Findings
Siting Reports placed in 6 regional and local libraries
Radio and television presentations and panels

3. <u>Citizen Influence--To provide the opportunity for citizens to be involved in all phases of the planning process</u>

Opportunities for citizen involvement during the three phases of the project included:

PHASE 1. CRITERIA DEVELOPMENT: A group of professionals was convened by DEQ to critically review draft landfill siting criteria. Among the 22 participants in the four peer group sessions were: solid waste managers, hydrologists, geologists, environmentalists, land use planners, architects, engineers, and government officials.

The Facility Siting Advisory Committee (FSAC) met seven times during this phase, and fourteen briefings and meetings occurred with local government commissions and staff

regarding the siting process and criteria development. The DEQ Landfill Siting Speakers Bureau made 16 presentations to civic and community groups regarding the landfill siting process.

DEQ held two public hearings to receive comments on the siting criteria, with a review period of 45 days given for receipt of written comments.

PHASE 2. LANDFILL SITE IDENTIFICATION AND EVALUATION: In June and July 1986, DEQ held four meetings for owners of property in potential landfill areas and three meetings for the community at large in the four counties where potential sites were located. Total attendance at these sessions approximated 1,500 persons. An estimated 900 survey forms were distributed to solicit public comment at these meetings.

The Speakers Bureau met with four civic and community groups to explain the siting process and findings during this phase. The FSAC met six times to consider siting administrative and policy issues. DEQ staff met at least once to discuss site criteria ratings with each of the 18 community groups formed in opposition to consideration of the sites identified at this stage.

Eighteen public hearings--one for each site evaluated during this phase, were held before a DEQ hearings officer to receive comment and information regarding the potential of each site for sanitary landfill use.

PHASE 3. FINAL SITE EVALUATION: Three public meetings were held in communities around each of the sites considered during the final evaluation phase. These included a general public information meeting, a workshop to identify potential problems at the sites, and an open house to review and receive comment on DEQ plans for addressing site problems. Survey forms were distributed to aid identification of potential problems perceived by the community.

The FSAC met seven times and 14 meetings were held with local government boards and staff. The Speakers Bureau made five presentations to civic and community groups on the siting process and findings to date.

In April, a public hearing was held before the Environmental Quality Commission (EQC), to receive comment on the Draft Feasibility Study Report and neighborhood protection plan for each of the two final sites. Neighborhood opposition groups and government agencies were given an additional opportunity to submit written comment to the EQC on the Final Feasibility Study Report after May 22.

4. Technical Information--To assure that technical information is available in an understandable form

Each of the three phases of this project was summarized in a final written report. Excepting the final report, these documents were used as the foundation for decisions made in ensuing phases of the project. Documents from each phase were available for review at six local and regional libraries and at the DEQ office. Site opposition and other groups were provided with individual copies. A videotape presentation on the Draft Final Reports was also prepared for community viewing.

Short Executive summaries which outlined the results of each phase, in a simplified form, were prepared with the formal reports. These summaries were distributed to interested citizens and groups.

A 12-page newsprint tabloid was developed on the Draft Final Evaluation Report. It summarized findings on the sites under review, DEQ's proposed plans for site development and environmental protection, and informed the reader about the remaining steps of the process and opportunities for comment. This tabloid was mailed to 17,000 households around the two finalist sites and was made available to community groups and individuals.

Information Bulletins outlining the siting process and key issues in the landfill siting effort were prepared throughout the course of the project. Eleven of these briefing papers, of one to five pages each, were prepared. The bulletins were mailed out in informational packets to persons on the DEQ mailing list and other individuals seeking facts on the siting process.

A "Trashy Story" advertising series ran in The Oregonian and local papers over a nine-month period at the end of the project. The object of this series was to keep the community informed about the regional garbage dilemma, DEQ's siting process, key issues in landfill siting, the final sites considered, and the EQC's selection.

All technical materials referred to were available to citizens at no charge at all informational meetings, open houses, and hearings held during the landfill siting process. Each document was clearly identifiable by the landfill siting project logo and contained the landfill hotline number.

Assistance was available for interpretation and guidance in the use of these materials through both the Landfill Hotline and consultation with DEQ and consultant staff. Staff met or corresponded periodically with site opposition and other interest groups/individuals throughout the process to

respond to questions and discuss technical and policy issues relative to the siting process.

5. Feedback Mechanisms--To assure that citizens will receive a response from policymakers

Recommendations and comments were received in four forms during the landfill siting process: letters, consultant reports, public hearing testimony (written and oral), and in exchanges during meetings and telephone conversations.

From the beginning of the project all letters, reports, and public hearing testimony has been catalogued and placed in project files by subject. All project files are available to the public for assessment. As a matter of course, when site-specific recommendations or comments are received, two copies are made--one for a public review file on each site and one copy for a project consultant team. Minutes and staff notes from meetings have also been recorded. These documents are available for public review and copying also.

Letters and requests for information have been acknowledged with general or specific written responses and/or a telephone call. Responses have been prepared for correspondence received by DEQ staff, FSAC, EQC, and the Governor's office.

A summary was prepared of all written and oral comments received at public hearings held at the 18-site stage. Comments received at the April EQC public hearings on the two final sites have been compiled and addressed in a Response Summary, which is also available to the public for review.

Concerns shared at community meetings held near Wildwood, Ramsey Lake, and Bacona Road were summarized and made available in written and visual format for public assessment at open houses held on the neighborhood protection plan for each site.

The rationale employed to reach policy decisions made throughout the siting process can be found in a variety of written materials, all of which are available for public review and copying. These materials include: staff and consultant notes and memorandums to the file, criteria rating rationale documents, reconnaissance reports on site conditions, minutes of meetings where policy decisions were made, computer programs, consultant reports, and federal and state regulations analyses.

Conclusion

The Goal 1 requirement has been met. A citizen involvement program has been developed and implemented which has insured

the opportunity for citizen involvement in all phases of the SB 662 landfill siting project.

GOAL 2: LAND USE PLANNING

> "To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."

Goal 2 requires state agency plans and actions related to land use to be consistent with applicable city and county comprehensive plans. The siting of a disposal site by the Environmental Quality Commission (EQC) pursuant to Oregon Laws 1985, Chapter 679 (Senate Bill 662), is expressly exempt from this consistency requirement. ORS Chapter 679, § 5(3)(b) and § 5(6). Selection of the Bacona Road site complies with applicable statewide land use goals as demonstrated in these findings.

The other main purpose of Goal 2 is to assure an adequate factual base for decisions and actions related to land use. Goal 2 guidelines anticipate the use of inventories and other data concerning the following areas:

> "(a) Natural resources, their capabilities and limitations,
>
> (b) Man-made structures and utilities, their location and condition,
>
> (c) Population and economic characteristics of the area,
>
> (d) Roles and responsibilities of governmental units."

The factual base in support of the EQC selection of the Bacona Road site is summarized in the Draft Feasibility Study Report. DEQ and its consultants accumulated and reviewed data on the following topics: location and access, topography, geology, soils and hydrology, meteorology and air quality, surface water, aquatic environment, vegetation, forestry, wildlife, noise, land use, transportation, visual resources, public services, cultural resources, energy, health, costs, and socioeconomics. See Feasibility Study Report, § 2 and § 4.

In addition to technical field work conducted at the site, an extensive compilation of treatises, studies, and other sources were consulted. See Bibliography, Feasibility Study Report, § 6; and Bibliography at end of Section A of Appendices to Feasibility Study Report.

Conclusion

The Goal 2 requirement has been met. The disposal site siting process established under SB 662 is exempted from the

consistency requirement with local comprehensive plans. An adequate factual base for this decision was developed through site-specific technical analyses, public comment and input, and literature review.

GOAL 3: AGRICULTURAL LANDS

"To preserve and maintain agricultural lands."

Goal 3 is not applicable to the disposal site siting process under SB 662 because the Bacona Road site is not comprised of agricultural lands subject to Goal 3's protections. Furthermore, solid waste disposal facilities are an allowable use on agricultural land when established by EQC under ORS 459.049 or SB 662.

Conclusion

Goal 3 does not apply.

GOAL 4: FOREST LANDS

"To conserve forest lands for forest uses."

The Bacona Road site is comprised of forest lands designated for conservation under Statewide Planning Goal 4. However, Section 4(1) of SB 662 authorizes EQC to establish a disposal site on forest lands designated for protection under Goal 4. Therefore, establishment of this disposal site has been given an express, statutory exemption from the provisions of Goal 4 and no findings are necessary for this goal.

Conclusion

Goal 4 does not apply.

GOAL 5: OPEN SPACES, SCENIC AND HISTORIC AREAS, AND NATURAL RESOURCES

"To conserve open space and protect natural and scenic resources."

Goal 5 is intended to protect natural resources for future generations. The resources addressed in the goal include the following:

a. land needed or desirable for open space
b. mineral or aggregate resources
c. energy resources
d. fish and wildlife areas and habitats
e. ecologically and scientifically significant natural areas
f. outstanding scenic views and sites
g. water areas, wetlands, watersheds, and groundwater resources
h. wilderness areas
i. historic areas, sites, structures, and objects
j. cultural areas
k. potential and approved Oregon recreation trails
l. potential and approved federal wild and scenic waterways and state scenic waterways

General

The Washington County Comprehensive Plan does not include the Bacona Road site on its inventory of Goal 5 resource sites.

Specific Resources

a. Land Needed and Desirable for Open Space

The site is not inventoried as needed or desirable open space in the Washington County Comprehensive Plan. The Plan designates the site Exclusive Forest and Conservation District (EFC). This district is intended to provide for forest use and for the continued use of lands for renewable forest resource production. Historically, the site has been used primarily for timber harvesting and a substantial portion of the site is currently clearcut. Timber companies continue to manage the site for timber production.

Development of the landfill will convert the site from forest uses to a public use. Several measures will minimize the impacts of this conversion:

- The landfill will be developed in phases, allowing a substantial portion of the site to remain as

open space until needed for filling

- Revegetation and screening around the site perimeter will help maintain the open space character of the area

- The site will be revegetated in grasses and returned to a natural state after closure (open space--without reforestration)

The Commission finds that the site is not needed open space and that the long-term use of the site is consistent with the open space provisions of the goal.

b. Mineral and Aggregate Resources

Washington County has not included this site in its inventory of mineral and aggregate resource sites.

There are no known mineral or aggregate resources identified onsite. Soils at the site are suitable for both daily and final cover for landfilling. Aggregate for road and other construction will have to be imported to the site. The Commission finds that mineral and aggregate resources will not be adversely affected.

c. Energy Resources

Washington County has not included this site in its inventory of energy resource sites.

There are no energy resources identified onsite. Energy conservation is addressed further in Goal 13.

d. Fish and Wildlife Areas and Habitats

Washington County has not included this site in its inventory of fish and wildlife areas and habitats.

Aquatic Habitat. Aquatic habitat occurring within the boundaries of the Bacona Road site consists primarily of the headwaters of Denny Creek. The creek is approximately 4.5 miles long and flows southeast to its confluence with East Fork Dairy Creek. The upper 2.2 miles of Denny Creek have intermittent flow, while the lower 2.3 miles have perennial flow. The southeastern boundary of the Bacona Road site crosses Denny Creek approximately 3.1 miles upstream from its mouth.

East Fork Dairy Creek flows about 15 miles to the south from its confluence with Denny Creek before joining West Fork Dairy Creek. Dairy Creek flows approximately 9 miles from the confluence of its forks to the southeast before emptying

into the Tualatin River. The confluence of Dairy Creek with the Tualatin is about 1 mile south of Hillsboro.

Previous fisheries investigations noted that many creeks in the Tualatin River Basin (such as East Fork Dairy Creek and Denny Creek) provide year-round habitat for resident cutthroat trout (Salmo clarki) (Oregon State Game Commission, 1964). East Fork Dairy Creek and the lower reaches of Denny Creek also provide habitat for two species of anadromous salmonids, coho salmon (Oncorhynchus kisutch) and winter-run steelhead (Salmo gairdneri).

Information on habitat uses in area drainages is also provided by stream classification type. East Fork Dairy Creek and the perennial reach of Denny Creek (the lower 2.3 miles) are categorized by the Oregon Department of Forestry as Class I streams (Simek, 1987). The intermittent reach of Denny Creek (the upper 2.2 miles) is categorized as a Class II stream. The Oregon Department of Forestry defines Class I streams as "waters which are valuable for domestic use, are important for angling or other recreation, and/or used by significant numbers of fish for spawning, rearing or migration routes."

Game fish present in Denny Creek include resident cutthroat trout, steelhead, and coho salmon. Resident cutthroat have been reported to occur in many creeks in the Tualatin River Basin in moderate to high numbers. This species is often most abundant in headwater streams having cool summer temperatures. Cutthroat trout were collected in Denny Creek just above the mouth during electroshocking surveys in July 1963. Denny Creek is being managed as a wild trout fishery, even though some coho and steelhead are present.

Other species collected in Denny Creek during 1963 included steelhead, coho salmon, and sculpin (Cottus sp.). Fish species collected at various points in East Fork Dairy Creek downstream of Denny Creek during July 1963 included cutthroat trout, coho salmon, sculpin, and threespine stickleback (Gasterosteus aculeatus).

No rare, threatened, or endangered aquatic species have been identified as occurring in the vicinity of the Bacona Road site (Oregon Department of Environmental Quality, 1986; Oregon Natural Heritage Data Base, 1985). Steelhead and coho salmon are protected to the extent that fishing for these species in East Fork Dairy Creek and Denny Creek is closed under current state fishing regulations. The Bacona Road site (and Denny Creek) appear to be outside the distributional range reported for western brook lamprey.

Aquatic habitat in the vicinity of the Bacona Road site is not particularly unique, with the possible exceptions of the downstream-most pond on Denny Creek and the headwater pond

on Roundy Creek, which drains only a small fraction (less than 1 percent) of the site boundary. Both ponds are easily accessible and have been reported to provide fishing opportunities. Headwater habitat similar to that in Denny Creek occurs in nearby intermittent drainages.

Wildlife Habitat. Lists of terrestrial vertebrate species that could potentially occur on the Bacona Road site are presented in the Appendix C of the Draft Feasibility Study Report for Bacona Road. The species lists are based on the field evaluations conducted for this study in December 1986 and January 1987, observations from previous studies, and a review of the literature on vertebrate fauna of the Oregon Coast Range.

The potentially occurring wildlife species include a total of 10 species of amphibians, 4 reptiles, 68 birds, and 43 mammals. However, the site is not primary or unique habitat for any of these species.

The Bacona Road site contains a range of habitat types, and is surrounded by a large expanse of land with very similar habitat structure. This habitat continuity contributes to the population stability of the typical coastal forest wildlife. It also maintains significant habitat blocks for those wildlife species that require large home ranges, e.g., elk, black bear, and cougar. However, large expanses of similar habitat afford little opportunity for occasional use of the site by species which are primarily adapted to habitats other than upland coniferous forests. The scarcity of standing dead and dead-and-downed trees in the coniferous forests limits the abundance of many species which are dependent on these resources. These species include woodpeckers and cavity-nesting species such as flying squirrels, small owls, and chickadees.

Because the site is at a relatively high elevation (1,600 to 1,900 feet), the climate is relatively cold, and plant growth rates and productivity can be expected to be relatively low in comparison with valley sites. Lower productivity, in turn, results in relatively low overall abundances of wildlife species. Exceptions to this generality are the snowshoe hare, the blue grouse, mountain quail, and the rough-legged hawk, which appear to favor the colder climatic conditions found at the higher elevations in the Coast Range.

Roads leading to and around the site are well-maintained and provide easy access for human activities, which counteract the site's remoteness. Chief among these activities are the periodic disturbance of nearby logging activities and passive recreational activities onsite. Hunting and shooting are common activities, as evidenced by the informal shooting ranges in the southeastern areas of

the site and as indicated by the numerous spent brass cartridges and shotgun shells scattered throughout the site. The site, however, is sheltered from other human disturbances such as agricultural and industrial uses.

The following paragraphs discuss various potentially occurring species at Bacona Road or species observed onsite that are considered significant because of their scientific or economic importance. Important onsite species include raptors, waterfowl, wetland-associated species, and game animals.

No federally listed threatened or endangered wildlife, wildlife proposed for listing, or candidate wildlife have been identified in the vicinity of the Bacona Road site or are known to occur there (Oregon Department of Environmental Quality, 1986; Oregon Natural Heritage Data Base, 1985; R. D. Peterson, U.S. Fish and Wildlife Service, personal communication, 1986).

The western spotted frog is classified as "Apparently Extirpated from Oregon" by the Oregon Natural Heritage Data Base. The spotted frog has not been observed west of the Cascade Range since 1968. It is extremely unlikely that this species occurs at the Bacona Road site.

Cope's giant salamander is included on the Review List by the Oregon Natural Heritage Data Base. Since this species is not known to occur anywhere in the Willamette drainage, it is very unlikely to occur on the Bacona Road site.

Lewis' woodpecker is designated as "Threatened in Oregon but More Common or Stable Elsewhere" by the Oregon Natural Heritage Data Base. This species is closely associated with oak savannah and pine-oak habitats, which do not occur in the vicinity of the Bacona Road site, and it is very unlikely to occur at this location.

Bremner's fritillary butterfly is designated as "Apparently Extirpated from Oregon" by the Oregon Natural Heritage Data Base. This species is known only from Benton, Polk, and Yamhill Counties in Oregon, but has not been observed anywhere in recent years.

Oregon giant earthworm is designated as "Threatened Throughout Range" by the Oregon Natural Heritage Data Base. This species is known only from lowland Willamette Valley sites with well-drained alluvial soils. The Bacona Road site is outside this species' potential range and does not appear to include suitable habitat.

Potential Aquatic Habitat Conflicts. Onsite aquatic impacts resulting from development of the site as a landfill include loss of aquatic habitat associated with the main east-

flowing and south-flowing headwater branches of Denny Creek that occur within the boundary of the active landfill area. Existing habitat would gradually be lost over the projected life of the site.

Downstream impacts to aquatic habitat and fisheries in Denny Creek and East Fork Dairy Creek could occur unless the site is properly designed and operated. Potential impacts could include possible modification of historical flow in Denny Creek, siltation, and leachate discharges.

The conceptual plan for the design and operation of the site affords effective protection for aquatic habitat and fisheries under expected and planned operating conditions. Contingency actions for emergency conditions have also been identified. Among the measures to be implemented at the site to protect aquatic and fisheries habitat are:

- Construct four layers of protective bottom lining and a leachate collection system to prevent discharge to surface and groundwater. Pretreat leachate onsite and discharge it to the Hillsboro treatment plant.

- Use a top liner and other proven measures to minimize water infiltration into the landfill area, thereby minimizing leachate production.

- Divert onsite streams away from the landfill area to protect surface water quality and fisheries.

- Construct sedimentation basins to prevent stream siltation.

- Test surface and groundwater quality before landfill construction begins and monitor quarterly after site operations begin.

- Use buried non-corrosive pipe for leachate transmission and monitor continually for leaks.

- Restrict runoff to only one drainage basin (Denny Creek).

- Retain existing onsite drainage courses as long as possible through phased, sequential filling.

- Construct permanent drainage ditch around the site perimeter.

- Design access road creek crossings to minimize erosion and maintain channel.

- Use detention ponds to ensure flowrates do not exceed pre-landfill flowrates.

- Monitor surface water in Denny Creek and East Fork Dairy Creek.

- Revegetate disturbed surface areas immediately to stabilize soils and control erosion.

- Monitor and test groundwater discharged from the underdrain.

Potential Wildlife Habitat Impacts. Landfill development and operation will directly displace about 349 acres of existing wildlife habitats. Wildlife activities in adjacent areas will also be disrupted due to noise and landfilling operations. Unwanted birds and animals may be attracted to the site.

The direct impact of site clearing on wildlife will be ameliorated by the phased clearing of the site. The 349 acres will be cleared gradually during the life of the landfill. Closed landfill areas will be revegetated with plants and grasses after final cover. This will create replacement wildlife habitat that is of lower value, but usable by some species.

To minimize impacts in the area, the following actions and programs will be implemented:

- Final restoration plans will be developed for review and approval by the U.S. Fish and Wildlife Service and the Oregon Department of Fish and Wildlife.

- The site will be revegetated with species valuable to wildlife.

- Mature conifers will be maintained where possible.

- Wildlife and wetland plans will be developed and approved by appropriate resource agencies to mitigate wetland loss.

- Forested uplands within the site boundary will be retained as long as possible.

- Create new and enhance existing wetlands onsite and offsite through drainage diversion if possible; prepare detailed wetlands mitigation plan for review and approval by the appropriate federal and state resource agencies.

- Provide daily cover.

Conclusion

1. That no rare or endangered species will be adversely affected at the proposed landfill.

2. That any adverse impacts to fisheries and wildlife habitat will be minimized by implementation of the above measures.

e. Ecologically and Scientifically Significant Areas

Washington County has not included this site in its inventory of ecologically and scientifically significant areas.

The site and adjacent lands are primarily commercial forest. About half the site has been clearcut and is being reforested. Because the site has been, and is, managed for timber production, no old-growth forest remains. About three-quarters of the site is second growth forest dominated by Douglas-fir and red alder. About one quarter is regenerating clearcuts.

The entire site includes about 686 acres, which represents about 0.3 percent of the timberland in Washington County and less than 0.05 percent of the timber land in the tri-county area (Washington, Clackamas, and Multnomah Counties). The site is not unique.

To minimize the impact of forest loss, additional planting will occur along Bacona Road and the surrounding areas. The additional planting will not completely replace trees displaced by the landfill. In addition, trees will be kept as long as possible onsite (as the landfill develops in phases). Landfill development and operations will meet State Forest Practices Act requirements.

The Commission finds that the site does not constitute an ecologically unique area.

f. Outstanding Views and Sites

Washington County has not included this site in its inventory as possessing outstanding views or sites.

The site is not highly visible from the surrounding area. Unobstructed views of the site do occur along portions of Bacona Road and from areas generally higher in elevation.

New facilities visible from offsite would include the relocated portion of Bacona Road, the reestablished Douglas-fir forest buffer, the improved entrance road and reestablished vegetation, the landfill entrance, and direction signs.

To reduce visual impacts, the following measures will be incorporated into the site design and operation:

- Douglas-fir buffer would effectively screen views of the site from Bacona Road.
- Fill in "spotty" buffer areas elsewhere around the site.
- Use directional, low sodium, low wattage lighting.
- Reforest key areas elsewhere along Bacona Road.
- Revegetate fill areas after final cover placed, and allow site to return to open space use.

The Commission finds that the proposed Neighborhood Protection Plan measures will substantially reduce visual effects.

g. Water Areas, Wetlands, Watersheds, and Groundwater Resources

Washington County has not included this site in its inventory as containing significant water areas, wetlands, watersheds, or groundwater resources.

Surface water resources at the Bacona Road site consist of approximately 4.5 miles of intermittent and perennial streams, one year-round pond, and several seasonal ponds. Streams flow generally to the southeast, into Denny Creek.

Roundy Creek flows into Denny Creek a short distance downstream from the site. The streams that would drain the active landfill portion of the site all flow into Denny Creek or Roundy Creek. Denny Creek discharges to East Fork Dairy Creek, which drains eventually into the Tualatin River.

There are 51.4 acres of wetlands within the Bacona site boundary. Sixteen acres of marshy wetland habitats and 15.4 acres of riparian wetland habitats will be filled by landfilling. These habitats are typical in the coastal mountains of western Oregon. None of these habitats are rare or unique in the general vicinity of the proposed landfill site.

Wetland areas will be developed onsite or nearby to offset the 31.4 acres that will be filled. A specific mitigation plan will be developed for review and approval by state and federal agencies prior to site development.

The site is a local groundwater discharge area that saturates all geologic units underlying the site. Depth to

groundwater varies from 5 to 12 feet beneath the basin floor of the site. Depths range from 20 to 150 feet beneath the surrounding ridges. Discharge locally appears to be to Denny Creek.

The City of Banks' water supply is located approximately 5 miles south of the site. The water supply is in a drainage basin hydrologically separated from Denny Creek. The springs that supply water to the City would not be affected should any unanticipated leachate contamination of groundwater resources occur.

Groundwater and surface waters at the site will be protected by implementing the following measures:

Pollution Prevention

- o Construct double composite liner with leachate collection system to prevent discharge to local surface and groundwaters
- o Provide leak detection system between liners, and test it monthly
- o Meet or exceed state and federal water quality standards for leachate treatment to avoid adverse water quality impacts
- o Pretreat leachate onsite; hold in summer, and discharge to Hillsboro wastewater treatment plant through pressurized sewerline in winter
- o Apply daily soil cover to minimize leachate production
- o Utilize close-as-you-fill technology to minimize surface water infiltration
- o Utilize an impermeable composite synthetic membrane and clay top cap to prevent infiltration
- o Separate noncontaminated surface water from contact with refuse in operating area
- o Construct sedimentation basins to prevent stream siltation
- o Direct offsite surface water away from landfill to minimize leachate production

Ground and Surface Water Monitoring	o Inspect landfill regularly for evidence of seeps
	o Determine existing water quality prior to construction, and install upgradient and downgradient monitoring wells around site perimeter
	o Establish surface water monitoring stations; determine existing water quality prior to construction in Denny Creek and Dairy Creek
	o Test ground and surface water quality quarterly after site operation begins
	o Test water quality of selected downgradient wells within 2 miles prior to landfill construction, including EPA priority pollutants
	o Monitor leachate transmission line for leaks by using pressure-sensing devices; include automatic shutoff of leachate pumps if pressure drops
	o Establish a contingency fund for water quality protection from gate fee
	o Provide daily construction inspection by an experienced, independent third party during liner installation
	o Require half-time DEQ staff position to regularly inspect and monitor landfill operations
If Leaks Occur	o Initiate corrective measures, including liner repairs and/or collection system repairs
	o Increase monitoring program to better define problem and/or to fully evaluate the effectiveness of corrective measures
	o Extend any affected wells into deeper or other aquifers, if necessary
	o Connect affected domestic users to alternative water supply system, if necessary

Leachate Transmission	o Provide small noncorrosive pressure pipe that precludes connections o Bury pipe 4 to 6 feet deep for protection o Place pipe in public rights-of-way to minimize disruption to creeks, forests, and farmland o Install pressure monitoring system to detect leaks o Install pressure reducing valves and other valves to isolate pipeline segments

The Commission finds that with the above measures, surface and groundwaters can be protected, and that the proposal meets goal 5 provisions.

h. Wilderness Area

The site is not designated a Wilderness Area.

i. and j. Historic Areas, Sites, Structures, and Objects; Cultural Resources

Washington County has not included this site in its inventory of historic areas, sites, structures, and cultural resources.

Based on the results of field surveys and on information obtained from local residents, it does not appear that major previously undiscovered historic or archaeological sites are located in the project area. Preliminary survey work revealed the presence of two historic sites and the historic Hoffman and Bacona Roads (but not within the impact area). The historic Nehalem State Road may also be located in the project vicinity. The historic sites consist of two cabins outside the project area, immediately north of Bacona Road and near Genzer Road. Onsite resources include the remains of tie mill processing sites.

Because no structural remains are present at the tie mill sites, they do not appear to meet the minimum National Register criteria for historic structures. The cabin sites and the potential Nehalem State Road may meet the minimum criteria for inclusion on the National Register. Both these sites are located outside the impact area.

If future sites are identified within the project site, a mitigation plan that is acceptable to the Oregon State Historic Preservation Office (SHPO) will need to be developed.

The Commission finds that historic and cultural resources will not be adversely affected by the proposed landfill.

k. Potential and Approved Oregon Recreation Trails

No approved or potential recreation trails would be affected by the proposed project. The site is entirely private property. The Oregon State Parks Department is seeking funding to assess the feasibility of establishing a "linear park" (pathway) between Banks and Vernonia. The future of the proposal is uncertain, and the exact location unknown.

l. Potential and Approved Federal Wild and Scenic Waterways and State Scenic Waterways

No federal or state wild or scenic waterways are affected by the proposed project.

Conclusion

- Washington County plans and inventories do not identify any Goal 5 resources onsite.
- The Feasibility Study Report addresses the potential economic, social, environmental, and energy consequences of the project.
- The implementing measures designed to protect and reduce impacts on potential Goal 5 resources constitute an acceptable balance between Goal 5 requirements and the need to develop a solid waste disposal site.
- The Neighborhood Protection Plan and other implementing measures constitute an adequate program to achieve the goal.
- Goal 5 requirements have been met.

GOAL 6: AIR, WATER AND LAND RESOURCES QUALITY

"To maintain and improve the quality of air, water, and land resources of the state."

Air Quality

The site is located in a rural, generally undeveloped area outside of the Portland-Vancouver Interstate Air Quality Maintenance Area (AQMA). The project site is located in an attainment area with respect to all seven criteria air pollutants regulated by the Department of Environmental Quality.

Existing sources of air pollution in the area are occasional dust and exhaust emissions from traffic and logging operations and of wood smoke from a few residences. Air quality concentrations around the Bacona Road site are expected to be well within ambient standards because of the remote, undeveloped nature of the area. There are no major odor sources in the site vicinity.

Carbon monoxide and particulates are the primary pollutants associated with increases in vehicle traffic. Air emissions will be created by the release of landfill gas and by the aeration of untreated leachate. Air emissions will be controlled by burning collected landfill gas in enclosed combustion units, and by covering aeration basins and filtering air emissions through an activated charcoal filter.

Three primary odor sources at the site will be from filling, landfill gas, and leachate. Specific measures are included in the NPP to control odors. Even with these measures, odors occasionally will be detected offsite.

The following measures have been incorporated into landfill design and operations:

POTENTIAL AIR QUALITY IMPACTS	NEIGHBORHOOD PROTECTION PLAN MEASURES
Odors from Garbage	o Provide daily cover
	o Seal surface cracks
	o Confine unloading areas to smallest possible area
	o Use alternative technologies to produce more inert materials and reduce waste volume.

Leachate Odors	o Cover pretreatment aeration basin and utilize charcoal filtration system
	o Eliminate surface pools and seeps
	o Discharge preheated leachate directly to sewer system in winter months
Landfill Gas Odors and Air Toxics	o Develop gas control and collection system
	o Utilize closed combustion systems with stacks and high combustion efficiency
	o Maintain a secondary fuel source onsite for combustion units to ensure continued operation
Dust and Exhaust	o Restrict traffic to transfer trucks, special loads, and service and employee vihicles only (no commercial or self-haul vehicles)
	o Pave site access, entrance, and access roads and clean regularly
	o Spray access road and unpaved roads
	o Spray water during daily cover
	o Utilize closed combustion system for flares
	o Prevent mud and dirt trackout from site onto access road by use of wheel wash
	o Use exhaust control devices on trucks and landfilling equipment to minimize emissions

With respect to air quality, the Commission finds:

- o No federal or state air quality standards will be violated.
- o The proposed Neighborhood Protection Plan measures will protect long-term air quality.
- o The project does not threaten air quality resources.

Water Quality

Water quality and water resources are specifically addressed in Goal 5 (Natural Resources).

Land Resources

Transfer trucks, construction activities, and landfill operations will all create noise. Of these, transfer truck noise is the most significant. The peak hour of transfer truck traffic (early afternoon) corresponds to the quietest time of day in the Bacona Road area (off-peak traffic along Highway 47). Homes along Genzer Road near the access road could experience increases of up to 26 decibels. Measures to reduce noise along the access road can be utilized, but the impact probably cannot be reduced below 10 decibels. (DEQ's standards specify that new noise sources not increase existing noise levels by more than 10 decibels.) Measures to offset noise impacts include sound walls, berms or cuts in the road, compensatory payments or purchase of affected noise-sensitive properties, and receipt of variance from EQC to exceed the 10 dBA limit. Homes along Highway 47 may also experience noise increases of more than 10 decibels in the peak hour.

To minimize the potential effects of noise in the area, the following specific measures are included in the landfill design and operations plan:

POTENTIAL NOISE IMPACTS	NEIGHBORHOOD PROTECTION PLAN MEASURES
Access Route Truck Traffic	o Reduce number of trucks by requiring transfer vehicles only
	o Equip trucks with all available noise reduction equipment
	o Reduce grade to maximum extent possible to minimize truck noise
	o Construct noise barriers (cuts, berms, or walls) along access route to minimize noise
	o Prohibit truck traffic between 10:00 p.m. and 7:00 a.m.
	o Where 10 dB reduction cannot be attained, compensate owners, purchase homes, or secure noise variance
	o Establish truck noise specifications

	o Periodically inspect and test transfer truck noise levels
Landfill Operations	o Enclose onsite blowers and fans
	o Establish a complaint procedure to monitor and respond to noise complaints

Several other elements have been incorporated into the Neighborhood Protection Plan to minimize, to the extent possible, impacts on the surrounding area. Measures to reduce traffic conflicts, minimize visual impacts, control litter, and to minimize air quality impacts are discussed above and in other Goals.

Conclusion

The Commission finds that Goal 6 requirements have been met and that:

- The proposed landfill will not exceed the carrying capacity of air, water and land resources.
- Implementation of the Neighborhood Protection Plan will prevent degradation of such resources.
- The availability of these resources is not threatened by implementation of the project.

GOAL 7: AREAS SUBJECT TO NATURAL DISASTERS AND HAZARDS

"To protect life and property from natural disasters and hazards."

Goal 7 addresses natural hazards such as stream flooding, erosion, landslides, earthquakes, weak foundation soils, and fires. Each of these areas is addressed below.

Flood Potential

The site is not located in any floodplain; however, it is in an area subject to frequent heavy rainstorms. Because of the steep nature of the drainage basin of Denny Creek, heavy rain can cause rapid rise in streamflow, especially if there is snow on the ground. This condition can lead to local flooding downstream from the site. Local residents have commented at public hearings that at least some locations on the East Fork of Dairy Creek flood frequently.

Measures to protect groundwater and surface water resources are addressed in Goal 5. Specific measures to reduce flooding from site development include the following:

- Construct sedimentation basins and detention ponds to prevent increased runoff during heavy storms.
- Divert existing drainages around the site perimeter.
- Divert, collect, and pretreat leachate; construct a new sewer line to convey leachate to treatment plant.

The Commission finds that the proposed Neighborhood Protection Plan measures will prevent downstream flooding, and meet the provisions of Goal 7.

Geology and Soils

Four geologic units underlie the site. From oldest to youngest, these are:

- Tertiary marine sedimentary rocks of the Scappoose Formation
- Columbia River Basalt that is typically broken, weathered, and eroded
- Suspected landslide debris (mixture of broken sandstone, siltstone, and basalt)
- Alluvium (very fine sand, silt, and clay)

Landsliding onsite generally originates in sedimentary rock. Resistant basalt overlying weaker sedimentary rock contributes to oversteepening and subsequent slope failure. Much of the basalt exposed onsite has been affected by landslide movement.

Landslide hazards in the active fill area are minimal. Specific measures incorporated into landfill design to minimize potential impacts from landsliding include:

- Reducing the active fill area to avoid potential slide areas.
- Designing liners and environmental protection facilities to accommodate some movement.

Earthquake potential in the area is low. Onsite soils have sufficient strength and are otherwise suitable for use as daily and final cover material. Soils are suitable for construction.

The Commission finds that:

- The site is not within an identified floodplain.
- The site contains soils suitable for landfill development.
- Measures incorporated into the Neighborhood Protection Plan will minimize potential harm from natural hazards.

Fire Protection

There are several activities that could increase potential fire hazards. The first is transporting refuse. Transfer vehicles could cause fires either on roads leading to the site or at the site itself. The trucks could emit sparks or hot gases from the exhaust systems.

Second, equipment (tractors used to clear and fill the landfill site) might cause fires that could spread to adjacent forests. The fires could be caused by any of the same reasons listed for the hauling trucks.

Third, the refuse itself might contain highly flammable materials, or materials which are smoldering could be deposited at the landfill site. It is unlikely this will occur because all waste will pass through transfer stations prior to disposal.

Last, landfill gas combustion (if not properly controlled) could present a fire hazard. Gas combustion will continue for many years after the last refuse has been placed.

The Neighborhood Protection Plan incorporates the following measures to reduce fire risks:

NEIGHBORHOOD PROTECTION PLAN MEASURES

- Inspect refuse at transfer stations to screen out hot loads
- Contour ditches and maintain roadsides to minimize fire potential
- Prohibit public access to landfills
- Require spark arresters on all transfer vehicles and landfill equipment
- Train transfer vehicle drivers and landfill equipment operators in landfill fire suppression techniques
- Prohibit smoking at landfill
- Construct gas collection and enclosed combustion system
- Maintain tight top seal to prevent air intrusion to landfill
- Maintain a firebreak around active fill areas
- Require daily soil cover
- Maintain 24-hour patrol during periods of high fire danger
- Inspect and enforce all fire protection measures during site operations and post-closure period
- Inspect and maintain landfill gas combustion units, including after landfill closure
- Revegetate with grasses to minimize dead or dry organic material
- Provide fire extinguishers on all transfer vehicles and landfill equipment
- Provide a reliable and accessible onsite water supply, water, truck, and pumper fire truck

- o Utilize ponds for fire suppression water source
- o Equip transfer vehicles and landfill equipment with radios and/or mobile telephones
- o Provide an alert system for local residents

Conclusion

The Commission finds that Goal 7 concerns have been adequately addressed in the Neighborhood Protection Plan, and that:

- o Potential flooding will be controlled.
- o Measures incorporated into project design and operations minimize potential impacts from natural hazards.
- o Fire protection and suppression measures have been considered and will be incorporated into the operations plan.

GOAL 8: RECREATIONAL NEEDS

> "To satisfy the recreational needs of the citizens of the state and visitors, and where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."

Washington County, cities within the county, and special districts (such as the Tualatin Hills Park and Recreation District) provide recreation facilities for residents and other users. The major providers of recreation outside the urban area are other government agencies which own property in the County. Lands now in public ownership could potentially be used for recreation, but lack necessary improvements.

There are no existing or planned recreation improvements on the site. Though the site is all in private ownership, the area is used by recreationists for hiking, off-road vehicle travel, bicycling, and other uses. Development of the site would preclude these unauthorized uses in the active landfill areas.

To minimize disruption to recreationists, the following measures have been incorporated into project design and operations:

- Provision of additional screening along Bacona Road to prevent views of the site.
- Maintenance of the site as open space in the long term (after landfilling).
- Developing the landfill in phases, to preserve existing vegetation and habitat as long as possible.

Conclusion

The Commission finds that:

- The site is currently all in private ownership, but is used by passive recreationists.
- There are no existing or programmed improvements on the site.
- The site will be maintained in open space in the long term.

The provisions of Goal 8 have been met.

GOAL 9: ECONOMY OF THE STATE

"To diversify and improve the economy of the state."

The Washington County Comprehensive Plan identifies four major trends and changes required for continued economic growth:

- Continued regional population and employment growth and increased economic diversification
- An abundance of land available for development, which should keep regional housing costs below that of other metropolitan areas
- A resident labor force which has reached a threshold size and skill level sufficient to attract medium sized manufacturing firms
- A well organized, well supported planning and development atmosphere which has made the region one of the most attractive and livable metropolitan areas in the country

The County Comprehensive Plan also cites some general trends which can be expected to continue in the foreseeable future:

- Washington County population and employment will most likely continue to grow faster than in the Portland SMSA, as a whole, due to continued suburbanization
- The composition of employment will probably continue to shift toward trade and services and away from manufacturing
- The expected strong growth in the county economy will create an increasingly important role for the county economy in the context of the region--at the same time, the county will become more economically self-sufficient by developing a broad base of local employment

Fertile soils and temperate, damp climate make Washington County a productive agricultural and forest region. The strength of the agricultural economy has historically been its diversity and ability to adapt to changing market conditions and tastes.

Balanced against the need to preserve forest and agricultural land is the need to develop efficient public facilities and services. The St. Johns Landfill will reach capacity by 1991. Without additional landfill capacity, the

region's economic development activity and growth would be severely constrained.

Section 342-1 of the Washington County Community Development Code states the following regarding the intent and purpose of the Exclusive Forest and Conservation District designation:

"The Exclusive Forest and Conservation District is intended to provide for forest uses and to provide for the continued use of lands for renewable forest resource production, retention of water resources, recreation and other related or compatible uses."

The Summary Findings and Conclusions of the Natural Resource Plan makes the following statement regarding solid waste management:

"In the future, it may be necessary and desirable to locate a new landfill in the rural area. To do so, the County will have to work with the Metropolitan Service District, the State Department of Environmental Quality, and the area residents."

Policy 16 of the County Comprehensive Plan, regarding Exclusive Forest lands, addresses Washington County's policy regarding forest uses. The policy states that conversion of forest lands to other uses must be based upon consideration of:

1. Goals and policies of the Rural Natural Resources Plan Element

2. Environmental, energy, social, and economic consequences

3. Demonstrated need consistent with LCDC goals

4. Unavailability of an alternative suitable location for the requested use and compatibility of the proposed use with surrounding forest uses

Conclusion

Based on the above, the Commission finds that:

- There is a need to develop a new landfill to replace the St. Johns facility, which will reach capacity by 1991

- The Washington County comprehensive plan envisions the need to develop additional landfill capacity, and provides for the possibility in rural areas

- Alternative sites have been examined by the Department against established criteria, and that the proposed site represents an environmentally sound and economically feasible alternative

- Environmental, energy, social, and economic consequences of developing the site as a landfill have been considered in the Feasibility Report

- The requirements of Goal 9 have been met

GOAL 10: HOUSING

"To provide for the housing needs of citizens of the state."

Landfill development and operation will result in no significant long-term reduction in available housing or buildable lands in the vicinity of the Bacona Road site. The level of vehicle noise generated along the access route may, however, result in the acquisition and temporary abandonment of up to 27 noise-sensitive properties/dwellings. One additional dwelling, adjacent to the site, will be acquired and abandoned permanently.

Under OAR 340-34--Noise Regulations For Industry and Commerce, "No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase ambient statistical noise levels ... by more than 10 dBA in any one hour." After taking steps to lessen the landfill and site access noise impacts through engineering and landscaping, it has been determined that the 10-decibel noise increase standard will be exceeded in several instances.

In response to this problem, owners of noise-sensitive properties will be given two options: (1) voluntary sale of their property to the landfill developer/operator for the appraised fair market value of the parcel plus relocation expenses; or (2) continued ownership and occupancy of the dwelling, contingent upon receipt of a variance from the State Environmental Quality Commission allowing the current ambient noise level to be exceeded by more than 10 dBA.

Comprehensive plan designation of properties along the access route and at the site is Exclusive Forest and Conservation District. Parcels affected by this project are zoned AF-5 (one dwelling), AF-20 (five dwellings), and EFC (22 dwellings). The EFC and AF designations encourage agricultural and forestry use of the land and allow dwellings (including mobile homes) incidental to the use of the property for agricultural and forest use, except in District AF-5, which allows one detached dwelling unit per five-acre parcel in a rural agricultural or forestry district.

The assessed value of dwellings included within the impact area range from: 19 dwellings valued at $22,000 or less; 8 dwellings valued from $26,300 to $49,500; to 1 dwelling valued at $63,100.

After landfill development is initiated and the facility begins operation, a new ambient noise level for the area

will be established. Under this newly established noise level, currently undeveloped property in the area of impact may be developed.

Conclusion

The Goal 10 requirement has been met. Landfill development and operation will not result in long-term removal of significant housing or buildable lands inventory. The number of homes impacted is small; replacement housing is available within Washington County.

GOAL 11: PUBLIC FACILITIES AND SERVICES

> "To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."

Goal 11 does not directly apply to state agency actions. It calls on local governments to "plan and develop a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban and rural development." Affected local governments have failed in their attempts to provide adequate solid waste disposal sites in a timely and orderly fashion. The 1985 legislature, declaring an emergency, required this commission to select a solid waste disposal site because of that failure.

Water

A small water supply system will be required onsite to meet potable needs and to provide storage for fire protection. Wells developed during drilling onsite showed substantial quantities of water available. The amount of water used onsite will be minimal, and will not affect groundwater reserves.

Sewerage

An onsite sanitary sewerage system will be developed and connected to the leachate pretreatment system, and discharged through a pressurized sanitary sewerline to the Hillsboro Wastewater Treatment Plant for final treatment. The Hillsboro treatment plant has sufficient capacity to treat effluent generated at the site. The pressurized sewerline will be designed and constructed to preclude any additional hookups in rural areas and to avoid potential adverse impacts to existing and planned land uses.

Natural Gas, Electricity, and Communications

Electrical demands require extension of a service to the site from Highway 47. Electricity is required for lights, support facilities, leachate pretreatment facilities, pumps, and water supply. Electrical service would be extended along the proposed access road from Highway 47. Electrical demands are not extensive and will not affect the existing electrical supply system. An emergency electrical generation system will be provided onsite for critical mechanical equipment and support facilities.

Telephone lines would be extended to the site from Bacona Road. Two-way radio communication will be provided onsite to maintain contact with transfer trucks during inclement weather.

Schools

Schools will not be affected by the proposed project.

Security

The proposed landfill will be served by the Washington County Sheriff's Department. Because the area is remote, onsite security will be required. A landfill security guard will be at the site full time, and will regularly inspect the landfill area and site perimeter.

Fire Protection

Fire protection measures are addressed in Goal 7.

Solid Waste

People in the Tri-County area generate about one million tons of waste annually. About 21 percent of this waste is currently recycled, and the rest is buried in the St. Johns landfill in North Portland. The St. Johns landfill is scheduled to reach capacity by 1991. A new landfill must be developed to replace St. Johns for waste disposal needs.

Almost half of what is now being buried could be reused or recycled. The Metropolitan Service District (Metro) is implementing a solid waste reduction program based on alternatives to landfilling. But even with an aggressive recycling program and new technology to process garbage, a landfill is still needed.

Conclusion

The Commission finds that:

- The St. Johns landfill will reach capacity by 1991, and a new landfill is required.
- Public facilities developed to serve the landfill in the rural area at the Bacona Road site will be designed and constructed to prevent additional development inconsistent with County plans from occurring. The landfill is a temporary use that will not require a permanent increase in public facilities.
- The landfill will not significantly impact the timely and efficient delivery of public services and facilities in the area.
- Landfill development and operation will not require Washington County to substantially extend services and facilities.

GOAL 12: TRANSPORTATION

"To provide and encourage a safe, convenient and economic transportation system."

Access to the site is via Highway 26 and Highway 47. Both are paved State highways. At the junction with Highway 47, Highway 26 is a two-lane roadway with paved shoulders. North of Highway 26, Highway 47 consists of two lanes with both paved and gravelled shoulders.

The proposed access point to the site from Highway 47 is located approximately 4.3 miles north of Highway 26. A new 4-mile access road would be constructed to the site from this point.

Traffic volumes on Highway 47 are projected to increase at an annual average rate of 3 percent, without the landfill, and 4 percent with the landfill. Traffic operational characteristics along Highway 47 will not be significantly affected with the traffic from the landfill. The accident rate on Highway 47 is expected to remain the same as at present; a minimal number of additional accidents is expected to occur as landfill-generated traffic increases. Statistically, about one additional accident per year is expected.

The Neighborhood Protection Plan includes the measures outlined below.

	Neighborhood Protection Plan Measures
Site Access/Egress	o Identify areas potentially suitable for bikeway or pathway underpass for proposed Banks to Vernonia linear park
	o Provide deceleration lane for northbound traffic on Highway 47 turning right into the site
	o Construct separate left-turn pocket and acceleration lane for southbound traffic from site access road
	o Create new 90-degree intersection to improve sight distance and turning characteristics from site access to Highway 47
	o Provide sheltered left-turn lane on Highway 47 for vehicles turning into the site

	o Develop new, paved access road to site
	o Provide stop-sign control for traffic entering Highway 47 from site access drive
Truck Traffic	o Reduce number of trucks by restricting access to transfer trailers
	o Minimize access grade to extent feasible
	o Provide large radius at intersection that will accommodate truck turns
	o Restrict trucks to Highway 26/Highway 47 access
Safety	o Construct intersection improvements
	o Control the routes used by transfer trucks traveling to and from the site to ensure they are confined to major transportation facilities that have been designed to accommodate heavy truck traffic
	o Prohibit trucks on Cornelius Pass Road
	o Provide vehicle turnouts for northbound traffic on Highway 47 at intervals of about 1 mile
	o Provide truck turnouts along access road for chaining up in inclement weather
	o Widen Highway 47 to include shoulder on both sides; widen pavement to 24 feet (from 22 feet)
	o Provide emergency off-ramp on access road

The feasibility of providing rail access into the site was briefly analyzed. The costs of providing direct rail service were prohibitive.

Conclusion

The Commission finds that the provisions of Goal 12 will be met through implementation of the Neighborhood Protection Plan.

GOAL 13: ENERGY CONSERVATION

"To conserve energy."

Energy is consumed in two primary areas of landfill operations: the waste collection system and the onsite filling operations. The solid waste collection and disposal system in Portland currently uses approximately 11 million gallons of fuel annually (for trucks). It is estimated that by switching from the two existing disposal points (St. Johns and CTRC) to the three planned transfer points, annual fuel requirements of the regional collection system will be reduced by 2.5 percent, or about 280,000 gallons of fuel per year. This estimate does not include the fuel consumed by the proposed transfer vehicles.

Assuming no alternative technology, the predicted onsite energy use during the expected 47-year site life would be about 2.1×10^{12} Btu's. This is based on an estimated use of 330,000 gallons per year of fuel for landfilling equipment.

A landfill gas collection system will be installed at the site, and will recover an estimated 96.2×10^{12} Btu's over the life of the collection system. Landfill gas has about one-half of the heating value of pipeline gas. There is no identified market for gas at the Bacona Road site.

Energy consumed by refuse transfer vehicles traveling from the three transfer station sites to the proposed landfill site would be approximately 310 million gallons, or about 44.5×10^{12} Btu's over the landfill life.

Transfer vehicles will consume more fuel to use the Bacona Road site than the Ramsey Lake site. However, giving the goals equal weight and considering the statutory criteria under SB 662, increased energy consumption is justified.

These site operations could result in an overall positive or negative energy balance, depending on the use made of the available landfill gas. The amount of net energy available over the life of the system, if all of the gas is used, is equivalent to the energy in about 402 million gallons of diesel fuel.

The landfill gas produced is a valuable energy source. Markets for the gas will be investigated during landfill design. Because of the lack of readily available commercial and industrial markets near the site, the potential for reuse may be limited. Should gasoline prices escalate substantially in the future, markets may become more economically viable.

Conclusion

The Commission finds that:

- The proposed landfill is potentially a net energy generator, assuming markets can be found for landfill gas reuse.
- Alternative transportation modes (rail) are not economically viable at present.
- Proposed recycling and reuse plans now underway are consistent with the energy conservation goal.

GOAL 14: URBANIZATION

"To provide for an orderly and efficient transition from rural to urban land use."

The purpose of Goal 14 is to establish boundaries to separate urbanizable land from rural land. The Bacona Road site is not within any urban growth boundary and is "rural land." Location of the disposal site on forest land is specifically authorized by SB 662. Establishment of the site on this forest land will not lead to urbanization of the area outside of an urban growth boundary in violation of Goal 14.

Depending on whether an alternative technology facility is constructed, the estimated site life for the Bacona Road site is between 47 and 60 years (Feasibility Study Report, § 5). Although this is a considerable period of time, the use of this site as a disposal site is still one that should be considered temporary in nature. The necessary improvements to the site will be constructed so as to be limited in their use to only the disposal site. Water supply will be developed by wells onsite. Sewage and pretreated leachate will be pretreated onsite and discharged through a pressurized sanitary sewer line to Hillsboro Wastewater Treatment Plant for final treatment. The pressurized sanitary sewer line will be sized so as not to permit further hookups.

Conclusion

The applicable requirements of Goal 14 have been met. Establishment of the landfill at the Bacona Road site will not lead to urbanization of the area in violation of Goal 14. Facilities designed to support the site will be limited to use by the disposal site and will not be available to other users. The disposal site use should be considered a temporary use.

Landfills are not clearly urban uses. Some characteristics of landfills are like heavy industry, but a large percentage of landfills are located in rural areas. Regardless of whether landfills may be characterized as more or less urban, this landfill will not constitute an urban use requiring a Goal 14 exception because:

- Public facilities and services will be provided in such a manner so as to prevent further development of other uses
- Landfills are not known to stimulate neighboring urban scale development
- The landfill is a temporary use and the land will eventually be converted to natural open space

GOAL 15: WILLAMETTE RIVER GREENWAY

"To protect, conserve, and maintain the natural, scenic, historical, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway."

Conclusion

Goal 15 is not applicable to the disposal site siting process under SB 662 because the Bacona Road site is not comprised of lands subject to Goal 15 provisions.

GOAL 16: ESTUARINE RESOURCES

> "To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and to protect, maintain, where appropriate restore the long-term environmental, economic, and social values, diversity and benefits or Oregon's estuaries."

Conclusion

Goal 16 is not applicable to the disposal site siting process under SB 662 because the Bacona Road site is not comprised of lands subject to Goal 16 requirements.

GOAL 17: COASTAL SHORELANDS

"To conserve, protect, where appropriate, develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and to reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands."

Conclusion

Goal 17 is not applicable to the disposal site siting process under SB 662 because the Bacona Road site is not comprised of lands subject to Goal 17 provisions.

GOAL 18: BEACHES AND DUNES

"To conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of coastal beach and dune areas; and to reduce the hazard to human life and property from natural or man-induced actions associated with these areas."

Conclusion

Goal 18 is not applicable to the disposal site siting process under SB 662 because the Bacona Road site is not comprised of lands subject to Goal 18 provisions.

GOAL 19: OCEAN RESOURCES

"To conserve the long-term values, benefits, and natural resources of the nearshore ocean and the continental shelf."

All local, state, and federal plans, policies, projects, and activities which affect the territorial sea shall be developed, managed and conducted to maintain, and where appropriate, enhance and restore, the long-term benefits derived from the nearshore oceanic resources of Oregon. Since renewable ocean resources and uses, such as food production, water quality, navigation, recreation, and aesthetic enjoyment, will provide greater long-term benefits than will nonrenewable resources, such plans and activities shall give clear priority to the proper management and protection of renewable resources."

Conclusion

Goal 19 is not applicable to the disposal site siting process under SB 662 because the Bacona Road site is not comprised of resources subject to Goal 19 provisions.

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

In the Matter of the Establishment of a Solid Waste Disposal Site to Serve Clackamas, Multnomah and Washington Counties.	))))))	ORDER

1. Introduction

The Legislative Assembly charged the Environmental Quality Commission (EQC) and Department of Environmental Quality (DEQ) with the responsibility for locating and establishing a solid waste disposal site to serve the Clackamas, Multnomah and Washington tri-county area. Oregon Laws 1985, Chapter 679 (the Act). The Act requires EQC to issue its order not later than July 1, 1987, directing DEQ to establish the disposal site.

DEQ and its prime consultant, the firm of CH2M Hill have prepared a report entitled the Final Feasibility Study Report for the Ramsey Lake landfill site (the "Feasibility Study"). The Feasibility Study is comprised of six sections and Appendices A through G.

The sections address introductory materials (Section 1), the existing environment at the Ramsey Lake site (Section 2), the conceptual site plan for development of a landfill at the Ramsey Lake site (Section 3), the Neighborhood Protection Plan (NPP) for the Ramsey Lake site (Section 4), the cost estimate for development of the Ramsey Lake site (Section 5) and references (Section 6). The appendices contain the technical information, assumptions, DEQ ratings and other information supporting the six narrative sections of the Feasibility Study.

2. Conditions

a. The findings of fact and conclusions of EQC, including all exhibits thereto, attached to this order are hereby incorporated into this order.

b. The Feasibility Study for the Ramsey Lake landfill site, including all appendices is hereby adopted as findings and conclusions of EQC, and by this reference incorporated into this order.

c. The environmental protection features of the design criteria set forth on page 3-3 of the Feasibility Study are hereby adopted by the EQC and shall be incorporated into the facility design and required by the DEQ as a condition of issuance of the solid waste disposal permit.

d. The requirements of the NPP (Section 4 of the Feasibility Study) are hereby adopted by EQC. All of the measures designed to eliminate or minimize adverse effects of the development and operation of a solid waste disposal facility at Ramsey Lake, contained in the NPP, shall be incorporated into the design and operation of the facility, except that measures may be replaced with alternative measures which provide a standard of protection or mitigation which is equal to or greater than the measure replaced. DEQ shall require implementation of the NPP as a condition of issuance of the solid waste disposal permit.

e. All NPP measures which specify operational standards or methods shall be required conditions of the solid waste disposal permit issued by DEQ.

f. DEQ or any local government unit under contract with DEQ to establish the disposal site pursuant to Section 7(1)(a) of the Act, shall

obtain all state and federal permits necessary to establishment, development and operation of the disposal facility, and comply with all applicable state and federal laws and regulations.

3. Order

Based upon the above-referenced findings and conclusions of EQC, and subject to the conditions set forth above, the Environmental Quality Commission for the State of Oregon hereby orders the Department of Environmental Quality to establish a solid waste disposal facility at the Ramsey Lake site.

DATED this_____day of_____, 1987.

Mary V. Bishop
Commissioner

Wallace B. Brill
Commissioner

A. Sonia Buist
Commissioner

Arno H. Denecke
Commissioner

James E. Petersen
Chairperson

NOTICE: Interested parties may seek EQC review of this order by contested case. Petitions for review must be filed with the Environmental Quality Commission or or before June 26, 1987. Petitions must contain the information required by Oregon Administrative Rule 137-03-005(3) (copies of this and other applicable procedural rules may be obtained from the Department of Environmental Quality, telephone (503 229-5731). If no contested case is requested, this Order shall become final on June 29, 1987. Judicial review of this order is governed by Oregon Laws 1985, Chapter 679, Section 6.

RAMSEY LAKE

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

In the Matter of the Establishment of a Solid Waste Disposal Site to Serve Clackamas, Multnomah and Washington Counties.	))))))	FINDINGS OF FACT AND CONCLUSIONS

I.

INTRODUCTION

The 1985 Legislature, through passage of 1985 Oregon Laws, Chapter 679 (the Act) vested the Department of Environmental Quality (DEQ) and the Environmental Quality Commission (EQC) with the responsibility to site a solid waste disposal facility to serve the Portland Metropolitan Tri-County area. The Act also requires the Metropolitan Service District (MSD) to develop and implement a comprehensive waste reduction program for the Tri-County area. The timely siting of a solid waste disposal facility to serve the Tri-County area is of critical concern because of the imminent closure of the St. Johns Landfill which now serves as the areas only existing general purpose landfill.

In order to carry out its responsibility, DEQ began a process which involved the development of a comprehensive list of potential disposal sites by May 1986; the completion and submission to EQC of a study identifying 12 to 18 preferred and appropriate sites in June 1986; and the

selection by DEQ of three recommended sites for detailed feasibility analysis by November 1, 1986. The Feasibility Study Report for the Ramsey Lake potential landfill site (Feasibility Study) was prepared for DEQ by the firm of CH2M Hill, with assistance from EMCON Associates; Cooper Consultants, Inc.; Sweet, Edwards and Associates, Inc.; Jones and Jones; and Kittelson and Associates.

II.

FINDINGS

A. These findings are made pursuant to section 4 of 1985 Or Laws ch 679, in support of EQC's order directing DEQ to establish a solid waste disposal site at Ramsey Lake (The Order).

i. In performing its study, DEQ and its consultants have reviewed applicable state and federal environmental laws and regulations. The laws and regulations reviewed include those listed in Exhibit A to these findings, and by this reference incorporated herein. The Feasibility Study presents technical data and analyses sufficient for a determination of the feasibility of establishment of a disposal site at the Ramsey Lake site.

The EQC finds that the provisions of ORS Chapter 467 and the Oregon Administrative Rules promulgated thereunder will be complied with if the disposal site is built and operated according to the standards set forth in Chapters 3 and 4 of the Feasibility Study. Enforcement or final judgment concerning actual compliance with other specific state or federal laws or regulations is not within the EQC's authority. The order requires

DEQ (or its contractor) to obtain all necessary state and federal permits and comply with all applicable state and federal laws and regulations. The order requires DEQ (or its Contractor) to implement all measures contained in Sections 3 and 4 of the Feasibility Study (or substitute measures with greater or equal levels of protection) in development and operation of the disposal site, including the environmental protection criteria set forth on page 3-3 of the Feasibility Study. The order prohibits DEQ from issuance of a solid waste disposal permit unless all applicable state and federal laws and regulations and the Sections 3 and 4 Standards of the Feasibility Study are complied with.

CONCLUSION

The Commission finds that the establishment of a disposal site at the Ramsey Lake site will comply with applicable state statutes, rules of the Commission and applicable federal regulations.

ii. Adverse noise, odor and visual impacts of landfilling can be minimized by use of natural and/or artificial barriers between the active landfill and adjacent properties. Buffering features at this site will be those set forth on pages 4-65 through 4-88 of the Feasibility Study.

The effects of buffering and other mitigation measures on noise will be those described on pages 4-43 through 4-52.

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The effects of buffering and other mitigation measures on odor will be those described on pages 4-20 through 4-24.

The effects of buffering features and other mitigation measures on visual resources will be those described on pages 4-65 through 4-88 of the Feasibility Study.

The order requires implementation of the measures set forth on pages 4-20 through 4-24, 4-43 through 4-52 and 4-65 through 4-88 of the Feasibility Study, which will mitigate adverse noise, odors and visual effects of landfilling at the location.

CONCLUSION

The Commission finds that the size of the disposal site is sufficiently large to allow buffering for mitigation of adverse effects by natural or artificial barriers.

iii. Transportation characteristics of the Ramsey Lake site are set forth on pages 2-79 through 2-83 of the Feasibility Study. The location of the disposal site will have the impacts described on pages 4-55 through 4-61. The order requires implementation of the measures set forth on pages 4-62 through 4-63 of the Feasibility Study.

CONCLUSION

The Commission finds that projected traffic will not significantly contribute to dangerous intersections or traffic congestion considering road design capacities, existing and

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projected traffic counts, speed limits and the number of turning points.

iv. The Ramsey Lake site has or is served by the public services and facilities described on pages 2-103 through 2-105 of the Feasibility Study. The necessary public facilities for development and operation of the site are either in place at the site or near by, or can be extended or constructed for the site as set forth on pages 4-89 through 4-91 of the Feasibility Study, and as discussed under Goal 11 in Exhibit B.

CONCLUSION

The Commission finds that facilities necessary to serve the disposal site can be available or planned for the area.

v. Land uses adjacent to the Ramsey Lake site include existing heavy and light industrial development, vacant industrial land, open space, recreational areas, and limited residential development.

Conflicts with such uses resulting from landfilling may include:

- o Site screening.
- o Odors.
- o Safety and security risks.
- o Noise levels.
- o Dust and other air pollution.
- o Bird and vector problems.
- o Damage to fish and wildlife habitats.

The conceptual and final design, construction, and operation of the landfill will incorporate the following environmental protection features:

- o A double-lined landfill.
- o A leachate collection system with leachate treatment.
- o A leak detection system between liners.
- o A gas control system, installed as the landfill is constructed.
- o Daily cover of the active landfill face.
- o Groundwater monitoring.

The design, construction and operation of the landfill will incorporate the measures and standards of the Neighborhood Protection Plan summarized on Table 4-1 and explained in Chapter 4 of the Feasibility Study.

CONCLUSION

The Commission finds that the Ramsey Lake disposal site may be designed and operated to mitigate conflicts with surrounding uses to the extent practicable.

B. Statewide land use planning goal findings.

i. Section (2)(a) of the Act requires the EQC to give due consideration to the statewide planning goals.

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EXHIBIT A

STATE STATUTES

- ORS 448 (Oregon Drinking Water Quality Act)
- ORS 459 (Solid Waste Control)
- ORS 197.005-430 (Statewide LCDC Goals)
- ORS 527 (Oregon Forest Prac. Act)
- ORS 477 (Fire Protection)
- ORS 281 (Condemnation)
- ORS 105 (Property Rights)
- ORS 541 (Removal and Fill Law)
- ORS 467 (Noise Control)
- ORS 468 (Air and Water Quality)
- ORS 509, 540 and 551 (Dam Construction)
- ORS 466 (Hazardous Waste Management)

FEDERAL STATUTES

- Resource Conservation and Recovery Act
- Superfund Amendments and Reauthorization Act (1986)
- Uniform Relocation and Real Prop. Acq. Act.
- Clean Water Act
- National Environmental Protection Act--1969
- Clean Air Act
- Executive Order 11593 (Protect. and Enhancement of the Cult. Env.)
- Executive Order 11988 (Floodplain Mgt.)
- Executive Order 11990 (Protection of Wetlands)
- Endangered Species Act
- Fish and Wildlife Coordination Act
- Historic Sites Act
- Preservation of Historic and Archaeological Data Act
- Discharge of Dredged or Fill Material [404(b)(1)]

EXHIBIT B

RAMSEY LAKE GOAL FINDINGS

GOAL 1: CITIZEN INVOLVEMENT

"To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process."

1. Citizen Involvement--To provide for widespread citizen involvement

Effective implementation of Senate Bill (SB) 662 requires understanding of the current metro area garbage disposal crisis and a commitment from the community to solving the problem.

The Department of Environmental Quality (DEQ) developed a citizen involvement program to maximize citizen and agency communication during the landfill siting process. The primary objectives of the program were to: (1) inform the community about the landfill siting program and opportunities for participation; (2) create educational materials on solid waste management issues; and (3) provide opportunities for open public dialogue on the proposed landfill locations and development plans.

In January 1986, the Director of DEQ appointed a 14-member Facility Siting Advisory Committee (FSAC) to advise the Department on landfill siting administrative and policy matters. Issues considered included: siting criteria, number of sites selected for analysis, neighborhood protection plans, etc.

Commissioners from each of the tri-counties, representatives of garbage hauling and recycling industries, business, and environmental and civic groups served on FSAC. The committee met 20 times in evening or weekend sessions--all of which were open to the public. Meetings involving significant deliberations were reported in The Oregonian. A mailing list was maintained for individuals requesting meeting notices and copies of FSAC minutes.

As part of its review and evaluation of the DEQ siting process, the FSAC provided two forums where site opposition group representatives provided recommendations to improve the siting process. Each committee member attended one or more of 20 public hearings held on the sites evaluated.

2. Communication--To assure effective two-way communication with citizens

To establish a foundation for communication between the public and DEQ on landfill siting matters initially, a

public opinion survey was conducted, a graphic identity was developed, a mailing list was created, and a Landfill Telephone Hotline was established.

As part of the the Community Involvement Program, a number of mechanisms were employed during the three phases of the project to ensure effective two-way communication between DEQ and the community. These included:

Landfill Hotline--730 calls received
Property Owners Survey--400 distributed
Adjacent Property Owner Survey--500 distributed
Neighborhood Protection Plan Survey--200 distributed
Newspaper Display Ads/Notices (regional and local publications)--10
Trashy Story Newspaper Advertisement Series--7 in series (regional and local publications)
Direct mail to mailing list--3,500 entries/14 separate mailings including 11 Informational Bulletins, meeting notices, progress reports
Carrier Route Mailing to areas adjacent to the three proposed final landfill sites--17,000 properties/ 2 separate mailings including meeting notice and tabloid on draft feasibility report results
DEQ Speakers Bureau--42 presentations to civic and government groups
New conferences--4
News releases--7
Community meetings--11
Community workshops--3
Public Hearings--22
Facility Siting Advisory Committee meetings--20
Video Tapes on siting process and Draft Feasibility Report Findings
Siting Reports placed in 6 regional and local libraries
Radio and television presentations and panels

3. <u>Citizen Influence--To provide the opportunity for citizens to be involved in all phases of the planning process</u>

Opportunities for citizen involvement during the three phases of the project included:

PHASE 1. CRITERIA DEVELOPMENT: A group of professionals was convened by DEQ to critically review draft landfill siting criteria. Among the 22 participants in the four peer group sessions were: solid waste managers, hydrologists, geologists, environmentalists, land use planners, architects, engineers, and government officials.

The Facility Siting Advisory Committee (FSAC) met seven times during this phase, and fourteen briefings and meetings occurred with local government commissions and staff

regarding the siting process and criteria development. The DEQ Landfill Siting Speakers Bureau made 16 presentations to civic and community groups regarding landfill siting process.

DEQ held two public hearings to receive comments on the siting criteria, with a review period of 45 days given for receipt of written comments.

PHASE 2. LANDFILL SITE IDENTIFICATION AND EVALUATION: In June and July 1986, DEQ held four meetings for owners of property in potential landfill areas and three meetings for the community at large in the four counties where potential sites were located. Total attendance at these sessions approximated 1,500 persons. An estimated 900 survey forms were distributed to solicit public comment at these meetings.

The Speakers Bureau met with four civic and community groups to explain the siting process and findings during this phase. The FSAC met six times to consider siting administrative and policy issues. DEQ staff met at least once to discuss site criteria ratings with each of the 18 community groups formed in opposition to consideration of the sites identified at this stage.

Eighteen public hearings--one for each site evaluated during this phase, were held before a DEQ hearings officer to receive comment and information regarding the potential of each site for sanitary landfill use.

PHASE 3. FINAL SITE EVALUATION: Three public meetings were held in communities around each of the sites considered during the final evaluation phase. These included a general public information meeting, a workshop to identify potential problems at the sites, and an open house to review and receive comment on DEQ plans for addressing site problems. Survey forms were distributed to aid identification of potential problems perceived by the community.

The FSAC met seven times and 14 meetings were held with local government boards and staff. The Speakers Bureau made five presentations to civic and community groups on the siting process and findings to date.

In April, a public hearing was held before the Environmental Quality Commission (EQC), to receive comment on the Draft Feasibility Report and neighborhood protection plan for each of the two final sites. Neighborhood opposition groups and government agencies were given an additional opportunity to submit written comment to the EQC on the Final Feasibility Report after May 22.

4. Technical Information--To assure that technical information is available in an understandable form

Each of the three phases of this project was summarized in a final written report. Excepting the final report, these documents were used as the foundation for decisions made in ensuing phases of the project. Documents from each phase were available for review at six local and regional libraries and at the DEQ office. Site opposition and other groups were provided with individual copies. A video tape presentation on the Draft Final Reports was also prepared for community viewing.

Short Executive summaries which outlined the results of each phase, in a simplified form, were prepared with the formal reports. These summaries were distributed to interested citizens and groups.

A 12-page newsprint tabloid was developed on the Draft Final Evaluation Report. It summarized findings on the sites under review, DEQ's proposed plans for site development, and environmental protection, and informed the reader about the remaining steps of the process and opportunities for comment. This tabloid was mailed to 17,000 households around the two finalist sites and was made available to community groups and individuals.

Information Bulletins outlining the siting process and key issues in the landfill siting effort were prepared throughout the project. In total, eleven of these briefing papers of one to five pages were prepared. The bulletins were mailed out in informational packets to persons on the DEQ mailing list and other individuals seeking facts on the siting process.

A "Trashy Story" advertising series ran in The Oregonian and local papers over a nine-month period at the end of the project. The object of this series was to keep the community informed about the regional garbage dilemma, DEQ's siting process, key issues in landfill siting, the final sites considered, and the EQC's selection.

All technical materials referred to were available for citizens to pick up at no charge at all informational meetings, open houses, and hearings held during the landfill siting process. Each document was clearly identifiable by the landfill siting project logo and contained the landfill hotline number.

Assistance was available to provide interpretation and guidance in the use of these materials through both the Landfill Hotline and consultation with DEQ and consultant staff. Staff met or corresponded periodically with site opposition and other interest groups/individuals throughout

the process to respond to questions and discuss technical and policy issues relative to the siting process.

5. Feedback Mechanisms--To assure that citizens will receive a response from policymakers

Recommendations and comments were received in four forms during the landfill siting process: letters, consultant reports, public hearing testimony (written and oral), and in exchanges during meetings and telephone conversations.

From the beginning of the project all letters, reports, and public hearing testimony has been catalogued and placed in project files by subject. All project files are available to the public for assessment. As a matter of course, when site-specific recommendations or comments are received, two copies are made--one for a public review file on each site and one copy for a project consultant team. Minutes and staff notes from meetings where significant comments or suggestions were made have been recorded by DEQ staff and consultants. These documents are available for public review and copying also.

Letters and requests for information have been acknowledged with general or specific written responses and/or a telephone call. Responses have been prepared for correspondence received by DEQ staff, FSAC, EQC, and the Governor's office.

A summary was prepared of all written and oral comments received at public hearings held at the 18-site stage. Comments received at the April EQC public hearings on the two final sites have been compiled and addressed in a Response Summary, which is also available to the public for review.

Concerns shared at community meetings held near Wildwood, Ramsey Lake, and Bacona Road were summarized and made available in written and visual format for public assessment at open houses held on the neighborhood protection plan for each site.

The rationale employed to reach policy decisions made throughout the siting process can be found in a variety of written materials, all of which are available for public assessment and copying. These materials include: staff and consultant notes and memorandums to the file, criteria rating rationale documents, reconnaissance reports on site conditions, minutes of meetings where policy decisions were made, computer programs, consultant reports, and federal and state regulations analysis.

6. Financial Support--To Insure Funding for the Citizen Involvement Program

Financing for this segment of the program was accomplished through the $1/ton tipping fee provision of SB 662 (Section 9).

Conclusion

The Goal 1 requirement has been met. A citizen involvement program has been developed and implemented which has insured the opportunity for citizen involvement in all phases of the SB 662 landfill siting project.

GOAL 2: LAND USE PLANNING

> "To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions."

Goal 2 requires state agency plans and actions related to land use to be consistent with applicable city and county comprehensive plans. The siting of a disposal site by the Environmental Quality Commission (EQC) pursuant to Oregon Laws 1985, Chapter 679 (SB 662), is expressly exempt from this consistency requirement [ORS 1985, Chapter 679, § 5(3)(b) and § 5(6)]. Selection of the Ramsey Lake site complies with applicable statewide land use goals as demonstrated in these findings.

The other main purpose of Goal 2 is to assure an adequate factual base for decisions and actions related to land use. Goal 2 guidelines anticipate the use of inventories and other data concerning the following areas:

> "(a) Natural resources, their capabilities and limitations,
>
> (b) Man-made structures and utilities, their location and condition,
>
> (c) Population and economic characteristics of the area,
>
> (d) Roles and responsibilities of governmental units."

The factual base in support of the EQC selection of the Ramsey Lake site is summarized in the Draft Feasibility Study Report. DEQ and its consultants accumulated and reviewed data on the following topics: location and access, topography, geology, soils and hydrology, meteorology and air quality, surface water, aquatic environment, vegetation, forestry, wildlife, noise, land use, transportation, visual resources, public services, cultural resources, energy, health, costs, socioeconomics. See Feasibility Study Report, § 2 and § 4.

In addition to technical field work conducted at the site, an extensive compilation of treatises, studies, and other sources were consulted. See Bibliography, Feasibility and Study Report, § 6; and Bibliography at end of Section A of Appendices to Feasibility Study Report.

Conclusion

The Goal 2 requirement has been met. The disposal site siting process established under SB 662 is exempted from the consistency requirement with local comprehensive plans. An adequate factual base for this decision was developed through site-specific technical analysis, public comment and input, and literature review.

GOAL 3: AGRICULTURAL LANDS

"To preserve and maintain agricultural lands."

The Ramsey Lake site is not comprised of agricultural lands. Furthermore, solid waste disposal facilities are a permitted use on agricultural lands when established by EQC under ORS 459.049 or SB 662.

Conclusion

Goal 3 does not apply.

GOAL 4: FOREST LANDS

"To conserve forest lands for forest uses."

The Ramsey Lake site contains no forest lands. Goal 4 provisions do not apply. Furthermore, solid waste disposal facilities are a permitted use on agricultural land when established by EQC under ORS 459.049 or SB 662.

Conclusion

Goal 4 does not apply.

GOAL 5: OPEN SPACES, SCENIC AND HISTORIC AREAS, AND NATURAL RESOURCES

"To conserve open space and protect natural and scenic resources."

Goal 5 is intended to protect natural resources for future generations. The resources addressed in the goal include the following:

a. land needed or desirable for open space
b. mineral or aggregate resources
c. energy resources
d. fish and wildlife areas and habitats
e. ecologically and scientifically significant natural areas
f. outstanding scenic views and sites
g. water areas, wetlands, watersheds, and groundwater resources
h. wilderness areas
i. historic areas, sites, structures, and objects
j. cultural areas
k. potential and approved Oregon recreation trails
l. potential and approved federal wild and scenic waterways and state scenic waterways

1. General

The City of Portland's Comprehensive Plan does not include the proposed site on its inventory of Goal 5 resource sites.

2. Specific Resources

a. Land Needed and Desirable for Open Space

The City of Portland Comprehensive Plan designates the site M1, Heavy Manufacturing. The site is not identified as needed open space.

Properties surrounding the site are designated Light or Heavy Manufacturing or Open Space/Farm Forest in the Comprehensive Plan. The open space designation applies to the slough corridor and the lakes in the area. The City of Portland is currently reexamining its Goal 5 resources, and it is likely that the slough, Smith and Bybee Lakes, and wetlands in the area will be classified as areas of environmental concern (E Zone) in that process.

A minimum 200-foot buffer will be provided between the site and the adjacent Columbia Slough. The active landfill area boundary has been expressly reduced to preserve wetlands.

Revegetation and screening around the site perimeter will help minimize views of the site from adjacent areas.

The Commission finds that the site is not identified as needed open space, and that the proposed use is consistent with the open space provisions of the goal.

b. Mineral and Aggregate Resources

There are no major mineral or aggregate resources identified onsite. Preload (materials used to compress onsite soils) and cover materials will be imported for landfilling. Aggregate for road and other construction will also be imported. These materials are readily available in the area, provided by commercial suppliers. The Commission finds that mineral and aggregate resources will not be adversely affected.

c. Energy Resources

There are no energy resources identified onsite. Energy conservation is addressed further in Goal 13. The Commission finds that energy resources will not be adversely affected.

d. Fish and Wildlife Areas and Habitats

Aquatic Habitat. Aquatic habitats near the Ramsey Lake site that support permanent fisheries include the Columbia and North Sloughs, Bybee and Smith Lakes, and the Willamette and Columbia Rivers. The Columbia Slough and Smith and Bybee Lakes support a variety of fish species and other aquatic life. Waters of the area provide spawning, rearing and life-long habitat for a number of game and nongame fish species including crappie, bluegill, and yellow perch (game species) and carp and largescale sucker (nongame species). These waters also support a recreational fishery, primarily for largemouth bass, crappie, and catfish. Crayfish are also harvested in the area. Use of Smith and Bybee Lakes and Columbia Slough (salmon, steelhead) appears to be limited to rearing by juvenile Chinook salmon during the spring.

The Columbia and Willamette Rivers provide habitat for numerous resident and migratory fish species. The rivers are corridors for anadromous salmonid adults migrating upstream to spawn and for juveniles migrating downstream. There is a popular recreational fishery for sturgeon and anadromous salmonids, particularly spring Chinook salmon, in the Willamette and Columbia Rivers near the Ramsey Lake site. The rivers also provide angling opportunities for a variety of warmwater game fish.

No unique or endangered aquatic species have been identified as occurring in the vicinity of the Ramsey Lake site.

Aquatic habitat in the Columbia Slough adjacent to the Ramsey Lake site is not unique to the area. Similar or better quality habitat occurs nearby. The slough near the site provides bank anglers easy access to a warmwater fishery.

Wildlife Habitat. The potentially occurring wildlife species onsite include a total of 6 species of amphibians, 6 reptiles, 82 birds, and 31 mammals. However, the site does not provide valuable or unique habitat. Many species occur seasonally on the site. During field visits to the site in December 1986 and January 1987, a total of 25 wildlife species were observed at the Ramsey Lake site. These 25 species were all birds, predominantly perching birds (11 species), ducks (4 species), and diurnal raptors (4 species).

The Ramsey Lake site contains wildlife habitat which could potentially support several species of large avian predators, or raptors. Potentially occurring raptors may be subdivided into four groups: large hawks (including the bald eagle), smaller accipiter hawks, falcons, and owls.

Bald eagle, rough-legged hawk, red-tailed hawk, and northern harrier forage primarily in the open areas and, except for the northern harrier, rely heavily on tall trees at the edges of these areas for roosting and ambushing prey. Rough-legged hawks migrate through the area in fall and spring and may stay for extended periods through the winter if the habitat is suitable. The red-tailed hawk is the most common large raptor in the region, and is very likely to occur year-round on the site, nesting in the tall cottonwood trees along Columbia Slough. The northern harrier is a common winter resident of lowland marshy wetlands and was also observed on the site in December 1986 and January 1987. This species typically forages by soaring within 10 feet of the ground. It does not rely on perches for its foraging activities, but will use a low perch for roosting.

Two species of accipiter hawks, the Cooper's hawk and the sharp-shinned hawk, occur on the site. Both species are more closely associated with woodland habitats than are the larger hawks.

The American kestrel, a very common small falcon of open fields and grasslands, was observed during site visits. It finds suitable foraging habitat in the sparsely vegetated dredge spoil areas that cover a large proportion of the site.

Two nocturnal avian predators potentially occur on the site. The great horned owl is by far the most common large owl in the region and is very likely to occur year-round and could breed on the site. It will forage wherever adequate perches

are available. The western screech owl, being considerably smaller than the great horned owl, can use much smaller willow trees as perches and is, therefore, probably an effective predator over more of the site than is the great horned owl. Both species could roost and nest in the dense willow woodland to the southeast of the site.

The open water habitats of the Ramsey Lake site, although not extensive, provide habitat for many species of waterfowl, including grebes, cormorants, ducks, and herons. In addition, the extensive areas of open water and wetlands in the Smith and Bybee Lakes area to the east and the Sauvie Island area to the northwest provide an extraordinarily rich potential for waterfowl.

Eleven species of ducks and geese are likely to use the site (to varying extents). Most of these are winter visitors to the region, but a few (mallard, green-winged teal, cinnamon teal, wood duck, and hooded merganser) are potential year-round residents and breeders. The Canada goose is also a year-round resident and is known to breed in the Smith and Bybee Lakes area to the east. Although Canada geese may occasionally use the Ramsey Lake site, there does not appear to be sufficient habitat there to support their breeding or foraging.

Two species of herons can also be expected to use the site. The great blue heron is a common species in the area and is known to breed in an established, permanent colony at Delta Park, a few miles to the east. Green-backed herons are less common, but they were observed during the previous year at Bybee Lake in willow swamp habitat similar to that which occurs on the Ramsey Lake site. They are potential breeders in the immediate vicinity of the site if not on the site itself. Belted kingfishers can also be expected to use the open water areas of the site.

In addition to waterfowl, the various wetland habitats of the Ramsey Lake site provide habitat for many other wetland-associated species. The ponds with more permanent water provide breeding habitat for amphibians, such as the northwestern and long-toed salamanders, rough-skinned newt, Pacific treefrog, and bullfrog. The small pond between the willow woodland and the Columbia Slough appears to be suitable habitat for the western pond turtle and the painted turtle. Although these species were once common throughout the region, they have declined substantially in recent years. These are not known to occur on the site.

The open water areas on the site also provide habitat for several species of mammals. Beaver make use of the willow woodland and willow swamp areas, foraging on the bark of sapling trees at or near waterline. Nutria, an introduced species, is common in areas with water deep enough for them

to swim submerged. They feed on shoreline vegetation. Muskrat also make use of these areas and will forage on aquatic vegetation in the marshy areas. Otter and mink can be expected to use these areas.

The marshy areas of the site provide potential habitat for the sora, as well as for the Pacific water shrew and the Townsend vole.

Game Animals and Furbearers

Several species that may be expected to occur on the Ramsey Lake site are classified as game animals. These are the bullfrog, all ducks and geese, American coot, sora, ring-necked pheasant, and black-tailed deer. Several other species are listed as furbearers. These are beaver, mink, river otter, muskrat, and raccoon. Although hunting and trapping are prohibited on the Ramsey Lake site itself, ducks and geese are hunted extensively in the vicinity of the site, particularly on Sauvie Island. A significant number of beaver are also trapped in the region.

Threatened or Endangered Species

Peregrine falcon is designated as endangered by the U.S. Fish and Wildlife Service. The peregrine falcon, a rare species in the region, has been observed recently in urban northeast Portland and on Sauvie Island and is a potential, casual visitor to the site.

Bald Eagle is designated as threatened by the U.S. Fish and Wildlife Service. Bald eagles roost and nest in the Tualatin Mountains several miles northwest of the site. They typically make daily foraging excursions to the wetlands of Sauvie Island and vicinity. A bald eagle was sighted off-site from Ramsey Lake on January 2, 1987. They have been observed over Smith and Bybee Lakes in recent years. Suitable foraging habitat for bald eagle occurs at the Ramsey Lake site, and it is likely that they occasionally use the site.

The western pond turtle is on the Review List of the Oregon Natural Heritage Data Base. The western pond turtle was once a common species throughout the region, but it has declined in recent years and has apparently been extirpated from the Portland metropolitan area. However, the small pond between the willow woodland and the Columbia Slough appears to be suitable habitat. This species is not known to inhabit the site.

The tricolor blackbird is designated by the U.S. Fish and Wildlife Service as a Candidate for Endangered species status, and included in List 3, Limited in Abundance in Oregon or Throughout Range, by the Oregon Natural Heritage

Data Base. The tricolor blackbird is primarily adapted to the Central Valley of California, and only a few colonies have become established outside that area. The species has been declining in California in recent years. A colony was located at the St. Johns Landfill, but its habitat has been eliminated by recent landfill activities. The fate of this tricolored blackbird colony is uncertain. The tricolor blackbird is not known to exist onsite.

Willow flycatcher is designated as "sensitive" by the U.S. Fish and Wildlife Service. Breeding bird surveys conducted by that agency indicate a significant decline in population densities in the region. It was observed in the Smith and Bybee Lakes area in 1986 and prefers willow swamp habitat, which accounts for about 3 percent of the Ramsey Lake site.

The yellow warbler was noted as being a sensitive species by the Port of Portland (1986). This species was once listed by the U.S. Fish and Wildlife Service as sensitive, but was deleted on the basis of trends in Breeding Bird Survey data (USFWS, 1985). This species is not known to inhabit the site.

Potential Aquatic Habitat Conflicts. Approximately 10 percent of Ramsey Lake and associated aquatic habitat would be filled. Ramsey Lake appears to contain little, if any, permanent fisheries habitat that would provide a suitable environment for game species on a year-round basis. Flood control will prevent access of juvenile fish to Ramsey Lake. Any loss of habitat does not appear to be significant.

Offsite impacts to aquatic habitat and fisheries could occur if the site is not properly designed, constructed, and operated. Under normal operating conditions, no adverse impacts are expected. The conceptual plan for the design and operation of the site maximizes environmental conditions and affords effective protection for aquatic habitat and fisheries under expected and planned operating conditions. Measures to be implemented at the site to protect aquatic and fisheries habitat are:

- Construct separate sedimentation and leachate systems to control runoff
- Construct a perimeter surface water ditch to intercept runoff before it flows into the active fill area
- Construct a perimeter dike to prevent floodwaters from coming in contact with leachate or with disturbed onsite surface soils
- Install composite liner system beneath the landfill

- Install a leak detection system between the liners and monitor it regularly

- Intercept uncontaminated groundwater beneath the lower liner and convey it to the landfill perimeter

- Collect leachate, pretreat onsite, and convey to treatment facility

- Monitor surface and groundwater to detect any potential water quality impacts

Potential Wildlife Habitat Conflicts. The phased clearing of the site will eventually eliminate about 161 acres of sparsely vegetated fill, 107 acres of willow marsh wetland, and 3 acres of open water. The sparsely vegetated dredge fill is a highly disturbed habitat with little diversity. Locally, this disturbed, artificially created habitat is common in industrial development areas. The value to wildlife of these areas is low. The diversity of wildlife is low compared with similar areas offsite.

Most of the direct operational impacts of the landfill on wildlife are anticipated to be localized; however, the openness of the site and its close proximity and hydrological links with Columbia Slough and Smith and Bybee Lakes may discourage wildlife use in these wildlife areas.

To minimize impacts in the area, the following actions and programs will be implemented:

- Retain buffers and wetland areas on the east and south

- Obtain approval of wildlife and wetlands mitigation plans from resource agencies; mitigation strategies could include one or more of the following:

  - Seek acre-for-acre (or value-for-value) exchange and development of new wetlands areas nearby

  - Prepare and improve wetland habitat value through water quality enhancement projects in Columbia and North Sloughs and Ramsey, Smith, and Bybee Lakes

  - Reroute the effluent of existing combined sewer overflows that currently discharge to Columbia Slough directly to the Willamette River

- Reopen the original hydraulic connection between Bybee Lake and North Slough

- Construct a separation dike with a floodgate between Smith and Bybee Lakes

o A wildlife and wetland plan to protect the willow woodland southeast of the active landfill and other habitats will be developed and approved by resource agencies

o Final habitat restoration plans will be reviewed by the U.S. Fish and Wildlife Service and Oregon Department of Fish and Wildlife to ensure the closed landfill will be revegetated with plant species valuable to wildlife

Conclusion

The Commission finds that:

o No rare or endangered species will be adversely affected by landfill construction and operation

o Potential adverse impacts to fisheries and wildlife habitat will be minimized by implementation of the above measures

e. Ecologically and Scientifically Significant Areas

Most of the Ramsey Lake site and the adjacent area between the eastern site boundary and Columbia Slough has been filled with sandy dredge spoils. The only areas which show no indications of major recent filling are along the eastern side of the site--the lake itself and a grove of mixed black cottonwood and willow southeast of the lake. Even in those areas, the influence of human activity is present.

Several other water bodies are located near the site. Bybee Lake is just east of the Columbia Slough. Smith Lake is southeast of Bybee Lake. North Slough, an embayment that joins Columbia Slough, separates Bybee Lake from the St. Johns Landfill. Aquatic habitats near the site support permanent fisheries.

Measures to minimize impacts to these areas are included in the conceptual design and discussed in (d) (Fish and Wildlife Areas and Habitats).

Conclusion

The Commission finds that the site does not constitute an ecologically unique area and development as a landfill will not adversely affect adjacent habitats.

f. Outstanding Views and Sites

No outstanding scenic values or views are present at the site. The site is highly visible from surrounding areas. Unobstructed views of the site are possible from all sides. However, variations in landform, existing trees, and structures greatly reduce the actual visibility as view distance increases from the site. Views from North Marine Drive would be partially blocked by riparian trees along the Columbia Slough and Ramsey Lake. Views would be most severely affected along Lombard Street.

Measures taken to minimize visual impacts are listed in the Neighborhood Protection Plan and briefly summarized below:

- Buffer site perimeter
- Sequence and orient fill cells and floodlighting away from potential viewers
- Create perimeter berms within the landfill itself
- Plant mature trees around perimeter
- Cover landfill slopes with unmowed grass as the fill progresses

Conclusion

The Commission finds that establishing the site will not conflict with any scenic views or resources, and that the scenic provisions of Goal 5 have been met.

g. Water Areas, Wetlands, Watersheds, and Groundwater Resources

Surface water at the Ramsey Lake site includes Ramsey Lake, seasonally flooded lowland areas, and three storm drain discharges with their associated channels. Ramsey Lake is a shallow, open-water pond covering the lowest area in the eastern half of the proposed site.

Columbia Slough borders the site on the east, and Smith and Bybee Lakes are southeast of the site. The Willamette River to the west and the Columbia River to the northeast do not directly border the site, but they strongly influence the site's surface water hydrology.

Columbia Slough is a meandering side channel of the Columbia River system that empties into the Willamette River. Flow in the slough is governed by the rise and fall of the Willamette River.

Smith and Bybee Lakes are shallow, seasonally variable lakes. They are hydrologically connected to the Columbia and Willamette Rivers through surface channels and groundwater flow. Lake levels and surface area vary with the stage of the Columbia River.

Groundwater is present in all geologic units at the site. The site is a regional and intermediate discharge area, though there is localized downward hydraulic gradient. Groundwater in the upper alluvial unit and the dredged fill is essentially perched or mounded above the lower, permeable units.

The potential for significant downward migration of potential contaminants is low. Because the Columbia Slough is adjacent to the site, it likely acts as a hydrologic barrier or discharge point for much of the local recharge and associated shallow groundwater. Recharge to the upper alluvial unit is thought to be from direct infiltration of precipitation, surface water runoff, and from the perched groundwater in the overlying dredged hydraulic fill.

Groundwater and surface waters at the site will be protected by implementing the following measures:

Pollution Prevention

- Construct double composite liner with leachate collection system to prevent discharge to local surface and groundwaters
- Provide leak detection system between liners, and test it monthly
- Pretreat leachate onsite and discharge directly to City of Portland wastewater collection and treatment facilities
- Apply daily soil cover to minimize leachate production
- Use "close-as-you-fill" method to minimize surface water infiltration
- Install an impermeable synthetic membrane top cap to prevent infiltration and minimize leachate
- Separate noncontaminated surface water from water in contact with refuse in operating area

Pollution Prevention (continued)	o Construct sedimentation basins to prevent stream siltation
	o Direct offsite surface water away from landfill to minimize leachate production
	o Construct dike to prevent flood waters from intruding into landfill
	o Construct slurry wall to prevent groundwater infill
Ground and Surface Water Monitoring	o Inspect landfill regularly for evidence of seeps to minimize leachate in collection areas
	o Determine existing groundwater quality prior to construction, and install upgradient and downgradient monitoring wells around site perimeter
	o Establish surface water monitoring stations
	o Test ground and surface water quality, quarterly, after site operation begins.
	o Monitor leachate transmission line for leaks by using pressure-sensing devices; include automatic shutoff of leachate pumps if pressure drops
	o Establish a fund for water quality protection and special water quality enhancement projects from gate fees
	o Provide daily construction inspection by an experienced, independent third party during liner installation
	o Require half-time DEQ staff position to regularly inspect and monitor landfill operations
If Leaks Occur	o Initiate corrective measures, including liner repairs and/or collection system repairs
	o Increase monitoring program to better define problem

- o Extend affected domestic wells into deeper or other aquifers, if necessary
- o Connect affected domestic users to an alternate water supply system if necessary

Leachate Transmission

- o Use small noncorrosive pressure pipe
- o Bury pipe 4 to 6 feet deep
- o Install pressure monitoring system to detect leaks

About 42 percent of the site is wetland (186.1 acres). The only areas which are not obviously wetlands are the willow-cottonwood woodland along the higher bank of the slough and the sparsely vegetated filled areas. If the site were developed for landfill use, 113 acres of wetland on the site would be unavoidably filled. The Port of Portland currently holds a permit from the U.S. Army Corps of Engineers that would allow filling of the entire wetland area.

Wetlands, by covertype present onsite, include: shrub willow with sedges and rushes (19 percent); grass with shurb willow (8 percent); willow cottonwood (8 percent); open water with reed canarygrass and/or smartweed (6 percent); and cattail and reed canary grass with shrub willow (3 percent). The conceptual design for the site excludes 73 acres of site wetlands which are in open water and host the most developed wetland vegetation species.

Actions to mitigate the impact of filling wetlands at the site include the following:

Wildlife and Wetlands

- o Retain buffers and wetland areas on the east and south
- o Obtain approval of wildlife and wetlands mitigation plans from USFWS and ODFW
- o Review revegetation plans with USFWS and ODFW to maximize wildlife productivity
- o Where possible, seek acre-for-acre wetland replacement as potential mitigation alternative

- o Improve wetland habitat value through water quality enhancement projects in Columbia and North Sloughs and Ramsey, Smith, and Bybee Lakes; mitigation alternatives could include:
  - Operate a leachate collection system along North Slough
  - Reroute the effluent of existing combined sewer overflows from Columbia Slough directly to the Willamette River
  - Reopen the original hydraulic connection between Bybee Lake and North Slough
  - Construct a separation dike with a floodgate between Smith and Bybee Lakes
- o Develop remedial action plan for agency review and approval

Conclusion

The Commission finds that with the above measures, surface and groundwaters and wetlands can be protected and addressed in compliance with provisions of Goal 5.

h. Wilderness Areas

The site is not designated a Wilderness Area.

i. and j. Historic Areas, Sites, Structures, and Objects: Cultural Resources

Four archaeological sites, all outside the affected area, are located in the vicinity. All are situated along the slough on the eastern boundary of the site. Five sites are located immediately north and south of the project site along the slough. All sites are buried deeply below the ground.

No historic sites that are eligible for listing on the National Register were identified in the project area. A collapsed bridge, located south of Ramsey Lake, was found, but based on its condition, it does not appear to be a significant historic property.

If significant sites are identified within the affected area, a mitigation plan that is acceptable to the Oregon State Historic Preservation Office (SHPO) will need to be developed.

The Commission finds that historic and cultural resources will not be adversely affected by the proposed project, and that Goal 5 provisions have been met.

k. Potential and Approved Oregon Recreation Trails

The east side of the slough adjacent to the proposed landfill site has been reserved for the "40 Mile Loop Trail." The 40 Mile Loop Trail is a linear system of trails and parks which will form a loop through Portland. The concept of this system was developed in 1903 and many of the pieces have been completed. The portion of the trail described here will link Kelly Point Park with North Marine Drive.

It is possible that a portion of the 50¢/ton neighborhood enhancement and rehabilitation fee apportioned to the community around the landfill site could be used to develop this proposed trail.

Conclusion

The Commission finds that the proposed project will meet Goal 5 provisions through implementation of a portion of a recognized recreational trail.

1. Potential and Approved Federal Wild and Scenic Waterways and State Scenic Waterways

No federal or state wild or scenic waterways are affected by the proposed project.

Conclusion

Goal 5 requirements have been met. The Feasibility Study Report addresses the potential economic, social, environmental, and energy consequences of the project. With the provisions of the NPP, Goal 5 resources will be protected.

GOAL 6: AIR, WATER, AND LAND RESOURCES QUALITY

"To maintain and improve the quality of air, water, and land resources of the state."

Air Quality

The site is located in the Portland-Vancouver Interstate Air Quality Maintenance Area (AQMA). The site is located in an attainment area for all criteria air pollutants except ozone. The entire AQMA is designated as a nonattainment area for ozone (a nonattainment area is a designated area that does not meet ambient air quality standards).

The site is also located less than 1 kilometer north of an annual particulate nonattainment area and about 3 kilometers north of a 24-hour particulate nonattainment area.

Industrial facilities and landfill activities around the proposed site are existing sources of odor emissions. St. Johns Landfill is the source with the most odor.

Air pollutants primarily associated with operation of the proposed landfill include particulates, air toxics, and odors. Other pollutants (carbon monoxide, nitrogen oxides, sulfur oxides) will be emitted from vehicle exhausts. Exhaust emission from vehicles operating onsite will not have significant air quality impacts.

Air toxics will be created by the release of landfill gas and by aeration of untreated leachate. Air toxics will be controlled by burning collected landfill gas in enclosed combustion units and by covering aeration basins and filtering air emissions through an activated charcoal filter.

Three primary odor sources at the site are garbage filling, landfill gas, and leachate. Specific measures are included in the Neighborhood Protection Plan to control odors. Even with these measures, odors will be occasionally detected offsite.

The following measures have been incorporated into landfill design and operations:

Potential Air Quality Impacts	Neighborhood Protection Plan Features
Odors from Garbage	o Provide daily cover
	o Seal surface cracks
	o Confine unloading areas to smallest possible area

	o Use alternative technologies to produce more inert materials and reduce volume of solid waste
Odors from Leachate	o Eliminate surface pools and seeps
	o Cover pretreatment aeration basins and use charcoal filtering system
	o Discharge directly to sewer system
Landfill Gas Odors and Air Toxics	o Construct gas control and collection system
	o Provide daily soil cover
	o Cover pretreatment aeration basin and utilize charcoal filtering system
	o Utilize closed combustion systems with tall stacks and high combustion efficiencies
	o Use more inert materials from alternative technology
	o Maintain a secondary source of fuel onsite for combustion units to ensure continued operation
Dust and Exhaust	o Restrict traffic to transfer trucks only
	o Pave site access, entrance, and access roads, and clean regularly
	o Spray access road and preload areas frequently (at least twice daily) during dry months
	o Prevent mud and dirt trackout from site (wheel wash)
	o Spray water during daily cover
	o Utilize exhaust control devices on trucks and landfill equipment to minimize emissions
	o Reduce preload earth quantities to minimum acceptable for settlement

With respect to air quality, the Commission finds that:

- o No secondary air quality standards will be violated
- o The proposed NPP measures will protect long-term air quality
- o The project does not threaten the availability of air quality resources
- o The project will not violate federal or state ambient air quality standards

Water Quality

Water quality and water resources are specifically addressed in Goal 5 (Natural Resources).

Land Resources

The proposal does not violate any environmental statutes that affect land resources. Other land resource issues are addressed in other goals.

Noise

Transfer trucks, construction and preloading activities, and landfill operations will all create noise. Noise levels at the site vary widely and are influenced by the proximity to other industrial developments and aircraft noise.

The primary noise sources at the landfill will be the heavy equipment, such as bulldozers, compactors, scrapers, and graders. Transfer trucks and preload trucks will also contribute to the noise generated at the site.

With proposed measures outlined in the NPP (below), State noise standards will not be exceeded. To minimize the potential effects of noise in the area, the following specific measures are included in the landfill design and operations plan:

Potential Noise Impacts	Neighborhood Protection Plan Features
Trucks	o Restrict traffic to transfer trucks, special loads, and service and employee vehicles only (no commercial or self-haul vehicles)
	o Truck access will be prohibited from 10:00 p.m. to 7:00 a.m.
	o Use exhaust mufflers and other available noise suppression on trucks and landfill equipment

	o Specify and enforce noise performance standards through inspections
	o Reroute traffic away from residences to the extent possible by designating Marine Drive as access route
Landfill Equipment and Operations	o Construct first cell of each lift around site perimeter to provide berm
	o Use exhaust mufflers on landfill equipment
	o Enclose noise sources such as pumps and blowers
	o Enclose diesel generators in buildings with acoustic louvers
Construction and Preloading	o Prohibit activities at night and on weekends
	o Utilize preload materials for selective berming
	o Establish a complaint procedure for receiving and acting on noise complaints

Several other elements have been incorporated into the NPP to minimize, to the extent possible, impacts on the surrounding area. Measures to reduce traffic conflicts, minimize visual impacts, control litter, and to minimize air quality impacts are discussed above and in other goals.

Conclusion

The Commission finds that Goal 6 requirements have been met and that:

- The proposed landfill will not exceed the carrying capacity of air, water, and land resources
- Implementation of the NPP will prevent degradation of such resources
- The availability of these resources is not threatened by implementation of the project
- No state or federal environmental quality statutes, rules, or standards will be violated

GOAL 7: AREAS SUBJECT TO NATURAL DISASTERS AND HAZARDS

> "To protect life and property from natural disasters and hazards."

Goal 7 addresses natural hazards such as stream flooding, erosion, landslides, earthquakes, weak foundation soils, and fires. Each of these areas is addressed below.

Flood Potential

Approximately 50 percent of the site lies within the 100-year floodplain of the Columbia River. The western portion of the site has been filled with dredged material and is largely above the 100-year flood plain (elevation 27.3 feet mean sea level (msl). Much of the site lies below elevation 15 msl and is flooded whenever the level of the Columbia River exceeds this level. Flood levels are most likely to occur during the winter months. Control of the flow of the Columbia River by dams and levees has significantly reduced the incidence of high river levels in the past 10 years.

Measures to protect groundwater and surface water resources are addressed in Goal 5. Specific measures to protect the site and surrounding area from flooding include the following:

- Construct sedimentation basins and detention ponds to prevent increased runoff during heavy storms
- Divert existing storm drains around the site perimeter
- Construct a perimeter dike to prevent floodwaters from entering the site
- Construct a slurry wall to prevent groundwater infiltration into the site

The Commission finds that the proposed Neighborhood Protection Plan measures will prevent flooding hazards and meet the provisions of Goal 7.

Geology and Soils

Dredged hydraulic fill has been placed over most of the site to raise the ground level above the 100-year flood plain. These dredged fill deposits are relatively uniform, medium- to coarse-grained sands, but may vary depending on the source of the material.

The upper alluvial unit consists of silt, clay, and fine sand. The predominant soil type is fine, sandy silt. The

upper 10 to 20 feet of this unit contains abundant organic debris, including large wood fragments. There are no mineral resources onsite that would be impacted. Preload material is readily available in the Longview-Kelso area.

The site is very flat. There are no landslide hazards onsite.

Earthquake potential in the area is low. The site will be designed to accommodate earth movement.

The Commission finds that:

- There will be no adverse impacts to mineral resources
- Suitable soils can be obtained for preloading and daily and final cover
- Measures incorporated into the Neighborhood Protection Plan will minimize potential harm from natural hazards

Fire Protection

There are several activities that could increase potential fire hazards. The first is transporting refuse. Transfer vehicles might cause fires either on roads leading to the site or at the site itself. The trucks could emit sparks or hot gases from the exhaust system.

Second, equipment (tractors used to clear and fill the landfill site) might cause fires that could spread to adjacent areas. The fires could be caused by any of the same reasons listed for the hauling trucks.

Third, the refuse itself might contain highly flammable materials, or materials which are smoldering could be deposited at the landfill site. It is unlikely this will occur because all waste will pass through transfer stations prior to disposal.

Last, landfill gas combustion (if not properly controlled) could present a fire hazard. Gas combustion will continue for many years after the last refuse has been placed.

The Neighborhood Protection Plan incorporates the following measures to reduce fire risks:

- Inspect refuse at transfer stations to screen out hot loads
- Prohibit public access to landfills

- Require spark arresters on all transfer vehicles and landfill equipment
- Train transfer vehicle drivers and landfill equipment operators in landfill fire suppression techniques
- Prohibit smoking at landfill
- Construct gas collection and combustion system
- Maintain tight top seal to prevent air intrusion to landfill
- Require daily soil cover
- Provide fire extinguishers on all transfer vehicles and landfill equipment
- Provide a reliable and accessible onsite water supply and water truck
- Equip transfer vehicles and landfill equipment with radios and/or mobile telephones

Conclusion

The Commission finds that Goal 7 concerns have been adequately addressed in the Neighborhood Protection Plan and that:

- Potential flooding will be controlled
- Measures incorporated into project design and operations minimize potential impacts from natural hazards
- Fire protection and suppression measures have been considered and will be incorporated into the operations plan

GOAL 8: RECREATIONAL NEEDS

> "To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts."

Kelly Point Park, located one-half mile north of the site, is a major regional recreation facility. The park is used most frequently in spring and summer, but receives some visitors year-round.

Smith and Bybee Lakes are also significant areas for hunting and fishing use. Both areas are located within several hundred yards of the landfill site.

The Columbia Slough, adjacent to the site, also is used extensively by recreationists for swimming, fishing, hunting, canoeing, and other activities.

The Port of Portland and City of Portland jointly propose to develop portions of the 40-mile loop trail in the site vicinity. The precise location of the trail is not yet identified, but would likely be adjacent to Columbia Slough, terminating in Kelly Point Park.

The St. Johns Landfill is estimated to close in 1991. Proposed end uses at the landfill include an archery range, model plane area, running trail, boat launch ramp, recreation vehicle park, picnic area, and other passive recreation uses.

Recreationists in the immediate area would detect odors regularly, especially during summer months when the predominant wind direction is from the north-northwest. Specific measures to control odors from various sources are addressed in Goal 5 (Air, Water, and Land Resources). In addition, measures to reduce traffic conflicts, minimize noise, reduce visual impacts, and minimize air quality effects are discussed in other goals. Among others, the following features are incorporated into the NPP:

- Provide landscaping and visual screening along Columbia Slough and North Lombard
- Improve water quality in the vicinity through habitat mitigation

Conclusion

The Commission finds that:

- The site will be available for potential recreational uses in the long term (after closure)
- The provisions of Goal 8 have been met

GOAL 9: ECONOMY OF THE STATE

"To diversify and improve the economy of the state."

Background

A September 1986, "Vacant Industrial Land Inventory" prepared by The Metropolitan Services District (Metro) indicates that there are 19,070 acres of land potentially available for light and heavy industrial use in the metropolitan region. Just over half, or 8,502 acres, are parcels of 30 acres or larger and are not committed to end users. Of this amount, 3,038 acres are developable with no constraints. Constraints to the development of the remaining 5,464-acre inventory include impediments such as lack of sewers within 1,000 feet, necessary zone changes, site characteristics, etc.

According to a report prepared by the Port of Portland, within the metropolitan region 1,484 acres of the uncommitted and unconstrained inventory are designated for heavy industrial use; 777 acres are within the City of Portland. The Columbia Corridor is the subregion in the metropolitan area with the largest supply of vacant industrial land with 3,237 acres--746 of which are available for immediate development. No distinction is made between the portion of this inventory that is suitable for light or heavy industrial use.

Ramsey Lake is located within the City of Portland in the Rivergate Industrial District. With its 450-acre size, proximity to a variety of transportation networks, heavy industrial zoning, and available infrastructure, Ramsey Lake is a significant part of the current inventory of heavy industrial land, representing over 50 percent of the City of Portland inventory and approximately 25 percent of the regional inventory.

Types of development suited to the Ramsey Lake site include industries involved in: specialty chemicals, specialty materials, food processing, and distribution. Industries such as recycling, pharmaceutical processing, monofilament plants, automobile manufacturing, and lumber reloading could also be attracted to the Rivergate Industrial District.

A July 1985 population and employment forecast by Metro projected that metropolitan area growth and employment will be based on the research and development-based electronics industry, the transportation equipment and fabricated metals industries, and the continued growth of the service and trade sectors. Many of the heavy industrial land users well suited to Rivergate are projected to experience slow growth in the metropolitan area through 2005.

The rate of industrial development (light and heavy industrial) in the Rivergate area has varied from year to year, ranging from zero to 232.2 acres a year. The average development rate for the 24-year period from 1963 to 1986 is 26.5 acres per year. From 1980 to 1986, development has averaged 22 acres per year.

Should Rivergate industrial development occur at a rate similar to that experienced during 1963 to 1986, approximately 397 additional acres would be developed in the next 15 years. At this rate, full development of the 741 available acres would occur in approximately 28 years, or by 2015. Regionally, the Metro report projects that 6,538 acres will be needed to meet the growth of this area through 2005.

Impacts

Development of Ramsey Lake as a solid waste disposal facility to serve the Portland metropolitan region for 15 to 22 years will have both short-term and long-term economic impacts. Short-term impacts include a reduction of available industrial land; alteration of aesthetic characteristics of the area; and disruption of current economic development--marketing and recruitment efforts by the Port of Portland and others. The significance of these impacts is lessened, however, by the fact that growth and development of an industrial area occur over long periods of time. In addition, portions of Rivergate and other areas within the City and region would remain readily available for industrial development.

Long-term or future impacts, given full development of the site for heavy industrial use, entail direct loss of approximately 3,285 jobs (at 7.3 jobs per developed acre; indirect jobs would be additional) resulting in payroll losses of $70,000,000 annually; and loss of state and local government tax revenue from future development. This potential impact, even assuming the site would have otherwise been fully developed, could be substantially reduced by the addition of other heavy industrial land to the City and regional inventory. The City of Portland has a long-term program to develop 6,000 acres of industrial land in the Columbia Corridor. Approximately 700 acres of that total is on West Hayden Island and is specifically planned for marine industrial use.

Less quantifiable long-term impacts include alteration of the development patterns of the Rivergate Industrial District; potential dampening of Oregon's "Open for Business" image; and loss of development opportunities from businesses choosing to expand or locate in other regions because of the displacement of industrial land by landfilling at this site.

Balanced against the desire to preserve Oregon's industrial lands is the need to consider the environmental and economic necessity of providing an appropriately sized and environmentally suitable solid waste disposal facility to serve the current and future demands of the metropolitan region. The uncommon authority granted to the DEQ and EQC in Senate Bill 662, to locate and establish a landfill site, came out of a recognition of the imminent disposal crisis which threatens this region within 3 years if no replacement for the near-capacity St. Johns facility is developed. Without additional landfill capacity the region will be presented with a serious health and environmental crisis which would affect every residential and commercial solid waste generator and severely constrain future economic development activity and growth. Despite the lack of popularity of landfills, appropriate and available waste disposal is a critical factor in the determination of the capacity of a region to support increased economic growth and development.

The alternative to landfill siting at this location is to construct a new solid waste facility elsewhere. The Ramsey Lake site has been determined to be an environmentally suitable landfill site for the tri-county area. Development of other sites considered in the siting process may result in fewer adverse economic impacts to the city and region, but may be accomplished at a greater potential environmental cost to the region.

Mitigation

The operations and development plan includes a significant feature designed to offset some of the adverse economic impact of this proposed development. Under a scenario to utilize a portion of the site for ash disposal, 118 acres of the west side of the site (adjacent to North Lombard Avenue) would be filled with ash and residue from an alternative technology facility and returned for selected commercial and industrial development upon closure of the landfill (approximately 22 years). Conditions on development in this area would include an assurance that environmental control systems would not be disrupted. A conservative estimate is that the net long-term displacement of industrial land under the ash-filling scenario would be 332 acres (268 of which would have been utilized for active landfilling). Assessment of the potential utility of the Ramsey Lake site should also consider that even when developed by the Port for industrial use, 30 acres and more will be excluded from development to allow for enhancement and protection of significant onsite wetlands.

The NPP includes measures which address some of the economic impacts of landfill development. The loss of a large tract

of heavy industrial land from the resource base cannot, however, be totally mitigated. Specific NPP features include:

- Restricting access to transfer vehicles only, and requiring Marine Drive to be used as the designated route.

- Providing berms and screening to obscure and soften the visual impacts to adjacent land uses.

- Minimizing odors by directing landfill leachate directly to the City of Portland Treatment Facility and, at a minimum, flaring of landfill gases in closed combustion chambers.

- Requiring daily cover of refuse to reduce attraction of the site to vectors, reduce scattering of debris, and limit odors.

- Minimizing noise by limiting hours of operation and requiring noise muffling equipment on landfill and transfer vehicles.

- Providing facilities for collection and use of landfill gas in local industries.

- Minimizing litter by requiring daily cover of the active landfill area and employing litter patrols along the access route to the site.

Conclusion

Based on the above, the Commission finds that:

- There is an imminent public health and environmental need requiring development of a new landfill to replace the St. Johns facility, which will reach capacity in 1991.

- Alternative sites have been examined by the DEQ against established criteria and the proposed site represents an environmentally sound and economically feasible alternative.

- Environmental, energy, social, and economic consequences of developing the site as a landfill have been considered in the Feasibility Report.

- Given the demonstrated public need to be met by this project, the standards of design and operation developed to offset impacts of landfilling at this location, and the availability of other industrial lands within the region, the requirements of Goal 9 have been met.

GOAL 10: HOUSING

> "To provide for the housing needs of the citizens of the state."

Landfill development and operation will not reduce available housing or buildable lands in the vicinity of the Ramsey Lake site.

Conclusion

The Goal 10 requirement has been met. Landfill development and operation will not result in long-term removal of significant housing or buildable lands inventory.

GOAL 11: PUBLIC FACILITIES AND SERVICES

> "To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."

Goal 11 does not directly apply to state agency actions. It calls on local governments to "plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development." Affected local governments have failed in their attempts to provide adequate solid waste disposal sites in a timely and orderly fashion. The 1985 legislature, declaring an emergency, required this commission to select a solid waste disposal site because of that failure.

Water

The City of Portland provides water for potable needs and storage for fire protection. The amount of water used on-site will be minimal.

Sewerage

Onsite sanitary sewerage will flow to the leachate pretreatment system, and be discharged through a sanitary sewerline to the Columbia Boulevard wastewater treatment plant for final treatment. The treatment plant has sufficient capacity to treat effluent generated at the site.

Natural Gas, Electricity, and Communications

Electricity is required for lights, support facilities, leachate pretreatment facilities, pumps, and water supply. Electrical service would be extended along Lombard. Electrical demands are not extensive and will not affect the existing electrical supply system. An emergency electrical generation system will be provided onsite for critical mechanical equipment and support facilities.

Schools

Schools will not be affected by the proposed project.

Security

The proposed landfill will be served by the City of Portland. Onsite security will be provided. A landfill security guard will be at the site full time, and will regularly inspect the landfill area and site perimeter.

Fire Protection

Fire protection measures are addressed in Goal 7.

Solid Waste

People in the Tri-County area generate about one million tons of waste annually. About 21 percent of this waste is currently recycled, and the rest is buried in the St. Johns Landfill in North Portland. The St. Johns landfill is scheduled to reach capacity by 1991. A new Landfill must be found to take its place to provide timely, orderly, and efficient services.

Almost half of what is now being buried could be reused or recycled. The Metropolitan Service District (Metro) is implementing a solid waste reduction program based on alternatives to landfilling. But even with an aggressive recycling program and new technology to process garbage, a landfill is still needed.

Conclusions

The Commission finds that:

- The St. Johns Landfill will reach capacity by 1991, and a new landfill is required.
- The landfill will not significantly impact the timely and efficient delivery of public services and facilities in the area.

GOAL 12: TRANSPORTATION

"To provide and encourage a safe, convenient and economic transportation system."

Access to the site is via two major routes--Marine Drive and North Columbia/North Lombard. The site access via Marine Drive is 5.7 miles west of I-5. Site access via Columbia Boulevard is 7.1 miles west of I-5.

ODOT has scheduled reconstruction improvements for the I-5/ North Marine Drive interchange beginning in 1988. Scheduled completion is in 1990. Marine Drive would also be widened and realigned.

The Neighborhood Protection Plan includes the measures outlined below:

- Construct a sheltered left-turn lane on Marine Drive for vehicles desiring to turn into the site access drive.
- Provide a large turning radius for vehicles desiring to turn right into the site from Marine Drive.
- Align the site driveway with Marine Drive to form a 90-degree intersection to improve safety.
- Provide an acceleration lane on Marine Drive for vehicles turning right from the site access.
- Designate North Marine Drive as the site access route for all trucks.
- Reduce the number of trucks accessing the site by restricting vehicle type.

Conclusion

The Commission finds that the provisions of Goal 12 have been met through implementation of the Neighborhood Protection Plan.

GOAL 13: ENERGY CONSERVATION

"To conserve energy."

Energy is consumed in two primary areas of landfill operations: the waste collection system and the onsite filling operations. The solid waste collection and disposal system in Portland currently uses approximately 11 million gallons of fuel annually. It is estimated that by switching from the two existing disposal points (St. Johns and CTRC) to the three planned transfer points (what they are), annual fuel requirements of the regional collection system will be reduced by 2.5 percent, or about 280,000 gallons of fuel per year. This estimate does not include the fuel consumed by the proposed transfer vehicles.

Assuming no alternative technology, the predicted onsite fuel use during the expected site life would be about 0.57×10^{12} Btu's. This is based on an estimated use of 330,000 gallons per year of fuel for landfilling equipment.

A landfill gas collection system will be installed at the site, and will recover an estimated 22.8×10^{12} Btu's over the life of the collection system. Landfill gas has about one-half of the heating value of pipeline gas.

Energy consumed by refuse transfer vehicles traveling from the three transfer station sites to the proposed landfill site would be approximately 49.7 million gallons, or about 6.9×10^{12} Btu's over the landfill life.

These site operations could result in an overall positive or negative energy balance, depending on the use made of the available landfill gas. The amount of net energy available over the life of the system, if all of the gas is used, is equivalent to the energy in about 402 million gallons of diesel fuel.

The landfill gas produced is a valuable energy source. Markets for the gas will be investigated during landfill design. Should gasoline prices escalate substantially in the future, markets may become more economically viable.

Conclusion

The Commission finds that:

- The proposed landfill is potentially a net energy generator, assuming markets can be found for landfill gas reuse.
- Proposed recycling and reuse plans now underway are consistent with the energy conservation goal.

GOAL 14. URBANIZATION

"To provide for an orderly and efficient transition from rural to urban land use."

The site lies within an established urban growth boundary within established city limits, with developed services and facilities.

Conclusion

Goal 14 provisions have been met.

GOAL 15: WILLAMETTE RIVER GREENWAY

"To protect, conserve, and maintain the natural, scenic, historical, agricultural, economic, and recreational qualities of lands along the Willamette River as the Willamette River Greenway."

Conclusion

Goal 15 is not applicable to the disposal site siting process under SB 662 because the Ramsey Lake site is not comprised of lands subject to Goal 15 provisions.

GOAL 16: ESTAURINE RESOURCES

> "To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and to protect, maintain and, where appropriate, restore the long-term environmental, economic, and social values, diversity, and benefits of Oregon's estuaries."

Conclusion

Goal 16 is not applicable to the disposal site siting process under SB 662 because the Ramsey Lake site is not comprised of lands subject to Goal 16 requirements.

GOAL 17: COASTAL SHORELANDS

"To conserve, protect, where appropriate, develop and, where appropriate, restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources, and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and

to reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat resulting from the use and enjoyment of Oregon's coastal shorelands."

Conclusion

Goal 17 is not applicable to the disposal site siting process under SB 662 because the Ramsey Lake site is not comprised of lands subject to Goal 17 provisions.

GOAL 18: BEACHES AND DUNES

> "To conserve, protect, where appropriate develop and, where appropriate, restore the resources and benefits of coastal beach and dune areas; and to reduce the hazard to human life and property from natural or man-induced actions associated with these areas."

Conclusion

Goal 18 is not applicable to the disposal site siting process under SB 662 because the Ramsey Lake site is not comprised of lands subject to Goal 18 provisions.

GOAL 19: OCEAN RESOURCES

"To conserve the long-term values, benefits, and natural resources of the nearshore ocean and the continental shelf."

All local, state, and federal plans, policies, projects, and activities which affect the territorial sea shall be developed, managed, and conducted to maintain and, where appropriate, enhance and restore, the long-term benefits derived from the nearshore oceanic resources of Oregon. Since renewable ocean resources and uses, such as food production, water quality, navigation, recreation, and aesthetic enjoyment, will provide greater long-term benefits than will nonrenewable resources, such plans and activities shall give clear priority to the proper management and protection of renewable resources."

Conclusion

Goal 19 is not applicable to the disposal site siting process under SB 662 because the Ramsey Lake site is not comprised of lands subject to Goal 19 provisions.

ATTACHMENT A

63rd OREGON LEGISLATIVE ASSEMBLY–1985 Regular Session

Enrolled

Senate Bill 662

Sponsored by COMMITTEE ON GOVERNMENT OPERATIONS AND ELECTIONS (at the request of Representative Mike Burton)

CHAPTER 679

AN ACT

Relating to solid waste disposal; appropriating money; and declaring an emergency.

Be It Enacted by the People of the State of Oregon:

SECTION 1. Sections 2 to 9 of this Act are added to and made a part of ORS 459.005 to 459.285.

SECTION 2. (1) The Legislative Assembly finds that the siting and establishment of a disposal site for the disposal of solid waste within or for Clackamas, Multnomah and Washington Counties is necessary to protect the health, safety and welfare of the residents of those counties.

(2) It is the intent of the Legislative Assembly that the Environmental Quality Commission and Department of Environmental Quality, in locating and establishing a disposal site within Clackamas, Multnomah and Washington Counties give due consideration to:

(a) Except as provided in subsections (3) and (4) of section 5 of this 1985 Act, the state-wide planning goals adopted under ORS 197.005 to 197.430 and the acknowledged comprehensive plans and land use regulations of affected counties.

(b) Information received during consultation with local governments.

(c) Information received from public comment and hearings.

(d) Any other factors the commission or department considers relevant.

SECTION 3. (1) The Department of Environmental Quality shall conduct a study, including a survey of possible and appropriate sites, to determine the preferred and appropriate disposal sites for disposal of solid waste within or for Clackamas, Multnomah and Washington Counties.

(2) The study required under this section shall be completed not later than July 1, 1986. Upon completion of the study, the department shall recommend to the commission preferred locations for disposal sites within or for Clackamas, Multnomah and Washington Counties. The department may recommend a location for a disposal site that is outside those three counties, but only if the city or county that has jurisdiction over the site approves the site and the method of solid waste disposal recommended for the site. The recommendation of preferred locations for disposal sites under this subsection shall be made not later than January 1, 1987.

SECTION 4. (1) Subject to subsections (3) and (4) of section 5 of this 1985 Act, the Environmental Quality Commission may locate and order the establishment of a disposal site under this 1985 Act in any area, including an area of forest land designated for protection under the state-wide planning goals, in which the commission finds that the following conditions exist:

(a) The disposal site will comply with applicable state statutes, rules of the commission and applicable federal regulations;

(b) The size of the disposal site is sufficiently large to allow buffering for mitigation of any adverse effects by natural or artificial barriers;

(c) Projected traffic will not significantly contribute to dangerous intersections or traffic congestion, considering road design capacities, existing and projected traffic counts, speed limits and number of turning points;

(d) Facilities necessary to serve the disposal site can be available or planned for the area; and

(e) The proposed disposal site is designed and operated to the extent practicable so as to mitigate conflicts with surrounding uses. Such conflicts with surrounding uses may include, but are not limited to:

(A) Visual appearance, including lighting and surrounding property.

(B) Site screening.

(C) Odors.

(D) Safety and security risks.

(E) Noise levels.

(F) Dust and other air pollution.

(G) Bird and vector problems.

(H) Damage to fish and wildlife habitats.

(2) When appropriate, the conditions listed in this section may be satisfied by a written agreement between the Department of Environmental Quality and the appropriate government agency under which the agency agrees to provide facilities as necessary to prevent impermissible conflict with surrounding uses. If such an agreement is relied on to satisfy any approval criteria, a condition shall be imposed to guarantee the performance of the actions specified.

SECTION 5. (1) The commission, not later than July 1, 1987, shall issue an order directing the Department of Environmental Quality to establish a disposal site under this 1985 Act within Clackamas, Multnomah or Washington County or, subject to subsection (2) of section 3 of this 1985 Act, within another county.

(2) In selecting a disposal site under this section, the commission shall review the study conducted under section 3 of this 1985 Act and the locations for disposal sites recommended by the department under section 3 of this 1985 Act.

(3)(a) When findings are issued by the department under subsection (4) of this section, the commission in selecting a disposal site under this 1985 Act must comply with the state-wide planning goals adopted under ORS 197.005 to 197.430 and with the acknowledged comprehensive plan and land use regulations of the local government unit with jurisdiction over the area in which the disposal site is located.

(b) However, when findings are not issued under subsection (4) of this section, the standards established by section 4 of this 1985 Act take precedence over provisions in the comprehensive plan or land use regulations of the affected local government unit, and the commission may select a disposal site in accordance with those standards instead of, and without regard to, any provisions for locating and establishing disposal sites that are contained in the comprehensive plan or land use regulations of the affected local government unit. Any provision in a comprehensive plan or land use regulation that prevents the location and establishment of a disposal site that can be located and established under the standards set forth in section 4 of this 1985 Act shall not apply to the selection of a disposal site under this 1985 Act.

(4) The department, not later than July 1, 1986, may determine whether the acknowledged comprehensive plans and land use regulations of the counties in which possible disposal sites being considered by the department are situated contain standards for determining the location of land disposal sites that are identical to or consistent with the standards specified in section 4 of this 1985 Act. If the standards contained in the comprehensive plan and land use regulations of a county are identical to or consistent with the standards specified in section 4 of this 1985 Act, the department may issue written findings to that effect and shall submit the findings to the commission.

(5) When selecting a disposal site under this 1985 Act, the commission may attach limitations or conditions to the development, operation or maintenance of the disposal site, including but not limited to, setbacks, screening and landscaping, off-street parking and loading, access, performance bonds, noise or illumination controls, structure height and location limits, construction standards and periods of operation.

(6) If the Environmental Quality Commission directs the Department of Environmental Quality to establish or complete the establishment of a disposal site under this section, the department shall establish the site subject only to the approval of the commission. Notwithstanding any other provision of this 1985 Act or any city, county or other local government charter or ordinance to the contrary, the Department of Environmental Quality may establish a disposal site under this section without obtaining any license, permit, franchise or other form of approval from a local government unit.

(7) The department shall identify conflicts with surrounding uses for any disposal site established under this 1985 Act and, to the extent practicable, shall mitigate or require the operator of the site to mitigate those conflicts.

SECTION 6. (1) Notwithstanding ORS 183.400, 183.482, 183.484 and 197.825, exclusive jurisdiction for review of any decision made by the Environmental Quality Commission under this 1985 Act relating to the establishment or siting of a disposal site, any order to the Department of Environmental Quality to establish or complete such a site or any findings made by the department under section 5 of this 1985 Act is conferred upon the Supreme Court.

(2) Proceedings for review shall be instituted when any person adversely affected or aggrieved by the order of the commission files a petition with the Supreme Court. The petition shall be filed within 30 days following the date on which the order upon which the petition is based is served. The petition shall state the nature of the order or decision the petitioner desires reviewed and shall, by supporting affidavit, state the facts showing how the petitioner is adversely affected or aggrieved. Copies of the petition shall be served by registered or certified mail upon the commission. Within 30 days after service of the petition, the commission shall transmit to the Supreme Court the original or a certified copy of the entire record of the proceeding under review. Review under this section shall be confined to the record, and the court shall not substitute its judgment for that of the commission as to any issue of fact or agency discretion. Upon review, the Supreme Court may affirm, reverse or remand the order of the commission if the court finds that the order is not supported by substantial evidence in the record or is unconstitutional. Proceedings for review under this section shall be given priority over all other matters before the Supreme Court.

(3) Notwithstanding ORS 197.850, jurisdiction for judicial review of a final order of the Land Use Board of Appeals issued in any proceeding arising under this 1985 Act is conferred upon the Supreme Court. The procedure for judicial review of a final order under this subsection shall be as provided in subsection (2) of this section.

SECTION 7. (1) Subject to policy direction by the commission in carrying out sections 3 and 5 of this 1985 Act, the department may:

(a) By mutual agreement, return all or part of the responsibility for development of the site to a local government unit, or contract with a local government unit to establish the site.

(b) To the extent necessary, acquire by purchase, gift, grant or exercise of the power of eminent domain, real and personal property or any interest therein, including the property of public corporations or local government.

(c) Lease and dispose of real or personal property.

(d) At reasonable times and after reasonable notice, enter upon land to perform necessary surveys or tests.

(e) Acquire, modify, expand or build landfill or resource recovery site facilities.

(f) Subject to any limitations in ORS 468.195 to 468.260, use money from the Pollution Control Fund created in ORS 468.215 for the purposes of carrying out section 5 of this 1985 Act.

(g) Enter into contracts or other agreements with any local government unit or private person for the purposes stated in ORS 459.065 (1).

(h) Accept gifts, donations or contributions from any source to carry out the provisions of sections 3 and 5 of this 1985 Act.

(i) Establish a system of fees or user charges to reimburse the department for costs incurred under this 1985 Act and to allow repayment of moneys borrowed from the Pollution Control Fund.

(2) The metropolitan service district shall have the responsibility for the operation of the disposal sites established under this 1985 Act.

SECTION 8. (1) The metropolitan service district organized under ORS chapter 268 shall prepare a solid waste reduction program. Such program shall provide for:

(a) A commitment by the district to substantially reduce the volume of solid waste that would otherwise be disposed of in land disposal sites through techniques including, but not limited to, rate structures, source reduction, recycling, reuse and resource recovery;

(b) A timetable for implementing each portion of the solid waste reduction program;

(c) Energy efficient, cost-effective approaches for solid waste reduction that are legally, technically and economically feasible and that carry out the public policy described in ORS 459.015 (2); and

(d) Procedures commensurate with the type and volume of solid waste generated within the district.

(2) Not later than January 1, 1986, the metropolitan service district shall submit its solid waste reduction program to the Environmental Quality Commission for review and approval. The commission shall approve the program if the commission finds that:

(a) The proposed program presents effective and appropriate methods for reducing dependence on land disposal sites for disposal of solid wastes;

(b) The proposed program will substantially reduce the amount of solid waste that must be disposed of in land disposal sites;

(c) At least a part of the proposed program can be implemented immediately; and

(d) The proposed program is legally, technically and economically feasible under current conditions.

(3) After review of the solid waste reduction program, if the commission does not approve the program as submitted, the commission shall allow the metropolitan service district not more than 90 days in which to modify the program to meet the commission's objections.

(4) Notwithstanding ORS 268.310 (2) and 268.317, if the commission does not approve the solid waste reduction program submitted by the metropolitan service district after any period allowed for modification under subsection (3) of this section, all the duties, functions and powers of the metropolitan service district relating to solid waste disposal are imposed upon, transferred to and vested in the Department of Environmental Quality and no part of such duties, functions and powers shall remain in the metropolitan service district. The transfer of duties, functions and powers to the department under this section shall take effect on July 1, 1986. Notwithstanding such transfer of duties, functions and powers, the lawfully adopted ordinances and other rules of the district in effect on July 1, 1986, shall continue in effect until lawfully superseded or repealed by rules of the commission.

(5) If the solid waste reduction program is approved by the commission, a copy of the program shall be submitted to the Sixty-fourth Legislative Assembly not later than February 1, 1987.

SECTION 9. (1) The metropolitan service district shall apportion an amount of the service or user charges collected for solid waste disposal at each general purpose landfill within or for the district and dedicate and use the moneys obtained for rehabilitation and enhancement of the area in and around the landfill from which the fees have been collected. That portion of the service and user charges set aside by the district for the purposes of this subsection shall be 50 cents for each ton of solid waste.

(2) The metropolitan service district, commencing on the effective date of this 1985 Act, shall apportion an amount of the service or user charges collected for solid waste disposal and shall transfer the moneys obtained to the Department of Environmental Quality. That portion of the service and user charges set aside by the district for the purposes of this subsection shall be $1 for each ton of solid waste. Moneys transferred to the department under this section shall be paid into the Land Disposal Mitigation Account in the General Fund of the State Treasury, which is hereby established. All moneys in the account are continuously appropriated to the department and shall be used for carrying out the department's functions and duties under this 1985 Act. The department shall keep a record of all moneys deposited in the account. The record shall indicate by cumulative accounts the source from which the moneys are derived and the individual activity or program against which each withdrawal is charged. Apportionment of moneys under this subsection shall cease when the department is reimbursed for all costs incurred by it under this 1985 Act.

(3) The metropolitan service district shall adjust the amount of the service and user charges collected by the district for solid waste disposal to reflect the loss of those duties and functions relating to solid waste disposal that are transferred to the commission and department under this 1985 Act. Moneys no longer necessary for such duties and functions shall be expended to implement the solid waste reduction program submitted under section 8 of this 1985 Act. The metropolitan service district shall submit a statement of proposed adjustments and changes in expenditures under this subsection to the department for review.

SECTION 10. ORS 459.049 does not apply to a disposal site established under this Act other than for the purposes of ORS 215.213 (1)(i).

SECTION 11. This Act being necessary for the immediate preservation of the public peace, health and safety, an emergency is declared to exist, and this Act takes effect on its passage.

Passed by Senate June 3, 1985

Repassed by Senate June 18, 1985

Secretary of Senate

President of Senate

Passed by House June 17, 1985

Speaker of House

Received by Governor:

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Governor

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Deputy Secretary of State

SECTION 2: COMPARISON OF THE TWO SITES

Following is a summary of the Department of Environmental Quality's evaluation of the Ramsey Lake and Bacona Road landfill sites, based upon: (1) The Environmental and Technical Feasibility analysis, and (2) Cost.

Additional information provided in this section includes:

- Summary of work performed since the Draft Feasibility Report, March 9, 1987.
- Answers to the Commission's 25 questions.

I. ENVIRONMENTAL AND TECHNICAL FEASIBILITY

The natural features of the sites, which determine their environmental and technical feasibility, are described under Section 2 ("Existing Environment") in each final feasibility report. These features were then numerically rated using the Final Decision Criteria. Both sites were determined to be environmentally and technically suitable for use as a solid waste landfill. Provided below are relative comparisons of how the two sites rated overall and in the major criteria categories.

Overall Criteria Score

The Ramsey Lake site received a higher (better) overall score than the Bacona Road site, by 52 points.

Out of a possible 1,800 points, the Ramsey Lake site scored an overall total of 1,015 points using the Final Decision Criteria. Strong categories included "Groundwater", "Land Use", and "Technical" criteria.

The Bacona Road site scored a total of 963 points, using the Final Decision Criteria. Strong categories included "Surface Water", "Aesthetic", "Air Quality", and "Social/Cultural" criteria.

Surface Water Criteria

The Bacona Road site received a higher score on the surface water criteria than the Ramsey Lake site. The Ramsey Lake score was 69 and the Bacona Road score was 115. The major difference between the two sites is that the Ramsey Lake site lies largely within the 100-year floodplain and the Bacona Road site does not.

Groundwater Criteria

The Ramsey Lake site scored 50 points higher than Bacona Road on the groundwater criteria. The Ramsey Lake site score was 277 and the Bacona Road score was 228. The major difference between the two sites is that the Ramsey Lake site lies at the bottom of the groundwater system at a regional discharge point, with better defined hydrologic boundaries. The

Bacona Road site, while having local groundwater systems discharge at the site, is at the top of the regional groundwater system.

Natural Habitat Criteria

Both sites scored the same, 104 points in the natural habitat criteria. No threatened or endangered species were found at either site.

Land Use Criteria

The Ramsey Lake site scored significantly higher on land use criteria than the Bacona Road site. Ramsey Lake received a score of 147 , and Bacona Road received a score of 86. The scoring reflects the heavy industrial zoning and adjacent land uses at the Ramsey Lake site, compared to the forest lands at Bacona Road which received a lower rating. In addition, the current site use at Ramsey Lake is vacant land.

Air Quality Criterion

The Bacona Road site scored higher on this criterion, with 20 points, as opposed to 12 points for Ramsey Lake. This reflects the relative isolation and better existing air quality at Bacona Road.

Social/Cultural Criterion

The Bacona Road site scored higher on this criterion, with 32 points, compared to 12 points at Ramsey Lake. The difference lies in the evidence of past historic and prehistoric use of Ramsey Lake (particularly along the Columbia Slough) by native populations. The Ramsey Lake archeological sites are considered ineligible for the National Register and lie largely outside of the area to be filled.

Aesthetic Criteria

The Bacona Road site scored higher on the aesthetic criteria. It received 107 points, compared to 53 points for Ramsey Lake. The major differences were attributable to the fact that the Bacona Road site is largely shielded by existing forest from human view. There is a greater aesthetic impact on the area from the access route at Bacona Road than from the site itself.

Technical Criteria

The Ramsey Lake site received a higher rating on the technical criteria, which are used to measure how easily or efficiently a landfill can be operated at the site. Ramsey Lake scored a total of 341 points on the 13 criteria in this category. Bacona Road scored a total of 271 points.

The major differences in criteria scoring reflected the greater availability of urban services at Ramsey Lake (leachate treatment) and the mountainous location of the Bacona Road site (landslide potential,

precipitation, climatic extremes). The advantages for Bacona Road in this category include site life, and slopes that are more conducive to landfill construction.

Determination of Feasibility

While there were relative differences between the two sites, with respect to their natural environmental and technical feasibility, both sites were judged by the consultants to be technically feasible to serve as a landfill site. Conceptual site designs were developed for both sites and are included in the final feasibility reports.

II. COST

The greater level of environmental protection provided by modern landfill design and operation does not come without an increase in disposal costs as we know them. Either site will be more expensive to construct and operate than the present St. Johns Landfill.

An economic analysis was conducted for each site, included in Section 5 of the final feasibility reports. The cost analysis includes:

- Predevelopment costs (landfill siting)
- One-time capital costs (initial development)
- Periodic capital costs (equipment, cell development and cell closure)
- Operation and maintenance costs
- Post-closure costs (for 30 years after final closure)
- Transport costs

The cost analysis attempts to compute and compare the real cost to society of landfilling, and is not meant to approximate a tipping fee. It also does not account for inflation, instead putting all figures in 1986 dollars. All of the calculations are stated in dollars-per-ton of garbage disposed of at the landfill, assuming the same volume of garbage per year at either site.

Two sets of calculations were made: one assuming no alternative technology, and one assuming that the volume of waste would be reduced by a waste-to-energy incinerator.

GARBAGE ONLY

	Bacona Rd. $/TON	Ramsey Lake $/TON
Predevelopment Costs	$0.09	$0.38
Capital Costs		
Land	0.14	2.63
1-Time Construction & Equipment	0.63	6.12
Periodic Equipment	0.74	0.62
Periodic Cell Development	4.35	9.71
Periodic Cell Closure	0.39	1.48
TOTAL CAPITAL COSTS	$6.24	$20.56
Operation and Maintenance Costs	6.38	8.52
Final Closure Costs	0.00	0.01
Post-Closure Costs	0.14	1.16
Other Environmental Impacts	0.00	0.00
Transportation Costs	8.14	5.30
TOTAL COSTS	$20.99	$35.93

WITH ALTERNATIVE TECHNOLOGY

	Bacona Rd. 1990 $/TON	Ramsey Lake 1990 $/TON
Predevelopment Costs	$0.09	$0.36
Capital Costs		
Land	0.13	2.46
1-Time Construction & Equipment	0.60	5.76
Periodic Equipment	0.97	0.85
Periodic Cell Development	4.44	8.66
Periodic Cell Closure	0.41	1.30
TOTAL CAPITAL COSTS	$6.55	$19.02
Operation and Maintenance Costs	7.07	8.46
Final Closure Costs	0.00	0.01
Post-Closure Costs	0.09	0.90
Other Environmental Impacts	0.00	0.00
Transportation Costs	6.61	4.31
TOTAL COSTS	$20.42	$33.06

The Ramsey Lake site is significantly more expensive than the Bacona Road site, under either scenario. The factors responsible for this higher cost include: 1) the greater cost of land acquisition; 2) initial capital construction costs (including dike, slurry wall, and preloading), 3) cell construction costs; and 4) a shorter site life, which results in spreading the costs over a reduced number of tons, raising per-ton costs.

The Bacona Road site has substantially lower costs for initial capital construction, and a much longer site life. However, it has higher annual costs for transportation. A sensitivity analysis was performed to see if the per-ton site costs at Bacona Road would substantially increase if certain "worst-case" assumptions were made. These assumptions included: a) construction of a ramp at Highway 26; b) greater increases in fuel prices; c) longer transport time; d) a reduction in site capacity of 10 years (due to avoidance of landslide areas). The total increase in per-ton costs at Bacona Road, with all of these assumptions, is $4.50.

A financial analysis of the Bacona Road and Ramsey Lake sites has been conducted, at the Commission's request. The financial analysis was performed by Metro, and subsequently has been reviewed and analyzed by DEQ consultants. This financial analysis will be provided to the Commission under separate cover.

The financial analysis suggests that the relative disparity in costs between the two sites, when inflation and financing costs are figured in, are similar to the economic cost model contained in the report. The financial figures, however, are higher for both sites, and provide a better approximation of the landfill portion of the tipping fee. The financial analysis performed by Metro indicates that the landfill portion of the tipping fee for the first year of operation (garbage only scenario) will be over $60 per ton at Ramsey Lake, and nearly $40 per ton at Bacona Road.

SITING PROCESS - NEW WORK PERFORMED SINCE THE DRAFT

A considerable amount of additional work has been done by Department of Environmental Quality (DEQ) staff and the Department's consultants since the completion of the Draft Feasibility Study Report in March of 1987. A portion of this work was initiated in response to questions and comments made at the April public hearings. The majority of the additional work, however, was conducted as the final part of the Department's feasibility study process, and was designed to provide an extra level of detail and certainty to the information generated for the Draft Feasibility Study Report.

Much of the additional work related specifically to one or the other of the two sites, but certain tasks were completed for both sites. These non-site specific tasks included the preparation of additional information on landfill liner technology, the completion of springtime wildlife habitat and vegetation surveys, the development of land use goal findings, the preparation of responses to all comments received at both of the public hearings, and the development of additional economic information including a financial analysis for each site and more detailed site cost estimates.

A brief description of other significant additional work that was completed for either the Bacona Road or Ramsey Lake site is provided below:

BACONA ROAD

Groundwater:

The issue of groundwater protection has always been a top priority at the Bacona Road site. In order to develop additional information on aquifer characteristics and groundwater flow systems four additional wells, including a 200' deep core hole and a 300' deep double completion monitoring well, were constructed and a 48-hour constant discharge aquifer test was conducted. A laboratory permeability test on a section of core from approximately 180' below ground level was also completed. This additional work provided a better understanding of the aquifer and flow system characteristics at the site. Based on the results of this work, it is apparent that groundwater flow in the marine sediments beneath the site is primarily along fractures, and therefore the natural groundwater protection capabilities of the site are less than anticipated. However, other factors, including local flow system discharge conditions, the variability of bedrock fracture conditions, the poor permeability characteristics of the unfractured bedrock, and the distance to downgradient groundwater users provide a good level of natural protection.

In addition to the on-site work, a review of the City of Banks water supply which included a field investigation of the City's spring site was carried out. The conclusion based on this additional work determined that there is no hydrologic connection between the landfill site and the City's water supply; landfilling at Bacona Road will have no effect on Banks' water supply.

Landsliding and Earthquakes:

The landslide investigation work that was underway at the time of the Draft Report publication was completed. This work included the drilling of nearly 500' of core hole (two holes), and the preparation of a landslide report by Landslide Technology, a division of Cornforth Consultants, Inc. In preparing their report, Landslide Technology conducted field mapping on and near the site, monitored an inclonometer installed in one of the core holes, reviewed the work prepared by Sweet Edwards and Associates on site geology, and visually inspected all of the core samples collected in borings B8 through B9 and core hole C-1. Cornforth Consultants, Inc. also prepared a three dimensional scale model (1"=250') of the proposed site and surrounding area. No indication of active landslides was identified as a result of this work, but the earlier assumptions that landslides had occurred in the past was confirmed. All consultants agreed that the potential for shallow landsliding exists at the site, but that this potential did not preclude the site's feasibility. It was recommended that additional geotechnical work be conducted during the final design phase of the project, and prior to any major excavation or filling activity during site operation.

The information on earthquake potential presented at the public hearing was carefully reviewed by DEQ staff and the consultant team. It was concluded that work done for the Draft Report had been adequate. Additional discussion of this issue was prepared and included in the Final Report.

Access Route:

Much of the April public hearing testimony addressed the issue of traffic safety. In response, DEQ's consultants reevaluated the information in the Draft Report that dealt with improvements to Highway 47 and the intersection of Highways 47 and 26.

This reevaluation showed the information on traffic volumes and accident frequency contained in the Draft Study to be correct. Various alternatives for the Highway 26, Highway 47 intersection were reconsidered, as were proposals for improving Highway 47. As a result of this work, it was determined that the Highway 47 and Highway 26 intersection was adequate, but that widening of Highway 47 would significantly improve traffic safety. Widening of Highway 47 was added to the Neighborhood Protection Plan in the Final Report. An alternative for constructing an overpass at the Highway 47 and Highway 26 intersection is discussed in the Final Report.

Additional geologic and geotechnical reconnaissance work was conducted along the route of the proposed new access road from Highway 47 to the site; no significant problems were identified.

Hamill Observatory:

Additional dispersion modeling was conducted to further evaluate the potential affects of heat, light, dust, and landfill gas on the operation of the proposed observatory. In addition, an informational exchange meeting was held with the Board of Directors of the Northwest Astronomy Group, in order to ensure that all of their concerns had been heard, and that they were aware of the consultant's findings and recommendations.

Additional discussions were also held with Dr. David Crawford, of the Kitt Peak Observatory in Arizona.

Based on this additional work, the DEQ and its consultants continue to believe impacts to the proposed observatory (if any) would be minimal, but that those impacts could not be precisely predicted. Additional lighting and gas emission control measures were added to the Neighborhood Protection Plan. It was noted in the Final Report that the observatory supporters felt that any additional impacts would be significant and could preclude development of the observatory.

Leachate Management:

The methodology and assumptions used to calculate the quality and quantity of leachate and the size and nature of the leachate handling facilities for the Bacona Road site were reexamined to ensure accuracy. The issues raised at the public hearing concerning the capability and willingness of the Unified Sewerage Agency (U.S.A.) to deal with the leachate were discussed with administrative and technical representatives of that agency. The proposed route of the leachate line was modified somewhat in response to suggestions from the U.S.A., and an additional reconnaissance survey of the route was conducted.

No errors or omissions in the Draft Report work were identified, and the adequacy of the leachate management plan for a feasibility level study were confirmed. No problems were discovered in the plan for leachate transmission line construction or the proposal for final treatment of the leachate by the U.S.A.

Other Issues:

Additional work was completed on several other issues, including but not limited to: The proposed Banks to Vernonia linear park, the adequacy of the proposed fire control measures, the method of disposing of spoils (stumps, slash piles, and other woody debris), the accuracy of the surface runoff estimates, the method of wetland impact mitigation, the effects of inclement weather on site operation, and the effect of noise on residents along the access route.

RAMSEY LAKE

Site Pre-Load Requirements:

A significant amount of additional work was done to further define the pre-load program that will be required at the Ramsey Lake site. Special attention was paid to developing accurate information on the amount of fill needed, the anticipated amount of settlement, and the source and nature of the fill material. A more detailed description of the material transport and handling requirements was prepared, and detailed cost estimates were generated.

It was determined that somewhat more settlement (both on-site and off-site) would occur, and that additional pre-load material would be required. An adequate and available source of pre-load material was identified, and the use of barges for pre-load transport, and conveyors for loading, unloading, and placement of pre-load were selected as the preferred methods. The cost of the pre-load program increased due to the need for additional material and the cost of mitigating the impacts of off-site settlement.

Air Quality:

Due to the amount of earth material handling required at the Ramsey Lake site, and the sensitivity of the airshed in the Rivergate area, additional work was completed on the issue of air quality. Estimates of particle emissions were revised to reflect changes in the pre-load program, and all of the consultants calculations were reviewed in detail by the Department's air quality staff. Discussions were held with Department air quality staff concerning proposed changes in federal and state air quality standards. It was determined that additional dust control measures would be added to the site operation plan, but that the operation of the landfill will meet applicable air quality standards. A description of the proposed changes and their effect on site design and operation was prepared for the Final Report.

Liner Systems:

The liner system proposal contained in the Draft Report was the subject of considerable review and discussion by Department staff and the consulting team. As a result, the design of the bottom liner system was upgraded to include two composite liners, a leak detection and collection system, and an underdrain. In addition, a single composite top liner was recommended.

Wetlands Impact Mitigation:

The Final Report includes a much more detailed discussion of various wetlands mitigation options and a cost estimate for the option that involves the general improvement of surface water quality in the area adjacent to the landfill site. This information was developed through additional work by the staff and consultants which included several discussions with the various resource agencies involved in wetlands management.

Other Issues:

Additional work was completed on the following issues: The method of ash disposal at the site, the suitability of an ash-only fill for future development, noise impacts to nearby recreational uses, and the issue of past promises made to the North Portland community concerning additional landfilling in the area.

E.Q.C. LANDFILL QUESTIONS

1. **What is the amount of rainfall at Bacona Road?**

Final Report Status

No on-site recording stations were used to determine rainfall at Bacona Road. Report data are based on information from Buxton, Vernonia, and Timber and from published maps of anticipated average annual rainfall. The anticipated average annual rainfall estimate of 67" is considered to be a conservatively high estimate.

(See Response 3 - Leachate and Waste Water Treatment, Bacona Road
Final Feasibility Study Report (FFSR) pp 2-7, 2-8 and Appendix E).

2. **Does DEQ have an agreement with the Unified Sewerage Agency (U.S.A.) about the projected costs and its commitment to accept the Bacona Road site's leachate?**

Final Report Status

No formal agreement exists between DEQ and U.S.A. The sewerage agency has reviewed the proposed leachate collection and discharge system. A specific agreement must be negotiated prior to discharge. Since the site is not within the U.S.A. boundary, U.S.A. will use an inter-governmental agreement with the landfill operator to establish terms for acceptance of the pretreated effluent. This type of agreement is commonly used by municipalities in providing municipal services to areas outside their corporate limit.

Concern was expressed during public testimony on the Bacona Road site that the Unified Sewerage agency may be reluctant to allow connection to their system. Subsequent discussion with U.S.A. officials confirmed that the sewerage agency would allow hookup to their system if the Bacona Road site were chosen.

The conceptual design for the leachate treatment facilities was prepared to meet applicable U.S.A. standards. DEQ's consulting engineers coordinated their work with U.S.A. engineers. U.S.A. engineers have reviewed the result of the leachate treatment analysis. Leachate will be pretreated on-site to meet U.S.A. standards.

(See Response 1, 2, 5 and 14 - Leachate and Waste Water Treatment, Bacona Road
FFSR pp 3-17 through 3-34.)

3. How accurate are DEQ's estimates of Bacona Road leachate quantity and surface water runoff?

Final Report Status

The design average flow of leachate used in the study was the maximum flow (141 gpm) estimated to occur during the design life of the facility. The assumed peak design flow is twice the design average flow (282 gpm). The leachate quantity estimates are conservatively high.

The point made relative to accounting for snow accumulation and snow melt does not apply to the analysis performed to estimate leachate generation at the Bacona Road site. Appropriate rainfall values have been used in the DEQ analysis in order to calculate leachate flows. Residents report that peak daily rainfall, recorded at the site last winter, was 4.58 inches for one 24-hour period as compared to a peak daily precipitation of 3.59 inches used in the computations. The precipitation values used in the computations were the default values (records stored in the computer data base) for Astoria which had a peak daily rainfall of 3.59 inches for the 5 years of daily measurements for 1974 through 1978. Relative to estimation of leachate generation, peak daily rainfall is of less relative importance than the monthly and annual values. Peak daily rainfall is mostly a factor relative influencing surface runoff control. The default values for Astoria are appropriate for the analysis which was performed at the Bacona Road site because the total annual precipitation at Astoria for the 5 years closely represents what are believed to be the site climatological conditions.

During final design, the estimates will be refined by obtaining and using actual precipitation records at the site. The results obtained using the default values are consistent with the conceptual level of design for the project.

Many comments suggested that rapid melting of snow pack could affect runoff. U. S. Weather Service and other data indicates the average snowfall is about 35 inches annually at the site. Snowfall varies locally, generally increasing as topography rises. Annual variations can be significant. Many local residents have reported a single snowfall of up to 7 to 10 feet. Such events are rare but can occur. Runoff projections in the Final Feasibility Study are based on currently available precipitation and stream gage data for the area of the proposed landfill. The proposed storm water control facilities for the site have been increased in size since the Draft Feasibility Study, and are designed to handle the worst storm events normally expected to occur in the area.

(See Response 3 - Leachate and Waste Water Treatment,
Bacona Road
FFSR pp 3-35 through 3-41, Appendix D and E.)

4. **What is the possibility of leachate treatment by U.S.A. limiting development in Washington County by exceeding or approaching TMDL's and sewage capacity for the region?**

Final Report Status

The pretreated leachate will meet U.S.A.'s industrial wastewater standards. These standards address inorganic components and are established to protect water quality in the Tualatin River.

Pretreatment will reduce chemical and organic strength of the leachate. The pretreated effluent will be held on-site during the summer and pumped through a buried line to the Hillsboro treatment plant during the winter months. This effluent will not consume significant quantities of the Hillsboro treatment plant's biologic or hydraulic capacity. The projected wastewater flows will be small compared to the Hillsboro treatment plant's flow and will be less than 5 percent of the plant's 7.5 mgd average winter treatment capacity. Pumping treated effluent from the site to the Hillsboro treatment plant will not inhibit economic development by consuming excess sewage treatment capacity at the Hillsboro plant. See Section 3 of the Final Feasibility Study Report for a detailed discussion of leachate treatment alternatives.

(See Response 1 - Leachate and Waste Water Treatment,
Bacona Road
FFSR pp 3-17 through 3-34)

5. **How adequate are the proposed liner systems and what is their susceptibility to tears, punctures, fire, chemical attack, rodents, etc. Potential for failure and ability to repair?**

Final Report Status

Soils (clay and amended soils) have been used to line landfills for many decades. There are examples of poor performance and reports of wide variance between field and laboratory determinations of permeability characteristics of the soil. It is commonly accepted that clay liners are not totally impervious, and therefore, allow migration of liquids. Current law requires that the leachate level above the base of the landfill not exceed 1 foot. If this condition exists and a base liner consisted of only 2 feet of soil with a permeability of 1×10^{-6} centimeters per second (cm/sec), then the rate of migration from the base of the liner would be approximately 1,400 gallons per acre per day (gpad).

In the mid-1970's, the U. S. Environmental Protection Agency (EPA) began sponsoring studies on the use of geomembrane (synthetic) liners for chemical and hazardous waste landfills because these liners are more impervious to the flow of liquids than soil materials. This work has been ongoing for approximately 14 years, and the results are very encouraging. It is now generally accepted that geomembranes can be relied upon for long-

term durability and are chemically resistant to most waste products. It is also true that they are not totally impervious to liquid migration. A simple defect of 1/4 inch in diameter per acre of lining, discharging into a very pervious medium, would permit about 1,100 gpad of discharge through the geomembrane if the head were 1 foot. This magnitude of one small defect per acre, which could be expected even with a good quality assurance program, is thought to be a reasonable estimate according to current work being performed for EPA and soon to be released.

In addition to the chemical integrity of the lining material and the engineering design features to protect the structural integrity of the lining, the synthetic liner material will be backed up by a thick layer of low-permeability soil. This layer of low-permeability soil will provide an added layer of protection against the movement of water. The combination of the synthetic liner and the layer of low-permeability soil is called a composite liner. Two composite liners will be constructed beneath the landfill. In addition, there will be a leak detection system between the two composite liners. This type of lining system is called a "prevent" lining system by the U. S. Environmental Protection Agency.

A single composite liner, consisting of a geomembrane overlying a soil liner, has been found to provide an excellent barrier to liquid migration and dramatically reduces potential liquid migration through the membrane. To illustrate this statement, a geomembrane overlying 2 feet of a soil liner with a permeability of 1×10^{-6} cm/sec will limit the migration from the composite liner to about 1/100 gpad. It is obvious then that a single composite liner provides a high level of environmental protection when compared with either a soil or geomembrane liner alone. The double composite liner system proposed by DEQ provides an even greater level of protection.

High Density Polyethelene (HDPE) lining material (currently viewed as the best geomembrane liner material) has been tested by the manufacturers using a variety of accelerated age/stress tests. These tests have used both actual leachates from a variety of sanitary landfills, artificial leachates mixed in the laboratory, and a variety of both concentrated and dilute chemical products such as solvents, fuels, acids, and bases. These tests have shown that HDPE has a high degree of chemical resistance and is virtually inert.

It is possible to predict the type of environment that will be present in the landfill. Leachate from many landfills has been analyzed for its constituents, and these data are available. Artificial leachates made in the laboratory are more aggressive than leachate found in municipal landfills. Artificial leachates have been applied to HDPE lining material at high temperatures and in concentrated strengths. The HDPE material is proven to be resistant to attack and virtually inert.

The HDPE lining material will be placed on a solid foundation that will provide sufficient support so the lining is not overstressed. The foundation design will eliminate sharp radius corners, protrusions, and other stress-inducing situations.

The leachate collection system above the upper composite liner will keep the leachate depth to less than 1 foot. This low head combined with the upper composite liner's low permeability and the leak detection system, makes it extremely unlikely that leachate will move through the second lining system. If leachate did escape, the groundwater monitoring wells would detect it before it moved offsite and a repair program would be instituted. Additional technical data on the suitability of synthetic lining material is included in Appendix I of the Final Feasibility Study Report.

Liner manufacturers will guarantee their products against defects in workmanship and materials only if certain conditions regarding site preparation and installation procedures are met. Subsurface conditions are not covered by manufacturers' guarantees under any condition, whether solid rock or deep, soft soil. The proposed conceptual design will follow the manufacturer's recommended site preparation and installation instructions. A materials and workmanship guarantee should thus be available for the Ramsey Lake site.

HDPE is suitable and recommended for sanitary landfill application throughout the United States. It is considered the most advanced and best material available for landfill liners.

Because HDPE is virtually chemically inert, there are no solvents that can be used to "bond" the material. One seaming method for HDPE uses fusion welding. This is a process where the adjacent pieces of HDPE are heated to their melting point, and then are mechanically fused together. This process creates a seam area that is stronger than the HDPE sheet material.

Liner bonds and seals are one of the most critical areas of liner construction. Past failures at liner seams can be traced to inadequate quality control, inspection, and testing during construction. Liner installation will be rigidly controlled by contract specifications, constant inspection, and complete testing.

Each inch of seam is inspected after installation to ensure that a complete bond has been obtained. Ultrasonic tests are used to detect any incompletely bonded portions of the seams. Vacuum testing can be used at randomly selected or suspect areas. In addition to the specific in-place field testing, sections of the seamed liner are cut at random from the completed installation and tested in the laboratory. Any defective areas are replaced and retested.

Vegetation will be strictly controlled on-site. The lining system will be designed to accommodate potential differential settlement on-site. Fires in landfills are extremely rare; cell construction would strictly limit any potential fire damage. The liner material would not be damaged by sunlight. HDPE is resistant to ultraviolet degradation. (This is not true of ordinary polyethylene lining that is sold for home use). The synthetic liner will be covered by the leachate collection system materials during installation, so it will not be exposed to sunlight except during installation. In addition, HDPE is not attractive to burrowing rodents.

The proposed "double-composite" liner system is designed to prevent any leachate contamination of groundwater. Should the upper lining system be breached, the leak would be evaluated and action taken immediately to correct the problem before any groundwater is affected. Potential measures are discussed in the Feasibility Study Report. If the second lining system should develop a leak then the site underdrain system will minimize the amount of liquid that actually escapes into the environment. If the liquid were to escape into the environment, natural protection characteristics (soil, hydrologic boundaries, flow system characteristics) would help prevent groundwater contamination. Should groundwater become contaminated, the potential impact area would probably be confined to the site vicinity. The nearest wells at the Bacona Road site (excluding Stanley Posts' home) are about 2 miles from the center of the site, or more than 1 mile from the site boundary, and there are very few downgradient wells at the Ramsey Lake site. In the unlikely event that the nearest wells were contaminated, a new water supply would be provided.

(See Response 1 and 2 - Water Quality, and Response 7 and 13 - Operations, Ramsey Lake
Response 5 and 6 - Water Quality; Groundwater and
Response 2, 3, 4, 10, 12 and 14 - Operations, Bacona Road
FFSR pp 3-17, 3-19, 3-61 and Appendix H - Bacona Road
and pp 3-34, 3-35, 3-55 - Ramsey Lake)

6. Are there landslides at the Bacona Road site?

Final Report Status

DEQ's site investigation study identified landslide material beneath the site. These materials have been evaluated via additional core drilling (April 1987) to further characterize their natures. Based on all the information to date, there are no active slides on-site, and areas of past slide activity do not significantly affect site feasibility. The landfill will be designed and constructed to avoid or accommodate slide areas. Additional geotechnical studies will be completed prior to final design and throughout the life of the landfill to evaluate those slope stability factors which could influence site design and operation. Additional geologic information is included in Appendix B of the Final Feasibility Study Report.

(See Response 1 - Landslides/Earthquakes, Bacona Road)

7. **There is a need for creative thinking for the Neighborhood Protection Plan.**

Final Report Status

The Neighborhood Protection Plans were developed after three public meetings in each community. The first meeting explained the purpose of the NPP and invited further participation in helping to develop an effective plan that would incorporate community concerns and ideas. A second meeting involved the audience identifying the potential problems to be addressed in the NPP. (At the Bacona Road meeting, a community group presented a list of positive actions that should be included). The third meeting was an open house where community residents were invited to see and discuss the alternative actions that were being proposed.

DEQ also held a "Peer-Review" meeting of experts in various fields (geology, landscape architecture, land use planning, wetlands, etc.) specifically to "brain-storm" creative solutions to the problems that had been identified at each site. Many of the ideas generated during that session were incorporated into the NPP's.

8. **Who handles the maintenance of Highway 47?**

Final Report Status

Highways 26 and 47 will be maintained by the Oregon State Highway Division. Several additional improvements are recommended for Highway 47 to accommodate the additional truck traffic, including widening, shoulder construction, and truck turnouts as a result of public testimony and additional field work. The Final Feasibility Study Report has been revised to reflect these new provisions.

(See Response 1 - Traffic,
Bacona Road)

9. **Will there be improvements to Highway 47 - e.g intersections with Highway 26 and road widening?**

Final Report Status

Based on historic data, it is projected that the addition of site-generated traffic onto Highways 47 and 26 will result in about one additional accident per year. This additional accident potential can be reduced by widening Highway 47 from Highway 26 to the new access road to include shoulders and turnouts. These changes are included in the Final Feasibility Study Report. Results of recent research indicate that, in

general, accident rates on rural roads do not significantly change after introducing a higher percentage of heavy trucks into the traffic stream.

Although truck-related accidents are typically more severe than accidents not involving trucks, trucks generally have half as many accidents per mile traveled as do automobiles[1].

Consideration was given to installation of a traffic signal at the intersections of Highways 26 and 47 and Highway 47 at the site access road.
Prior to installing a traffic signal, the Oregon Department of Transportation (ODOT) requires that at l east one "Warrant" be met ("Warrants" are specific Highway Department requirements for action, such as accident rates). The available Warrants for the installation of traffic signals are identified within the most recent edition of the Manual of Uniform Traffic Control Devices. The traffic analysis that has been conducted shows that neither intersection is currently able to meet at least one of the available Warrants. Beyond this, it should be recognized that the published Warrants are necessary but not sufficient justification for the installation of traffic signals.

For the Highway 26/Highway 47 and Highway 47/site access road intersections, the presence of a traffic signal could actually increase the potential for an accident (especially rear-end accidents), because it is a traffic control device that drivers would not normally expect to encounter on a rural road. Other more appropriate design measures, such as acceleration and turn lanes for minimizing the additional operational and safety problems at these intersections have been incorporated into the Feasibility Study Report. It is also recommended that Highway 47 be widened from Highway 26 to the new access road to include shoulders and turnouts.

An overpass was also considered for the Highway 26 - Highway 47 intersection, but it was determined that traffic conditions at that intersection did not warrant construction of an overpass. Costs for such an overpass was estimated to be approximately $400,000.

[1] Illinois Department of Transportation. "Report to Task Force on HB 1305" (March 1985).

(See Response 2, 3, and 4 - Traffic,
Bacona Road
FFSR pp 4-72 through 4-79).

10. What about site operation at Bacona during bad weather and backup disposal sites?

Final Report Status

Icy or snowy conditions could temporarily disrupt landfilling. Trucks will carry tire chains. Truck turnouts for "chain-up" will be constructed along Highway 47 and the site access road. Garbage is routinely landfilled in snowy, cold climates and the site operations plan will include specific cold weather techniques. Snow removal equipment will be provided on site and the access road would be plowed and sanded when necessary to ensure access to the site.

Wastewater treatment facilities can be designed to function satisfactorily in extremely cold climates. The pretreatment facility at the Bacona Road site will include insulation, heat tape, and other standard techniques to ensure continued plant operation during cold weather.

(See Response 6 - Operations and Response 2 and 3 - Inclement Weather, Bacona Road
FFSR pp 3-83, 4-3).

11. Are Bacona fire protection proposals adequate? Does the site place an additional load on existing emergency service providers (financial or otherwise)?

Final Report Status

The report addresses control of fire, both inside and outside the landfill site. All landfill employees will be trained in fire prevention and suppression techniques. Fire suppression equipment for both chemical and non-chemical fires will be available on-site. All garbage entering the site will be carried by transfer vehicles. The use of transfer stations for collecting garbage and exclusive use of transfer trailers for transporting garbage greatly reduces the potential for landfill fires.

On-site fire protection and suppression measures will meet or exceed all National Fire Protection Association (NFPA) requirements. The access road will include standard gravel shoulders. This road design meets State Forestry Department regulations. A bare earth buffer will also be maintained around the active landfill area per state forestry standards.

With a landfill at this location, demands for emergency services may increase. A portion of landfill fees could be allocated to offset potential costs. Liability restrictions might preclude use of landfill equipment for use in the local community. However, a cooperative agreement could be established with local volunteer departments or other fire districts.

Landfill fires are extremely rare. The Neighborhood Protection Plan has been revised to include additional equipment and manpower. Additional fire protection measures, including added manpower for fire patrols during extended periods of high fire danger, are described in Section 4 of the Final Feasibility Study Report.

(See Response 1, 3, 4, 5, 9 and 10 - Services,
Bacona Road
FFSR pp 4-7, 4-8, 4-39 through 4-45).

12. **Do Highway 26 traffic projections take Washington County future growth into account?**

Final Report Status

Projections do take future Washington County growth into account. Traffic will not become more congested in the Sunset Corridor. The peak landfill traffic will occur between noon and 5 p.m., which are off-peak hours along Highway 26. The landfill will operate at reduced hours on weekends and there will be considerably fewer transfer trucks going to the site on weekends.

Traffic impact analyses have been completed. Impacts from site traffic are minimal as described in Section 4 of the Final Feasibility Study Report.

(See Response 6 and 8 - Traffic,
Bacona Road)
FFSR pp 2-79 through 2-86, 4-72 through 4-79).

13. **Will the quality of the Nehalem River and drainage basin be impacted?**

Final Report Status

The Nehalem River drainage basin will not be affected by landfill development or operation. The entire site drains to five separate drainage basins, including the Nehalem. However, the active landfill area (the area that will receive garbage) has been reduced so that all runoff flows only to the Denny Creek drainage basin. Uncontaminated runoff from the site will be diverted around the active fill area and directed to sedimentation and detention ponds, then discharged to Denny Creek. Leachate (contaminated water from the active landfill area) will be collected, pre-treated, and piped (during winter months only) to the Unified Sewerage Agency (USA) wastewater treatment plant in Hillsboro for final treatment.

Discharge of leachate following treatment at the Hillsboro plant will occur only during winter months when impacts to the Tualatin River will meet DEQ water quality standards.

(See Response 1 - Water quality; Surface Water,
Bacona Road
FFSR pp 2-2, 2-7, 2-13, 2-14 and Appendix B).

14. Has DEQ fully defined groundwater system on and off-site?

Final Report Status

The groundwater field investigation has included the completion of 9 borings, 8 air rotary holes, and 2 core holes, (a total of 32 monitoring wells or piezometers). All of this drilling was done on site. Multiple wells at different depths have been used to monitor groundwater levels, flow direction, vertical gradients, aquifer characteristics, and water quality at the Bacona Road site. These tests have been conducted on the site, because on-site conditions are most important in determining the level of natural protection for the site.

The data clearly show that groundwater under most of the site is flowing to the southeast. However, groundwater divides may be present beneath the topographic ridges (surface water drainage divides) that form the boundaries of the site. (Although there are some indications of groundwater flow to the north, the waterfall referred to in testimony is a surface water feature). The extent to which potential groundwater flow divides exist and their potential impacts to design of a permanent groundwater monitoring network will be evaluated during subsequent more detailed investigative and design phases for the site. It is possible that some groundwater along drainage divides may flow to the north. If a condition such as this is found to exist, the site would be located and designed so that waste disposal areas are away from groundwater divides. This condition does not affect the overall feasibility of the site.

The level of investigation for landfill site feasibility has been adequate to define the general groundwater conditions which will influence natural groundwater protection and the potential for subsequent impacts at the site. Between the completion of the Draft Feasibility Study and the Final Feasibility Study a 48-hour constant discharge aquifer test was conducted. The results of this test have provided additional information and understanding about the site groundwater characteristics, and are included in Appendix B of the Final Feasibility Study Report.

Current hydrogeologic data show the site is a local discharge area. That is, most of the shallow groundwater flow beneath the active landfill area is toward, rather than away from, the site. The potential for recharge of deeper intermediate and regional groundwater flow systems does exist, and it is possible that groundwater flow to areas several miles away could occur. However, if this should occur, several factors limit the potential for any significant off-site impacts to groundwater resources:

- o Numerous groundwater flow system boundaries (stream valleys and topographic ridges) exist downslope from the site. It is probable that groundwater that enters local or intermediate flow systems beneath the site does not flow beyond these boundaries.

- o The marine sediments that underlie the site characteristically show considerable variation in rock type and degree of fracturing over short distances vertically and horizontally, and therefore there is limited potential for preferential flow paths (very permeable layers of rock or open fracturing) that extend over significant distances.

- o Groundwater in regional flow systems in these sediments typically contains high levels of dissolved constituents, and is of generally poor quality.

- o There is only one downgradient groundwater user within one mile of the landfill, and it has been proposed that that individual's property will be purchased as part of site acquisition. Residential development within 3 miles of the site is very limited, and most residents rely on locally recharged springs or shallow wells that have very low possibility of being impacted by landfill operations. See Appendix B of the Final Feasibility Study Report for additional information.

(See Response 1, 2 and 3 - Water Quality; Groundwater, Bacona Road)

15. What about the proposed Banks/ Vernonia Linear Park?

Final Report Status

The Banks-to-Vernonia Linear Park is a proposal being considered by the State Parks Department. A specific alignment has not been finalized. Preliminary alignments could pass near the vicinity of the site, and potentially cross the access road. Design measures, such as an overpass or pathway underpass could be included in landfill design should the proposal be implemented. Noise from landfill truck traffic would be significant if the proposed pathway is constructed near the access road or landfill.

(See Response 5 - Land Use, Bacona Road
FFSR pp 2-75, 2-76, 4-70).

16. **What about impacts to the proposed Hamill Observatory?**

Final Report Status

Dust generated by site activities consists of relatively large particles that settle quickly. Subsequent to the Draft Feasibility Study Report, dispersion modeling has been conducted that indicates dust generation will be localized.

The amount of dust generated by site operations will not significantly affect light availability. Dispersion modeling results also indicate that particulate matter (dust) will settle quickly, and it is not expected to impair viewing at the proposed observatory.

The Final Feasibility Study Report (Section 4) requires that enclosed combustion units contain most of the heat generated by flaring of landfill gas. The ground temperature of the landfill will be slightly higher than the surrounding area (perhaps 5 degrees Fahrenheit), but would not create significant heat currents that would affect observatory viewing.

The proposed observatory will use sensitive spectroscopy equipment that could be impacted by increased levels of landfill or combustion gases above the site. While DEQ does not believe this will be a serious problem, the Neighborhood Protection Plan has been revised to reflect a temporary shutdown of gas flares during key viewing times. (Perhaps 25-45 days per year). While the expected impacts are minimal, the Board of Directors of the Northwest Astronomy Group has stated that landfill construction and operation might preclude development of the observatory.

(See Response 1, 2 and 3 - Land Use,
Bacona Road
FFSR pp 4-70 through 4-72).

17. **Will there be a financial analysis of both sites?**

Final Report Status

A financial analysis has been completed for each site and is available from DEQ staff. Copies will be provided to the EQC.

18. **Will there be economic impacts to local school districts due to lost property values?**

Final Report Status

The effects of landfill construction and operation on surrounding property values have not been examined in the Feasibility Study. Research on this issue at other landfills shows mixed conclusions about the potential

devaluation of neighboring properties. While factors associated with landfill operations are frequently perceived to have a negative effect on the value of nearby real estate, information from other Pacific Northwest landfill operations indicate that these perceptions generally do not develop into actual property devaluation when the landfill is constructed and operated properly. Where properties are subjected to significant increases in noise, traffic, odors, or catastrophic events property values can be adversely affected. The Neighborhood Protection Plan developed for the sites (Section 4) lists all the measures proposed to reduce or eliminate potential adverse impacts.

In a 1986 case cited during this process which involved the Cedar Hills landfill in King County, Washington (established 1963), a state court established that inverse condemnation from trespass by odors and noise had occurred at 11 locations within a 1-mile radius of the site. One time only payments were ordered, along with improved operations at the landfill to include daily cover and installation of an active gas collection system in an older section of the landfill. The court did not establish that a long-term devaluation had occurred and declined to identify the percentage of the settlements ($4,000 to $10,000) attributable to inverse condemnation. No evidence was presented to substantiate a reduction in tax base.

Studies reviewed in this research include "A Study of the Impact of Landfills on Surrounding Residential Properties," 1986, by J. R. Price; "The Total Social Cost Approach: The Solid Waste Case," 1981, by Rudzitis and Hochman; "Wildwood Sanitary Landfill Feasibility Study, Chapter 6," 1981, by CH2M Hill; "Neither Boom Nor Bust," 1986, in Waste Age; "Answering the Critics," 1980, in Waste Age Magazine; and "Effects of Solid Waste Disposal Sites on Community Development and Residential Property Values" 1982, Department of Environmental Resources, Pennsylvania.

(See Response 1 - Land Use and Response 13 - Soc/Econ Issues,
Ramsey Lake
Response 9 - Land Use
Bacona Road)

19. Should residual value estimates be incorporated into the cost analysis?

Final Report Status

A "residual value" analysis is often done when comparing the cost of two facilities, when one facility will last longer than the other. When the operating life of one facility is over, the other facility still has some useful life left, and this "residual value" needs to be accounted for in comparing costs of the two facilities.

The cost analysis of the two landfill sites uses an economic model which incorporates this "residual value" by accounting for the longer site life at Bacona Road. Costs such as land acquisition and initial capital construction are amortized over the entire life of the landfill, as opposed to periodic costs (such as transport, or cell development) which are amortized over the same period for both sites.

The cost analysis therefore incorporates the principal of "residual value" and ensures an "apples-to-apples" comparison.

(FFSR Section 5 and Appendix F - Ramsey Lake
Section 5 and Appendix G - Bacona Road)

20. Is it expected that Section 404 wetland fill permits will be obtainable?

Final Report Status

Since the draft feasibility reports were published DEQ and its consultants have met with state and federal resource agency representatives to review the siting process and discuss wetland impact mitigation plans for each site. Response from the U. S. Army Corps of Engineers and EPA (who have final authority in issuing 404 permits) indicates that adequate opportunities exist to offset the impacts of wetland displacement at both sites and that plans within the final reports provide a good conceptual framework for more detailed mitigation plans.

During review sessions, both the U. S. and State Fish and Wildlife agencies expressed the policy of their departments to oppose filling of wetlands for a non-water dependent use unless an essential public interest is served, no practicable alternative exists, and every effort is made to diminish the impact of the project on these resources. j REcognizing that 17 of the 18 sites reviewed by the Department had significant wetlands on or near them, it is virtually impossible to locate a site within the tri-county area that meets DEQ criteria and does not have a potential wetland impact. DEQ staff and consultants believe it can be demonstrated that the site selected by the EQC meets the U. S. and State Fish and Wildlife agency policies. It should be noted that comments from these agencies are advisory to the Corps; a permit may be issued over their objections.

By regulation the Corps must consider a number of criteria in addition to specific wetland impacts when making a permitting decision. These criteria include: Public interest/need; fish and wildlife resources; aesthetic values; floodplains; water supplies; public safety; energy conservation; economics; and mitigation plans.

As part of the Corps permitting process it will be necessary to have an Environmental Impact Statement (EIS) developed on the project. Much of the work completed during the feasibility study may be used to prepare the EIS. Specific mitigation plans will be developed, then reviewed and approved by the resource agencies. It is anticipated that the EIS process will take 12 to 24 months (allowing limited time for federal court and

agency appeals). The Corps would issue a permit after the EIS is complete. Metro anticipates initiating the Section 404 permit/EIS process this summer. Utilizing a fast-track design and construction method, it is anticipated that an opening date of February 1991 for the regional landfill can be met.

(See Response 1 and 2 - Permitting and 6 and 7 - Siting/Criteria, Ramsey Lake
FFSR pp 4-26 through 4-43).

21. Who made what promises about St. Johns Landfill not being expanded, and when were they made? Did DEQ make any promises?

Final Report Status

In researching this issue, City of Portland, Port, and DEQ staff were unable to locate written evidence which clearly expresses the promise that this area would never again be the location of a solid waste disposal facility. In a 1966 planning study, "Rivergate and the North Portland Peninsula," commissioned by the Port of Portland, it was acknowledged that the City planned to use additional land, including Bybee and a portion of Smith Lake, for expansion of landfilling operations at St. Johns.

By 1972, "A Plan for the North Portland Peninsula," completed by the Columbia Slough Environmental Task Force, recommended limiting the expansion area for the landfill to accommodate its operation until 1985 or 1990, at which time an improved technology or alternative location could be found.

By action of the Oregon Legislature in 1977, HB 3192 passed, creating ORS 541.622 -- "Prohibition against issuance of permits to fill Smith and/or Bybee Lakes below the 11-foot contour line mean sea level." Testimony on this action and subsequent communication from the bill's sponsor, Representative Jim Chrest, indicated that its intent was to prevent the expansion of the St. Johns Landfill and save what was left of Smith and Bybee Lakes so they could be preserved for recreational use and wildlife habitat.

Subsequent expansion permit actions in 1979 before the DEQ and the Army Corps of Engineers noted that St. Johns expansion area was limited and that the site was considered an interim facility, the use of which would be terminated as soon as an alternate site became available.

(See Response 1 - Fairness
Ramsey Lake).

22. What about the comments made about the geotechnical issues at Ramsey Lake?

Final Report Status

The Ramsey Lake site presents some unique engineering challenges. There are engineering techniques available to allow development of the Ramsey Lake site but the site is more costly on a unit price basis than some other sites.

Preloading will cause variable settlements of from 10 to 18 feet over the site. The site development plan anticipates preloading to remove the majority of the variable settlement prior to construction of site facilities.

DEQ disagrees that the site would settle 2 to 3 feet after preloading. We agree that the constructed landfill will experience settlement throughout the operation and post closure period, even with a preload. This settlement would occur because after removal of the preload, the site would rebound. Our estimates of the maximum settlement for the landfill range between 1.5 and 2.0 feet. This settlement is within the design capability of the environmental protection system.

After evaluating alternative sources for preload material, we have identified adequate quantities of suitable preload material in the Kelso/Longview area. The preload material will be loaded directly from the source area onto barges. The barges will dock using equipment on the barge that will push the preload material onto fixed conveyors. The preload material will be conveyed from the barge unloading area to the Ramsey Lake site. The preload material will be transferred from the stationary conveyor onto a portable conveyor, then to temporary portable stacking conveyors for actual placement in the preload area.

We have discussed this method of operation with both barging companies and conveyor manufacturers. We believe this method of operation is technically feasible and we have included costs for this material and method of placement in the cost estimate for the site.

The ratio of soil handling to refuse disposal is higher at this site than at most sanitary landfills, because of the need to preload the site. The conceptual design minimizes the cost and impact of this additional soil handling by incorporating the preload material into the fill as daily cover (a Neighborhood Protection Plan requirement). Because soil must be moved to the site and placed as preload and then moved prior to construction of the liner section, there is additional cost associated with soil movement at this site. Appropriate costs have been included in the cost estimate.

A related concern during public testimony was the potential for leachate leaking out the sides of the landfill. Leachate is formed at different levels within the garbage. Studies of other landfills show that the leachate may move laterally towards the sides of the landfill. The

landfill top and side cover will be designed to allow leachate to drain down into the leachate collection system at the landfill base. This drain system, in conjunction with the top liner and final cover, will prevent leachate from leaking from the top and sides of the landfill.

(See Response 1, 2, 3, 4 and 5 - Operations
Response 5 - Water Quality,
Ramsey Lake
FFSR pp 3-8, 3-31 through 3-33, Appendix B)

23. Why are there discrepancies in cost estimates?

Final Report Status

For the Ramsey Lake site, DEQ consultants have met with consultants representing the Port and others and have determined that the costs are not significantly underestimated. The use of different allocations of costs between capital and operation created an apparent difference of $60 million. DEQ agreed that one item (off-site storm drainage) was underestimated by about $3 million. There is no longer any substantial difference in cost estimates between DEQ consultants and consultants for opponent groups. The cost estimate in Section 5 of the Final Feasibility Study Report has been revised to reflect changes in the conceptual design and additional Neighborhood Protection Plan measures.

For Bacona Road, most of the $80 million difference in cost estimates results from four cost categories: (1) Potential gas revenues which were not included. (2) Less expensive preloading costs. (3) Transport costs. (4) "External" cleanup costs that were not estimated.

Each of these items has been reviewed for the final report, and some adjustments have been made. However, the price used for preloading used in the report was the best found for the quality and quantity of material required. The "external" costs noted in testimony were included in the draft (see Cost Appendix) and adding $22 million would result in double counting.

(See Response 1 and 5 - Costs
Ramsey Lake
Response 9 - Cost Model
Bacona Road).

24. **What impact will result from removing heavy industrial land, at Rivergate, from the market? What exactly is available? What is its value? What other similar land is or may be available.**

Final Report Status

The Ramsey Lake site constitutes about 70 percent of the available heavy industrially zoned land in Rivergate. The site represents about 91 percent of the heavy industrially zoned land within Portland city limits.

With regard to future supply, the City of Portland and the Portland Development Commission (PDC), are currently spearheading a program to prepare for development, and market, 6,400 acres of vacant industrial land in the Columbia Corridor. Over 4,000 of these acres lie outside of the Rivergate area, and over one thousand acres are considered suitable for "medium-Heavy" industrial use, according to a 1985 PDC study.

Development of the Ramsey Lake site will not prevent development of Rivergate as a major shipping center and port. Sites with port access will not be adversely affected by landfill development. Industrial growth in Rivergate has been historically slow, and landfill development will not likely alter this trend.

The amount of heavy industrially zoned land is limited in the Portland metropolitan area. The pressure to develop additional inventories will occur consistent with local comprehensive plans and statewide planning goals.

The predicted loss of 17,000 jobs is overstated. Based on projections in the Final Feasibility Study Report, about 3,300 jobs could be lost by developing the site as a landfill, assuming development patterns typical to Rivergate extend to the proposed site area. The estimate of direct wages lost annually is similarly overstated. DEQ estimates the potential annual cost of wages to be approximately $70,000,000.

A number of industrial development experts and developers themselves indicated that a landfill at Ramsey Lake "would send the wrong signals" to prospective industries. If no other industrial land is available, it is possible that industries could choose to locate elsewhere. However, there are many other factors (market, degree of impact, provision of services) that are taken into account in industrial siting. For example, a high-tech development recently located directly adjacent to an existing landfill in the midwest.

There is some evidence that the consideration of the Ramsey Lake site has affected the marketability of the adjacent industrial areas. One developer, for example, stated that several potential clients withdrew their plans to participate in an industrial park directly northeast of the site. Financing for the project could be jeopardized if the landfill is constructed.

The effects of a landfill on surrounding property values is difficult to quantify, and highly variable, depending on how the landfill is operated, and other market factors. Landfills have been successfully located in other industrial areas without apparent adverse effects on property values. Generally, however, industrial land has been scarce in those instances, and market conditions (availability of land) may exert strong influences on land values. Properly constructed and operated, the landfill would likely have little affect on surrounding property values. The extent to which the existing St. Johns Landfill has depressed land values is not known. If ash fill is included, a portion of the site could be reused for future industrial development.

While DEQ recognizes that industrial parcels (and virtually every other type of land use) have "higher and better uses" than landfills, the proposed landfill is compatible with industrial use. The number of jobs created by landfill development is substantially below what would be created by manufacturing or other light industry. The Final Feasibility Study Report addresses the potential impact to industrial development in the Rivergate area (see Section 4 for additional information).

(See Response 1, 2, 3, 5, 6, 7, 8, 9, 12 and 14 - Soc/Econ Issues,
Responses 15 and 16 - Land Use and Response # 16 - Siting/Criteria,
Ramsey Lake
FFSR pp 2-111 through 2-116, 4-95 through 4-111).

25. Can ash disposal area be used for future development?

Final Report Status

The ash disposal area could be used for future development. However, certain restrictions and limitations would apply. Maintaining the integrity of the environmental control systems would be of primary importance. Any development would have to be designed so that the low permeability final cover would not be disturbed by excavations for foundations, utilities, or other improvements. This might require placement of additional soil fill material over the development area to provide for any subsurface construction. It will also be necessary to maintain a surface grade that prevents ponding of water in the area.

The ash deposited in the landfill should provide adequate foundation support for some types of development now in the Ramsey Lake vicinity. Typically, ash from a refuse incinerator contains more than 95 percent inert material, so the ash landfill should undergo very little settlement if proper compaction is applied during the filling operations. Building foundations would have to be designed on the basis of a bearing capacity representative of the ash in the landfill. Low intensity uses, such as marshalling yards, storage, parking, and similar uses would be most suitable for this area.

NOTE: If fly ash or bottom ash from a municipal solid waste incinerator is determined to be hazardous waste by the DEQ or Environmental Protection Agency, it would not go to the landfill, but would have to be disposed of in a facility licensed to accept hazardous waste.)

(See Response 9 - Alternative Technology, and Response 17 - Operations, Ramsey Lake
FFSR pp 3-14 through 3-21)

NEIL GOLDSCHMIDT
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Environmental Quality Commission

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MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item 2, June 12, 1987, EQC Meeting
Proposed Adoption of Temporary Rule Amending Solid Waste Permit Application Processing Fee for Large General Purpose Domestic Waste Landfills, OAR 340-61-120

Background

At the May 29, 1987 EQC meeting, the Department proposed that the Commission adopt a temporary rule providing for an $85,000 permit application processing fee for each general purpose domestic waste landfill designed to receive more than 100,000 tons per year of solid waste and to be greater than 100 acres in size. (Refer to Attachment 1 which presents Agenda Item E, May 29, 1987, EQC Meeting).

The Department determined that this fee is necessary to provide adequate resources to allow timely and competent review of two sites being developed by private companies as alternatives to the SB 662 landfill siting process. Waste Management of Oregon (WMO) has proposed a site near Arlington and Tidewater Barge Lines (TBL) has proposed a site near Boardman. Both companies want to move rapidly through the solid waste permit process, thus providing Metro with viable alternatives to developing a landfill in the Portland metropolitan area.

After listening to testimony at the public hearing on May 29th on the proposed temporary rule, the Commission postponed a decision on how to fund the additional staff and requested the Department to investigate the following alternatives:

1. Use of the existing funding mechanism ($1/ton fee on all solid waste disposed in the Portland metropolitan area) under SB 662 to pay the Department's costs in processing the WMO and TBL permit applications.

2. Refunding to the applicant any portion of the permit application fee not used by the Department, if the Commission adopts the $85,000 fee.

3. Other funding alternatives that would ensure that the people who generate the solid waste pay the cost of processing the permit application for disposal of the solid waste.

Alternatives and Evaluation

The Department is vigorously pursuing the alternative of using SB 662 funds to cover its costs in reviewing the WMO and TBL proposals. This alternative will require legislative action and the Department is investigating all avenues to obtain the appropriate legal authority in the waning days of the current legislative session. At the time this staff report was prepared, no avenue with a fair chance of success has been found. A report updating the Department's efforts will be provided to the Commission at its June 12th meeting.

The Department has not identified any other funding alternative that would accomplish the Commission's objective of ensuring that the landfill development costs (including the cost of the Department's permit processing) are passed through to the people who generate the solid waste. It could be argued that the proposed permit fee accomplishes that objective in the case of successful landfill siting, as the developer will likely amortize its development costs through the tipping fees it charges over the life of the landfill. This is the most equitable result since the costs will be passed to the generators of solid waste whether they reside in Portland, Clark County or elsewhere.

The Department has also investigated the feasibility of refunding to the applicant any portion of the permit application processing fee that the Department does not use in reviewing and processing the applicant's proposal. The Department agrees that refunding unused fees may be appropriate in this instance because the fee would be high and there is no way to predict with certainty that it will all be used. The temporary rule (Attachment 2) has been modified to provide for refund of unused fee revenue.

Most fees paid to the Department for permit application processing only cover part of the agency's review costs. The remaining costs are normally paid from federal funds and general funds. Further, the actual costs of permit review can vary significantly for similar facilities depending upon the quality and completeness of the information submitted with the permit application, the environmental sensitivity of the site (e.g., urban vs. rural) and the public perception of how good a neighbor the facility will be. Normally, the general and federal funds smooth out the variability in agency costs for permit review so that the Department doesn't need to constantly adjust its staff resources as each new permit application is processed.

The WMO and TBL proposals represent a special case as they will overwhelm the current capability of the solid waste program. Thus, a special permit fee is needed to provide the necessary resources, and since the Department

cannot predict with certainty its actual costs to process these proposals, a refund mechanism is appropriate.

Finally, the Department has reconsidered its recommendation that the Commission authorize a public hearing to make the proposed temporary rule permanent. The Department would like to draft comprehensive changes to its solid waste permit fee schedules and return to the Commission with a request for public hearing authorization. This would allow the affected parties to assist in developing the proposal before public hearing and to work for more equitable distribution of fees than is contained in the proposed temporary rule.

Summation

1. At the Commission's May 29, 1987 meeting, the Department proposed adoption of a temporary rule amending solid waste permit application processing fees for large general purpose domestic waste landfills. The temporary rule would increase the processing fee from $1,000 to $85,000.

2. The increased fee is required to pay Department costs to investigate and process permit applications from Waste Management of Oregon and Tidewater Barge Lines for landfills in north central Oregon. These landfills are proposed as alternatives to the landfill selected under the SB 662 siting process.

3. At the May 29th meeting, the Commission postponed any decision on the proposed temporary rule and asked the Department to investigate other alternatives to fund the costs of processing the permit applications.

4. The Department investigated use of the SB 662 funding mechanism. At the time that this report was written, the Department has not identified an avenue to obtain legislative authorization to utilize 662 monies to investigate and process the two permit applications.

5. The Department also investigated the feasibility of refunding the unused portion of the processing fee for the WMO and TBL permit applications. The refunding provision is appropriate in this case where the permit applicant is being requested to pay the Department's costs to review its application and it is not possible to predict in advance the exact amount of those costs. However, it would not be appropriate to adopt the refund provision universally for the Department's permitting programs.

6. At the May 29th Commission meeting, the Department requested authorization to conduct a public hearing to make the proposed temporary rule permanent. The Department now believes that it should work with affected parties to develop a more equitable solid waste permit fee structure before it requests authorization to conduct a public hearing.

Recommendation

Based upon the findings in the Summation, it is recommended that the Commission adopt the proposed temporary rule amending OAR 340-61 as set forth in Attachment 2. It is further recommended that the Commission direct the Department to work with affected parties to develop an equitable permit application fee schedule and return to the Commission for authorization to proceed to public hearings on permanent rule amendments.

Fred Hansen

Attachments 1. Agenda Item E, May 29, 1987 EQC Meeting
2. Proposed Temporary Rule Amendments, OAR 340-61-120.

Mike Downs:m
SM1109
229-5356
June 10, 1987

Attachment 1
Agenda Item 2
June 12, 1987 EQC Meeting

NEIL GOLDSCHMIDT
GOVERNOR

Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

MEMORANDUM

To: Environmental Quality Commission

From: Director

Subject: Agenda Item E, May 29, 1987, EQC Meeting

Public Hearing and Proposed EQC Adoption of Temporary Rule Amending Solid Waste Permit Application Processing Fee for Large General Purpose Domestic Waste Landfills, OAR 340-61-120

Background

By September 1987, the Department is expecting to receive Solid Waste Facility Permit applications for two new, very large general purpose landfills in north central Oregon. Attachment 2 describes a proposal by Waste Management, Inc. (WMI) near Arlington and Attachment 1 describes a proposal by Tidewater Barge Lines (TBL) near Boardman. Both sites are being proposed as alternatives to siting a landfill in the Portland Metropolitan area. A major transfer station (separate permit necessary), in the Portland area, will likely be an integral part of either project.

These proposals pose a dilemma for the Department. The type and intensity of the review necessary to evaluate a proposed landfill of the size and complexity of the two applications we expect requires substantial resources, as demonstrated by the budget associated with the SB662 siting effort. On the other hand, our current solid waste fee schedule doesn't contemplate such a situation.

The Department has not received an application for a major solid waste disposal site in several years. The SB662 siting process has set a new level of investigation, review and public expectations for major solid waste disposal sites. This is especially true for any proposed landfill to serve the Portland metro area. The Department has already told the engineers for WMI that the detail and level of study for its site is expected to be similar to the SB662 work.

The Department has gained significant knowledge and experience in solid waste disposal site investigation and evaluation through the SB662 siting process. The additional resources needed to adequately deal with these new permit applications are estimated to be similar in level and technical competence to those required for the SB662 project:

1. A hydrogeologist to guide the development of and review and analyze geotechnical studies and site evaluations. This work is essential to ensure that the Department gets the information needed to adequately review the permit application and so that applicants do not spend time and money needlessly.

2. An engineer to be the lead staff person on the technical aspects of the sites including plan and feasibility study reviews, final design approval and drafting permits.

The time demands on the present Solid Waste Section staff will be substantial. Besides the technical investigations and reviews, staff will be called upon regularly to attend public meetings, consult with local government representatives and generally represent the Department. The choice of a Portland area landfill site as part of the SB662 process will add to the section's workload as well. As SB662 staffing ends and Metro begins preparation of an environmental impact statement for wetlands and submits a permit application for the 662 site, the Solid Waste Section will be required to respond (although these activities would be funded by the SB662 fee).

The Solid Waste Section currently does not have adequate staff resources to deal with investigating and processing the proposed permit applications for the WMI and TBL sites. Present personnel (3 staff) in the section are totally committed. The Department couldn't anticipate the current competition among several large landfill projects for the Portland area garbage and, therefore, didn't budget the resources necessary to complete the work that is imminent.

The Department is proposing to raise the Solid Waste Permit Application Fees, provided for by ORS 468.065 and ORS 459.235, to meet this critical staffing need. The Statement of Need for Rulemaking, required by ORS 183.335(5) is Attachment 3 to this report.

Alternatives and Evaluation

Present Division rules (OAR 340-61-120) require a $1000 application fee for major facilities (facilities receiving more than 25,000 tons of solid waste per year). This fee is to be used to pay the Department's costs for investigating proposed landfills and determining whether to issue or deny a solid waste permit. In actuality, a $1,000 application fee will only pay a small portion of the Department's costs for processing a permit application for a facility like that proposed by WMI or TBL.

The permit application fee could be raised to cover a major portion or all of the Department's costs. This could be accomplished by establishing a new category for major general purpose domestic waste landfills designed to receive more than 100,000 tons per year of waste and greater than 100 acres in size. The new application fee would be $85,000 and apply to all such permit applications received after May 29, 1987.

An emergency (temporary) rule change would be necessary in order to assure the increased fee is in place before a complete permit application is submitted. A temporary rule remains in effect for 180 days. The intent would be to make the rule permanent so that other proposals similar to the WMI and TBL sites would pay the same fee. A proposed temporary rule is included as Attachment 4.

While the permanent rulemaking option would normally be preferred it will take several months to complete and therefore not meet the WMI and TBL application schedules. The Department must begin to assemble the additional resources now to be prepared to respond to the WMI and TBL projects in a timely manner. Failure to bring the staff on board quickly will adversely affect the applicants due to long delays in processing the permit applications and adversely affect the public interest by leaving the Department unable to adequately review the technical information and protect the environment. WMI is on a fast-track to obtain local land use approvals and submit a complete solid waste permit application to the Department. TBL also now has commenced this process with Morrow County. Therefore, the temporary rule is the approach of choice.

WMI, TBL and other interested parties have been contacted regarding the proposed $85,000 permit application processing fee. Naturally, some concern was expressed, but there was understanding that adequate Department staff must exist to investigate and review such major proposals and move the process along in a timely manner.

Summation

1. The Department expects to soon receive at least two solid waste facility permit applications for very large general purpose landfills proposed by private operators to receive solid waste from the Portland area.

2. The Department has determined that two full-time staff and professional services ($175,000) will be required to give the level of investigation and review equivalent to that established by the Department in the SB662 siting process experience, to adequately meet the public's interests and protect the environment.

3. Staffing in the Department's Solid Waste Section is not adequate to deal with the anticipated new permit applications. Hydrogeologic expertise does not exist in the section and is not available on loan sufficient to evaluate major new sites.

4. A temporary rule can be adopted which increases the solid waste facility permit application processing fee required by OAR 340-61-120 for a major facility, sufficient to cover the Departments costs of investigating and making a final decision on the permit application.

5. If the temporary rule is not adopted, the Department will not have adequate resources to provide a competent and timely review of the WMI and TBL permit applications. Therefore, the environment would not be adequately protected and processing of the permit application would be seriously delayed, resulting in serious prejudice to the public interest and the interest of the parties concerned (WMI and TBL).

Director's Recommendation

Based upon the findings in the Summation, it is recommended that the Commission hold a public hearing and, based on that public hearing, adopt the proposed temporary rule amending OAR 340-61-120 as set forth in Attachment 5. It is also recommended that the Commission authorize the Department to hold public hearings on the issue of whether to make the temporary rule permanent.

Fred Hansen

Attachments 5
- Attachment 1 - Memo of February 17, 1987 to Mike Downs from Ernie Schmidt, Subject: Morrow County Solid Waste Disposal Project. (TBL)
- Attachment 2 - Memo of March 12, 1987 to File from Ernie Schmidt, Subject: Proposed Waste Management Landfill Near Arlington, Oregon (WMI)
- Attachment 3 - Statement of Need for Rulemaking and Fiscal and Economic Impact Land Use Consistency Statement
- Attachment 4 - Proposed Temporary Rule
- Attachment 5 - Public Hearing Notice on Proposed Temporary Rule

Ernest A Schmidt:f
229-5157
May 11, 1987
SF2000

ATTACHMENT 1

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

TO: Mike Downs

DATE: February 17, 1987

FROM: Ernie Schmidt

SUBJECT: Morrow County Solid Waste Disposal Project

We have been presented a preliminary permit application and feasibility report prepared by Seton, Johnson and Odell Engineers, on behalf of Tidewater Barge Lines, Inc. (TBL) and Wastech, Inc., for a proposed large privately owned municipal waste landfill in Morrow County. The site would receive solid waste from ports-of-call on the Columbia River system, which has been transported by barge and unloaded across the Port of Morrow dock at Boardman. TBL is the largest barge and terminal company operating on the Columbia/Snake River system.

The permit application was submitted incomplete, to get some early review by the Department and guidance as to how to complete the application.

Background

In October 1986, TBL submitted a proposal to Clark County, Washington in response to that county's Request for Qualifications for a Municipal Solid Waste Disposal Facility. The county generates about 550 tons/day of solid waste. As proposed, a transfer station would be constructed at TBL's dock on the Vancouver side of the Columbia River. Residential garbage, some demolition and some commercial/industrial waste, would be compacted and pushed into standard unit size enclosed shipping containers, 8' X 8' X 40' long or optionally 20' long. The containers would then be stacked onto a relatively small barge (900 ton) to be included with other barges in regular tows upriver. Two such barges each 3 days would handle Clark County. This would be a small addition to commodity transport on the Columbia River.

Wastech, Inc. is a new firm being split out of the GSX (Genstar) group. Principles are Wayne Trewhitt, President, Ted Rattray (British Columbia operations) and Merle Irvine (Oregon operations). They operate the Metro CTRC, transport the waste to St. Johns Landfill, and operate the Oregon Processing and Recovery Center (OPRC) materials recovery facility. They run similar facilities in British Columbia and have very recently been awarded a contract to operate a new landfill at Cache Creek - including transportation of waste 250 miles one way from Vancouver, B.C. and wood chips back for Georgia-Pacific.

Wastech proposes to expand OPRC (in Portland) to receive from Clark County, select loads of commercial, industrial and demolition loads which are processible to recover paper products and a densified refuse derived fuel (DRDF). The paper products recovery (with trommels) has been successful for some time. Wastech has demonstrated the preparation of DRDF prepared at Tacoma, Washington and trial burned it at three locations, including the Smurfit (Publishers) Newberg Paper Mill. Reportedly, combustion characteristics were promising. The talks are continuing with Smurfit.

At Boardman, the existing dock and offloading equipment is designed to handle the proposed containers and is under-utilized. Containers would be set on trailers for transport to the disposal site. The Port is willing to provide long-term rate and service guarantees.

A longer term consideration possible at Boardman is construction of an energy recovery facility to provide steam to the food processing plants in the Port industrial area. They reportedly can use about 280,000 lb./hr. of steam. By comparison, the Marion County incinerator is rated at 132,000 lb./hr., both boilers combined.

The estimated annual operating cost (gate fee at transfer station) in 1986 dollars was proposed to Clark County at $32/ton. This is roughly split $10/ton for landfill and $22/ton for handling and transportation prior to the landfill.

Landfill Site

I visited the proposed landfill site on January 6, 1986, with the landowner Larry Lindsey, Bryan Johnson of Seton, Johnson and Odell, Wayne Trewhitt and Merle Irvine, Wes Hickey of TBL, and Bob Miller of the Port of Morrow. The conceptual proposal involves 230 acres on the southwest side of Finley Buttes, 16 miles from Boardman. Access is direct from the port area to the site via Bombing Range Road, bordering the east side of the bombing range. No residences are passed en-route.

The site is located within 10,000 acres owned by Mr. Lindsey and is zoned agricultural. The Finley Buttes are an erosional landmark with slopes up to 10%. It is proposed to area-fill across several draws - the maximum depth to be 85'. The draws are grassed over and gentle in shape. They appear to have been formed over a very long time by infrequent storm events. Precipitation ranges from 5 to 15 inches per year, with an annual average of 9 inches. There is no water basin above the site. It has never been cultivated and is too rough for circle irrigation. Present use is cattle grazing at a ratio of one cow per 35 acres. Foliage is grasses and scattered rabbit brush.

Geology and groundwater hydrology information submitted is very general. Based on known regional geology, it is expected that soils at Finley Buttes range from 90' to 300' thick over Columbia River basalt flows. Overlying soils are sedimentary deposits. They are assumed to be slowly permeable and not contain any significant groundwater. The basalts contain excellent aquifers, which are the subject of considerable attention by the Water

Landfill Site (Continued)

Resources Department (WRD), due to overpumping and water rights litigation.

A copy of the landfill proposal was forwarded to Mike Zwart at (WRD) for comment. He reports that this location is on a divide between a designated critical groundwater withdrawal area and a proposed critical area. There are relatively more sediments overlying the basalt bedrock here than in the region generally. The potentiometric surface of the groundwater used for irrigation is at approximately 575' MSL, (not 675' MSL indicated in report) which is 75 feet below the estimated bedrock surface. Wells in the region may extend 1,000 feet deep to get large volumes of water.

Preliminary Site Evaluation

Based only on surface observations and from an engineering design standpoint, the proposed site looks workable. Only 230 acres are involved in this conceptual proposal, but it appears that considerably more land and capacity could be available. The 230 acres are estimated to last 25 years at a fill rate of 180,000 tons/year. Although a very favorable water balance can be displayed, any design would have to include lining and leachate collection, treatment and disposal - probably by sprinkle irrigation. Suitable land for irrigation is limitless. There is no indication of recent erosion in the draws. The site should be easily protected from surface water, since it is located at the highest local elevation.

The area is subject to high winds and dust storms. The surface soils are light and will blow when disturbed, therefore, special care would have to be taken to control dust and stabilize disturbed soils. Provision of adequate water to the site to control dust, provide fire protection, etc. could be a problem. The design would have to include handling cloudburst type storm events.

Considerable on-site and vicinity investigation into geology and groundwater hydrology characteristics will be necessary before it is possible to go beyond this cursory view that the site is suitable for landfill.

Issues

Local Acceptance

The Port of Morrow is actively seeking business and openly supports the project. Louis Carlson, the new County Judge, (from Heppner and was on the Port Commission) expressed cautious interest. The county has wanted to site a landfill in the north end for many years. No residences would be directly impacted by the transportation or landfill. The attitudes of the large commercial farming interests is unknown. One would expect opposition from some source.

Need for Site (340-61-026(5))

There is some need for better disposal within Morrow County. The Turner landfill, serving the Heppner area (south county) is operating on year-to-year lease from a private landowner who has threatened closure. The operation has been only marginally acceptable. North county solid waste goes to the Hermiston site (22 miles) and is adequately disposed. Primarily, the need for the site would have to be established by the area whose waste enters the site and could be partially based on any unique siting characteristics of the Morrow County location. An evaluation of alternatives would be necessary to justify/support the Morrow County choice.

Land Use and Recycling (ORS 459.055 and the Opportunity to Recycle Act)

The site is zoned Exclusive Farm Use (EFU). As such, a Waste Reduction Program must be developed by "the local government unit responsible for solid waste disposal pursuant to statute or agreement between governmental units" (ORS 459.055(2)). In addition, ORS 459.250 requires that the Department shall require as a condition to issuing a permit that a place for collecting source separated recyclable material, located either at the disposal site or at another location more convenient to the population served by the disposal site is provided for every person whose solid waste enters the disposal site. Between these two statutes, it seems we should expect out-of-state generators of solid waste entering a disposal site in Oregon to meet conditions at least equal to conditions placed on in-state generators. Clark County should be expected to implement the opportunity to recycle at least equivalent to what would be acceptable in the metropolitan Portland area in Oregon.

ES:m
SF1714

cc: Steve Gardels
Janet Gillaspie
Steve Greenwood
Lorie Parker

Two Portland companies propose to barge garbage to Morrow landfill

By HOLLY DANKS
and HARRY BODINE
of The Oregonian staff

Two Portland companies announced Tuesday that they want to ship metropolitan-area garbage to Eastern Oregon by barge and dump it in a 600-acre landfill they propose to build 16 miles south of Boardman.

Spokesmen for Tidewater Barge Lines, the largest barge line on the Columbia/Snake River system, and Wastech, which operates the Oregon Processing and Recovery Center in Portland and the Clackamas Transfer and Recycling Center in Oregon City, presented their program at a Portland news conference. They later spelled out details to the Metropolitan Service District's solid waste committee.

Called the Finley Buttes Landfill project, named for the remote area of Morrow County proposed as the dump site, the plan offers "a cost-effective and environmentally sound alternative to the Bacona Road and Ramsey Lake metropolitan landfill sites," Jacob Tanzer, a Portland attorney representing the two companies, said.

The shipping and dumping operation could be under way by the end of 1988 or early 1989 and could serve the Portland-Clark County, Wash., area for more than 20 years, Tanzer said.

The project, though similar to one proposed by Waste Management, Inc., is better, Tanzer said, because it would use existing recycling facilities in Portland and Oregon City, ship the garbage in sealed containers as part of existing barge traffic and dump the waste in an area already zoned and environmentally suited for a landfill.

Waste Management Inc., the largest trash handler in the United States, unveiled similar plans in March to ship Portland-area waste to a site southeast of Arlington in Gilliam County by either barge or train. Chem-Security Systems Inc., a subsidiary, already runs a toxic waste dump near Arlington.

The Portland area generates almost 1 million tons of garbage per year, most of which is buried in the St. Johns landfill. But the landfill is scheduled to close in 1989.

To replace St. Johns, the Oregon Department of Environmental Quality is scheduled to select by June 30 a new landfill site that Metro in turn would acquire and operate to serve Multnomah, Washington and Clackamas counties. Metro simultaneously is considering five private post garbage or convert it into resource derived fuel in an effort to reduce the amount of waste being buried in landfills.

Wayne Trewhitt, Wastech president, said there was less chance of ground water contamination at Finley Buttes than at Portland-area sites being considered.

Because of Morrow County's semiarid climate, there aren't any potential problems with wastes leaching into the water table, he said.

Trewhitt said the Boardman shipping plan would cost waste-company customers less than if garbage is dumped at Ramsey Lake, Bacona Road or Arlington landfills. It also would give business to the severely underused Port of Morrow and would boost that area's economy, he added.

Although there is some opposition to the project, the project had been received favorably during informal talks with local officials and community leaders, Trewhitt said.

Although truck traffic south of Boardman will increase 20 percent if the project is approved, no houses are along the route, Trewhitt noted.

The land proposed for the dump site now is privately owned, but Tanzer said that Tidewater and Wastech held an option to buy it.

The Tidewater-Wastech proposal "could not come at a more opportune time," Tor Lyshaug, Metro's acting director of solid waste, said.

"The picture has changed substantially in the last two months," he said. Metro has new alternatives for dealing with solid waste "at relatively reasonable prices. The new regime (Cusma's administration) can take part of the credit for that."

St. Johns tired of garbage

By HARRY BODINE
of The Oregonian staff

Lents and St. Johns-area residents testified Tuesday night that a solid-waste recovery plant — preferably a composting operation — may be a good idea, but it should not be built in their neighborhoods.

"St. Johns has done enough," resident Daniel L. Wear told the Metropolitan Service District's Resource Recovery Citizens Review Committee in a hearing at Westminster Presbyterian Church in Northeast Portland.

His views were echoed by more than a dozen persons who expressed their views on five proposals Metro is considering to burn garbage, convert it into compost or manufacture resource-derived fuel pellets as alternatives to burying waste in landfills.

William Huston, who lives in Mount Scott near the former Dwyer Lumber Co. property south of Southeast Foster Road, suggested that Metro should find a less-populated area for one of the proposals it is considering, a composting plant.

"Two miles east there is nothing," Huston said.

Reversing the trend of comments, Columbia County Commissioner Michael J. Sykes endorsed a mass garbage burning plant Fluor/Southern Electric International proposes to build in St. Helens.

In addition to solving Columbia County's solid-waste disposal problem, a "waste to energy" plant would provide electricity that would ensure that Boise Cascade Corp. would continue to operate its St. Helens plant for 20 years, Sykes said.

Answering questions from the audience after testimony, Metro officials assured those present that the regional agency would consider seriously two recent proposals to transport Portland-area garbage up the Columbia River to new long-term landfill sites in Gilliam and Morrow counties.

Dave Phillips, citizens resource recovery committee chairman, reminded the audience that his panel's charge was to recommend a course of action for Metro on alternative technologies, not landfills.

The committee is scheduled to make its recommendation May 21 to Rena Cusma, Metro's executive officer. One additional public hearing, called by the Columbia County Board of Commissioners, is scheduled for 7:30 p.m. May 20 at the courthouse in St. Helens.

ATTACHMENT 2

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMO

TO: File

DATE: March 12, 1987

FROM: Ernie Schmidt

SUBJECT: Proposed Waste Management Landfill Near Arlington, Oregon

Friday, March 6, 1987, representatives of Waste Management of North America met with DEQ staff to begin technical discussion of W-M's proposed municipal landfill in Gilliam County. Present were:

Douglas Strauch P.E.
District Engr. - No. Calif. Dist.
W-M of California, Inc.
2055 Gateway Place, Suite 240
San Jose, CA 95110
(408) 295-8544

Travis Hughes, Ph.D.
Vice Pres. Technical Programs
P.E. LaMoreaux & Assoc's (PELA)
P.O. Box 2310
Tuscaloosa, AL 35403
(205) 752-5543

For DEQ:

Bob Danko
Ernie Schmidt

Fred Bromfeld
Neil Mullane

Mr. Strauch is responsible for the technical aspects of the proposed project. The overall project will be managed by Rick Daniels at the W-M of Oregon office in Portland (249-8078). The manager of the Portland office is Doug Ogden.

PELA is W-M's geotechnical consultant and has also been the primary consultant for Chem-Waste Management on the nearby hazardous waste disposal site. The results of a preliminary on-site investigation by PELA were reviewed.

Conceptually, the landfill would ultimately cover 688 acres within two sections of land which are included in a total 2,000 acre area under option from Stone Ranches, Inc. (See attached figure). The centroid of the landfill would be about 6 miles south of Arlington and the Columbia River. Maximum depth of fill would be 165 feet including a 25 foot excavation. Total capacity is estimated at 90 X 10^6 yards. At an average fill rate of 2,000 tons/day, the site would last 102 years.

Transportation could be by rail or barge. Rail is being looked at carefully, because rail access already exists close to the site and this would avoid offloading containers of solid waste through the City of Arlington. They would also have to contend with an annual two week period,

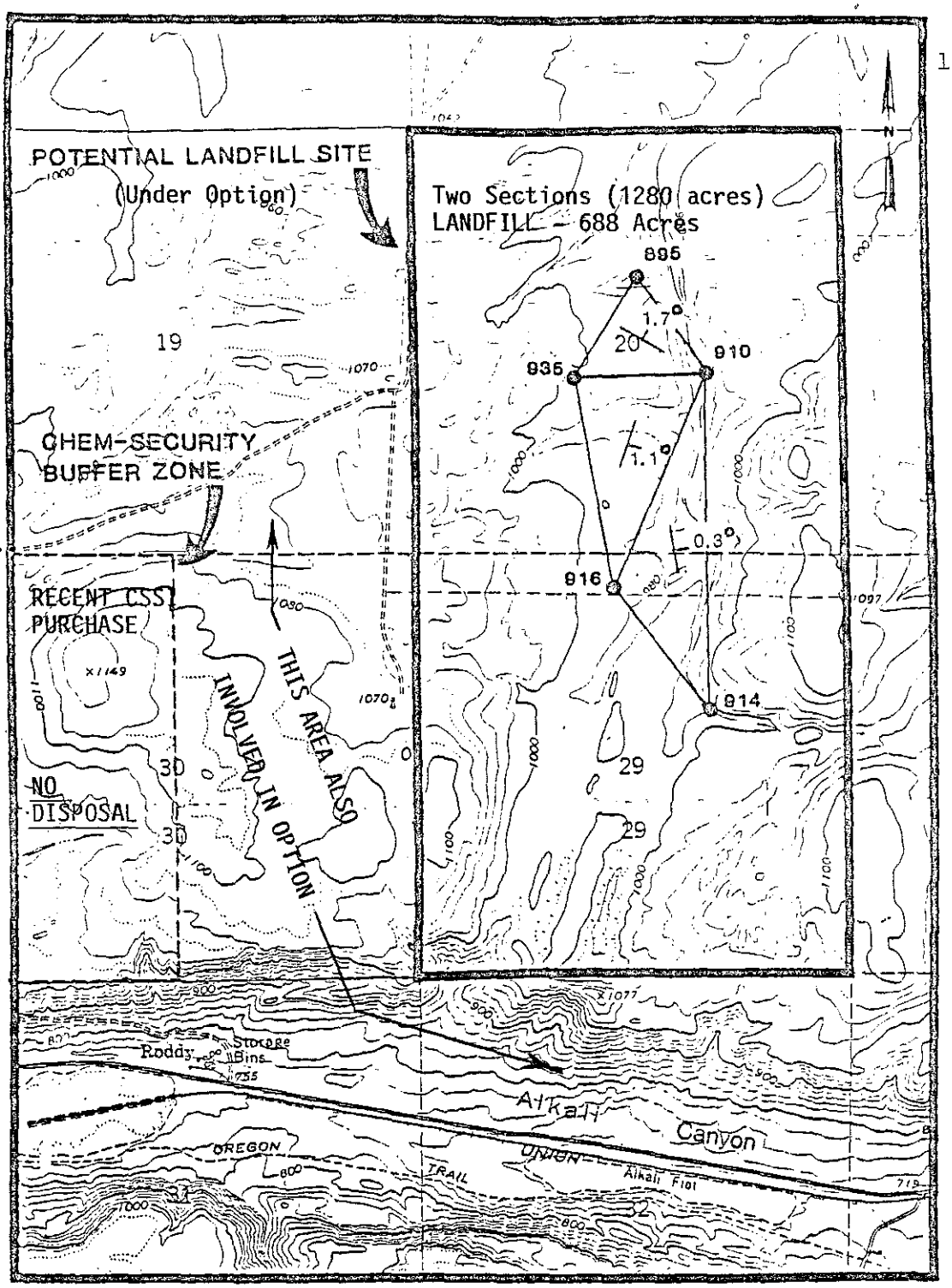
during which river traffic is stopped to accomodate locks maintenance. Barge haul would, however, tend to be cheaper and perhaps less subject to accident. We were not able to pin down an overall disposal cost figure at this early date.

Most of the discussion centered on the physical nature of the proposed site. It is a gentle draw extending north and south with intermittent drainage to the north and east, eventually to China Creek which passes through Arlington and also carries water only intermittently. Five exploratory borings have been completed to depths ranging from 55 feet to 125 feet. These revealed 7 - 10 feet of loess on top of 10 - 75 feet of permeable sands and gravels, which overly the Selah clay strata. The borings stopped within the Selah. Regional geology suggests the Selah is 75 - 125 feet deep overlying deep Priest Rapids Basalt. The lower portion of the Selah is saturated and although it is a poor aquifer, it is the water that the design of the nearby CSSI site is intended to protect. The permeability of this clay may run from 10^{-5} to 10^{-7} CM/SEC. W-M hopes to use it in any liner construction.

The Selah clay appears to be very slowly recharged by incident precipitation. Infrequent moisture fronts apparently move downward from the ground surface. Although average precipitation is only about 9 inches annually, the landfill design would have to include a liner system with leachate collection and treatment. The climate will tend to minimize the generation of leachate, but in the long-run will not prevent it.

The Department's feasibility study requirements were reviewed. A geotechnical investigation equivalent to that performed under the Department's SB662 siting process was indicated as appropriate for this proposal.

cc: Fred Hansen
Mike Downs
Steve Greenwood
Bob Danko
Steve Gardels



TOTAL AREA UNDER OPTION FOR SOLID WASTE LANDFILL PURPOSES APPROXIMATELY 2,000 ACRES

Base map from USGS 7 1/2 minute topographic maps.

910 EXPLORATORY BOREHOLE, ELEVATION OF TOP OF SELAH SHOWN.

1.1° AVERAGE STRIKE AND DIP, TOP OF SELAH MEMBER.

EAS 3/11/87

FIGURE 2. AVERAGE STRIKE AND DIP OF THE TOP OF THE SELAH MEMBER FROM TRIANGULATION BETWEEN BOREHOLES.

Prepared by:

P.E. LAMOREAUX & ASSOCIATES, INC.

Attachment 3
Agenda Item E
May 29, 1987 EQC Meeting

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

In the Matter of Amending OAR 340-61-120	)	Statement of Need for Temporary Rule Amendment and Fiscal and Economic Impact and Land Use Consistency

STATEMENT OF NEED FOR RULEMAKING:

Pursuant to ORS 183.335(7), this statement provides information on the Environmental Quality Commission's intended action to adopt a temporary rule.

1. Legal Authority

ORS 459.235 and ORS 468.065 allow the Environmental Quality Commission to establish fees for permits issued for solid waste disposal sites.

2. Need for the Rule

The Department expects to soon receive at least two solid waste facility permit applications for major landfills proposed to serve the Portland area. Additional Department staffing is needed to investigate the applications, determine whether the sites are approvable and issue or deny the permits in a timely manner. A temporary rule is needed to increase the permit processing fee paid by each applicant sufficient to cover the Department's costs of evaluating each site and processing the permit application. The normal rulemaking process could not be completed in time to establish the new fees before receipt of the permit applications.

3. Principal Documents Relied Upon in This Rulemaking

a. ORS Chapter 459

b. ORS Chapter 468

c. OAR 340, Division 61, Solid Waste Management.

d. "Preliminary Feasibility Study Report for Morrow County Solid Waste Disposal Project" dated December 19, 1986 by Seton, Johnson and Odell, Inc.

e. "Preliminary On-Site Investigation of a Potential WMNA Solid Waste Landfill Site, Gilliam County, Oregon" dated March 5, 1987 by P.E. LaMoreaux and Associates.

The above documents are available for public inspection at the office of the Department of Environmental Quality, 811 S.W. 6th Avenue, Portland, Oregon, during regular business hours, 8 a.m. to 5 p.m.

Attachment 3
Agenda Item E
May 29, 1987 EQC Meeting

FISCAL AND ECONOMIC IMPACT:

This temporary rule is expected to have very little small business impact. The proposed application fee is small compared to the total cost of establishing a major solid waste landfill site and will have negligible effect on the ultimate cost to the public for solid waste disposal.

LAND USE CONSISTENCY STATEMENT:

The proposed rule does not affect land use as defined in the Department's coordination program approved by the Land Conservation and Development Commission.

SF2000.3

Attachment 2
Agenda Item 2
June 12, 1987 EQC Meeting

Rule 340-61-120 is proposed to be amended as follows:

(Note: Underlined language is new)

Permit Fee Schedule

340-61-120(1) Filing Fee. A filing fee of $50 shall accompany each application for issuance, renewal, modification, or transfer of a Solid Waste Disposal Permit. This fee is non-refundable and is in addition to any application processing fee or annual compliance determination fee which might be imposed.

(2) Application Processing Fee. An application processing fee varying between $25 and $1,000, <u>except as provided in subsection (2)(h) of this section,</u> shall be submitted with each application. The amount of the fee shall depend on the type of facility and the required action as follows:

(a) A new facility (including substantial expansion of an existing facility):

(A) Major facility[1]	$1,000
(B) Intermediate facility[2]	$ 500
(C) Minor facility[3]	$ 175

[1]Major Facility Qualifying Factors:
-a- Received more than 25,000 tons of solid waste per year; or
-b- Has a collection/treatment system which, if not properly constructed, operated and maintained, could have a significant adverse impact on the environment as determined by the Department.

[2]Intermediate Facility Qualifying Factors:
-a- Received at least 5,000 but not more than 25,000 tons of solid waste per year; or
-b- Received less than 5,000 tons of solid waste and more than 25,000 gallons of sludge per month.

[3]Minor Facility Qualifying Factors:
-a- Received less than 5,000 tons of solid waste per year; and
-b- Received less than 25,000 gallons of sludge per month.

All tonnages based on amount received in the immediately preceding fiscal year, or in a new facility the amount to be received the first fiscal year of operation.

(b) Preliminary feasibility only (Note: the amount of this fee may be deducted from the complete application fee listed above):

(A) Major facility .....$ 600
(B) Intermediate facility .....$ 300
(C) Minor facility .....$ 100

(c) Permit renewal (including new operational plan, closure plan or improvements):

(A) Major facility .....$ 500
(B) Intermediate facility .....$ 250
(C) Minor facility .....$ 75

(d) Permit renewal (without significant change):

(A) Major facility .....$ 200
(B) Intermediate facility .....$ 100
(C) Minor facility .....$ 50

(e) Permit modification (including new operational plan, closure plan or improvements):

(A) Major facility .....$ 500
(B) Intermediate facility .....$ 250
(C) Minor facility .....$ 75

(f) Permit modification (without significant change in facility design or operation): All categories.....$ 25

(g) Permit modification (Department initiated): All categories...no fee

(h)(A) An application processing fee of $85,000 shall be submitted with each application for a major new general purpose domestic waste landfill received by the Department after May 29, 1987. For purposes of this subsection, a major new general purpose domestic waste landfill shall be defined as one designed to receive 100,000 or more tons per year of domestic solid waste and designed for a landfill area of 100 or more acres.

(B) The application processing fee may be used by the Department for costs it incurs in investigating the permit application and reaching a determination of whether to issue or deny the requested permit.

(C) Any portion of the application processing fee required under subsection (h)(A) of this section, which exceeds the Department's expenses in reviewing and processing the application, shall be refunded to the applicant.

(3) Annual Compliance Determination Fee (In any case where a facility fits into more than one category, the permittee shall pay only the highest fee):

(a) Domestic Waste Facility:

(A) A landfill which received 500,000 tons or more of solid waste per year:.....$60,000
(B) A landfill which received at least 400,000 but less than 500,000 tons of solid waste per year:.....$48,000
(C) A landfill which received at least 300,000 but less than 400,000 tons of solid waste per year:.....$36,000
(D) A landfill which received at least 200,000 but less than 300,000 tons of solid waste per year:.....$24,000
(E) A landfill which received at least 100,000 but less than 200,000 tons of solid waste per year:.....$12,000
(F) A landfill which received at least 50,000 but less than 100,000 tons of solid waste per year:.....$ 6,000

(G) A landfill which received at least 25,000 but less than 50,000 tons of solid waste per year:.....$ 3,000

(H) A landfill which received at least 10,000 but less than 25,000 tons of solid waste per year:.....$ 1,200

(I) A landfill which received at least 5,000 but not more than 10,000 tons of solid waste per year:.....$ 500

(J) A landfill which received at least 1,000 but not more than 5,000 tons of solid waste per year:.....$ 100

(K) A landfill which received less than 1,000 tons of solid waste per year:.....$ 50

(L) A transfer station, incinerator, resource recovery facility and each other facility not specifically classified above which received more than 10,000 tons of solid waste per year: .....$ 500

(M) A transfer station, incinerator, resource recovery facility and each other facility not specifically classified above which received less than 10,000 tons of solid waste per year:.....$ 50

(b) Industrial Waste Facility:

(A) A facility which received 10,000 tons or more of solid waste per year:.....$1,000

(B) A facility which received at least 5,000 tons but less than 10,000 tons of solid waste per year:.....$ 500

(C) A facility which received less than 5,000 tons of solid waste per year:.....$ 100

(c) Sludge Disposal Facility:

(A) A facility which received 25,000 gallons or more of sludge per month:.....$ 100

(B) A facility which received less than 25,000 gallons of sludge per month:.....$ 50

(C) Closed Disposal Site: Each landfill which closes after July 1, 1984:.....10% of the fee which would be required, in accordance with subsections (3)(a), (3)(b), and (3)(c) above, if the facility was still in operation or $50 whichever is greater.

(e) Facility With Monitoring Well: In addition to the fees described above, each facility with one or more wells for monitoring groundwater or methane, surface water sampling points, or any other structures or locations requiring the collection and analysis of samples by the Department, shall be assessed a fee. The amount of the fee shall depend on the number of wells (each well in a multiple completion well is considered to be a separate well) or sampling points as follows:

(A) A facility with six or less monitoring wells or sampling points:.....$1,100

(B) A facility with more than six monitoring wells or sampling points:.....$2,000

(4) Annual Recycling Program Implementation Fee. An annual recycling program implementation fee shall be submitted by each domestic waste disposal site, except transfer stations and closed landfills. This fee is in addition to any other permit fee which may be assessed by the Department. The amount of the fee shall depend on the amount of solid waste received as follows:

(a) A disposal site which received 500,000 tons or more of solid waste per year:.....$19,000

(b) A disposal site which received at least 400,000 but less than 500,000 tons of solid waste per year:.....$15,200

(c) A disposal site which received at least 300,000 but less than 400,000 tons of solid waste per year:.....$11,400

(d) A disposal site which received at least 200,000 but less than 300,000 tons of solid waste per year:.....$ 7,600

(e) A disposal site which received at least 1100,000 but less than 200,000 tons of solid waste per year:.....$ 3,800

(f) A disposal site which received at least 50,000 but less than 100,000 tons of solid waste per year:.....$ 1,900

(g) A disposal site which received at least 25,000 but less than 50,000 tons of solid waste per year:.....$ 950

(h) A disposal site which received at least 10,000 but less than 25,000 tons of solid waste per year:.....$ 375

(i) A disposal site which received at least 5,000 but less than 10,000 tons of solid waste per year:.....$ 175

(j) A disposal site which received at least 1,000 but less than 5,000 tons of solid waste per year:.....$ 30

(k) A disposal site which received less than 1,000 tons of solid waste per year:.....$ 15

Stat. Auth.: ORS Ch. 459 & 468

Hist.: DEQ 3-1984, F. & ef. 3-7-84

NEIL GOLDSCHMIDT
GOVERNOR

Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

INTEROFFICE MEMO

TO: Environmental Quality Commission

FROM: Fred Hansen, Director
Department of Environmental Quality

SUBJECT: Financial Analysis of Potential Landfill Sites

In response to the Commission's request, and testimony from the City of Portland, the Department is submitting to you a financial analysis of the two potential landfill sites. The financial analysis differs from the economic cost analysis contained in the final feasibility reports in that it considers the impact of inflation and financing. The financial "per-ton" costs are therefore more reflective of the actual landfill and transport portion of the "tipping fee".

The financial analysis was conducted for DEQ by Metro, which is the agency responsible for setting disposal rates in the region. Metro's financial consultant took the costs for each landfill site from DEQ's final feasibility reports, determined the most appropriate financing methods for capital and operating costs, and generated a total cash requirement on an annual and a per-ton basis. These figures were then reviewed and approved by DEQ's economic consultant (see attached memo).

The conclusions of the financial analysis can be summarized as follows:

1. The landfill and transport portion of the tipping fee will be substantially higher than the present fee at the St. Johns Landfill.

2. The Ramsey Lake site will be substantially more expensive than the Bacona Road site. In the first year of operations, with no alternative technology, costs at the Ramsey Lake site will be near $65 per ton, and costs at the Bacona Road site will be near $40 per ton.

3. The financial analysis has resulted in higher per-ton costs, at both sites, than were generated in the economic analysis found in the final feasibility reports. This refects both the costs of financing and inflation, which were excluded in the economic model. However, the relative differences between the sites is similar. The Ramsey Lake site is approximately 65% more expensive than the Bacona Road site using the economic model, and approximately 62% more expensive using the financial analysis.

4. The major difference between the two sites is the substantially greater capital costs and initial bond sale required at the Ramsey Lake site.

The financial analysis performed by Metro was done using generally accepted financing practices and assumptions. Actual costs may, of course, vary if there is variation from the assumptions used in the analysis. It should be emphasized that, even if the assumptions are correct, the financial analysis only relates to the landfill and transportation portions of the expected tipping fee. Itshould not be considered as the full costs of solid waste disposal or the actual "tipping fee" that may be charged.

Steve Greenwood:m
SM1084
Attachment
229-5782
June 2, 1987

CH2M HILL

MEMORANDUM

TO: Steve Greenwood / DEQ

FROM: David Hasson / CH2M HILL

DATE: June 1, 1987

PROJECT: Landfill Siting Evaluation

NUMBER: P21633.GO

SUBJECT: Financial Analysis

At your request, I have reviewed Metro's financial analysis of the Ramsey Lake and Bacona Road sites conducted by Metro's financial advisor, Government Finance Associates (GFA). Their analysis is still in draft form, but discussions with GFA staff indicate that the version I have reviewed is not expected to change significantly before it is made final.

In my review I have evaluated the assumptions for "reasonableness." I have also checked the methodology with respect to its validity, completeness, and consistency, and I conducted some random checking of the calculations for accuracy. Finally, I have considered the results for conclusions they suggest with respect to the financial impacts of the choice of the landfill site.

My review has not evaluated the technical accuracy of the cost estimates used in the analysis. The engineering estimates of capital and operation and maintenance are therefore assumed valid. Similarly, the estimates of the waste loads are assumed accurate for the purposes of this review. The financial analysis and my review consider only the impacts of the landfill and transportation costs. The results relate only to these two items and should not be considered as the full costs of solid waste disposal or tipping fees that may be charged.

The assumptions used in Metro's analysis appear reasonable for the purposes of assessing the financial impacts of the two landfill sites. The use of a 5 percent inflation rate is apppropriate under current conditions. It is extremely difficult to project future inflation rates, and there is no information to suggest a significantly different rate over the period covered by the analysis. The assumptions concerning the financing terms also appear reasonable. To the extent that actual values of the

parameters vary from the assumed values, the results will also differ from those shown in Metro's report. Any such variations would probably affect the results of both landfill sites' costs in the same manner, although perhaps not in the same magnitudes (depending on the specific items).

The approach used in the report is consistent between the alternatives and appears to be complete. There is a matching between sources and uses of funds. Where there were judgements regarding the availability of funds or funding requirements, Metro and GFA consistently chose to be "conservative" by using assumptions that would not understate costs. I found no problems with the methodology that was used, and my opinion is that it presents a reasonable and fair portrayal of the landfill costs in financial terms. I also found no instances of calculation errors in my random checking of the model's arithmetic and formulas.

The results of the Metro study indicate that the Ramsey Lake site would be substantially more expensive than the Bacona Road site. This is true both with and without resource recovery. Table 1 attached to this memorandum presents the cost numbers from the analysis for selected years. The selected years are the final year of construction (1989), the first year of operation (1990), the first year of resource recovery operation (1993), and an arbitrarily selected year (1995). The major cost differences are in the debt service and periodic costs. These are much higher for the Ramsey Lake alternatives. Operation and maintenance costs are somewhat higher under the Ramsey Lake alternatives. Transportation costs are somewhat higher for the Bacona Road. alternatives. For both sites the costs per ton with resource recovery are higher than without resource recovery. This is because resource recovery reduces tonnage to the landfill more than it reduces costs. For both sites the costs tend to increase over time, although there are some fluctuations due to the cash flows of the periodic costs.

My conclusion is that the Metro report on financial impacts of the landfill sites fairly reflects the costs that may be anticipated from the alternatives, given the assumptions and currently available information. The results provide a reasonable basis for comparing the financial impacts of the alternatives.

TABLE 1
LANDFILL FINANCIAL IMPACT SUMMARY
(thousand dollars)

ITEM	1989	1990	1993	1995
BACONA ROAD: NO RESOURCE RECOVERY				
DEBT SERVICE AND PERIODIC COSTS	6,671.7	12,128.6	14,898.9	16,446.7
OPERATION AND MAINTENANCE	0.0	7,135.6	8,260.4	9,107.1
SUBTOTAL LANDFILL	6,671.7	19,264.2	23,159.3	25,553.8
TRANSPORTATION	0.0	9,098.2	10,532.3	11,611.9
TOTAL COST	6,671.7	28,362.4	33,691.6	37,165.7
COST PER TON	9.24	39.45	48.06	51.33
BACONA ROAD: WITH RESOURCE RECOVERY				
DEBT SERVICE AND PERIODIC COSTS	6,666.8	11,163.5	13,912.8	12,541.6
OPERATION AND MAINTENANCE	0.0	6,695.3	7,750.7	8,545.1
SUBTOTAL LANDFILL	6,666.8	17,858.8	21,663.5	21,086.7
TRANSPORTATION	0.0	6,065.5	7,021.5	7,741.3
TOTAL COST	6,666.8	23,924.3	28,685.0	28,828.0
COST PER TON	9.23	33.27	62.91	60.18
RAMSEY LAKE: NO RESOURCE RECOVERY				
DEBT SERVICE AND PERIODIC COSTS	17,263.4	31,888.5	43,649.8	41,452.9
OPERATION AND MAINTENANCE	0.0	8,739.0	10,117.0	11,154.0
SUBTOTAL LANDFILL	17,263.4	40,627.5	53,766.8	52,606.9
TRANSPORTATION	0.0	5,961.4	6,865.8	7,569.6
TOTAL COST	17,263.4	46,588.9	60,632.6	60,176.5
COST PER TON	23.91	64.76	86.49	83.12
RAMSEY LAKE: WITH RESOURCE RECOVERY				
DEBT SERVICE AND PERIODIC COSTS	16,493.9	24,742.9	31,883.3	27,876.9
OPERATION AND MAINTENANCE	0.0	8,298.8	9,606.9	10,591.6
SUBTOTAL LANDFILL	16,493.9	33,041.7	41,490.2	38,468.5
TRANSPORTATION	0.0	3,954.6	4,577.9	5,047.1
TOTAL COST	16,493.9	36,996.3	46,068.2	43,515.7
COST PER TON	22.84	51.46	101.03	90.85

Source: Government Finance Associates, Inc. "Metro Resource Recovery Project System Cost - Financial Component" draft dated May 28, 1987.

Government Finance Associates, Inc.

1300 S.W. 5th Avenue, Suite 2929
Portland, Oregon 97201
503/222-1405

METRO RESOURCE RECOVERY PROJECT

SYSTEM COST — FINANCIAL COMPONENT

May 28, 1987

Metro requested that Government Finance Associates provide financial cost projections for the two proposed landfill sites, Bacona Road and Ramsey Lake. The projections were based upon the Department of Environmental Quality's economic analysis.

OBSERVATIONS

Findings of the analysis are highlighted on the "Summary Chart." Certain observations can be derived from this chart:

1. Overall, Ramsey Lake is more expensive than Bacona Road.
   a. The capital costs are substantially greater for Ramsey Lake.
   b. The periodic costs are slightly higher.
   c. The operations and maintenance costs are slightly higher.
   d. The transportation costs are higher for Bacona Road.
2. The resource recovery project causes a decrease in the waste flow while there is no corresponding decrease in the term of the bonds. Therefore, the tip fee rises noticeably when the resource recovery project comes online.
3. The periodic costs accelerate if there is no resource recovery project, since the life of the facility is shortened. This acceleration increases periodic costs sufficiently to offset the increase due to waste stream reduction by the resource recovery project in the Bacona Road case.

4. Inflation obviously has a major impact on the costs. This analysis does not reflect the corresponding rise in personal income which should accompany the inflation. Therefore, this analysis does not address affordability.

ASSUMPTIONS

For the purposes of this analysis, the following assumptions were agreed upon by Metro, DEQ and GFA:

1. All costs inflated annually at a 5% rate from the base 1987 dollar values.

2. The facility would begin operations on January 1, 1990. No tip fees would be received until this date.

3. A long-term revenue bond issue would finance the pre-development and capital costs. The first purchase of heavy equipment and the initial cell preparation costs are also included in the bond issue.

   a. According to bond counsel, the bonds would be judged "governmental purpose" under the 1986 Tax Reform Act and therefore would receive a tax-exempt rate without requiring a state "cap" allocation or incurring an "alternative minimum tax."

   b. The average rate for long-term borrowing was 9.00%. The actual cost of borrowing varies with the maturity structure; however, in this analysis it was assumed that all bonds would have a "level" debt service (each year's principal and interest payment is roughly equal.) As interest rates rise, it is highly likely that Metro would issue a "variable rate" bond issue; however, for this analysis the rate is "fixed" (the same throughout the term of the bonds.)

      The bond interest rate has the greatest effect upon the financing costs.

   c. The bonds would be issued on January 1, 1988. The first interest payment would then be due July 1, 1988.

d. The construction period is two years. The semi-annual interest payments would be paid from bond proceeds ("capitalized") for two years. By July 1, 1990 sufficient tip fees would have accumulated to meet this interest payment and tip fees would cover all "debt service" (principal and interest) payments thereon.

Capitalized interest is expensive because it substantially increases the bond issue size but is necessary because the tip fees are not received until the facility becomes operational in 1990. Metro could decide to finance the construction costs from short-term notes which would be retired by bonds after construction is complete. Although the notes would reduce the cost because they bear a lower interest rate, this exposes Metro to the risk that interest rates rise during the construction period causing the long term bond interest rate in 1990 to be higher than in 1988.

e. The term of the bond issue will not exceed the useful life of the facility plus two years construction.

f. The investment rate for the bond proceeds is 7.00%. This is 2% below the bond rate and therefore a "negative arbitrage" cost (interest cost exceeds the interest rate on investment of bond proceeds held during construction) is assumed. If interest rates rise after selling the bonds, this negative arbitrage cost would disappear; however, federal law prohibits earning in excess of the rate on the bonds. Any investment earnings achieved from investing at a higher rate ("arbitrage") must be rebated to the federal government.

g. The total costs to issue the bonds, including the fee paid to the underwriters, is estimated to be 3% of the total principal amount.

h. Revenue bonds require that the tip fees are set to meet a "coverage requirement." The coverage requirement obligates Metro to raise tip fees sufficient to exceed the annual debt service payment by some specific amount. This analysis uses the typical "1.25 times" coverage requirement. For example, if the annual debt service payment was $100,000, the tip fees for the year must total not less than $125,000.

The excess $25,000 is available for use by Metro. In this analysis, the excess from coverage is used first to fund a "debt reserve" (see below) and then to reduce the tip fees needed to fund the "periodic cost reserves" described below.

i. Revenue bonds also require a "debt reserve" which is a reserve fund, held by a trustee, which holds an amount equal to one year's debt service throughout the life of the bond issue. Although often funded from bonds, this analysis assumes that the debt reserve is funded from the bond coverage revenues over a five year period. During this time, a letter of credit is purchased from a bank until the debt reserve is fully funded. The additional security provided by this letter of credit is important to those who buy bonds.

The debt reserve will also earn interest and is restricted by the 1986 Tax Reform Bill. The earnings in this analysis are used to offset the tip fees required for the periodic cost reserves described below.

4. The costs of heavy equipment (except the first purchase), cell preparation (except the first), cell closure, final closure of the landfill, and post closure are all financed by tip fees. The costs are spread over each five or six year period and accumulated in a reserve fund until needed. The funds are invested at a 7% rate. Each annual requirement is increased by 5% annually, to match the rate of inflation. Equipment purchases are offset by the estimated salvage value of prior equipment.

The use of the "annually funded reserves" eliminates the interest and sale costs associated with selling bonds. If bonds were sold, the term should not exceed the five or six year useful life of the items and therefore would increase the annual cost of financing these items. If interest rates rise, these reserves are not subject to any federal "arbitrage" restrictions and thus can earn interest at whatever rate is available. Higher earning rates would reduce the amount which tip fees must cover.

SOURCES OF INFORMATION

1. The cost estimates upon which the financial analysis is based were taken from the Department of Environmental Quality analysis. These included pre-development, capital items, cell preparation and closure, final closure and post closure costs.

2. Cost estimates for operations and maintenance and for transportation were taken directly from the Department of Environmental Quality economic analysis.

3. Waste projections were provided by the Department of Environmental Quality.

4. Letter of credit information was derived from a bid by the Bank of Tokyo to the City of Portland.

Questions regarding the analysis may be referred to Rebecca Marshall or Ken Rust, Government Finance Associates, 222-1405.

METRO RESOURCE RECOVERY PROJECT
SYSTEM COST - FINANCIAL COMPONENT

29-May-87
SUMFIN

****
SUMMARY CHART
****

BASIC ASSUMPTIONS:

Annual Rate of Inflation	5.00%
Bond Rate	9.00%
Investment Earnings Rate	7.00%
Date of operation (tip fee revenues begin)	January 1, 1990
Date of bonds	January 1, 1988
Years interest is capitalized (paid from bonds)	2
Date resource recovery project online	January 1993

	******BACONA ROAD*********		******RAMSEY LAKE*******	
	WITH RR	WITHOUT RR	WITH RR	WITHOUT RR
ANNUAL TOTAL ALL COSTS				
1990	23,924	28,362	36,996	46,559
1995	28,828	37,166	43,515	60,177
2000	34,750	42,739	52,906	75,907
2005	42,693	52,553	59,788	13,578
UNIT COST - NOMINAL				
1990	33.27	39.45	51.46	64.76
1995	60.18	51.33	90.85	83.12
2000	64.83	54.72	98.71	97.19
2005	72.00	62.71	100.82	16.20
TOTAL COSTS FINANCED BY BONDS	63,471	63,518	156,133	163,984
ANNUAL DEBT SERVICE, 1991	9,685	9,692	24,281	29,765
ANNUAL TOTAL PERIODIC COSTS				
1990	4,497	5,457	8,249	14,625
1995	2,857	6,754	3,596	11,687
2000	4,278	6,603	8,666	22,245
2005	6,479	9,112	10,033	3,412
OPERATIONS AND MAINTENANCE,1990	6,695	7,136	8,299	8,739
TRANSPORTATION, 1990	6,065	9,098	3,955	5,931
WASTE (1,000 TONS)				
1990	719	719	719	719
1995	479	724	479	724
USEFUL LIFE OF FACILITY (YEARS)	58	47	22	15
TERM OF BOND ISSUE	25	25	24	17

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

29-May-87
IBACNO

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

*****ALL FIGURES IN THOUSANDS*****

CALENDAR YEAR		1988	1989	1990	1991	1992	1993	1994	1995	19
PRE-DEVELOPMENT AND CAPITAL BONDS		3,336	6,671.7	6,671.7	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692
Tip fee revenue amounts here fund the debt service requirement PLUS the coverage requirement on the bonds. The coverage amount is then used to fund the debt service reserve and to offset the periodic cost reserve requirement.										
Present Value	9.00%	3,060.4	5,615.4	5,151.8	6,866.3	6,299.3	5,779.2	5,302.0	4,864.2	4,462
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment				595.0	595.0	595.0	595.0	595.0	958.5	958
Cell preparation and closure				4,759.0	4,759.0	4,759.0	4,759.0	4,759.0	7,665.0	7,665
Final Closure				2.5	2.5	2.5	2.5	2.5	2.5	2
Post Closure				473.7	497.4	522.2	548.4	575.8	604.6	634
LESS Surplus from coverage				(373.3)	(373.3)	(373.3)	(373.3)	(373.3)	(1,934.5)	(1,934
LESS Earnings on debt reserve				0.0	(108.3)	(216.7)	(325.0)	(433.3)	(541.6)	(541
TOTAL PERIODIC COSTS				5,456.9	5,372.2	5,288.8	5,206.6	5,125.7	6,754.4	6,784
TOTAL BONDS AND PERIODIC COSTS		3,335.9	6,671.7	12,128.6	15,064.5	14,981.1	14,898.9	14,817.9	16,446.7	16,476
OPERATIONS AND MAINTENANCE (named range "OM")	0	0	0	7,136	7,492	7,867	8,260	8,673	9,107	9,5
TRANSPORTATION (named rng "TRANS")	0	0	0	9,098	9,553	10,031	10,532	11,059	11,612	12,1
TOTAL ALL COSTS		3,335.9	6,671.7	28,362.4	32,110.1	32,878.9	33,691.6	34,550.3	37,165.7	38,231
WASTE PROJECTIONS		725	722	719	714	709	701	713	724	7
UNIT COST -NOMINAL		4.60	9.24	39.45	44.97	46.37	48.06	48.46	51.33	52.

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		1997	1998	1999	2000	2001	2002	2003	2004	2
PRE-DEVELOPMENT AND CAPITAL BONDS		9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,69
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	4,094.1	3,756.1	3,445.9	3,161.4	2,900.4	2,660.9	2,441.2	2,239.6	2,05
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		958.5	958.5	923.5	923.5	923.5	923.5	923.5	1,179.0	1,17
Cell preparation and closure		7,665.0	7,665.0	7,382.0	7,382.0	7,382.0	7,382.0	7,382.0	9,422.0	9,42
Final Closure		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Post Closure		666.5	699.9	734.8	771.6	810.2	850.7	893.2	937.9	98
LESS Surplus from coverage		(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,93
LESS Earnings on debt reserve		(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(54
TOTAL PERIODIC COSTS		6,816.4	6,849.7	6,566.7	6,603.5	6,642.0	6,682.5	6,725.1	9,065.2	9,11
TOTAL BONDS AND PERIODIC COSTS		16,508.7	16,542.0	16,259.0	16,295.7	16,334.3	16,374.8	16,417.4	18,757.5	18,80
OPERATIONS AND MAINTENANCE (named range "OM")	0	10,041	10,543	11,070	11,623	12,204	12,815	13,455	14,128	14,
TRANSPORTATION (named rng "TRANS")	0	12,802	13,442	14,114	14,820	15,561	16,339	17,156	18,014	18,
TOTAL ALL COSTS		39,351.3	40,526.8	41,443.0	42,739.0	44,099.7	45,528.5	47,028.7	50,899.4	52,55
WASTE PROJECTIONS		747	758	770	781	792	804	815	826	
UNIT COST -NOMINAL		52.68	53.47	53.82	54.72	55.68	56.63	57.70	61.62	62

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2006	2007	2008	2009	2010	2011	2012	2013	2
PRE-DEVELOPMENT AND CAPITAL BONDS		9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	0.0	
Tip fee revenue amounts here fund the debt serv									from DSR	
The coverage amount is then used to fund the de										
Present Value	9.00%	1,885.0	1,729.4	1,586.6	1,455.6	1,335.4	1,225.2	1,124.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		1,179.0	1,179.0	1,179.0	1,504.8	1,504.8	1,504.8	1,504.8	1,504.8	2,42
Cell preparation and closure		9,422.0	9,422.0	9,422.0	12,025.0	12,025.0	12,025.0	12,025.0	12,025.0	19,36
Final Closure		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Post Closure		1,034.0	1,085.7	1,140.0	1,197.0	1,256.8	1,319.7	1,385.7	1,455.0	1,52
LESS Surplus from coverage		(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	0.0	
LESS Earnings on debt reserve		(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	0.0	
TOTAL PERIODIC COSTS		9,161.4	9,213.1	9,267.4	12,253.2	12,313.0	12,375.9	12,441.8	14,987.2	23,32
TOTAL BONDS AND PERIODIC COSTS		18,853.7	18,905.4	18,959.6	21,945.4	22,005.3	22,068.1	22,134.1	14,987.2	23,32
OPERATIONS AND MAINTENANCE (named range "OM")	0	15,576	16,355	17,173	18,031	18,933	19,880	20,874	21,917	23,
TRANSPORTATION (named rng "TRANS")	0	19,860	20,853	21,896	22,991	24,140	25,347	26,615	27,945	29,
TOTAL ALL COSTS		54,290.1	56,113.7	58,028.4	62,967.6	65,078.5	67,295.0	69,622.4	64,849.9	75,67
WASTE PROJECTIONS		849	860	872	883	894	906	917	928	
UNIT COST -NOMINAL		63.95	65.25	66.55	71.31	72.79	74.28	75.92	69.88	80

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

****
BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%
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ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2006	2007	2008	2009	2010	2011	2012	2013	2
PRE-DEVELOPMENT AND CAPITAL BONDS		9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	9,692.3	0.0	
Tip fee revenue amounts here fund the debt serv									from DSR	
The coverage amount is then used to fund the de										
Present Value	9.00%	1,885.0	1,729.4	1,586.6	1,455.6	1,335.4	1,225.2	1,124.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		1,179.0	1,179.0	1,179.0	1,504.8	1,504.8	1,504.8	1,504.8	1,504.8	2,42
Cell preparation and closure		9,422.0	9,422.0	9,422.0	12,025.0	12,025.0	12,025.0	12,025.0	12,025.0	19,36
Final Closure		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Post Closure		1,034.0	1,085.7	1,140.0	1,197.0	1,256.8	1,319.7	1,385.7	1,455.0	1,52
LESS Surplus from coverage		(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	(1,934.5)	0.0	
LESS Earnings on debt reserve		(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	(541.6)	0.0	
TOTAL PERIODIC COSTS		9,161.4	[illegible]	[illegible]	12,253.2	12,313.0	12,375.9	12,441.8	14,987.2	23,32

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2015	2016	2017	2018	2019	2020	
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv								
The coverage amount is then used to fund the de								
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)								
Heavy Equipment		2,423.5	2,423.5	2,423.5	2,334.0	2,334.0	2,334.0	2,
Cell preparation and closure		19,368.0	19,368.0	19,368.0	18,654.5	18,654.5	18,654.5	18,
Final Closure		2.5	2.5	2.5	2.5	2.5	2.5	
Post Closure		1,604.1	1,684.3	1,768.5	1,856.9	1,949.8	2,047.3	2,
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL PERIODIC COSTS		23,398.1	23,478.3	23,562.5	22,847.9	22,940.7	23,038.2	23,
TOTAL BONDS AND PERIODIC COSTS		23,398.1	23,478.3	23,562.5	22,847.9	22,940.7	23,038.2	23,
OPERATIONS AND MAINTENANCE	0	24,164	25,372	26,641	27,973	29,371	30,840	3

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2015	2016	2017	2018	2019	2020	2021	2022	2
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		2,423.5	2,423.5	2,423.5	2,334.0	2,334.0	2,334.0	2,334.0	2,334.0	2,97
Cell preparation and closure		19,368.0	19,368.0	19,368.0	18,654.5	18,654.5	18,654.5	18,654.5	18,654.5	23,80
Final Closure		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Post Closure		1,604.1	1,684.3	1,768.5	1,856.9	1,949.8	2,047.3	2,149.6	2,257.1	2,37
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL PERIODIC COSTS		23,398.1	23,478.3	23,562.5	22,847.9	22,940.7	23,038.2	23,140.6	23,248.1	29,15
TOTAL BONDS AND PERIODIC COSTS		23,398.1	23,478.3	23,562.5	22,847.9	22,940.7	23,038.2	23,140.6	23,248.1	29,15
OPERATIONS AND MAINTENANCE (named range "OM")	0	24,164	25,372	26,641	27,973	29,371	30,840	32,382	34,001	35,
TRANSPORTATION (named rng "TRANS")	0	30,810	32,350	33,968	35,666	37,449	39,322	41,288	43,352	45,
TOTAL ALL COSTS		78,371.6	81,200.5	84,170.9	86,486.7	89,761.5	93,200.0	96,810.5	100,601.4	110,38
WASTE PROJECTIONS		951	962	974	985	996	1,008	1,019	1,030	1,
UNIT COST -NOMINAL		82.41	84.41	86.42	87.80	90.12	92.46	95.01	97.67	105

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2024	2025	2026	2027	2028	2029	2030	2031	2
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		2,979.0	2,979.0	2,979.0	2,979.0	4,798.0	4,798.0	4,798.0	4,798.0	81
Cell preparation and closure		23,808.0	23,808.0	23,808.0	23,808.0	38,348.0	38,348.0	38,348.0	38,348.0	4,53
Final Closure		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Post Closure		2,488.5	2,612.9	2,743.5	2,880.7	3,024.7	3,176.0	3,334.8	3,501.5	3,67
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL PERIODIC COSTS		29,277.9	29,402.4	29,533.0	29,670.2	46,173.2	46,324.4	46,483.2	46,650.0	9,04
TOTAL BONDS AND PERIODIC COSTS		29,277.9	29,402.4	29,533.0	29,670.2	46,173.2	46,324.4	46,483.2	46,650.0	9,04
OPERATIONS AND MAINTENANCE (named range "OM")	0	37,486	39,360	41,328	43,395	45,564	47,843	50,235	52,747	55,
TRANSPORTATION (named rng "TRANS")	0	47,796	50,186	52,695	55,330	58,096	61,001	64,051	67,254	70,
TOTAL ALL COSTS		114,560.0	118,948.5	123,556.5	128,394.8	149,834.1	155,168.4	160,769.4	166,650.4	135,04
WASTE PROJECTIONS		1,053	1,064	1,076	1,087	1,098	1,110	1,121	1,133	1.
UNIT COST -NOMINAL		108.79	111.79	114.83	118.12	136.46	139.79	143.42	147.09	118

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2033	2034	2035	2036	2037	2038	2039	2040	
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		815.0	815.0	815.0	815.0	0.0	0.0	0.0	0.0	
Cell preparation and closure		4,555.0	4,555.0	4,555.0	4,555.0	0.0	0.0	0.0	0.0	
Final Closure		2.5	2.5	2.5	2.5	0.0	0.0	0.0	0.0	
Post Closure		3,860.4	4,053.4	4,256.1	4,468.9	4,692.4	0.0	0.0	0.0	
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL PERIODIC COSTS		9,232.9	9,425.9	9,628.6	9,841.4	4,692.4	0.0	0.0	0.0	
TOTAL BONDS AND PERIODIC COSTS		9,232.9	9,425.9	9,628.6	9,841.4	4,692.4	0.0	0.0	0.0	
OPERATIONS AND MAINTENANCE (named range "OM")	0	58,153	61,061	64,114	67,320					
TRANSPORTATION (named rng "TRANS")	0	74,147	77,855	81,747	85,835					
TOTAL ALL COSTS		141,533.4	148,341.4	155,489.9	162,995.8	4,692.4	0.0	0.0	0.0	
WASTE PROJECTIONS		1,155	1,167	1,178	1,189	1,201	1,212	1,223	1,235	1,
UNIT COST -NOMINAL		122.54	127.11	131.99	137.09	3.91	0.00	0.00	0.00	0

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

BACONA ROAD - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2042	2043	2044	2045	2046	2047	2048	2049	TO
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		0.0	0.0	0.0	0.0					
Cell preparation and closure		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	664.
Final Closure		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Post Closure		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(36.
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(10.
TOTAL PERIODIC COSTS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	790.
TOTAL BONDS AND PERIODIC COSTS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,020.
OPERATIONS AND MAINTENANCE (named range "OM")	0									
TRANSPORTATION (named rng "TRANS")	0									
TOTAL ALL COSTS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
WASTE PROJECTIONS		1,257	1,269	1,280	1,291	1,303	1,314	1,325	1,337	
UNIT COST -NOMINAL		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

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BACONA ROAD - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

29-May-87
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ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

*****ALL FIGURES IN THOUSANDS*****

CALENDAR YEAR		1988	1989	1990	1991	1992	1993	1994	1995	19
PRE-DEVELOPMENT AND CAPITAL BONDS		3,333	6,666.8	6,666.8	9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	9,685
Tip fee revenue amounts here fund the debt service requirement PLUS the coverage requirement on the bonds. The coverage amount is then used to fund the debt service reserve and to offset the periodic cost reserve requirement.										
Present Value	9.00%	3,058.1	5,611.3	5,148.0	6,861.2	6,294.7	5,774.9	5,298.1	4,860.6	4,459
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment				595.0	595.0	595.0	595.0	595.0	958.5	958
Cell preparation and closure				3,920.0	3,920.0	3,920.0	3,920.0	3,920.0	3,920.0	5,252
Final Closure				1.8	1.8	1.8	1.8	1.8	1.8	1
Post Closure				353.0	370.6	389.1	408.6	429.0	450.5	473
LESS Surplus from coverage				(373.0)	(373.0)	(373.0)	(373.0)	(373.0)	(1,933.0)	(1,933
LESS Earnings on debt reserve				0.0	(108.2)	(216.5)	(324.7)	(433.0)	(541.2)	(541
TOTAL PERIODIC COSTS				4,496.8	4,406.2	4,316.4	4,227.7	4,139.8	2,856.5	4,211
TOTAL BONDS AND PERIODIC COSTS		3,333.4	6,666.8	11,163.5	14,091.3	14,001.6	13,912.8	13,824.9	12,541.6	13,896
OPERATIONS AND MAINTENANCE (named range "OM")	0	0	0	6,695	7,030	7,382	7,751	8,138	8,545	8,9
TRANSPORTATION (named rng "TRANS")	0	0	0	6,065	6,369	6,687	7,022	7,373	7,741	8,1
TOTAL ALL COSTS		3,333.4	6,666.8	23,924.3	27,490.1	28,070.3	28,685.0	29,335.8	28,828.0	30,997
WASTE PROJECTIONS		725	722	719	714	709	456	468	479	4
UNIT COST -NOMINAL		4.60	9.23	33.27	38.50	39.59	62.91	62.68	60.18	63.

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BACONA ROAD - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		1997	1998	1999	2000	2001	2002	2003	2004	
PRE-DEVELOPMENT AND CAPITAL BONDS		9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	9,6
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	4,091.1	3,753.3	3,443.4	3,159.1	2,898.2	2,658.9	2,439.4	2,238.0	2,0
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		958.5	958.5	923.5	923.5	923.5	923.5	923.5	1,179.0	1,1
Cell preparation and closure		5,252.5	5,252.5	5,252.5	5,252.5	5,252.5	7,039.0	7,039.0	7,039.0	7,0
Final Closure		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
Post Closure		496.7	521.5	547.6	574.9	603.7	633.9	665.6	698.8	7
LESS Surplus from coverage		(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,9
LESS Earnings on debt reserve		(541.2)	(541.2)	(541.2)	(541.2)	(541.2)	(541.2)	(541.2)	(541.2)	(5
TOTAL PERIODIC COSTS		4,235.2	4,260.0	4,251.1	4,278.5	4,307.2	6,123.9	6,155.6	6,444.4	6,4
TOTAL BONDS AND PERIODIC COSTS		13,920.3	13,945.1	13,936.2	13,963.6	13,992.3	15,809.0	15,840.7	16,129.5	16,1
OPERATIONS AND MAINTENANCE (named range "OM")	0	9,421	9,892	10,387	10,906	11,451	12,024	12,625	13,256	13
TRANSPORTATION (named rng "TRANS")	0	8,535	8,961	9,410	9,880	10,374	10,893	11,437	12,009	12
TOTAL ALL COSTS		31,876.0	32,798.6	33,732.4	34,749.6	35,817.6	38,725.6	39,903.1	41,395.0	42,6
WASTE PROJECTIONS		502	513	525	536	547	559	570	581	
UNIT COST -NOMINAL		63.50	63.93	64.25	64.83	65.48	69.28	70.01	71.25	7

BACONA ROAD - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2006	2007	2008	2009	2010	2011	2012	2013	2
PRE-DEVELOPMENT AND CAPITAL BONDS		9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	9,685.1	0.0	
Tip fee revenue amounts here fund the debt serv									from DSR	
The coverage amount is then used to fund the de										
Present Value	9.00%	1,883.7	1,728.1	1,585.4	1,454.5	1,334.4	1,224.2	1,123.2	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		1,179.0	1,179.0	1,179.0	1,899.3	1,899.3	1,899.3	1,899.3	1,829.0	1,82
Cell preparation and closure		7,039.0	7,039.0	9,433.0	9,433.0	9,433.0	9,433.0	9,433.0	9,433.0	12,64
Final Closure		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
Post Closure		770.5	809.0	849.5	891.9	936.5	983.4	1,032.5	1,084.1	1,13
LESS Surplus from coverage		(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	(1,933.0)	0.0	
LESS Earnings on debt reserve		(541.2)	(541.2)	(541.2)	(541.2)	(541.2)	(541.2)	(541.2)	0.0	
TOTAL PERIODIC COSTS		6,516.0	6,554.5	8,989.0	9,751.8	9,796.3	9,843.2	9,892.3	12,347.9	15,61
TOTAL BONDS AND PERIODIC COSTS		16,201.1	16,239.6	18,674.1	19,436.9	19,481.5	19,528.3	19,577.5	12,347.9	15,61
OPERATIONS AND MAINTENANCE (named range "OM")	0	14,615	15,346	16,113	16,919	17,765	18,653	19,586	20,565	21,
TRANSPORTATION (named rng "TRANS")	0	13,240	13,902	14,597	15,327	16,094	16,898	17,743	18,630	19,
TOTAL ALL COSTS		44,056.4	45,487.6	49,384.5	51,682.8	53,339.7	55,079.4	56,906.1	51,543.1	56,76
WASTE PROJECTIONS		604	615	627	638	649	661	672	683	
UNIT COST -NOMINAL		72.94	73.96	78.76	81.01	82.19	83.33	84.68	75.47	81

BACONA ROAD - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2015	2016	2017	2018	2019	2020	2021	2022	2
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		1,829.0	1,829.0	1,829.0	2,334.0	2,334.0	2,334.0	2,334.0	2,334.0	2,97
Cell preparation and closure		12,641.5	12,641.5	12,641.5	12,641.5	12,641.5	20,524.9	20,524.9	20,524.9	20,52
Final Closure		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
Post Closure		1,195.3	1,255.0	1,317.8	1,383.7	1,452.9	1,525.5	1,601.8	1,681.9	1,76
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL PERIODIC COSTS		15,667.6	15,727.3	15,790.1	16,361.0	16,430.1	24,386.2	24,462.5	24,542.6	25,27
TOTAL BONDS AND PERIODIC COSTS		15,667.6	15,727.3	15,790.1	16,361.0	16,430.1	24,386.2	24,462.5	24,542.6	25,27
OPERATIONS AND MAINTENANCE (named range "OM")	0	22,673	23,806	24,997	26,247	27,559	28,937	30,384	31,903	33,
TRANSPORTATION (named rng "TRANS")	0	20,540	21,567	22,645	23,777	24,966	26,215	27,525	28,902	30,
TOTAL ALL COSTS		58,880.2	61,100.6	63,432.0	66,385.0	68,955.4	79,537.7	82,371.5	85,347.0	89,11
WASTE PROJECTIONS		706	717	729	740	751	763	774	785	
UNIT COST -NOMINAL		83.40	85.22	87.01	89.71	91.82	104.24	106.42	108.72	111

BACONA ROAD - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2024	2025	2026	2027	2028	2029	2030	2031	2
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		2,979.0	2,979.0	2,979.0	2,979.0	4,798.0	4,798.0	4,798.0	4,798.0	4,62
Cell preparation and closure		20,524.9	21,621.0	21,621.0	21,621.0	21,621.0	21,621.0	21,621.0	29,098.5	29,0
Final Closure		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
Post Closure		1,854.3	1,947.0	2,044.3	2,146.5	2,253.9	2,366.5	2,484.9	2,609.1	2,7
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL PERIODIC COSTS		25,359.9	26,548.8	26,646.1	26,748.3	28,674.6	28,787.3	28,905.7	36,507.4	36,4
TOTAL BONDS AND PERIODIC COSTS		25,359.9	26,548.8	26,646.1	26,748.3	28,674.6	28,787.3	28,905.7	36,507.4	36,4
OPERATIONS AND MAINTENANCE (named range "OM")	0	35,173	36,932	38,778	40,717	42,753	44,891	47,135	49,492	51,
TRANSPORTATION (named rng "TRANS")	0	31,864	33,457	35,130	36,887	38,731	40,667	42,701	44,836	47,
TOTAL ALL COSTS		92,396.9	96,937.6	100,554.3	104,352.0	110,158.5	114,345.4	118,741.6	130,835.1	135,50
WASTE PROJECTIONS		808	819	831	842	853	865	876	888	
UNIT COST -NOMINAL		114.35	118.36	121.00	123.93	129.14	132.19	135.55	147.34	150

BACONA ROAD - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2033	2034	2035	2036	2037	2038	2039	2040	2
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		4,621.0	4,621.0	4,621.0	4,621.0	5,898.5	5,898.5	5,898.5	5,898.5	5,89
Cell preparation and closure		29,098.5	29,098.5	29,098.5	29,098.5	38,828.0	38,828.0	38,828.0	38,828.0	38,82
Final Closure		1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	
Post Closure		2,876.6	3,020.4	3,171.4	3,330.0	3,496.5	3,671.3	3,854.9	4,047.6	4,25
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL PERIODIC COSTS		36,597.8	36,741.7	36,892.7	37,051.3	48,224.8	48,399.6	48,583.2	48,775.9	48,97
TOTAL BONDS AND PERIODIC COSTS		36,597.8	36,741.7	36,892.7	37,051.3	48,224.8	48,399.6	48,583.2	48,775.9	48,97
OPERATIONS AND MAINTENANCE (named range "OM")	0	54,565	57,293	60,158	63,165	66,324	69,640	73,122	76,778	80,
TRANSPORTATION (named rng "TRANS")	0	49,432	51,903	54,498	57,223	60,084	63,089	66,243	69,555	73,
TOTAL ALL COSTS		140,594.2	145,937.8	151,548.6	157,440.0	174,632.9	181,128.2	187,948.2	195,109.1	202,62
WASTE PROJECTIONS		910	922	933	944	956	967	978	990	1.
UNIT COST -NOMINAL		154.50	158.28	162.43	166.78	182.67	187.31	192.18	197.08	202

BACONA ROAD - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2042	2043	2044	2045	2046	2047	2048	2049	TO
PRE-DEVELOPMENT AND CAPITAL BONDS		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		9,500.0	9,500.0	9,500.0	9,500.0					
Cell preparation and closure		38,823.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	869.
Final Closure		1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.0	
Post Closure		4,462.5	4,685.6	4,919.9	5,165.9	5,424.2	5,695.4	5,980.2	0.0	118.
LESS Surplus from coverage		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(36.
LESS Earnings on debt reserve		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(10.
TOTAL PERIODIC COSTS		52,792.3	14,187.4	14,421.7	14,667.7	5,426.0	5,697.2	5,981.9	0.0	1,111.
TOTAL BONDS AND PERIODIC COSTS		52,792.3	14,187.4	14,421.7	14,667.7	5,426.0	5,697.2	5,981.9	0.0	1,340.
OPERATIONS AND MAINTENANCE (named range "OM")	0	84,648	88,880	93,324	97,990	102,890	108,034	113,436	99,257	
TRANSPORTATION (named rng "TRANS")	0	76,685	80,519	84,545	88,772	93,211	97,871	102,765	89,919	
TOTAL ALL COSTS		214,124.7	183,586.4	192,290.7	201,430.1	201,526.5	211,602.8	222,182.7	189,176.1	
WASTE PROJECTIONS		1,012	1,024	1,035	1,046	1,058	1,069	1,080	1,092	
UNIT COST -NOMINAL		211.59	179.28	185.79	192.57	190.48	197.94	205.72	173.24	

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RAMSEY LAKE - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

*****ALL FIGURES IN THOUSANDS*****

CALENDAR YEAR		1988	1989	1990	1991	1992	1993	1994	1995	19
PRE-DEVELOPMENT AND CAPITAL BONDS		8,632	17,263.4	17,263.4	29,765.4	29,765.4	29,765.4	29,765.4	29,765.4	29,765.
Tip fee revenue amounts here fund the debt service requirement PLUS the coverage requirement on the bonds.										
The coverage amount is then used to fund the debt service reserve and to offset the periodic cost reserve requirement.										
Present Value	9.00%	7,919.0	14,530.2	13,330.5	21,086.6	19,345.5	17,748.2	16,282.7	14,938.3	13,704.
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment				534.0	534.0	534.0	534.0	534.0	681.5	681.
Cell preparation and closure				13,586.7	13,586.7	13,586.7	13,586.7	16,515.0	16,515.0	16,515.
Final Closure				11.0	11.0	11.0	11.0	11.0	11.0	11.
Post Closure				1,641.4	1,723.4	1,809.6	1,900.1	1,995.1	2,094.8	2,199
LESS Surplus from coverage				(1,147.9)	(1,147.9)	(1,147.9)	(1,147.9)	(1,147.9)	(5,949.1)	(5,949.
LESS Earnings on debt reserve				0.0	(333.1)	(666.3)	(999.4)	(1,332.6)	(1,665.7)	(1,665
TOTAL PERIODIC COSTS				14,625.1	14,374.0	14,127.1	13,884.4	16,574.5	11,687.5	11,792.
TOTAL BONDS AND PERIODIC COSTS		8,631.7	17,263.4	31,888.5	44,139.5	43,892.5	43,649.8	46,340.0	41,452.9	41,557.
OPERATIONS AND MAINTENANCE (named range "OM")				8,739	9,176	9,635	10,117	10,622	11,154	11,7
TRANSPORTATION (named rng "TRANS")				5,931	6,228	6,539	6,866	7,209	7,570	7,94
TOTAL ALL COSTS		8,631.7	17,263.4	46,558.9	59,543.4	60,066.6	60,632.6	64,171.9	60,176.5	61,217.
WASTE PROJECTIONS		725	722	719	714	709	701	713	724	73
UNIT COST -NOMINAL		11.91	23.91	64.76	83.39	84.72	86.49	90.00	83.12	83.2

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

RAMSEY LAKE - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		1997	1998	1999	2000	2001	2002	2003	2004	2(
PRE-DEVELOPMENT AND CAPITAL BONDS		29,765.4	29,765.4	29,765.4	29,765.4	29,765.4	29,765.4	29,765.4	29,765.4	(
Tip fee revenue amounts here fund the debt serv										from I
The coverage amount is then used to fund the de										
Present Value	9.00%	12,573.2	11,535.1	10,582.6	9,708.9	8,907.2	8,171.7	7,497.0	6,878.0	(
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		681.5	681.5	681.5	153.5	153.5	153.5	153.5	153.5	(
Cell preparation and closure		16,515.0	27,022.0	27,022.0	27,022.0	2,545.5	2,545.5	2,545.5	2,545.5	(
Final Closure		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	(
Post Closure		2,309.5	2,425.0	2,546.3	2,673.6	2,807.3	2,947.6	3,095.0	3,249.8	3,41
LESS Surplus from coverage		(5,949.1)	(5,949.1)	(5,949.1)	(5,949.1)	(5,949.1)	(5,949.1)	(5,949.1)	(5,949.1)	(
LESS Earnings on debt reserve		(1,665.7)	(1,665.7)	(1,665.7)	(1,665.7)	(1,665.7)	(1,665.7)	(1,665.7)	(1,665.7)	(
TOTAL PERIODIC COSTS		11,902.2	22,524.7	22,645.9	22,245.3	(2,097.6)	(1,957.2)	(1,809.8)	(1,655.1)	3,41
TOTAL BONDS AND PERIODIC COSTS		41,667.7	52,290.1	52,411.4	52,010.7	27,667.9	27,808.2	27,955.6	28,110.4	3,41
OPERATIONS AND MAINTENANCE (named range "OM")		12,297	12,912	13,557	14,235	14,947	15,694	16,479	17,303	6,(
TRANSPORTATION (named rng "TRANS")		8,346	8,763	9,201	9,661	10,144	10,652	11,184	11,743	4,1
TOTAL ALL COSTS		62,310.4	73,965.0	75,170.0	75,907.2	52,759.2	54,154.2	55,618.8	57,156.7	13,57
WASTE PROJECTIONS		747	758	770	781	792	804	815	826	8
UNIT COST -NOMINAL		83.41	97.58	97.62	97.19	66.62	67.36	68.24	69.20	16

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

RAMSEY LAKE - WITHOUT RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR	2006	2007	2008	2009	2010	2011	2012	TOTALS	AVER
PRE-DEVELOPMENT AND CAPITAL BONDS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	459,874.6	
Tip fee revenue amounts here fund the debt serv									
The coverage amount is then used to fund the de									
Present Value 9.00%	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
PERIODIC COSTS (financed by reserve collections)									
Heavy Equipment	0.0	0.0	0.0					6,845.0	
Cell preparation and closure	0.0	0.0	0.0	0.0	0.0	0.0		211,654.8	
Final Closure	0.0	0.0	0.0	0.0	0.0	0.0		165.0	
Post Closure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38,830.2	
LESS Surplus from coverage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(65,230.6)	
LESS Earnings on debt reserve	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(19,988.9)	
TOTAL PERIODIC COSTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	172,275.5	9,0
TOTAL BONDS AND PERIODIC COSTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	632,150.1	
OPERATIONS AND MAINTENANCE (named range "OM")									
TRANSPORTATION (named rng "TRANS")									
TOTAL ALL COSTS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	958,882.3	
WASTE PROJECTIONS	849	860	872	883	894	906	917	19,774.0	
UNIT COST -NOMINAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

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RAMSEY LAKE - WITH RESOURCE RECOVERY

ANNUAL INFLATION RATE 5.00%

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ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

*****ALL FIGURES IN THOUSANDS*****

CALENDAR YEAR		1988	1989	1990	1991	1992	1993	1994	1995	1996
PRE-DEVELOPMENT AND CAPITAL BONDS		8,247	16,493.9	16,493.9	24,280.8	24,280.8	24,280.8	24,280.8	24,280.8	24,280.8
Tip fee revenue amounts here fund the debt service requirement PLUS the coverage requirement on the bonds.										
The coverage amount is then used to fund the debt service reserve and to offset the periodic cost reserve requirement.										
Present Value	9.00%	7,566.0	13,882.5	12,736.3	17,201.2	15,780.9	14,477.9	13,282.5	12,185.7	11,179.6
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment				534.0	534.0	534.0	534.0	534.0	860.0	860.0
Cell preparation and closure				7,575.0	7,575.0	7,575.0	7,575.0	7,575.0	7,575.0	12,299.0
Final Closure				6.9	6.9	6.9	6.9	6.9	6.9	6.9
Post Closure				1,069.5	1,123.0	1,179.1	1,238.1	1,300.0	1,365.0	1,433.2
LESS Surplus from coverage				(936.3)	(936.3)	(936.3)	(936.3)	(936.3)	(4,852.2)	(4,852.2)
LESS Earnings on debt reserve				0.0	(271.7)	(543.4)	(815.2)	(1,086.9)	(1,358.6)	(1,358.6)
TOTAL PERIODIC COSTS				8,249.1	8,030.8	7,815.3	7,602.5	7,392.7	3,596.1	8,388.3
TOTAL BONDS AND PERIODIC COSTS		8,246.9	16,493.9	24,742.9	32,311.7	32,096.1	31,883.3	31,673.5	27,876.9	32,669.2
OPERATIONS AND MAINTENANCE (named range "OM")				8,298.8	8,713.8	9,149.4	9,606.9	10,087.3	10,591.6	11,121.2
TRANSPORTATION (named rng "TRANS")				3,954.6	4,152.3	4,359.9	4,577.9	4,806.8	5,047.1	5,299.5
TOTAL ALL COSTS		8,246.9	16,493.9	36,996.3	45,177.7	45,605.5	46,068.2	46,567.6	43,515.7	49,089.9
WASTE PROJECTIONS		725	722	719	714	709	456	468	479	490
UNIT COST -NOMINAL		11.38	22.84	51.46	63.27	64.32	101.03	99.50	90.85	100.18

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

RAMSEY LAKE - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		1997	1998	1999	2000	2001	2002	2003	2004	2005
PRE-DEVELOPMENT AND CAPITAL BONDS		24,280.8	24,280.8	24,280.8	24,280.8	24,280.8	24,280.8	24,280.8	24,280.8	24,280.8
Tip fee revenue amounts here fund the debt serv										
The coverage amount is then used to fund the de										
Present Value	9.00%	10,256.5	9,409.6	8,632.7	7,919.9	7,266.0	6,666.0	6,115.6	5,610.7	5,147.4
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		860.0	860.0	828.5	828.5	828.5	828.5	828.5	1,057.5	1,057.5
Cell preparation and closure		12,299.0	12,299.0	12,299.0	12,299.0	12,956.0	12,956.0	12,956.0	12,956.0	12,956.0
Final Closure		6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Post Closure		1,504.9	1,580.1	1,659.1	1,742.1	1,829.2	1,920.7	2,016.7	2,117.5	2,223.4
LESS Surplus from coverage		(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2
LESS Earnings on debt reserve		(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6
TOTAL PERIODIC COSTS		8,460.0	8,535.2	8,582.7	8,665.7	9,409.8	9,501.2	9,597.3	9,927.1	10,033.0
TOTAL BONDS AND PERIODIC COSTS		32,740.8	32,816.1	32,863.6	32,946.5	33,690.6	33,782.1	33,878.1	34,208.0	34,313.8
OPERATIONS AND MAINTENANCE (named range "OM")		11,677.3	12,261.1	12,874.2	13,517.9	14,193.8	14,903.5	15,648.7	16,431.1	17,252.7
TRANSPORTATION (named rng "TRANS")		5,564.5	5,842.7	6,134.8	6,441.6	6,763.7	7,101.8	7,456.9	7,829.8	8,221.3
TOTAL ALL COSTS		49,982.6	50,919.9	51,872.6	52,906.0	54,648.1	55,787.4	56,983.7	58,468.8	59,787.7
WASTE PROJECTIONS		502	513	525	536	547	559	570	581	593
UNIT COST -NOMINAL		99.57	99.26	98.80	98.71	99.91	99.80	99.97	100.63	100.82

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

RAMSEY LAKE - WITH RESOURCE RECOVERY
ANNUAL INFLATION RATE 5.00%

ANNUAL REQUIREMENTS TO BE FUNDED BY TIP FEES

CALENDAR YEAR		2006	2007	2008	2009	2010	2011	2012	TOTALS	AVERAGE
PRE-DEVELOPMENT AND CAPITAL BONDS		24,280.8	24,280.8	24,280.8	24,280.8	24,280.8	24,280.8	0.0	551,132.4	
Tip fee revenue amounts here fund the debt serv								from DSR		
The coverage amount is then used to fund the de										
Present Value	9.00%	4,722.4	4,332.5	3,974.7	3,646.5	3,345.4	3,069.2	0.0		
PERIODIC COSTS (financed by reserve collections)										
Heavy Equipment		1,057.5	1,057.5	1,057.5					15,540.0	
Cell preparation and closure		12,956.0	2,708.0	2,708.0	2,708.0	2,708.0	2,708.0		198,221.0	
Final Closure		6.9	6.9	6.9	6.9	6.9	6.9		150.7	
Post Closure		2,334.6	2,451.3	2,573.9	2,702.6	2,837.7	2,979.6	3,128.6	44,309.9	
LESS Surplus from coverage		(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	(4,852.2)	0.0	(87,168.3)	
LESS Earnings on debt reserve		(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	(1,358.6)	0.0	(25,813.5)	
TOTAL PERIODIC COSTS		10,144.2	12.9	135.5	(793.4)	(658.2)	(516.3)	3,128.6	145,239.8	7,583
TOTAL BONDS AND PERIODIC COSTS		34,425.0	24,293.7	24,416.3	23,487.5	23,622.6	23,764.5	3,128.6	696,372.2	
OPERATIONS AND MAINTENANCE (named range "OM")		18,115.3	19,021.0	19,972.1	20,970.7	22,019.2	23,120.2	2,023.0	321,570.9	13,339
TRANSPORTATION (named rng "TRANS")		8,632.3	9,063.9	9,517.1	9,993.0	10,492.6	11,017.3	964.0	153,235.4	6,356
TOTAL ALL COSTS		61,172.6	52,378.7	53,905.5	54,451.2	56,134.5	57,902.0	6,115.6	1,171,178.5	
WASTE PROJECTIONS		604	615	627	638	649	661	672	14,874.0	
UNIT COST -NOMINAL		101.28	85.17	85.97	85.35	86.49	87.60	9.10		

NOTE: LAST YEAR DEBT SERVICE IS PAID BY DEBT RESERVE

6-10-87 sent to Dave Ellis via telecopy
no. 229-5120 - for hand delivery to Carolyn Young
with DEQ

STATEMENT OF ENVIRONMENTAL QUALITY COMMISSION

June 12, 1987

EVENTS LEADING UP TO DECISION

Two years ago the Oregon Legislature in an effort to solve the garbage crisis facing the Portland Metropolitan area, passed Senate Bill 662, which assigned responsibility for locating a new landfill site to the Environmental Quality Commission. That bill directed the Department of Environmental Quality to conduct a study of possible and appropriate landfill sites with a view toward coming up with a preferred site. It also directed the Environmental Quality Commission to select a solid waste disposal site by July 1, 1987.

The Department of Environmental Quality developed landfill siting criteria to guide the search for a new site. The DEQ then used these criteria to limit the landfill search to 18 potential sites. A public hearing was held on each of those 18 sites. Following the hearings, the DEQ narrowed the list of sites to three. Further study forced DEQ to eliminate the Wildwood site from further consideration after an active slide was discovered deep underground.

The DEQ conducted further technical studies on the two remaining sites and presented the Environmental Quality Commission with a feasibility analysis of the sites, neighborhood protection plans for the two sites, and an economic analysis of the two sites. This Commission visited each site

and held public hearings in the neighborhood of the two final sites. We also journeyed to the Seattle, Washington area and Mountain View, California to inspect active landfills that have some of the characteristics of the two sites under consideration today.

STATEMENT CONCERNING CONTESTED CASE

The decision made today by the Commission will result in the issuance of an order to the DEQ to establish a disposal site at the site or sites we select. That order will be subject to a contested case proceeding if requested by interested parties. Representatives of opponents of each site have made it clear that such a proceeding will be requested. DEQ mailed written notice of its intent to conduct a contested case to a large number of people who have either expressed an interest or own property at or near the respective sites. The notices explain how to request party or limited party status in the contested case. Additional notices are available on the table outside if anyone in the audience wishes to request party or limited party status, but did not receive a notice.

Briefly, the contested case will commence on July 13, 1987. The hearing will be conducted by Vice-Chair Arno Denecke, under procedures prescribed by the Oregon Administrative Procedures Act and rules of the Commission. The purpose of the hearing is to allow parties to test, under

these procedures, the sufficiency of the evidence supporting the Commission's order and present their own evidence.

After conclusion of the contested case, the hearings officer will issue a proposed final order. Parties will then have an opportunity to review the proposed order and file objections and arguments with the full Commission. The Commission will then review the proposed order and the objections and arguments of the parties and issue its final order.

WHAT HAPPENS AFTER THIS DECISION

The legislation which gave the Environmental Quality Commission the authority to select a landfill site did not give the Commission or the DEQ authority in other solid waste management areas. That authority belongs to Metro. Metro has what is called flow control - or control over the flow of garbage. This means that the authority to make decisions about how and where the region's garbage is disposed of lies with Metro. Metro has the authority to direct garbage to whatever disposal site it considers appropriate. Metro also has the authority to establish transfer stations and to contract for alternative disposal methods. The point of today's decision, however, is that to the extent Metro directs garbage to be landfilled in the Tri-County Area, it must use the site selected by us here today.

The Department of Environmental Quality staff has been working with the staff of Metro to negotiate a transition agreement. This agreement will guide the transition of the landfill development process from the DEQ back to Metro.

The proposed transition agreement between DEQ and Metro has three main components. First, it requires Metro to take all actions necessary for site development, including acquiring the land and obtaining permits from DEQ. One permit that must be obtained is a permit to fill wetlands from the Corp. of Engineers. That permit is likely to require an environmental impact study which would be conducted by Metro.

Second, flexibility is built into the agreement. If Metro decides on options, such as a contract with a private company to take the garbage to a private landfill out of the area, it would not be required, under the proposed agreement, to develop the landfill selected by the Environmental Quality Commission.

Finally, the agreement does not limit Metro to the environmental protections outlined in the neighborhood protection plan. Metro can go beyond the protections outlined or propose alternative protections, if they are at least as effective as the ones outlined in the neighborhood protection plan.

In the meantime, Metro is considering technologies, including incineration and composting, to reduce the amount

of garbage to be landfilled. If Metro selects one of those alternatives, Metro must come to DEQ to obtain a solid waste permit and in the case of incineration, an air contaminate discharge permit. Metro expects to be ready to select one of these alternatives this fall.

We also expect Metro to continue discussions with private entities such as Waste Management, Inc. and Tidewater Barge Lines about sending garbage to a privately owned and operated landfill in north Central Oregon. Both of those companies have provided information on their proposals to this Commission and to the Department of Environmental Quality. In fact, we have on our agenda today, a temporary rule that would fund a position within DEQ to evaluate the applications from such private companies for the solid waste permit needed to establish and operate a landfill. We have been asked to consider a proposal for a landfill from Waste Management, Inc. as part of today's decision. Unfortunately, these proposals involving private landfills had not been made until after January 1, 1987, which was the legislative deadline for the DEQ to have made their recommendations to us of the preferred locations. As a result, there has not been enough time to prepare and evaluate detailed studies of these potential private sites in order for us to choose such a site today. Also, I am of the personal opinion that it is in the best interests of Metro and the Tri-County area to have at least identified a suitable landfill site within the

Tri-County area. Having a suitable site or sites within the area should strengthen Metro's position in any negotiations involving a private landfill.

We would expect, however, that Metro will make a complete examination of the private proposals, assuming that a disposal permit can be obtained and make a comparison of those proposals and the landfill site selected today. It will be Metro's decision to either construct a landfill at the site selected today or to negotiate an agreement to send the Tri-County area's garbage requiring landfilling to a landfill outside the Tri-County area. In other words, I want to make it perfectly clear that nothing we do here today will hinder Metro's ability to make suitable arrangements with a landfill site outside the Tri-County area.

I have outlined the role of government in solving the region's solid waste problems. But these steps are not all of the solution. Each citizen of the Tri-County area also has a role to play in the future of solid waste management in this region. That role begins at home. Your decisions on purchasing products that can be recycled and your efforts to recycle and your efforts to compost or recycle yard debris are a valuable part of the solid waste management system. We must all work together to solve this garbage crisis we find ourselves in. I strongly encourage you to continue your active involvement in the solutions to the garbage crisis and

to support Metro and your local government in waste reduction efforts.

Now, having said all of that, I will state that the purpose of today's meeting is to make our final deliberations on the two sites and to select an appropriate site for the region's landfill. This meeting is not a public hearing and no testimony will be taken. We may, however, need to ask questions to help us make the final selection.

Thank Hanson - director

Steve Greenwood
K Mathiot
A Warner
C Fitch → Mary Lou Perry
} landfill rating staff
various consultants
Citizen advisory comm. chaired by Rebecca Marshall
Thousands of citizens

Dr. Buist's comments
6/12/87

The attention of the country was recently focused on the garbage disposal crisis facing the nation by the barge laden with garbage from Islip, New York which traveled thousands of miles in search of a disposal site. The need to site a new landfill for the Portland area has drawn attention to the problem locally. The attention is important because as a nation and as individuals, we need to take a closer look at the social and cultural behavior that results in the generation of such an incredible amount of waste.

I, like the other Commission members, have struggled for months with the decision we have to make today. I have listened with real interest and empathy to many hours of public testimony, read a staggering amount of written material provided by the Department, the interested parties, affected individuals, consultants, critics and many, many others.

I have been very impressed with the thoughtfulness that went into the development of the process for siting the new landfill, and then with the way this process was followed. Many individuals have worked hard and have worked conscientiously on this project with no hidden agendas and no axe to grind. I respect this and am grateful for it.

The choice that we have to make is extraordinarily hard. Clearly no one wants a landfill in their backyard or anywhere near their backyard. This makes it exceedingly hard to site a landfill in an urban area or close to an urban area. One of the solutions to this dilemma is to transport the garbage to a site which is far removed from the areas of population density. This solution was not, in my opinon, given sufficient consideration in the siting process or indeed in the wording of SB662.

For a number of reasons, I have very serious reservations about both the Bacona Road and Ramsey Lake sites. Both have important drawbacks which greatly diminish their desirability and acceptability, but both, in my opinion, meet the requirements of SB 662. For me, the pendulum has swung back and forth between them as I listened to the testimony and read the growing mountain of material. There has never been a clear front runner in my mind. Of the two sites, I would have to vote in favor of Bacona Road over Ramsey Lake, but I do not feel at all comfortable with this decision,

because more than one viable alternative has emerged in the last two months. The problem, of course, is that there has been insufficient time to DEQ to evaluate the alternatives with the same care with which the sites on the original list were evaluated. There is an obvious tendancy, therefore, to assume that the grass is greener on the other side of the fence because the other side of the fence has not been examined in as great a detail as the side that we are already on.

Given the timetable imposed by SB662 and the urgency of the need to site a new landfill and to get on with work, my preference would be ~~I see two alternatives: 1) to request an extension of the deadline from the Legislature to allow time for a more thorough evaluation of the alternatives that have emerged in the past two months. Of these, by far the best developed proposal and plan is that of Waste Management, Inc. to site the landfill near Arlington. 2)~~ to recommend to Metro that Bacona Road is the best of the sites considered by DEQ but that the final decision not be made by Metro until all of the information about the reasonable alternatives has been evaluated.

~~Both of these options~~ This will mean a delay in the final decision about the siting of a new landfill. It is possible, however, that the delay in making a decision will not lead to a delay in starting construction. This is particularly likely if the site finally chosen does not face long drawn out legal battles and problems in optaining the necessary permits, such as the Wetlands Permits.

A. Sonia Buist, MD

Commission Member, EQC

June 11, 1987

SCHWABE, WILLIAMSON, WYATT, MOORE & ROBERTS
ATTORNEYS AT LAW

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JAY T. WALDRON
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CABLE ADDRESS "ROBCAL"
TELEX 4937535 SWK UI
TELECOPIER (503) 796-2900

June 10, 1987

VIA HAND DELIVERY

Fred Hansen, Director
Department of Environmental Quality
811 S.W. Sixth Avenue
Portland, Oregon 97204

James Petersen, Chairman
Environmental Quality Commission
811 S.W. Sixth Avenue
Portland, Oregon 97204

Gentlemen:

Enclosed is a Site Evaluation performed by Brown and Caldwell for the Waste Management of Oregon Gilliam County sanitary landfill site. This supplements our Feasibility Report. The evaluation demonstrates the superiority of the Gilliam County site for disposal of the waste from metropolitan Portland. The site received a score of 1,445. That is over 300 points higher than the highest scoring DEQ site at a comparable stage of evaluation.

Brown and Caldwell used the same criteria for this evaluation as they used for DEQ in evaluating the 18 final sites. Brown and Caldwell note, however, that they have more data upon which to base this evaluation than they did in their previous assessment. The availability of this data permits the DEQ and the Environmental Quality Commission to have a high degree of confidence in this evaluation.

Waste Management of Oregon respectfully requests that it be permitted to discuss this site evaluation at the Environmental Quality Commission meeting on Friday, June 12, 1987.

Thank you for your continuing courtesy in this matter.

Yours very truly,

Jay T. Waldron
Of Attorneys for Waste Management
of Oregon

Enclosure

cc: Steve Greenwood, DEQ (w/encl) - **VIA HAND DELIVERY**
Ernie Schmidt, DEQ (w/encl) - **VIA HAND DELIVERY**
Mary Bishop, EQC (w/encl) - **VIA HAND DELIVERY**
Arno Denecke, EQC (w/encl) - **VIA HAND DELIVERY**
Alien Sonia Buist, EQC (w/encl) - **VIA HAND DELIVERY**
Wallace D. Brill, EQC (w/encl) - **VIA HAND DELIVERY**
Michael B. Huston, Dept. of Justice (w/encl) - **VIA HAND DELIVERY**
Tom Ellis, Dept. of Justice (w/encl) - **VIA HAND DELIVERY**

Jim, you are the only one receiving this.

Neighborhood Protection Plan Alternatives For EQC Consideration

Bacona Road

I. Nature of the intersection of Highway 26 and Highway 47.

Alternatives:

A. Leave as is (this is the alternative recommended in the Final Feasibility Report).

B. Install a traffic signal light.

C. Construct an overpass from Highway 47 onto 26.

References:

Bacona Road report Pages 2-79 to 2-86.
Bacona Road Responsiveness Summary, Page 16.

NOTE: Although the overpass alternative is not recommended - the cost for construction of this type of intersection has been determined to be approximately $400,000.

Ramsey Lake

I. **Site Design**

Alternatives:

A. Site Plan #1

Bottom of landfill at approximately 10 feet elevation above mean sea level (MSL) and no reserve area for future development. (Recommended alternative in Final Feasibility Report).

Site Life:

Wastestream Option A 21.2 years
Wastestream Option B 14.9 years

B. Site Plan #2

Bottom of landfill at approximately 10 feet elevation above MSL and reserve area (ash-fill only) provided for future development.

Site Life:

Wastestream Option A 17 years.

C. Site Plan #3

Bottom of landfill above 3 flood level (30' MSL) and no development reserve.

Site Life:

Wastestream Option A 14.5 years.
Wastestream Option B 10.1 years.

References:

Ramsey Final Report pp 3-6 to 3-31 and Section 5 (costs)

Note: No significant capital cost difference for any of the alternatives.

II. Wetlands Mitigation Program.

Alternatives:

A. One for one replacement of wetlands filled on site at off-site location. (Assumed alternative in Final Feasibility Report).

B. Water quality improvements in the Ramsey Lake/Columbia Slough/ Smith and Bybee Lakes area.

References:

Ramsey Lake Final Report	pp 4-6
	pp 4-39 to 4-43
	pp 5-10
Responsiveness Summary	pp 24-26

NOTE (1) Water quality improvement alternative includes many components - total additional costs (above one for one replacement) would be approximately $9,500,000.

NOTE (2) Final wetland mitigation program must be approved by resource agencies through a federal 404 permit process, but EQC comment on a preferred alternative would be useful.

Both Sites

I. **Operating Hours**

Alternatives:

A. Initially DEQ had proposed no landfilling operations on weekends or before 7:00 a.m. and after 6:00 p.m. on weekdays.

B. Based on comments provided by Metro these operating hours would make current transfer station operation policy and practice impossible. Based on these comments the DEQ's Final Feasibility Reports extend operating hours to 7:00 a.m. to 10:00 p.m. seven days a week. It should be noted that the amount of weekend landfilling and transfer truck activity is expected to be minimal.

II. **Neighborhood Investment Protection Plan**

Is this a form of compensation for property devaluation?

This program was developed to compensate property owners within 2,500 feet of the site and the immediate access road for devaluation that may occur due to the landfill's presence, either through cash settlements or property purchase if devaluation is established by certified appraisals. This program incorporates features of several successful programs in operation across the nation.

The NIPP was not included in the feasibility report pending agreement with Metro on the design and applicability of the program. A letter from Metro was recently received, expressing their desire to not have the NIPP required as part of the Commission's order.

Jim, recall the Neighborhood Investment Protection Plan (NIPP) was not forwarded to any Commissioners nor made available to the public. We originally had agreement on the NIPP from Metro and would have included it in the documents we forwarded to you. With Metro backing away from agreement, we thought it better for you alone to have to decide if you want to consider at all or if you do want to consider it should you do so now or possibly in response to the contested case proceedings.

Other Considerations

ii. Section 5(2) of the Act directs the Commission in selecting a disposal site, to review the study prepared by DEQ and the sites recommended by DEQ under Section 3 of the Act. The Commission has reviewed the study and finds it relevant for the following reasons:

(1) The study demonstrates that selection of the Bacona site complies with the criteria set forth in Section 4 of the Act;

(2) The study provides information and evidence in support of the Commission's other considerations set forth in Subparagraphs C iii 1- 3 of these findings.

iii. Section 2(2)(d) of the Act directs the Commission to give due consideration to other factors the Commission considers relevant. The Commission considers the following factors relevant:

(1) Cost of acquisition, development and operation of a disposal site;

(2) Projected life of a disposal site;

(3) Potential impacts on regional economic development;

(4)

(5)

iv. The Commission recognizes that private interests have come forward and requested Commission consideration of sites other than the sites recommended by DEQ, including sites given preliminary consideration by DEQ, but not recommended by DEQ under Section 3 of the Act. The Commission does not intend to consider these sites under its authority provided by SB 662. However, the Commission does not wish to foreclose consideration of any potential solid waste disposal site by Metro, and encourages DEQ and Metro to further evaluate these disposal options.

JUST IN TIME...
A HAPPY ENDING TO A TRASHY STORY

THIS TIME SELECT, DON'T SETTLE

Now, more than ever before, we must pay attention to our trash.

Twenty-six hundred tons of it. That's how much we produce in the Portland-metropolitan area **each day.**

For a little while longer, we may continue to bury it in the St. Johns Landfill. But time is running out because the old landfill will close.

THE WET ONES: BACONA ROAD AND RAMSEY LAKE.

Two sites under consideration have raised serious environmental issues. They are passionately opposed by neighbors.

The Bacona Road site in northwest Washington County sits atop a complex groundwater system. The Ramsey Lake site is located on Port of Portland land zoned for industrial use near St. Johns. Both sites receive as much as 50 inches of rainfall a year.

Because of potential groundwater contamination problems, experts say the sites would require millions of taxpayer dollars to develop as landfills.

The more you know about these two choices, the more you think: "Why can't we find a better site?"

INTRODUCING A BETTER SOLUTION.

Waste Management Inc. (WMI) has a better idea.

Under WMI's plan, trash would be sent in closed containers on daily trains to a landfill in Eastern Oregon's Gilliam County. The proposed site is located about 140 miles east of Portland. Studies show that the cost to consumers would be competitive with any new local landfill.

This is a sensible solution which respects our environment. It takes advantage of private sector expertise. And, it provides numerous benefits to the public.

Think about it.

Our new sanitary landfill — built to meet the highest environmental safety standards — would be privately owned and operated. In addition, a new recycling center would be built in Portland. This "Portland Recycling and Waste Transfer Station" will allow us to remove recyclables from the waste stream, reducing the amount of trash being transported to Gilliam County.

As a subsidiary of the nation's most experienced solid waste management company, Waste Management of Oregon has the technical and financial resources to deliver the results we all can live with.

And no taxpayer dollars would be required to build and operate the Waste Management alternative.

AN ENVIRONMENTALLY SUPERIOR LANDFILL SITE.

From an environmental standpoint, the Gilliam County site — a 2,000-acre tract of desert rangeland — offers superior climatic and geologic conditions for a sanitary landfill. Low rainfall east of the Cascade Mountains reduces the likelihood of surface water mixing with garbage to produce leachate, a contaminate which could pollute subsurface groundwater.

WMI has responded to hard questions about the project from Gilliam County residents. Four community briefings have been held. The site has been thoroughly studied by scientists and engineers.

AN ENVIRONMENTAL SOLUTION WITH ECONOMIC BENEFITS, TOO.

Gilliam County stands ready to benefit economically from the arrival of this new industry.

Millions of dollars will be invested in the county to build the landfill. Thirty new jobs will be created with an estimated yearly payroll in excess of $700,000.

Tax revenues to the county will increase, possibly lowering the local tax burden. A community rail service will be saved. And, through other local fees, hundreds of thousands of additional dollars will be available yearly for county improvement projects.

A COMPANY WITH EXPERIENCE AND RESOURCES FOR THE JOB.

We know how a landfill should be operated. It takes a long-term commitment, technical and financial resources... and it requires respect for the land. In Oregon, Waste Management will design and build a state-of-the-art facility, backed by an aggressive monitoring and inspection program to assure protection for the environment.

It can be done. Waste Management, Inc., is an industrial leader, operating more than 125 landfills in the U.S.

Finally, we know that Oregon is a special place. Doing business here challenges us to do something extra to protect the environment. Our corporate commitment to waste reduction and recycling will help make Oregon a model for progressive solutions.

THE WASTE MANAGEMENT OF OREGON ALTERNATIVE

We are delighted to be doing business in Oregon. We'd like to tell you more about our company or our proposal. Please contact us for more information by writing:

Rick Daniels, Project Manager
Waste Management
of Oregon, Inc.
5300 NE Skyport Way
Portland, OR 97218

A HAPPY ENDING IN 5 SIMPLE STEPS.

Oregonians know that there are no short cuts in maintaining our quality of life.

When it comes to landfills, here are some things worth keeping in mind:

1) **Select, don't settle.** We have to live with our choice of a landfill for decades. Pick the best environmental site. Don't settle for less.

2) **Pick a dry, remote spot.** Trying to site a landfill on wet land areas with neighbors nearby is just asking for trouble.

3) **Choose a community that wants it.** Locate the landfill in a community that is prepared to permit it and to live with it.

4) **Deliver economic benefits along with the trash.** Use the landfill to focus economic development strategies. The host community can benefit from increased tax revenues and other fees.

5) **Select a proven professional to run it.** Hire a firm with the know-how to operate a state-of-the-art facility... A sanitary landfill that will allow us to manage our society's wastes and protect our environment for generations to come.

Waste Management of Oregon

TELL THEM WHAT YOU THINK.

If you want your opinion known on this important issue, use this coupon today and tell the Oregon Environmental Quality Commission what you think about the decision it is about to make.

Oregon Environmental Quality Commission 811 SW Sixth Avenue Portland, OR 97205

Dear EQC,

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Name: _____

Address: _____