

**Option 5. Regional System, Service to All of Crescent Sanitary District and Gilchrist, Treatment and Disposal at Gilchrist**

Although there is approximately a total of 40 acres available at the existing Gilchrist site, space limitations will likely require the addition of aerated ponds rather than facultative ponds (aerated ponds require less space for the same degree of treatment). Two aerated ponds would be added, each with a surface area of 0.275 acres. The aerated ponds would be followed by the existing 3-cell lagoon for final treatment and effluent polishing. A 20 acre holding pond would be needed for effluent storage. If site conditions are too restrictive, the holding pond could be constructed over the existing lagoon. A detailed topography survey will be necessary to determine whether the facilities will fit on the existing 40-acre site. This is essentially the same as option 4, except that the treatment and effluent disposal facilities are constructed in one phase, instead of two. Although the initial cost is higher, there is an overall cost savings by constructing as one project (less mobilization, etc.) Initially, there will be reserve capacity for approximately 500 EDUs. Approximately 130 acres of land would be needed for irrigation when buffer strips are included. Total land requirements are in the range of 160 to 180 acres. Opinions of probable cost are included in Table 10.10.

**Option 6. Regional System, Service to Entire Crescent Sanitary District and Gilchrist Staged Treatment and Disposal**

Treatment facilities are identical to those described in Option 4. The difference is that the collection system (and service area) includes all of the Crescent Sanitary District. Initially, a reserve capacity of approximately 200 EDUs would be available.

**10.5 O&M REQUIREMENTS**

Some of the operation and maintenance associated with a wastewater treatment system include:

- a) energy costs
- b) plant operation
- c) laboratory analysis
- d) permit fees
- e) maintenance
  - daily inspection
  - general upkeep and maintenance
  - cleaning as needed
  - emergency repairs
  - painting
- f) education and operator certification
- g) administration
- h) equipment replacement/depreciation fund

Opinions of probable cost for operation and maintenance will be developed in Section 12.

**Table 10-10****OPINION OF PROBABLE COST - PROJECT OPTION # 5**

Project provides service to Gilchrist and entire Sanitary District at Gilchrist site.

Description	Quantity	Unit	Unit Cost	Extension
Mobilization	1	LS	\$ 125,000	\$ 125,000
Dike Construction (excavated fill)	110,137	CY	\$ 5	\$ 550,685
Dike Construction (imported fill)*	-	CY	\$ 7	\$ -
HDPE Liner (60 mil), Mat and Anchors	919,567	SF	\$ 0.80	\$ 735,653
Inlet Structure	1	EA	\$ 20,000	\$ 20,000
Outlet Structure	1	EA	\$ 20,000	\$ 20,000
Transfer Structure	-	EA	\$ 35,000	\$ -
Transfer Piping	1	LS	\$ 60,000	\$ 60,000
Staff Gauges	1	EA	\$ 1,300	\$ 1,300
3/4" minus Road Surface	5,000	LF	\$ 17	\$ 85,000
Building	1,200	SF	\$ 100	\$ 120,000
Chlorine Equipment	1	LS	\$ 20,000	\$ 20,000
Pumps	4	EA	\$ 15,000	\$ 60,000
Effluent Screen	1	LS	\$ 20,000	\$ 20,000
Flowmeters	2	EA	\$ 8,000	\$ 16,000
Misc. Site Piping	1	LS	\$ 25,000	\$ 25,000
Controls and Electrical	1	LS	\$ 30,000	\$ 30,000
Alarm and Telemetry	1	LS	\$ 30,000	\$ 30,000
Lab Equipment	1	LS	\$ 10,000	\$ 10,000
Office Equipment	1	LS	\$ 5,000	\$ 5,000
Chlorine Contact Line	1	LS	\$ 80,000	\$ 80,000
Irrigation Equip. and Piping	1	LS	\$ 150,000	\$ 75,000
Supplemental Water Well	1	LS	\$ 20,000	\$ 20,000
Electrical to Site	1	LS	\$ 20,000	\$ 20,000
Access Road and Parking	300	LF	\$ 21	\$ 6,300
Seeding	1,200	CY	\$ 6	\$ 7,200
Fencing	4,500	LF	\$ 6	\$ 27,000
Signs	1	LS	\$ 200	\$ 200
Monitoring Wells	4	EA	\$ 2,500	\$ 10,000
Surface Aerators	4	EA	\$ 10,000	\$ 40,000
Pump station	1	LS	\$ 125,000	\$ 125,000
Force Main	3,500	LF	\$ 25	\$ 87,500
Replace 8" gravity main to lagoons w/ 18"	3,500	LF	\$ 45	\$ 157,500
Effluent Disposal Pipeline	6,500	LF	\$ 20	\$ 130,000
Construction Subtotal				\$ 2,719,338
Contingencies				\$ 271,934
Engineering and Inspection				\$ 543,868
Legal and Administrative				\$ 135,967
Hydrogeological Study, Effluent Reuse				\$ 30,000
WPCF Permit Application				\$ 5,000
Land Acquisition	125	AC	\$ 2,000	\$ 250,000
<b>TOTAL</b>				<b>\$ 3,956,107</b>

## Section 11 – Financing Options.

The list of agencies that may provide financing are essentially unchanged from the 1999 update. Data from the agencies will be updated to address details such as the community census data, interest rates and grant availability.







## SECTION 11

### FINANCING OPTIONS

#### 11.1 INTRODUCTION

The funding of needed wastewater improvements for the Crescent Sanitary District may utilize one or more of the following sources:

- Sale of Bonds by Acquiring Federal or State Grants and/or Loans
- Special Assessments
- Local Improvement Districts
- Serial Levies
- Capital Improvements (Sinking) Funds
- Systems Development Charges

The most successful financing plans utilize state or federal grants and/or loans that best address the characteristics of needed improvements. It is difficult to finance improvements with grant funding alone. Some level of local funding or borrowing from available loan programs is usually necessary. Funding programs vary in terms of their economic impact on the community. Funding programs are available to create and retain jobs or benefit areas of low to moderate income families. Other programs provide for specific types of infrastructure improvements, such as improvements to the wastewater treatment system.

A thorough consideration of applicable state and federal funding programs, in addition to a potential means of securing local funding, is needed to minimize the long-term cost of wastewater system improvements, while providing quality construction. A funding analysis is provided in this document.

#### 11.2 PUBLIC WORKS FINANCING PROGRAMS

Four grant programs and five loan/bond sale programs, which have the potential to accommodate the district, are listed below.

##### Grants

- |                               |  |
|-------------------------------|--|
| Federal                       | <ul style="list-style-type: none"><li>• Economic Development Administration</li><li>• Rural Development (FmHA)</li></ul> |
| Federal Administered by State | <ul style="list-style-type: none"><li>• Oregon Community Development Block Grants</li></ul>                              |
| State                         | <ul style="list-style-type: none"><li>• Special Public Works Fund</li></ul>  |

##### Loans/Bond Sales

- |         |   |
|---------|---|
| Federal | <ul style="list-style-type: none"><li>• Rural Development</li></ul>   |
| State   | <ul style="list-style-type: none"><li>• Special Public Works Fund</li><li>• State Revolving Fund Loan Program</li><li>• Small Scale Energy Loan Program</li></ul> |

Each of the available grant and loan programs varies in terms of the extent and complexity of the application process. In all cases, it is extremely important to communicate the program needs to the funding agency at the earliest possible date. A close working relationship with the potential grantor or lending agency can optimize the timing and amount of the grant and/or loan assistance.

In most cases, the grant and/or loan application must be accompanied with or preceded by a "Notice of Intent" from the applicant. The notice must be filed with both the Local and State Clearinghouses. The subsequent review process assures the applicant and the grant or lender agency that the project will be in compliance with regional goals and guidelines and state rules and regulations. A brief overview of potential public works financing programs and an assessment of their availability follows.

### **11.2.1 Economic Development Administration**

The emphasis of the Economic Development Administration (EDA) grant program is on projects which create permanent jobs, especially in economically depressed areas. Results from a survey of businesses must demonstrate that the creation of jobs will occur, in sufficient number, by virtue of building the improvements. There is a higher chance of receiving the grant if the community can demonstrate that the existing system is at capacity; for example, if there is a moratorium on new connections.

Grants require a local match, usually between the 40% to 50% range of the project cost, although local match can be as low as 20%.

### **11.2.2 Rural Development**

The Water and Wastewater Disposal Grants and Loans program is under the administration of U.S. Department of Agriculture, Rural Development (RD), under the old guidelines of Farmers Home Administration (FmHA). The program is limited to rural communities which have a population of less than 10,000 people; community population must not be likely to decline in the foreseeable future. The district meets this criteria.

#### RD Grant Program

RD now utilizes "MEDIAN HOUSEHOLD INCOME" (MHI) rather than Median Family Income in their computations for determining eligibility for their program. This allows for single-person households to count as family-type households.

RD is currently basing its grant and loan determination on 1990 census data. Availability of grants from the RD is dependent on the (MHI); projects are competitive with one another on the basis of community need.



Maximum grant availability based on MHI from 1990 census data is as follows:

Less than \$22,205 . . . . .	75 % maximum grant
to \$27,756 . . . . .	55 % maximum grant
Greater than \$27,756 . . . . .	Ineligible for grant

However, RD has a limited amount of grant funding available at the state and federal levels and currently no communities receive the maximum grant. Furthermore, requirements of the Safe Drinking Water Act and Clean Water Act have dramatically increased the current number of applications from Oregon communities. Also, RD requires eligible communities to finance the project with loans up to the extent of the communities ability to pay; the grant is then available to cover the remainder. The actual formula to determine the maximum burden per household is quite complicated, and costs for commercial users are typically higher. RD determines the debt burden required in each case.

### RD Loan Program

The district falls within the established criteria for loans. Please note that this is an excellent financial assistance program. Items which determine a borrower's eligibility are listed below.

- Unable to obtain needed funds from other sources at reasonable rates and terms.
- Have legal capacity to borrow and repay loans, to pledge security for loans, and to operate and maintain the facilities or services.
- Be financially sound and able to manage the facility effectively.
- Have a financially sound facility based on taxes, assessments, revenues, fees, or other satisfactory sources of income to pay all facility costs, including costs that pertain to operation and maintenance. Furthermore, it must be shown that debts will be retired and financial reserves maintained.

RD loans are available for wastewater system improvements at one of the following interest rates:

Less than \$22,205 . . . . .	4.5%
to \$27,756 . . . . .	5.0%
Greater than \$27,775 . . . . .	5.5%

The district would need to conduct an income survey to establish the applicable interest rate. The maximum term for all loans to districts is 30 years. However, no repayment period can exceed any local statutory limitation on obligations.

### **11.2.3 Community Development Block Grant Program**

The State of Oregon Economic Development Department administers the Community Development Block Grant (OCDBG) program. This program is funded by the U.S. Department of Housing and Urban Development. Funds allocated under the heading of this grant program are provided for projects designed specifically to improve the conditions of low and moderate income housing areas. The maximum grant for a project is \$750,000 which includes planning, engineering and construction.

To qualify for an OCDBG, the project must meet at least one of the following three national objectives of the federal OCDBG program. The primary national objective is one that limits OCDBG assistance to projects that principally benefit low and moderate income persons. OCDBG funds may be used to develop projects that are needed to benefit current residents, however, they must be built to include sufficient capacity for future development. The program prioritizes projects with documented regulatory violations.

The current policy is that at least 51 % of a community's population must have low and moderate incomes to be eligible. Grant awards in 1998 will be based on the 1990 Census data or an EDD recognized income survey. In general, projected sewer rates must be in the range of \$36.00 to \$38.00 per month per EDU in order to qualify for OCDBG funding.

#### **11.2.4 Special Public Works Fund (SPWF)**

The State of Oregon Economic Development Department (OEDD) administers the Oregon Special Public Works Fund (SPWF) program. The SPWF program is capitalized through biennial appropriations from the Oregon Lottery Economic Development Fund, through Oregon Bond Bank Fund sales for dedicated project funds, through loan repayments and other interest earnings. Applications may be submitted throughout the year. Loans and grants may be made available for infrastructure construction projects related to economic development and for the retention or creation of jobs.

Projects must build public infrastructure to assist a business expanding, thus creating jobs, or build needed infrastructure capacity for future economic growth in the community. OEDD has separated the program into three categories:

- 1.1 Firm business commitment for permanent job creation
- 1.2 Capacity building, high probability of job creation or retention.
- 1.3 Capacity building for severely affected communities

Revenue bonds are limited obligations of the state of Oregon payable solely from, and secured by, the loan repayments and other revenue pursuant to agreements between the state of Oregon acting by and through its OEDD, and specific benefitted municipalities. The Oregon Bond Bank Fund pools municipal loans into one bond issue and provides small communities affordable access to the financial markets. Bonds are repaid by local revenues and at interest rates lower than what is available to most Oregon communities. The Oregon Bond Bank Fund also pays the cost of issuance and funds the debt service reserve.

The Oregon Bond Bank Fund substantially increases funds available through the SPWF program to assist Oregon municipalities, and offers communities a viable financing alternative in a "Ballot Measure 5" environment. Revenue bonds sold through the Oregon Bond Bank Fund are not subject to the State Treasurer's moratorium on the issuance of new general obligation or certificates of participation debt. OEDD expects to regularly issue bonds to provide permanent financing for SPWF program applicants. Current projections anticipate issuing approximately \$20 million in funds annually. Interest rates are anticipated to range from 5 % to 6.5 %. For bond-funded projects, the interest rate will be estimated at 6 % with actual interest passed on to the applicant at the time of the bond sale.



OEDD plans to pass the exact interest rate allotted to the state for this program directly to borrowers. The state will pay for all debt reserve costs, bond issuance costs and attorneys fees. This is a loan program that allows the district to acquire funding directly from the state without the necessity for revenue or general obligation bonding.

The three OEDD categories of the SPWF (Bond Funds) Program are discussed below:

Firm Business Commitment (Bond Funds)

Grants of up to \$500,000 are available for projects which have a firm commitment from a business(es) to create permanent jobs if the project is constructed. The grant is dependent on the number of jobs which would potentially be created with maximum assistance of up to \$10,000 per job.

Capacity Building, High Probability of Job Creation/Retention

This category of the SPWF program finances only loans up to \$10,000,000.

Capacity Building for Severely Affected Communities

SPWF has loans to \$10,000,000 and grants up to \$250,000 for severely affected communities. Communities are able to apply for grants of up to \$250,000 from this fund even if they don't have a waiting business that needs the infrastructure. This will give communities who are seeking to attract business growth the chance to prepare in advance for these opportunities.

Crescent would need to demonstrate that this project is necessary to create and/or retain jobs in the industrial sector. SPWF staff emphasize that the program is primarily a loan program and that applicants should not be overly optimistic about securing maximum grant dollars.

### 11.2.5 Water/Wastewater Financing Program

The 1993 State Legislature created a Water Fund through Senate Bill 81 to provide financing to local governments to construct and improve public drinking water systems and public waste collection systems. The legislation was primarily intended to assist local governments meet regulations for the Safe Drinking Water Act and the Clean Water Act. In that respect, the Water/Wastewater Fund may assist both municipal drinking water projects and municipal wastewater collection and treatment projects. Program eligibility is limited to projects necessary to ensure that municipal water and wastewater systems comply with the requirements of the following:

1. Current drinking water quality standards administered by the Oregon Health Division.
2. Water quality statutes, rules, orders, or permits administered by the Oregon Department of Environmental Quality (DEQ).

The Water/Wastewater Fund is capitalized through a biennial appropriation from the Oregon Lottery Economic Development fund, bond sales for dedicated project funds, loan repayments, and interest earnings. The Fund is administered by the OEDD, Community Development Programs section.

Loans and grants may be awarded for eligible projects. Loans will be based on a reasonable and prudent expectation of the local government's ability to repay the loan.

Grants may be awarded only if a loan is not feasible due to the following:

1. Financial hardship to the local government as determined by OEDD
2. Special circumstances of the project.

Loans up to \$10,000,000 and grants up to \$500,000 (includes non-cash grants for issuance costs and debt service reserve) are available to projects financed with bond funds. Loan term is 20 years at a 5% - 6.5% interest rate. Loans and grants up to \$500,000 are available to projects financed with direct lottery funds.

#### **11.2.6 State Revolving Fund**

The State Revolving Fund (SRF) loan program provides low-interest rate loans to public agencies for the planning, design and construction of water pollution control facilities, as well as for some publicly-owned estuary management and non-point source control projects. This funding program is administered by DEQ. Recent interest rates for loans are 2.68% for facility plans and 3.57% for design and/or construction. These interest rates are subject to change, but will remain below market rates. Priority is given to projects addressing documented water-quality problems and health hazards.

#### **11.2.7 Wastewater Hardship Grants Program**

This is a new program with limited grant funding. The funds are for severely economically disadvantaged communities with populations of 3,000 or less and lacking a wastewater collection and treatment system. Preliminary discussions indicate that all available funds may be allocable to one project.

#### **11.2.8 Oregon Department of Energy - Small Scale Energy Loan Program**

Funds could be made available under this program as a demonstration project or as a conventional energy savings or conservation program. The Department of Energy's Small Scale Energy Loan Program (SELP) offers help to anyone who wants to save money on energy costs. SELP was created by Oregon voters in 1980, and has financed more than \$150 million in projects since that time. This is a self supporting program that operates without tax funds. A finished project must at least break even in power costs with the pre-study and improvement program. The predesign phase would be utilized to generate data that would show power savings or creation for recommended improvements. This is a loan program repayable at 8% interest over a 15-year repayment period. A fee of one-tenth of one percent of the loan request is required at the time of application. Loan closing costs and fees vary.



### 11.3 LOCAL FUNDING SOURCES

A significant portion of the project may need to be financed with local funding sources. If the district does receive a low interest loan from state or federal agencies, the annual payment may be reduced. However, the method of repayment selected will be conditional upon agency approval.

The local funding sources are listed below:

- General Obligation Bonds
- Revenue Bonds
- Improvement Bonds (Local Improvement District)
- Serial Levies
- Sinking Funds
- Ad Valorem Tax
- System User Fees
- Assessments
- System Development Charges (SDC's)

The 1991 legislature clarified and defined the impact of Ballot Measure 5 on municipal finance in several special ways. Cities, counties, and special districts need to clearly understand, and follow these rules, when they consider bonding for the financing of needed improvements.

The following information was provided in part by Howard A. Rankin, Expert Bond Counsel:

1. Chapters 287 and 288 of the Oregon Revised Statutes describe the borrowing and bonding of counties, cities, and special districts, generally.
2. The advance sheets of the Laws of 1991 indicate that the general bond limitations of ORS 287.004 are still in force. Except with regard to the old 3% limitation on all issued and outstanding bonds, of true-cash value of all taxable property within the district's boundaries, has been changed to a 3% limitation on "real market value" as determined by the County Assessor.
3. The above limitation still does not apply to bonds issued for wastewater, sanitary or storm sewers, sewage disposal plants; nor to bonds issued to pay assessments for improvements in installments under statutory or charter authority (i.e. revenue bonds).
4. All cities and districts should be careful to check their current charters for any additional impacts or limitations on bonding capabilities.

A description of each of the preceding listed funding sources follows.

#### 11.3.1 General Obligation Bonds

Financing of wastewater improvements by General Obligation (G.O.) Bonds is accomplished by

the following procedures:

1. The Consulting Engineer prepares a detailed cost estimate to determine the total moneys required for construction.
2. An election is held.
3. When voter approval is granted (by a majority of the registered voters), bonds are offered for sale. The money for detailed planning and construction is obtained prior to preparation of final engineering plans and the start of project construction unless interim financing has been developed.

G.O. bonds are backed by the full credit of the issuer and authorize the issuer to levy ad valorem taxes. The issuer can make the required payments on the bonds solely from the new tax levy or may instead use revenue from assessment, user charges, or some other source.

Oregon Revised Statutes limit the maximum term of G.O. bonds to 40 years for cities and 25 years for sanitary districts. Except in the event that RD purchases the bonds, the realistic term for which general obligation bonds would be issued is 15 to 20 years.

Ballot Measure 5 has limited the ability of communities to levy property taxes. Capital improvement projects, such as the proposed wastewater system improvements, are exempt from property tax limitations if an election is held and new public hearing requirements are met.

Cities, counties and special districts (all non-school taxing entities) must be very careful when seeking approval from the voters for a general obligation bond, new tax base, annual budget levy, or special levy. The current law now requires that all non-school taxing entities, including cities, counties, and special districts, hold a special public hearing more than 30 days before filing the election statement with the County Clerk. Notice of this special public hearing must be sent to all other non-school taxing entities with overlapping taxing jurisdictions no later than 10 days before the special public hearing. This special public hearing offers the opportunity for all overlapping taxing entities to determine the compaction impact of the proposed election on their respective assessment capability. Effectively, the municipality proposing the election measure must be thoroughly prepared with notice of special public hearing published no later than 41 days before a final public hearing and filing of the election statement.

If the special public hearing procedures are not followed, and no certificate is included in the filing that attests that the special public hearing was conducted pursuant to law, the County Clerk is required to reject the filing for an election. This results in additional unnecessary delays. The Crescent Sanitary District should consult with their attorney, and consider hiring a Bond Counsel before proceeding with a General Bond Election. This action will insure that all requirements of current law are met.

Since bonding requirements are very stringent, most recent municipal improvements have been financed with either revenue bonds or one of the state financing programs which can be accomplished outside of bonding requirements.



### 11.3.2 Revenue Bonds

A revenue bond is one that is payable solely from charges made for the services provided. Such bonds cannot be paid from tax levies or special assessments, and their only security is the borrower's promise to operate the wastewater system in a way that will provide sufficient net revenue to meet the obligations of the bond issue. Revenue bonds are most commonly retired with revenue from user fees.

Successful issuance of revenue bonds depends on bond market evaluation of the dependability of the revenue pledged. Normally there are no legal limitations on the amount of revenue bonds to be issued, but excessive bond issue amounts are generally unattractive to bond buyers because they represent high investment risk. In rating revenue bonds, buyers consider the economic justification for the project, reputation of the borrower, methods for billing and collection, rate structures, and the degree to which forecasts of net revenues are realistic. RD will fund revenue bonds in which user rates are committed for the repayment of the bonds.

Under the provisions of the Oregon Uniform Revenue Bond Act (ORS 288.805-288.945), municipalities may elect to issue Revenue Bonds for revenue producing facilities without a vote of the electorate. In this case, certain notice and posting requirements must be met including a mandatory 60-day waiting period. A petition signed by 5% of the municipalities' registered voters may cause the issue to be referred to an election.

New laws enacted by the 1991 legislature have eliminated the limitation on revenue bonds. The law formally required that the revenues pledged for payment of the bonds have a direct relationship to the services financed by the bonds. Current law now allows revenue bonds to be paid with any revenue pledged for "any public purpose," without the relationship restriction.

### 11.3.3 Improvement Bonds (Local Improvement District)

Improvement bonds may be issued to assess certain portions of wastewater improvements directly against the parties being benefitted. An equitable means of distributing the assessed cost must be utilized so that all property, whether developed or undeveloped, receives the assessment on an equal basis. For a particular improvement, all property within the assessment area is assessed on an equal basis, regardless of whether it is developed or undeveloped.

Improvement bond financing requires that an improvement district be formed, the boundaries be established, and the benefitted properties and property owners are determined. The engineer usually determines an approximate assessment based on a square-foot, a front-foot basis, or a combined basis. Property owners are then given an opportunity to remonstrate against the project. The assessment against the properties is usually not levied until the actual total cost of the project is determined. Since this determination is normally not possible until the project is completed, funds are not available from assessments for the purpose of making monthly payments to the contractor. Therefore, some method of interim financing must be arranged, or a pre-assessment program, based on the estimated total costs, must be adopted. It is common practice to issue warrants, which are paid when the project is completed, to cover debts.

The primary disadvantages to this source of revenue (improvement bonds) are described below:

1. The property to be assessed must have a true cash valuation at least equal to 50% of the total assessments to be levied. This may require a substantial cash payment by owners of undeveloped property.
2. An assessment district is very cumbersome and expensive when facilities for an entire community are contemplated.
3. The project is impacted by Measure 5 tax limitations because the improvement bonds are backed or guaranteed by the community's authority to raise revenue via taxation. If the community is in compaction, then a general election (same procedures as for a general obligation bond) is required. If the community's property taxes are not under compaction, then the community can proceed with a L.I.D. as in the past; however, the project cost will count against the \$10.00 limitation for non-school taxes.

This program should not be considered for improvements to satisfy community needs in general, but could be a definite consideration for future expansions to annexations or property developments.

#### 11.3.4 Serial Levies

Under Oregon Revised Statutes, if approved by the voters, the community can levy taxes for a fixed period of time to construct new facilities and maintain existing facilities. Generally, when a serial levy is presented to the voters, it is based upon a specific program and listing of planned improvements.

Since the time frame required for construction of the needed wastewater improvements is quite limited, it is doubtful that residents could afford a serial levy of sufficient size to provide for needed construction revenues.

#### 11.3.5 Sinking Funds

Sinking funds can be established by budget for a particular capital improvement need. Budgeted amounts, from each annual budget, are carried in a sinking fund until sufficient revenue is available for the needed project. Funds can also be developed with revenue derived from system development charges or serial levies. Again, the community's wastewater system financial needs cannot be met with a sinking fund because of the limited time in which improvements must be completed.

#### 11.3.6 Ad Valorem Tax

Many communities utilize an ad valorem tax as the basis for repaying general obligation bonds for system expansions, and supplement them with additional wastewater use charges. This means of financing reaches all property to be ultimately benefitted by the wastewater system, whether the property is presently developed or not. Construction costs are more equally distributed among all

property owners and the program does not impose a penalty on existing residential or business development.

#### **11.3.7 System User Fees**

Monthly charges are made to all residences, businesses, etc., that are connected to the wastewater system. Wastewater use charges are established by resolution, and can be modified as needed to serve increased or decreased operating costs. Rates are established depending on the various classes of users and the metered demand through their connection. By establishment of proper use charges, the district could repay the local share of bond amortization without imposition of property taxes. This appears to be most favorable; however, a proposal to substantially increase monthly use charges might meet resistance from citizens with low or fixed incomes who would otherwise gain some financial advantage from repayment via taxation.

#### **11.3.8 Assessments**

In some cases the beneficiary of a public works improvement can simply be assessed for the cost of the project. It is not uncommon for an industrial or commercial developer to provide up-front capital to pay for a community administered improvement which serves the development.

#### **11.3.9 System Development Charges**

System Development Charges (SDC's) are charges assessed against new development to recover the costs incurred by local government who provide the capital facilities required to serve the new development. SDC's apply to new developments that generate revenue for the expansion or construction of facilities located outside the boundaries of new development. When capital improvements increase usage, SDC's can be billed for water, wastewater, drainage and flood control, transportation, and parks or recreational facilities.

### **11.4 PROPOSED FINANCIAL PROGRAM**

The district should first attempt to educate area residents and businesses about the project, and collect public input. After selection of the initial project scope, the district should contact the OEDD to schedule a one stop meeting between all available state and federal funding agencies, to discuss project needs. When the project is presented to all funding agencies, each agency will evaluate their program's potential to assist with financing the needed wastewater improvements.

Some potential funding scenarios are included in Section 12.





Section 12 – Combined Collection, Treatment, Storage & Disposal.

12.1 Summary of Project Options

Table 12.1

12.2 Operation and Maintenance and Capital Long Term Replacement Costs

**Table 12.2 Operation and Maintenance Cost Summary**

<b>Item</b>	<b>Annual Cost</b>
Payroll Expenses	\$39,000
Office	\$2,600
Insurance	\$3,900
Vehicle Expenses	\$1,300
Education	\$700
Licenses Fees	\$1,300
Materials and Utilities	\$19,500
Capital Improvements and Replacement	\$45,500
<b>Total</b>	<b>\$113,800</b>





## SECTION 12

### COMBINED COLLECTION, TREATMENT, STORAGE & DISPOSAL

#### 12.1 SUMMARY OF PROJECT OPTIONS

Project options and opinions of probable costs that were development in Section 10 are summarized below in Table 12.1.

Table 12.1

Project	Opinion of Total Cost	Existing EDUs	Design EDUs
1. Crescent Sanitary District, Treatment & Disposal South of Crescent			
Collection System	\$2,393,300		
Treatment, Storage & Disposal	<u>\$3,861,680</u>		
Total	\$6,254,980	288	603
2. Core Area of Crescent First Phase, Treatment & Disposal South of Crescent			
Phase I Collection System	\$1,170,000		
Treatment, Storage & Disposal	<u>\$2,933,000</u>		
Subtotal	\$4,103,000	140	295
Phase II Collection System	\$1,232,300		
Treatment, Storage & Disposal	<u>\$1,218,500</u>		
Subtotal	\$2,450,800	148	308
Total	\$6,553,800	288	603
3. Gilchrist Alone, Add Holding & Irrigation			
Collection System	\$ 0		
Treatment, Storage & Disposal	<u>\$1,830,750</u>		
Total	\$1,830,750	150	340



Table 12.1 Continued

Project	Opinion of Total Cost	Existing EDUs	Design EDUs
4. Regional System, First Phase Crescent Core & Gilchrist Treatment & Disposal At Gilchrist			
Phase I Collection System	\$1,170,000		
Treatment, Storage & Disposal	\$2,847,120		
Purchase Gilchrist System	<u>\$ 750,000</u>	290	635
Subtotal	\$4,767,120		
Phase II Collection System	\$1,223,300		
Treatment, Storage & Disposal	<u>\$1,882,000</u>	148	308
Subtotal	\$3,105,300		
Total	\$7,872,505	438	943
5. Regional System, Crescent and Gilchrist Treatment & Disposal At Gilchrist			
Collection System	\$2,393,300		
Treatment, Storage & Disposal	\$3,956,100		
Purchase Gilchrist System	<u>\$ 750,000</u>	438	943
Total	\$7,099,400		
6. Regional System, Crescent and Gilchrist Treatment & Disposal At Gilchrist (Stage Treatment and Disposal)			
Phase I			
Collection System	\$2,393,300	438	635
Treatment, Storage & Disposal	\$2,847,120		
Purchase Gilchrist System	<u>\$ 750,000</u>		
Subtotal	\$5,990,420		
Phase II			
Treatment, Storage & Disposal	<u>\$1,882,000</u>	—	308
Subtotal	\$1,882,000		
Total	\$7,872,420	438	943

## 12.2 OPERATION, MAINTENANCE, AND CAPITAL LONG TERM REPLACEMENT COSTS

O&M costs for the proposed project area summarized in Table 12.2.

Table 12.2 O&amp;M Cost Summary

Item	Annual Cost
Payroll Expenses	\$30,000
Office	\$2,000
Insurance	\$3,000
Vehicle Expenses	\$1,000
Education	\$500
License and Fees	\$1,000
Materials and Utilities	\$15,000
Capital Improvements and Replacement	\$35,000
Total	\$87,500

A nominal replacement fund is included in Tables 12.2 and 12.3 under "Capital Improvements and Replacement" with the intent that such funds would pay for replacement component items and equipment as needed to maintain the facility. Future expansions of the system to include new service areas and expanded effluent holding facilities will be driven by community growth. SDCs, a larger user base, and developer's share of costs associated with growth should provide most of the funds for addressing system expansions. Current trends have been toward less grant funding. Future system expansion may largely depend on the District's ability to build a capital long term replacement fund through realistic SDCs and periodic rate increases.

Revenue is initially projected as follows:

Table 12.3

Description	Projected Revenue
User Fees	\$52,500
SDCs and New Connections	\$35,000
Total	\$87,500

SDCs have been computed in this section (12.6), and revenue is based on 10 new connections a year. Revenue from SDCs could initially be allocated to the capital improvement and replacement fund.

O&M costs for the six project options are summarized below. Note that a significant portion of the projected O&M is for labor. It will be difficult to retain qualified, part-time help. Initially it is assumed that O&M costs are fixed, and therefore the cost per customer decreases as the number of customers increases.

Table 12.4 OMR Fees for Each Project Option

	EDUs	Monthly OMR User Fees per EDU
Option 1	288	\$15.20
Option 2	140	\$31.25
Option 3	150	*\$30.00
Option 4	290	\$15.09
Option 5	438	\$ 9.99
Option 6	438	\$ 9.99

\* Note: Gilchrist already has an existing O&M structure, with a current rate of \$30 a month per household.

## 12.3 POTENTIAL FINANCING PLAN AND USER FEES

### 12.3.1 Potential Financing Options

A general discussion of financing options is presented in Section 11. Because of the magnitude of the proposed project, several funding sources are likely to be required to generate the requisite funds. In general, program requirements and fund availability can vary significantly over a very short period. To facilitate project funding, state and federal agencies have provided a format for identifying the available funding that suits the project. These One-Stop Meetings are held in Salem and typically involve the client, engineer, and representatives of the various state and federal agencies. Major funding sources of probable benefit to this project are summarized below.

#### Oregon Community Development Block Grant (OCDBG):

Up to \$750,000 in grant funding for infrastructure, and \$500,000 from housing rehabilitation (private service laterals).

#### Rural Development (RD):

Up to 50% grant funding depending on availability of funds. For planning purposes, a probable maximum grant of \$2,000,000 is used in this study. Loan terms are assumed to be 5% interest for 40 years. Note that recently RD has indicated that the upper limit per project may be reduced to a \$1,000,000, depending on the State's total grant allocation.

#### Special Public Works Fund (SPWF):

Primarily a loan program, but with some grant potential (up to \$500,000) associated with creation/retention of family wage jobs.

#### Clean Water State Revolving Fund (SRF) Program:

Strictly loan, but at highly favorable rates (20 year term, 3.87% interest, 1.5% loan fee, and annual 0.5% servicing fee during repayment).

Wastewater Hardship Grants Program:

This is a new program with limited grant funding (\$532,140 in total grant funding for all of Oregon in 1997). The funds are for severely economically disadvantaged rural communities with populations of 3000 or less and lacking a wastewater collection and treatment system. Preliminary discussions indicate that all available funds may be allocable to one project.

Economic Development Administration:

Up to \$1,000,000 in grant funds for projects that support economic development within the community.

Water/Wastewater:

Up to 50% grant funding, with a maximum of \$500,000 grant and \$500,000 loan. Current loan terms are approximately 6% annual interest, 20 year term.

### 12.3.2 Potential Funding Scenarios and User Fees

When evaluating potential funding scenario's, it is important to recognize that virtually all public works funding agencies now are considering monthly rates when making grant determinations. The funding agencies general guideline for equity in funding is monthly rates (to help insure that distribution of grant funds is fair to all communities). Generally a communities monthly rate must meet or exceed the state average for similar communities prior to the project becoming eligible for grant funding. This requirement essentially sets the minimum monthly rate. Currently the state average is \$37 a month (for communities which have recently upgraded their wastewater system).

Following are a series of tables that describe four funding scenarios and user fees for each option.



Table 12-5

## Funding Scenarios for Project Option # 1

EDUs Served	288	Connection Fee	\$	1,000
New Connections	288			
<b>PROJECT COST</b>				
Treatment Plant	\$ 3,861,680			
Collections	\$ 2,393,300			
<b>TOTAL</b>	<b>\$ 6,254,980</b>	<b>\$ 6,254,980</b>	<b>\$ 6,254,980</b>	<b>\$ 6,254,980</b>

FUNDING SOURCE	RD and W/WW Grants	RD 50/50 Match	w/ Fees	w/ Other
RD Grant	\$ 1,252,490	\$ 1,752,490	\$ 1,608,490	\$ 1,133,490
RD Loan	\$ 1,252,490	\$ 1,752,490	\$ 1,608,490	\$ 1,133,490
W/WW Grant	\$ 500,000	\$ -	\$ -	\$ -
W/WW Loan	\$ 500,000	\$ -	\$ -	\$ -
SRF Loan	\$ -	\$ -	\$ -	\$ -
EDA Grant	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
OCDBG Community Facilities	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
OCDBG Public Works	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
WW Hardship Grant	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
Connection Fees			\$ 288,000	\$ 288,000
Other				\$ 950,000
<b>TOTAL LOAN AMOUNT</b>	<b>\$ 1,752,490</b>	<b>\$ 1,752,490</b>	<b>\$ 1,608,490</b>	<b>\$ 1,133,490</b>
<b>% Loan</b>	<b>28.0%</b>	<b>28.0%</b>	<b>25.7%</b>	<b>18.1%</b>

## ANNUAL LOAN PAYMENT AND O&amp;M COSTS

<b>RD</b>				
Interest Rate	4.5%	4.5%	4.5%	4.5%
Principal	\$ 1,252,490	\$ 1,752,490	\$ 1,608,490	\$ 1,133,490
Period	30	30	30	30
Annual Payment	\$ 76,892	\$ 107,588	\$ 98,748	\$ 69,587
Reserve Payment	\$ 7,689	\$ 10,759	\$ 9,875	\$ 6,959
Total RD Payment	\$ 84,582	\$ 118,347	\$ 108,622	\$ 76,545
<b>W/WW</b>				
Interest Rate	6.0%	6.0%	6.0%	6.0%
Principal	\$ 500,000	\$ -	\$ -	\$ -
Period	20	20	20	20
Annual Payment	\$ 43,592	\$ -	\$ -	\$ -
<b>ANNUAL O&amp;M COST</b>	<b>\$ 52,500</b>	<b>\$ 52,500</b>	<b>\$ 52,500</b>	<b>\$ 52,500</b>
<b>ANNUAL LOAN PAYMENT</b>	<b>\$ 128,174</b>	<b>\$ 118,347</b>	<b>\$ 108,622</b>	<b>\$ 76,545</b>
<b>TOTAL ANNUAL COST</b>	<b>\$ 180,674</b>	<b>\$ 170,847</b>	<b>\$ 161,122</b>	<b>\$ 129,045</b>
<b>New Monthly Costs per EDU</b>				
New Monthly Costs per EDU	\$ 37.09	\$ 34.24	\$ 31.43	\$ 22.15
New O&M	\$ 15.19	\$ 15.19	\$ 15.19	\$ 15.19
<b>Final Monthly Rate</b>	<b>\$ 52.28</b>	<b>\$ 49.43</b>	<b>\$ 46.62</b>	<b>\$ 37.34</b>

Table 12-6

## Funding Scenarios for Project Option # 2

EDUs Served		140	Connection Fee		\$	1,000
New Connections		140				
<b>PROJECT COST</b>						
Treatment Plant	\$	2,933,000				
Collections	\$	1,171,000				
TOTAL	\$	4,104,000	\$	4,104,000	\$	4,104,000
<b>FUNDING SOURCE</b>	<b>RD and W/WW Grants</b>	<b>RD 50/50 Match</b>	<b>w/ Fees</b>	<b>w/ Other</b>		
RD Grant	\$ 177,000	\$ 677,000	\$ 607,000	\$ 107,000		
RD Loan	\$ 177,000	\$ 677,000	\$ 607,000	\$ 107,000		
W/WW Grant	\$ 500,000	\$ -	\$ -	\$ -		
W/WW Loan	\$ 500,000	\$ -	\$ -	\$ -		
SRF Loan	\$ -	\$ -	\$ -	\$ -		
EDA Grant	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000		
OCDBG Community Facilities	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000		
OCDBG Public Works	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000		
WW Hardship Grant	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000		
Connection Fees			\$ 140,000	\$ 140,000		
Other				\$ 1,000,000		
TOTAL LOAN AMOUNT	\$ 677,000	\$ 677,000	\$ 607,000	\$ 107,000		
% Loan	16.5%	16.5%	14.8%	2.6%		
<b>ANNUAL LOAN PAYMENT AND O&amp;M COSTS</b>						
<b>RD</b>						
Interest Rate	4.5%	4.5%	4.5%	4.5%		
Principal	\$ 177,000	\$ 677,000	\$ 607,000	\$ 107,000		
Period	30	30	30	30		
Annual Payment	\$ 10,866	\$ 41,562	\$ 37,265	\$ 6,569		
Reserve Payment	\$ 1,087	\$ 4,156	\$ 3,726	\$ 657		
Total RD Payment	\$ 11,953	\$ 45,718	\$ 40,991	\$ 7,226		
<b>W/WW</b>						
Interest Rate	6.0%	6.0%	6.0%	6.0%		
Principal	\$ 500,000	\$ -	\$ -	\$ -		
Period	20	20	20	20		
Annual Payment	\$ 43,592	\$ -	\$ -	\$ -		
ANNUAL O&M COST	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500		
ANNUAL LOAN PAYMENT	\$ 55,545	\$ 45,718	\$ 40,991	\$ 7,226		
TOTAL ANNUAL COST	\$ 108,045	\$ 98,218	\$ 93,491	\$ 59,726		
New Monthly Costs per EDU	\$ 33.06	\$ 27.21	\$ 24.40	\$ 4.30		
New O&M	\$ 31.25	\$ 31.25	\$ 31.25	\$ 31.25		
Final Monthly Rate	\$ 64.31	\$ 58.46	\$ 55.65	\$ 35.55		

Table 12-7

## Funding Scenarios for Project Option # 3

EDUs Served	150	Connection Fee	\$
New Connections	0		

## PROJECT COST

Treatment Plant	\$ 1,830,750			
Collections	\$ -			
<b>TOTAL</b>	<b>\$ 1,830,750</b>	<b>\$ 1,830,750</b>	<b>\$ 1,830,750</b>	<b>\$ 1,830,750</b>

FUNDING SOURCE	RD and W/WW Grants	RD 50/50 Match	w/ Fees	w/ Other
RD Grant	\$ 415,375	\$ 915,375	\$ 915,375	\$ 215,375
RD Loan	\$ 415,375	\$ 915,375	\$ 915,375	\$ 215,375
WWW Grant	\$ 500,000	\$ -	\$ -	\$ -
WWW Loan	\$ 500,000	\$ -	\$ -	\$ -
SRF Loan	\$ -	\$ -	\$ -	\$ -
EDA Grant	\$ -	\$ -	\$ -	\$ -
OCDBG Community Facilities	\$ -	\$ -	\$ -	\$ -
OCDBG Public Works	\$ -	\$ -	\$ -	\$ -
WW Hardship Grant	\$ -	\$ -	\$ -	\$ -
Connection Fees			\$ -	\$ -
Other				\$ 1,400,000
<b>TOTAL LOAN AMOUNT</b>	<b>\$ 915,375</b>	<b>\$ 915,375</b>	<b>\$ 915,375</b>	<b>\$ 215,375</b>
<b>% Loan</b>	<b>50.0%</b>	<b>50.0%</b>	<b>50.0%</b>	<b>11.8%</b>

## ANNUAL LOAN PAYMENT AND O&amp;M COSTS

<b>RD</b>				
Interest Rate	4.5%	4.5%	4.5%	4.5%
Principal	\$ 415,375	\$ 915,375	\$ 915,375	\$ 215,375
Period	30	30	30	30
Annual Payment	\$ 25,501	\$ 56,196	\$ 56,196	\$ 13,222
Reserve Payment	\$ 2,550	\$ 5,620	\$ 5,620	\$ 1,322
Total RD Payment	\$ 28,051	\$ 61,816	\$ 61,816	\$ 14,544
<b>W/WW</b>				
Interest Rate	6.0%	6.0%	6.0%	6.0%
Principal	\$ 500,000	\$ -	\$ -	\$ -
Period	20	20	20	20
Annual Payment	\$ 43,592	\$ -	\$ -	\$ -
<b>ANNUAL O&amp;M COST</b>	<b>\$ 52,500</b>	<b>\$ 52,500</b>	<b>\$ 52,500</b>	<b>\$ 52,500</b>
<b>ANNUAL LOAN PAYMENT</b>	<b>\$ 71,643</b>	<b>\$ 61,816</b>	<b>\$ 61,816</b>	<b>\$ 14,544</b>
<b>TOTAL ANNUAL COST</b>	<b>\$ 124,143</b>	<b>\$ 114,316</b>	<b>\$ 114,316</b>	<b>\$ 67,044</b>
<b>New Monthly Costs per EDU</b>				
New Monthly Costs per EDU	\$ 39.80	\$ 34.34	\$ 34.34	\$ 8.08
New O&M	\$ 29.17	\$ 29.17	\$ 29.17	\$ 29.17
<b>Final Monthly Rate</b>	<b>\$ 68.97</b>	<b>\$ 63.51</b>	<b>\$ 63.51</b>	<b>\$ 37.25</b>

Table 12-8				
Funding Scenarios for Project Option # 4				
EDUs Served		290	Connection Fee	\$ 1,000
New Connections		140		
PROJECT COST				
Treatment Plant	\$	3,597,120		
Collections	\$	1,170,000		
TOTAL	\$	4,767,120	\$ 4,767,120	\$ 4,767,120
FUNDING SOURCE	RD and W/WW Grants	RD 50/50 Match	w/ Fees	w/ Other
RD Grant	\$ 508,560	\$ 1,008,560	\$ 1,000,000	\$ 1,000,000
RD Loan	\$ 508,560	\$ 1,008,560	\$ 1,017,120	\$ 1,017,120
W/WW Grant	\$ 500,000	\$ -	\$ -	\$ -
W/WW Loan	\$ 500,000	\$ -	\$ -	\$ -
SRF Loan	\$ -	\$ -	\$ -	\$ -
EDA Grant	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
OCDBG Community Facilities	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
OCDBG Public Works	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
VW Hardship Grant	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
Connection Fees			\$ -	\$ -
Other				\$ -
TOTAL LOAN AMOUNT	\$ 1,008,560	\$ 1,008,560	\$ 1,017,120	\$ 1,017,120
% Loan	21.2%	21.2%	21.3%	21.3%
ANNUAL LOAN PAYMENT AND O&M COSTS				
RD				
Interest Rate	4.5%	4.5%	4.5%	4.5%
Principal	\$ 508,560	\$ 1,008,560	\$ 1,017,120	\$ 1,017,120
Period	30	30	30	30
Annual Payment	\$ 31,221	\$ 61,917	\$ 62,443	\$ 62,443
Reserve Payment	\$ 3,122	\$ 6,192	\$ 6,244	\$ 6,244
Total RD Payment	\$ 34,343	\$ 68,109	\$ 68,687	\$ 68,687
W/WW				
Interest Rate	6.0%	6.0%	6.0%	6.0%
Principal	\$ 500,000	\$ -	\$ -	\$ -
Period	20	20	20	20
Annual Payment	\$ 43,592	\$ -	\$ -	\$ -
ANNUAL O&M COST	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500
ANNUAL LOAN PAYMENT	\$ 77,936	\$ 68,109	\$ 68,687	\$ 68,687
TOTAL ANNUAL COST	\$ 130,436	\$ 120,609	\$ 121,187	\$ 121,187
New Monthly Costs per EDU	\$ 22.40	\$ 19.57	\$ 19.74	\$ 19.74
New O&M	\$ 15.09	\$ 15.09	\$ 15.09	\$ 15.09
Final Monthly Rate	\$ 37.48	\$ 34.66	\$ 34.82	\$ 34.82



Table 12-9

## Funding Scenarios for Project Option # 5

EDUs Served	438	Connection Fee	\$	1,000
New Connections	288			

## PROJECT COST

Treatment Plant	\$	4,706,100				
Collections	\$	2,393,300				
TOTAL	\$	7,099,400	\$	7,099,400	\$	7,099,400

## FUNDING SOURCE

RD and W/WW  
Grants

## RD 50/50 Match

## w/ Fees

## w/ Other

RD Grant	\$	1,674,700	\$	2,000,000	\$	2,030,700	\$	2,030,700
RD Loan	\$	1,674,700	\$	2,349,400	\$	2,030,700	\$	2,030,700
WWW Grant	\$	500,000	\$	-	\$	-	\$	-
WWW Loan	\$	500,000	\$	-	\$	-	\$	-
SRF Loan	\$	-	\$	-	\$	-	\$	-
EDA Grant	\$	1,000,000	\$	1,000,000	\$	1,000,000	\$	1,000,000
OCDBG Community Facilities	\$	500,000	\$	500,000	\$	500,000	\$	500,000
OCDBG Public Works	\$	750,000	\$	750,000	\$	750,000	\$	750,000
WW Hardship Grant	\$	500,000	\$	500,000	\$	500,000	\$	500,000
Connection Fees					\$	288,000	\$	288,000
Other							\$	-

TOTAL LOAN AMOUNT	\$	2,174,700	\$	2,349,400	\$	2,030,700	\$	2,030,700
% Loan		30.6%		33.1%		28.6%		28.6%

## ANNUAL LOAN PAYMENT AND O&amp;M COSTS

## RD

Interest Rate	4.5%	4.5%	4.5%	4.5%
Principal	\$ 1,674,700	\$ 2,349,400	\$ 2,030,700	\$ 2,030,700
Period	30	30	30	30
Annual Payment	\$ 102,812	\$ 144,233	\$ 124,668	\$ 124,668
Reserve Payment	\$ 10,281	\$ 14,423	\$ 12,467	\$ 12,467
Total RD Payment	\$ 113,094	\$ 158,657	\$ 137,135	\$ 137,135

## WWW

Interest Rate	6.0%	6.0%	6.0%	6.0%
Principal	\$ 500,000	\$ -	\$ -	\$ -
Period	20	20	20	20
Annual Payment	\$ 43,592	\$ -	\$ -	\$ -

ANNUAL O&M COST	\$	52,500	\$	52,500	\$	52,500	\$	52,500
ANNUAL LOAN PAYMENT	\$	156,686	\$	158,657	\$	137,135	\$	137,135
TOTAL ANNUAL COST	\$	209,186	\$	211,157	\$	189,635	\$	189,635

New Monthly Costs per EDU	\$	29.81	\$	30.19	\$	26.09	\$	26.09
New O&M	\$	9.99	\$	9.99	\$	9.99	\$	9.99

Final Monthly Rate	\$	39.80	\$	40.17	\$	36.08	\$	36.08
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**Table 12-10****Funding Scenarios for Project Option # 6**

EDUs Served		438	Connection Fee		\$	1,000
New Connections		288				
PROJECT COST						
Treatment Plant	\$	3,597,120				
Collections	\$	2,393,300				
TOTAL	\$	5,990,420	\$	5,990,420	\$	5,990,420
FUNDING SOURCE	RD and W/WW Grants	RD 50/50 Match	w/ Fees	w/ Other		
RD Grant	\$ 900,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000		
RD Loan	\$ 1,340,420	\$ 1,990,420	\$ 1,990,420	\$ 1,990,420		
W/WW Grant	\$ 500,000	\$ -	\$ -	\$ -		
W/WW Loan	\$ 500,000	\$ -	\$ -	\$ -		
SRF Loan	\$ -	\$ -	\$ -	\$ -		
EDA Grant	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000		
OCDBG Community Facilities	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000		
OCDBG Public Works	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000		
WW Hardship Grant	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000		
Connection Fees						
Other						
TOTAL LOAN AMOUNT	\$ 1,840,420	\$ 1,990,420	\$ 1,990,420	\$ 1,990,420		
% Loan	30.7%	33.2%	33.2%	33.2%		
ANNUAL LOAN PAYMENT AND O&M COSTS						
RD						
Interest Rate	4.5%	4.5%	4.5%	4.5%		
Principal	\$ 1,340,420	\$ 1,990,420	\$ 1,990,420	\$ 1,990,420		
Period	30	30	30	30		
Annual Payment	\$ 82,290	\$ 122,195	\$ 122,195	\$ 122,195		
Reserve Payment	\$ 8,229	\$ 12,219	\$ 12,219	\$ 12,219		
Total RD Payment	\$ 90,519	\$ 134,414	\$ 134,414	\$ 134,414		
W/WW						
Interest Rate	6.0%	6.0%	6.0%	6.0%		
Principal	\$ 500,000	\$ -	\$ -	\$ -		
Period	20	20	20	20		
Annual Payment	\$ 43,592	\$ -	\$ -	\$ -		
ANNUAL O&M COST	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500		
ANNUAL LOAN PAYMENT	\$ 134,112	\$ 134,414	\$ 134,414	\$ 134,414		
TOTAL ANNUAL COST	\$ 186,612	\$ 186,914	\$ 186,914	\$ 186,914		
New Monthly Costs per EDU	\$ 25.52	\$ 25.57	\$ 25.57	\$ 25.57		
New O&M	\$ 9.99	\$ 9.99	\$ 9.99	\$ 9.99		
Final Monthly Rate	\$ 35.50	\$ 35.56	\$ 35.56	\$ 35.56		

## 12.4 ALLOCATION OF USER RATES

A regional system providing service to both Crescent and Gilchrist initially appears to result in the lowest user rates, primarily because costs can be distributed among more customers. Due to the close proximity of the two communities it is also logical to combine resources. A major upgrade of Gilchrist's treatment and disposal system will be needed to serve both communities, however a major upgrade may be necessary even without Crescent if future groundwater testing finds that the Gilchrist drainfield is increasing the nitrate concentration in the groundwater above background levels. In order to qualify for grants the average residential rate, at a minimum, will need to be approximately \$37 a month, and for preliminary computations it has been assumed that the cost per dwelling unit will be allocated proportionally. Rates will likely be in the range of \$35 to \$40 a month.

## 12.5 RATE STRUCTURE

A flat rate structure (per EDU) is proposed for residential customers. Non-residential customers would be charged based on proportional usage, potentially based on metered water consumption (with potential reductions for water that doesn't enter the wastewater system).

## 12.6 SYSTEM DEVELOPMENT CHARGES (SDCs)

### General

System development charges (SDCs) can be charged to all users of transportation, water, sewer, storm drainage and parks and recreational facilities. The fee is usually charged as each piece of property is developed in the future and goes into a capital construction fund to pay for improvements required by growth in the community. The Oregon System Development Charges Act, House Bill 3224, became effective in 1991. Legislation requires that capital improvement plans be developed, and that methodology used to compute SDCs be documented and reviewed by the community, before SDCs can be charged.

### Preliminary SDC Computation

A full SDC analysis is outside the scope of work for this project. An estimation of the portion of the proposed improvements which will satisfy future growth and the SDC computations based on proportional usage have been made. These are shown in Table 12.12 based on the potential funding scenario outlined in Section 12.3.2. Note that SDCs generally are not assessed against improvements paid for with grant monies. Treatment facilities have been designed for a life of 25 years. Collection system piping is designed for the ultimate buildout population.

Table 12-11

## Funding Scenarios for Project Option # 6

EDUs Served	438	Connection Fee	\$	1,000
New Connections	288			

PROJECT COST				
Treatment Plant	\$	3,597,120		
Collections	\$	2,393,300		
TOTAL	\$	5,990,420	\$	5,990,420

FUNDING SOURCE	RD and W/WW Grants	RD 50/50 Match	w/ Fees	w/ Other
RD Grant	\$ 900,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000
RD Loan	\$ 1,590,420	\$ 1,240,420	\$ 1,240,420	\$ 1,240,420
W/WW Grant	\$ -	\$ -	\$ -	\$ -
W/WW Loan	\$ -	\$ -	\$ -	\$ -
SRF Loan	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
EDA Grant	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
OCDBG Community Facilities	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
OCDBG Public Works	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
WW Hardship Grant	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000
Connection Fees				
Other				
TOTAL LOAN AMOUNT	\$ 2,340,420	\$ 1,990,420	\$ 1,990,420	\$ 1,990,420
% Loan	39.1%	33.2%	33.2%	33.2%

## ANNUAL LOAN PAYMENT AND O&amp;M COSTS

RD				
Interest Rate	4.5%	4.5%	4.5%	4.5%
Principal	\$ 1,590,420	\$ 1,240,420	\$ 1,240,420	\$ 1,240,420
Period	30	30	30	30
Annual Payment	\$ 97,638	\$ 76,151	\$ 76,151	\$ 76,151
Reserve Payment	\$ 9,764	\$ 7,615	\$ 7,615	\$ 7,615
Total RD Payment	\$ 107,402	\$ 83,766	\$ 83,766	\$ 83,766
DEQ SRF Loan				
Interest Rate	3.6%	3.6%	3.6%	3.6%
Principal	\$ 750,000	\$ 750,000	\$ 750,000	\$ 750,000
Period	20	20	20	20
Annual Payment	\$ 53,106	\$ 53,106	\$ 53,106	\$ 53,106
ANNUAL O&M COST	\$ 52,500	\$ 52,500	\$ 52,500	\$ 52,500
ANNUAL LOAN PAYMENT	\$ 160,508	\$ 136,872	\$ 136,872	\$ 136,872
TOTAL ANNUAL COST	\$ 213,008	\$ 189,372	\$ 189,372	\$ 189,372
New Monthly Costs per EDU	\$ 30.54	\$ 26.04	\$ 26.04	\$ 26.04
New O&M	\$ 9.99	\$ 9.99	\$ 9.99	\$ 9.99
Final Monthly Rate	\$ 40.53	\$ 36.03	\$ 36.03	\$ 36.03



Table 12.12 Summary of Preliminary SDC Computation

**Phase I**

Improvement			Total Cost	
Project	Improvement Cost	Percent Grant	Benefitted EDUs	SDC per EDU
Collection System	\$2,393,300	65	2,454	\$341
Treatment	\$2,847,120	65	635	\$1,569
Total				\$1,910

**General SDC Discussion**

The Oregon System Development Charges Act permits two types of charges: 1) a reimbursable fee, and 2) an improvement charge. A reimbursement fee is a charge for unused capacity in existing capital improvements. An improvement charge is a fee associated with capital improvements to be constructed.

Improvement fees are generally more popular than reimbursement fees, due to the complexity of computing reimbursement fees for infrastructure constructed sometime in the past.

SDCs charged before construction will be considered improvement fees. After construction the charges will be considered reimbursement fees. The cost estimate should be modified to reflect actual cost of construction and recomputed SDCs. Care must be taken in how SDCs are assessed for Phase I improvements, otherwise new development may be charged twice through system development charges and user fees (loan repayment). There is no question that Phase II improvements are directly related to future capacity for new development. The computations shown in Table 12.12 are the maximum charge that can be documented; the district can charge less. Note that if 50 percent grant funding is assumed for Phase II, the SDC for this phase is reduced to about \$3,050. Legislation requires that the methodology for establishing fees be available for public inspection.

**Phase II**

Improvement			Total Cost	
Project	Improvement Cost	Percent Grant	Benefitted EDUs	SDC per EDU
Treatment	\$1,882,000	0	308	\$6,110
Total				\$6,110



## Geotechnical Resources Incorporated

Consulting Engineers, Geologists, and Environmental Scientists

November 24, 1998

2853\_FINRPT

HGE, Inc.  
375 Park Avenue  
Coos Bay, OR 97420

Attention: Tim McGuire

**SUBJECT: GROUNDWATER NITRATE+NITRITE SAMPLING, CRESCENT SANITARY DISTRICT, CRESCENT, OREGON**

At your request, Geotechnical Resources, Inc. (GRI) has prepared this groundwater nitrate+nitrite sampling report for the Crescent Sanitary District in Crescent, Oregon. The general location of the site is shown on the Vicinity Map, Figure 1. The purpose of the work was to assist HGE, Inc. in their evaluation of the potential effect of local domestic sewage systems on shallow groundwater quality. Our work was conducted in general accordance with our proposal to HGE, Inc., dated September 8, 1998. This report describes the work accomplished and summarizes the findings of the groundwater testing.

### Project Description

Crescent is located in Klamath County in southern Oregon, between the towns of Bend and Klamath Falls. The Crescent Sanitary District includes the community of Crescent and a relatively narrow corridor south of Crescent along State Highway 97. A wastewater treatment study for the Crescent Sanitary District was conducted by Robert E. Meyer Consultants of Beaverton, Oregon, in 1982. As part of the study, four shallow wells were installed in the sanitary district and sampled for nitrate, nitrite, and coliform. Analytical results showed low levels ( $<5$  mg/L) of nitrates in all four wells. Nitrites were not detected, and coliform was detected in only one of the wells.

The 1982 study indicates the general sanitary district area is mantled with up to 7 ft of unconsolidated coarse pumiceous soils, underlain by relatively impermeable, organic-rich marsh deposits or basalt rock. In general, the shallow groundwater table at the site ranges from about 3 ft below the ground surface during the wet winter months to about 6 ft below the ground surface during the drier summer months and appears to be perched on the underlying marsh deposits or basalt rock.

As shown on Figure 2, the elevation of the project area ranges from about 4,500 ft in the eastern portion of the site, to about 4,460 ft in the western portion of the site near the Little Deschutes River. Topographically higher portions of the project area are underlain by basalt rock at the ground surface. The hydrogeological discharge for shallow groundwater in the project area is likely the Little Deschutes River, located west of the town center (Figure 2).

Table 1 summarizes the soil/rock conditions and groundwater analytical data collected. A copy of the laboratory data report is provided in Appendix A.

## METHODS

On November 18, 1998, a GRI geologist experienced in the collection of environmental samples met with a representative from HGE, Inc., and Dave Crider with the Crescent Water District. Sixteen sample locations, designated P-1 through P-16, were field reviewed and located throughout Crescent. The samples were collected from Geoprobe™ borings made at the approximate locations shown on Figure 2. The Geoprobe™ borings were made by Cascade Drilling, Inc. of Portland, Oregon. Groundwater samples were collected using a 4-ft-long, stainless steel, wire-strapped screen point attached to Geoprobe Envirorod™ (1.5-in.-O.D., 1.0-in.-I.D.) sealed with Teflon O-rings. Heavy-duty water-tight drill rods were used to advance the water sampler to the desired depth, and the screen was then opened by pulling back the probe. Prior to sampling, a small-diameter rod was sent down the hole to open the screen and ensure that the screen was still at the desired depth after pulling back the probe. A peristaltic pump mounted on the Cascade truck was used to draw water through the screen into new disposable polyethylene tubing. New tubing was used for each sample point. The Geoprobe Envirorod™ water sampler was cleaned between sample locations with a clean water rinse.

Insufficient water for sampling was encountered at three locations (P-1, P-12, and P-14). Adequate water for sample collection was obtained at the remaining 13 locations. Field work was completed the evening of November 18, 1998. The water samples were collected and placed in laboratory-prepared plastic bottles and delivered under chain of custody to Oregon Analytical Laboratory, in Beaverton, Oregon. The samples were analyzed for nitrate+nitrite by EPA method 300. A copy of the laboratory data report is provided in Appendix A.

## RESULTS

The field and laboratory results are summarized on Table 1. A contour map of the nitrate+nitrite concentrations (in mg/l) is provided on Figure 2.

Table 1

### Summary of Field and Laboratory Results

<u>Location</u>	<u>Subsurface Conditions</u>	<u>Groundwater Encountered</u>	<u>Sample Interval</u>	<u>Nitrate+Nitrite, mg/l</u>
P-1	0 to 9 ft soil; refusal on basalt rock at 9 ft	no	no sample	—
P-2	0 to 11 ft soil; refusal on basalt/cobbles at 11 ft	yes; good recharge	7 to 11 ft	6.5
P-3	0 to 12 ft soil; refusal on basalt at 12 ft	yes; good recharge	8 to 12 ft	0.11

Table 1 (continued)  
Summary of Field and Laboratory Results

<u>Location</u>	<u>Subsurface Conditions</u>	<u>Groundwater Encountered</u>	<u>Sample Interval</u>	<u>Nitrate+Nitrite, mg/l</u>
P-4	0 to 9 ft soil; refusal on basalt/cobbles at 9 ft	yes, slow recharge	5 to 9 ft	13
P-5	0 to 8 ft soil; refusal on basalt/cobbles at 8 ft	yes, good recharge	4 to 8 ft	6.6
P-6	0 to 8 ft soil; refusal on basalt/cobbles at 8 ft	yes, good recharge	4 to 8 ft	1.8
P-7	0 to 9 ft soil; refusal on basalt/cobbles at 9 ft	yes, good recharge	5 to 9 ft	3.6
P-8	0 to 8 ft soil; refusal on basalt/cobbles at 8 ft	yes, good recharge	4 to 8 ft	0.06
P-9	0 to 9 ft soil; refusal on basalt/cobbles at 9 ft	yes, good recharge	5 to 9 ft	0.01
P-10	0 to 8 ft soil; refusal on basalt at 8 ft	yes, good recharge	4 to 8 ft	0.02
P-11	0 to 8 ft soil; refusal on basalt/cobbles at 8 ft	yes, good recharge	4 to 8 ft	1.9
P-12	0 to 9 ft soil; refusal on basalt rock at 9 ft	no	no sample	--
P-13	0 to 9 ft soil; refusal on basalt/cobbles at 9 ft	yes, good recharge	5 to 9 ft	0.03
P-14	0 to 9 ft soil; refusal on basalt rock at 9 ft	no	no sample	--
P-15	0 to 8 ft soil; probe stopped at 8 ft	yes, good recharge	4 to 8 ft	0.08
P-16	0 to 8 ft soil; probe stopped at 8 ft	yes, good recharge	4 to 8 ft	1.1

## DISCUSSION

The data indicate that nitrate+nitrite concentrations in shallow groundwater range between non-detect (detection limit of the analysis = 0.05 mg/l) to 13 mg/l. The highest nitrate+nitrite concentration (13 mg/l) was found at location P-4, in the topographically higher east-central portion of Crescent, see Figure 2. Lower concentrations were generally found to the west and south of the town center. Sample point P-15, located in the southeastern portion of the project area, was taken at a location away and upgradient from obvious potential sources of nitrates and had a nitrate+nitrite concentration of 0.08 mg/l. Water was not encountered in sample points P-1, P-12, and P-14, where basalt rock was encountered in the probes above the shallow groundwater table.

## LIMITATIONS

This report has been prepared to assist the client with documenting the groundwater conditions at the sample locations. The scope of work was limited to the specific project, location, and activities described herein. In the performance of an assessment of this type, specific information is obtained at



specific locations at specific times. Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations and findings can be considered valid only as of the date of this report. Land use, on- and off-site conditions, regulatory considerations, or other factors may change over time. The information presented in this report is based on our evaluation of the information obtained thorough the procedures described in this report. No other warranty or representation, either expressed or implied, is included or intended in this report.

We appreciate the opportunity to be of continued service to HGE, Inc. Please contact the undersigned if you have any questions regarding this report.

Sincerely,

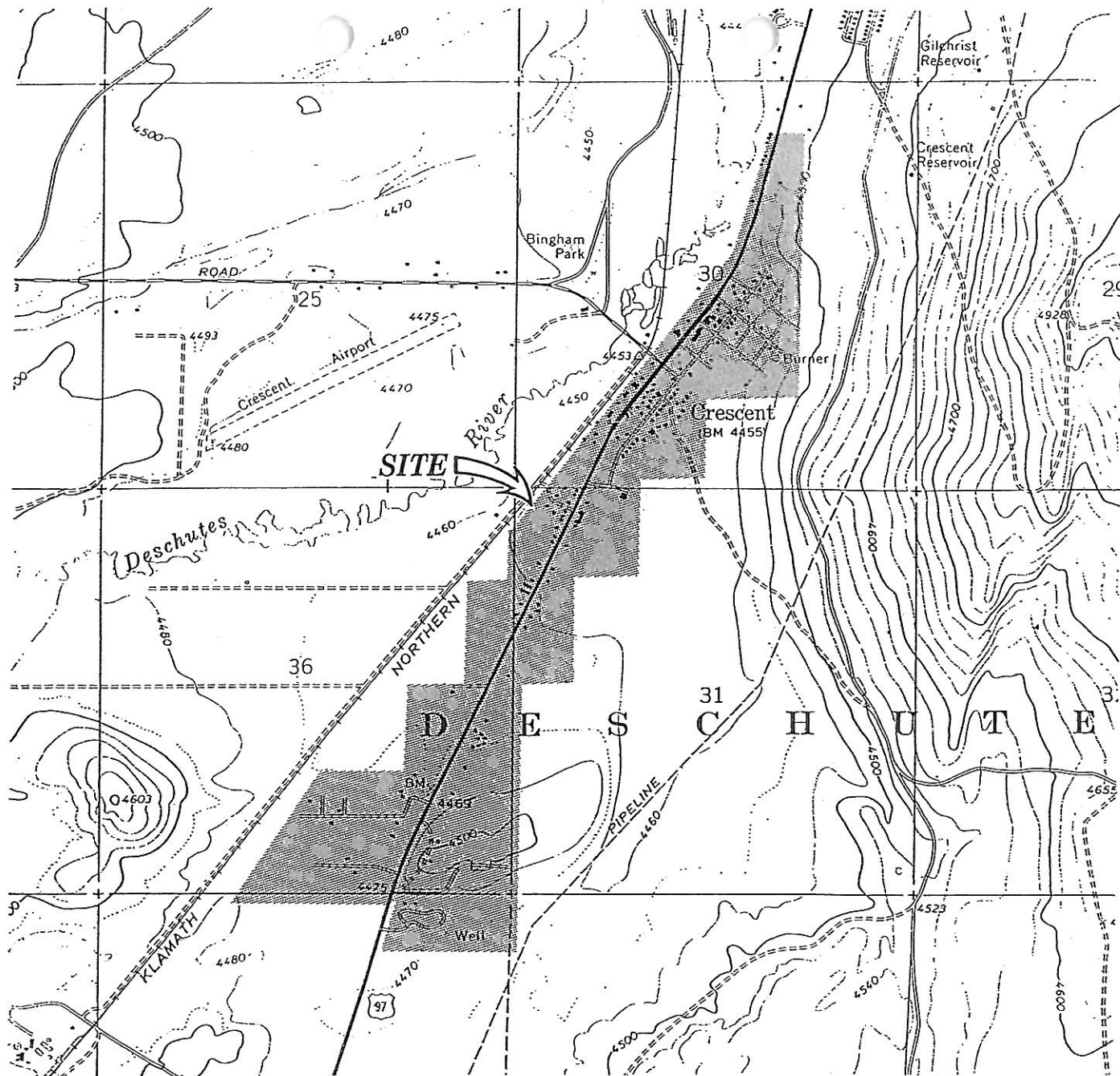
GEOTECHNICAL RESOURCES, INC.



H. Stanley Kelsay, P.E.  
Principal



George A. Freitag, C.E.G.  
Environmental Services Manager



USGS TOPOGRAPHIC MAP  
CRESCENT, OREG. (2da) QUAD (1967)



0 1/2 1 MILE



HGE, INC.  
CRESCENT NITRATE STUDY

VICINITY MAP

