A RESOLUTION SETTING THE AMOUNT AND STATING THE METHODOLOGY FOR SYSTEM DEVELOPMENT CHARGES FOR WATER, SANITARY SEWER, STORM DRAINAGE, PARKS AND TRANSPORTATION SERVICES.

RESOLUTION NO. 39 for 1994

WHEREAS, having established revised system development charges for the City through adoption of Ordinance No. 2152, this resolution sets those charges and delineates the specific methodology for calculation of the charges. The methodology established for these calculations has been designed in accordance with ORS 223.297-.314 and generally accepted principles for establishment of reimbursement and improvement fees; and,

WHEREAS, for the reimbursement element of the SDC, rate-making principles have been employed throughout this calculation with specific attention to the cost of existing facilities, prior contributions made by existing users, the value of unused capacity, and equity between existing and future users; and,

WHEREAS, for the improvement element of the SDC, specific consideration has been given to the costs of projected capital improvements needed to increase the capacity of the systems to accommodate future development; and,

WHEREAS, a range of potential system development charge methodologies were evaluated based on cost and value assumptions and variable allocation methods and that analysis determined that the inter-relationship of facilities meeting existing and future demand provides the most consistent and equitable basis for establishing SDC's;

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF LEBANON AS FOLLOWS:

Section 1. CHARGE ESTABLISHED. System development charges for water, sanitary sewer, storm drainage, parks and transportation facilities are hereby established. Charges shall be in the amounts outlined in the "System Development Charges" manual prepared by Economic Resource Associates, Inc.,

hereinafter referred to as the "System Development Charges manual." The Systems Development Charges manual is attached hereto as Exhibit "A" and incorporated herein by this reference.

Section 2. PERMITS AFFECTED. System development charges established by Section 1 of this resolution shall be collected at the time of issuance of the following permits:

Water - permit to connect to the water system
Sanitary Sewer - permit to connect to the sewer system
Transportation - building permit
Parks - building permit
Storm Drainage - building permit

If a development is subject to more than one SDC charge, all charges shall be collected at the time of issuance of the first issued permit.

Section 3. METHODOLOGY. The methodology for the systems development charges imposed by Ordinance No. 2152 is contained in the System Development Charges manual.

Section 4. PROJECT PLAN. The System Development Charges manual identifies or incorporates by reference the identification of capital improvements eligible for funding through SDC's and is hereby adopted as the Systems Development Charge Funds Project Plan as required by Section 8, Ordinance No. 2152.

Passed by the Council by a vote of 4 for and 0 against and approved by the Mayor this 2nd day of November, 1994.

Robert G. Smith, Mayor

ATTEST:

Joseph A. Windell, City Recorder

ECONOMIC RESOURCE

ASSOCIATES, INC.

Systems Development Charges

Street, Storm, Water, Sewer & Parks

Prepared for:

City of Lebanon, Oregon

November 2, 1994

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Oregon House Bill 3224 (The Oregon Systems Development Act-O.S.D.A.), sets forth specific conditions for levying systems development charges by local Oregon communities for parks, water, sewerage, storm and street systems. The Act requires that the conditions be met for systems development charges levied after July 1, 1991. In this report the methods used in deriving the systems development charges for the City of Lebanon for water, parks, storm, streets and sewerage systems are thoroughly detailed and recommended levels for systems development charges are developed based on the City's existing and future facility construction costs.

Generally, the objective of the systems development charge is to allocate portions of capital improvements costs for water, sewers, streets, storm systems and parks upon developments which create the need or increase the demands for improvements to ensure that these facilities are adequate.

BASIC STUDY CONDITIONS

Capital Considered - O.S.D.A. allows establishing systems development charges for capital improvements already built and/or for capital improvements still to be constructed. Two methods for developing the charges are prescribed. These are reimbursement for existing capital and improvement fees for capital still to be constructed. The two methods are both employed in the course of this study.

Geographic Descriptions - The urban growth boundaries of the city of Lebanon include those portions currently within the City boundaries (called Current City) and those outside of the boundaries. For the purpose of this report, Current City boundaries are expanded to conform with projected development throughout the study period. This assumes the City will require annexations as services are provided to properties currently outside City boundaries.

Facility Sizing - Existing facilities and improvements required for the City of Lebanon have been sized by its engineers and planners to meet demands for the City and Future Urban Areas at their projected capacity. So, for example, the sewer system is sized not only to handle the capacity of the projected population and businesses of the Current City, it has been engineered to provide

service to future urban areas as well.

Facility Responsibility - The City of Lebanon's utilities and agencies are responsible for the replacement and maintenance of existing City facilities. Costs associated with these functions are derived from general fees and charges to all facilities' patrons. Thus, the improvements contained within this report do not include costs associated with replacing existing infrastructure. Furthermore, it is a policy of the City's utilities that the rate payers and/or developers are directly responsible for the initial construction of the portions of the systems which are most immediate to the home and/or business. In the case of water, this is the distribution piping, sewer the collection system. Thus, as these facilities are either funded from rates or contributed by the developers, they are not considered in the determination of systems development charges.

Fee Structure - City policy is that one systems development charge apply to all areas within the Current and Future City. Thus, capital improvements and facilities have not been separated for each area served. All properties within the City are understood to hold and develop assets in common and will participate in a proportionate share of the costs associated with these facilities.

Spending Restrictions and Funds - Monies obtained from SDCs may be spent only on facilities used to establish the fee and/or debt service payments associated with the construction of these facilities. It is our recommendation that monies collected from this charge be placed in a set of special funds (one for each purpose i.e. Water SDC, Sewer SDC..etc.). Alternately, SDC monies can be accounted for according to purpose in one SDC fund. In either case, the monies must be used to make debt payments on financial instruments obtained to make capital purchases and/or directly used to meet the costs incurred for improvement projects identified in this report.

Inter-account Borrowing - Because capital construction does not take place at the same pace as development and some capital systems are more likely to occur in large discreet chunks (for example, regional parks serve considerable populations and are large by their very nature), SDC monies may accumulate faster than immediately required in one SDC fund or account while in another capital requirements exceed available funds.

We believe, it is in keeping with the new SDC law for the City to borrow from one of the accounts to construct other required capital. Before the City takes such actions, the City's Attorney

should provide a written opinion on this matter. For example, it would be proper for the City to take monies obtained for water facility construction and spend it on sewer pipelines on the following conditions:

- The monies spent be for another capital identified in this or a subsequent SDC report,
- A written contract exist between the two funds and/or accounts setting forth the terms and conditions of the inter-fund or inter-account loan,
- The City Council specifically approve such inter-fund and/or inter-account transactions,
- The monies are not required by the lending fund or account during the time of borrowing, and
- The monies is returned to the lending account and/or fund in the time period specified in the initial contract and with interest which would have been earned had the money been invested in authorized instruments.

No Other Equity Charges - O.S.D.A. specifies that capital obtained through water connection charges in excess of amounts necessary to reimburse the City for its cost of inspecting and installing connections are SDCs and subject to the same SDC provisions. In other words, monies received in excess of costs are considered to be SDCs no matter the name used by local jurisdictions. The SDCs set forth in this report are the only capital acquisition fees recommended. City of Lebanon's other fees and charges need to be based on cost of service principles. In cases where additional monies are required for construction and/or debt payment, general rates and charges must be adjusted appropriately. Thus, both current and new customers become equally responsible for residual equity growth requirements.

Imposition of Fee - Fees for systems development will be levied at the time a building permit is issued by the City. The fee is a charge for the use of the property. The building permit will be used to determine how and when each property will begin to represent a demand of the City's facilities.

Adjustment for Actual Build-Out - According to the Lebanon Planning Director, historically there has been a fifteen percent (15%) difference between planned and actual development. His estimates are based on Managing Growth to promote affordable Housing:

Revisiting Oregon's Goal 10, February, 1991. Consequently, we calculated Lebanon's SDCs on the basis of planned development. We then adjust the SDCs by the Actual Build-out factor to assure that the City will receive the needed funds from the growth sector.

SDC SUMMARY

A summary of the SDCs developed in subsequent chapters is shown in Table 1.

Table 1
SDC Summary

City Service	Basis	SDC
Water	3/4" Service	$548
Sewer	3/4" Service	$363
Storm	Equivalent Acres	$210
Streets	P.M. Peak Trips	$401
Parks	Persons	$588

DEMOGRAPHICS

"Lebanon has all the benefits of a small town with easy access to nearby cities and the Cascade Mountain recreation areas. The are has traditionally relied on an agricultural base...as well as the wood products industry. The economy is gradually becoming more diverse as local wood products manufacturers move into secondary wood processing....Lebanon has a plentiful supply of land suitable for light and medium industrial usage."[1]

The first step in determining and assigning capital facility costs to new people and businesses coming to the City is to measure just how many are expected and what that means to the City. In this report, we utilize information developed in the master plans for streets, water, sanitary and storm sewers. The engineers and consultants performing this work have relied on the City's Comprehensive Plan.

Land use in the City of Lebanon is referenced in the Storm, Water and Wastewater Master Plans. In addition, the City planning staff developed their own estimates of existing and future land uses. There is considerable variation among the various reports. As shown in Table 2, the City inventory starts with less developed land than the Storm Drainage Master Plan. However, the City's total developed land is greater once all property has been fully developed.

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[1] *Oregon Community Profiles, Lebanon, Linn County.*

Table 2
LAND USE ALTERNATIVES

Land Uses	Storm Master Plan[2]		Lands Inventory[3]		Difference	
	Existing	Total	Existing	Total	Existing	Total
Residential						
Mixed Density	886	3,084	858	3,400	(28)	316
Single Family	540	658	423	775	(117)	117
Commercial	184	192	130	260	(54)	68
Industrial						
Light	112	1,357	112	1,357	0	0
General	103	401	83	421	(20)	20
Special	86	319	86	319	0	0
Public Use	163	327	163	327	0	0
Total	2,074	6,338	1,855	6,859	(219)	521

Added to the confusion is that the Water and Wastewater Master Plans use 117 acres of commercial and only 62 acres of industrial developed property as their starting point in 1988.[4,5]

The discrepancies in land uses was discussed with City staff. Both the City and Storm Drainage Master Plan land uses were developed with considerable effort. Each land use could be correct. It is outside the scope of this work to independently verify the current and projected land uses in Lebanon. To expedite the SDC work, we have agreed to use the average of the two detailed land use investigations. Consequently, land uses used in the context of this report are shown in

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2 *Storm Drainage Master Plan, David Newton Associates, Inc., Table 2.2.*

3 *Lebanon Lands Inventory, August 3, 1989, City of Lebanon.*

4 *Water Facility Study, Kramer, Chin & Mayo, March 1989, Table 4.8.*

5 *Wastewater Facility Study, Kramer, Chin & Mayo, Inc., March 1989, Table 4.6.*

Table 3.

Table 3 SDC LAND USE		
	SDC Report	
Land Uses	Existing	Total
Residential		
Mixed Density	872	3,242
Single Family	482	717
Commercial	157	226
Industrial		
Light	112	1,357
General	93	411
Special Development	86	319
Public Use	163	327
Total	1,965	6,598

Land uses are converted into population projections. On average, each residential acre currently accommodates four (4) dwelling units. Each dwelling unit houses 2.5 people. Single family units are obtained from the ***Transportation Master Plan.***[6]

[6] *Transportation Master Plan, City of Lebanon, Carl Buttke, Inc., Page 108.*

Table 4 SDC DWELLING UNITS/POPULATION		
	SDC Report	
Dwelling Units	Existing	Total
Mixed Density	1,133	3,314
Single Family	4,281	12,520
Total	5,414	15,834
Estimated Population	13,535	39,585

The estimated 13,535 population for the City of Lebanon compares favorably to the most recent population of the City provided by City staff of 13,100. Assuming the same residential development on the remaining land within the Urban Growth Boundary and a constant persons per household, we estimate the ultimate population of the City of Lebanon to be just under 40,000 people.

Not all of the people within the Lebanon area are currently served by Lebanon's infrastructure systems. We rely on the work of Kramer, Chin & Mayo for the population at five year intervals and the number of people served by the City's systems. However, we contemplate the City will assume responsibility for all services within the UGB as development occurs. Once all properties have been fully developed, they will all be served by the City.

Table 5
ESTIMATED POPULATION BY YEAR

Year	Total Population	Served Population
1990	13,213	10,200
1995	13,924	11,150
2000	15,344	12,450
2005	16,929	13,950
2010	18,518	15,700
2015	19,078	17,600
Ultimate	39,585	39,585

WATER

Kramer, Chin & Mayo, Inc. developed the *Water Facility Study in March of 1989*. The report forms the basis for the infrastructure included in the City of Lebanon's Water System Improvements capital improvement program (CIP) included in this report as Table IV in the Appendix. These studies, together with the inventory of the existing water system infrastructure, are the support for the systems development method contained within this report.

The City of Lebanon owns and operates a water distribution, transmission and storage systems serving all the residential, commercial and industrial consumers within the City limits. However, various City systems have been sized to accommodate present and future residents and businesses within the City Urban Growth Boundary.

The Santiam Canal serves as the sole source of water for the City. Lebanon purchased water treatment facilities in 1984. These facilities are capable of meeting the current needs of City businesses and residents. The City has the capability of storing four million gallons of water. Once again, this is adequate to meet only the existing customer requirements. According to City's engineers, "the distribution system is considered generally good in its ability to satisfy fire flow demands. However, there are some areas of the City...where the fire flow requirements are high and the distribution system is weak."

City staff has evaluated its water systems and determined that mains 8" in size and smaller in residential areas and 12" in size and smaller in commercial areas serve as the basic distribution system of the City. Unlike many water systems which attempt to maintain transmission pipelines solely for moving water from one location to another, the City also uses these mains for direct service to customers. Consequently, these lines serve both a transmission and distribution function. As a result, the first 8" of residential and 12" of commercial pipelines are considered assigned to the distribution function and are not recovered in SDC charges.

According to formally adopted policies of the Lebanon City Council, distribution mains are part of developers' responsibilities, built by property owners using local improvement district financing or are constructed by the City using funds obtained from water rates. As these financing sources exist and are expected to continue to be used for constructing distribution mains, they can not also be considered in developing systems development charges. Hence, the water systems development charges produced herein capture costs associated with transmission, pumping, storage,

treatment and source facilities. Funds generated from these fees can, therefore, only be used for construction and improvement of the type of facility specified. However, all transmission, storage, pumping, treatment and source facilities deemed to be needed to serve the ultimate population of the City are included.

The city of Lebanon currently has 3,818 water meters of varying size. Most of these meters are connected to residential property. However, 474 meters are commercial and industrial and another 23 meters provide only fire service.

Table 6
EXISTING WATER CONNECTIONS[7]

Size	Residential	Comm/Ind.	Fire	Total
3/4"	3,309	294		3,603
1"	12	99		111
1 1/2"		39		39
2"		30	4	34
3"		7		7
4"		5	11	16
6"			4	4
8"			4	4
Total	3,321	474	23	3,818

All water connections use a total of 1.1339 million gallons of water per day (MGD). The breakdown by water meter size and type is shown in Table 7. City residents and businesses, on average, consume eighty six (86) gallons of water per day for each person living in Lebanon. This amounts to 1.14 million gallons of water which is produced, stored and delivered through the City's

[7] *Number of Water Meters by Type and Meter Size, City of Lebanon, 11/17/92.*

system each day. The amounts shown in the table are in units of 100 cubic feet. There is 748 gallons in each 100 cubic feet of water.

Table 7
EXISTING WATER USE[8]

Size	Residential	Comm/Ind.	Fire	Total
3/4"	346,566	50,680		397,246
1"	2,883	28,295		31,178
1 1/2"		30,557		30,557
2"		28,189		28,189
3"		25,039		25,039
4"		42,462		42,462
6"			158	158
Total	349,449	205,222	158	554,829

Water meters are of differing sizes and capacities. Larger meters are capable of delivering significantly greater quantities of water than small 3/4" services. Engineers size water system based on the instantaneous demand by customers to take water from the system. Using standard equivalency factors, we have converted the meters to equivalent 3/4" services. In addition, we do not consider fire meters in our analysis. First, fire meters do not require water except during emergency conditions. Furthermore, the system is sized to handle fire flows for all customers. Most customers obtain this service from the water agency through the use of hydrants. In some cases it is necessary to have a separate meter. In any event, a proportionate share of the system is allocated to all meters for fire flow.

[8] *Ibid.*

Table 8
EQUIVALENT WATER METERS

Size	Equiv. Factor	Equivalent Meters		
		Residential	Comm/Ind.	Total
3/4"	1	3,309	294	3,603
1"	2.5	30	248	278
1 1/2"	5		195	195
2"	8		240	240
3"	16		112	112
4"	25		125	125
Total		3,339	1,214	4,553

Using the same basic methodology employed by Kramer, Chin & Mayo, Inc., water consumption and production for Lebanon are projected. Residential flow is projected based on current water use per capita. New commercial activity is assumed to require 1,500 gallons of water per day per acre. On the other hand, new industrial developments require 4,000 gallons of water per acre per day. Existing (1990) flows are allocated to the industrial and commercial sector based on the proportions in the *Water Facility Study*.

The 1990 commercial and industrial values shown in the Demographic section of this report are used as initial commercial acres. These are considerably greater than the acreage shown in the *Water Facility Study*. However, we believe the acreage and water use more accurately reflect Lebanon's current situation.

Table 9
WATER DEMAND/PRODUCTION PROJECTED

Year	Served Population	Flow (MGD)	Com (Acre)	Flow (MGD)	Ind (Acre)	Flow (MGD)	Consumption (MGD)	Production (MGD)
1990	10,200	0.72	157	0.25	205	0.17	1.14	1.48
1995	11,150	0.78	167	0.26	256	0.38	1.42	1.85
2000	12,450	0.87	177	0.28	321	0.64	1.79	2.32
2005	13,950	0.98	187	0.29	401	0.96	2.23	2.90
2010	15,700	1.10	199	0.31	501	1.36	2.77	3.60
2015	17,600	1.24	211	0.33	627	1.86	3.43	4.45
Ultimate	39,585	2.78	226	0.35	1,768	6.43	9.55	12.42

Commercial acreage is increased as the same rate as in the *Water Facility Study*. The industrial acres anticipated to be used in the *Water Facility Study* are added to the initial industrial acreage shown above.

After Lebanon has fully developed all properties in the Urban Growth Boundaries, almost ten million gallons of water will be consumed each day by the residents and businesses in the area. As the engineers anticipate a thirty percent water loss, over twelve million gallons will need to be produced on the average day.

Kramer, Chin & Mayo, Inc. adjusts maximum day water demand forecasts to take account lower projections when only population factors are employed. We have replicated their procedure by developing a regression equation between water demand forecasts using land use and their final projections. Maximum day water use is estimated to be 1.75 times average day.

Table 10
MAXIMUM DAY, TREATMENT, STORAGE REQUIREMENTS

Year	Maximum Day	Forecast[99]	Storage Requirement[1010]
1990	2.59	3.04	4.24
1995	3.24	3.47	4.67
2000	4.06	4.02	5.22
2005	5.07	4.69	5.89
2010	6.30	5.50	6.70
2015	7.79	6.49	7.69
Ultimate	21.74	15.73	16.93

"The water treatment facility must be capable of processing water at the rate that will satisfy maximum daily demands."[11] Consequently, the existing 4 MGD plant is sufficient to meet the needs of current customers. However, over time it must be quadrupled in size to be capable of delivering 16 MGD. Also, the City currently has two 2 MG reservoirs. It is clear that any growth will require additional storage. Total storage must be increased to 17 MG by the time the City is fully developed.

As land is developed and increased water is used, additional connections will be made to the

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9 *Forecast = 1.324 +0.662*Maximum Day.*

10 *Water Facility Study, Page 8-2, "The water storage requirements determined by the peak day method was calculated by adding the maximum daily demand or peak day for the study year to the constant fire demand of 1,200,000 gallons."*
Page 8-5, "For the City of Lebanon, the peak day demand plus fire flow method was selected to determine water storage requirements."

11 *Water Facility Study, Page 7-1.*

Lebanon water system. We have increased the equivalent water connections at the projected rate of water use. Thus, it is anticipated that by the time Lebanon is fully developed an additional 28,000 equivalent water meters will have been connected to the system.

Table 11
Water Equivalent Meters Projection

Year	Residential	Commercial	Industrial	Total
1990	3,339	711	502	4,553
1995	3,650	753	1,095	5,498
2000	4,076	797	1,836	6,709
2005	4,567	843	2,763	8,173
2010	5,139	893	3,923	9,955
2015	5,761	945	5,373	12,079
Ultimate	12,958	1,009	18,542	32,509

The City has invested $4.7 million in its water system to serve current and future customers.[12] However, because many of the facilities were built some time ago, they have been partially used in providing service. Consequently, only $3.9 million of the original investment remains in service today (Original investment less depreciation).

Most of the City's current investments are required to serve existing customers. However, City staff did review major facility additions over the last several years to determine capacity committed to future customers. The results are shown in Table 12. The required size refers to the main or facility needed by current customers. The difference between installed and required size is the extra capacity available to future customers.

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[12] *Annual Financial Report, Year Ended June 30, 1991. Faler, Grove & Mueller, P.C., Page 16.*

Table 12
REIMBURSABLE PROJECTS

Project	Installed		Length	Size	
	Date	Life		Req.	Install
Kari Pl. to Wagon Wheel Dr.	1987	75	1091	8"	12"
Hyatt St. to End	1991	100	2892	10"	16"
Grove St. to Hyatt St.	1991	100	805	10"	12"
Hobb St. to Cedar Dr.	1991	100	944	N/A	12"
5th St. to Acorn St.	1989	100	336	10"	12"
Hyatt to Walnut	1991	100	930	8"	16"
Walnut To Grant St Bridge	1991	100	450	12"	16"
Airport to Kees	1992	100	550	8"	16"
Water Treatment Plant	1984	20		3.47	4

The treatment plant is capable of producing 4 MGD. The plant last received major modifications in 1984. As shown above, on maximum day the plant needs to deliver just 3.5 MGD of water to its current customers. Thus, the remaining capacity is available for growth.

Next, City staff determined the additional per foot cost associated with building the extra capacity built into the existing system. Available capacity costs are calculated by multiplying the difference in per unit construction costs by length or size of each facility. Consequently, slightly more than $0.5 million of water facilities have been constructed to serve future customers. As these facilities have been in service, they have depreciated. The remaining value of the extra capacity facilities is $350,000.

Table 13
REIMBURSABLE PROJECT COSTS

Project	Cost/ft Req.	Cost/ft Install	Capacity Cost	Depreciated Value
Kari Pl. to Wagon Wheel Dr.	$13.24	$17.94	$5,128	$4,786
Hyatt St. to End	$45.22	$59.30	$40,719	$40,312
Grove St. to Hyatt St.	$45.22	$46.89	$1,344	$1,331
Hobb St. to Cedar Dr.	N/A	$29.48	$27,829	$27,551
5th St. to Acorn St.	$52.50	$71.57	$6,408	$6,215
Hyatt to Walnut	$112.00	$224.00	$104,160	$103,118
Walnut To Grant St Bridge	$168.00	$224.00	$25,200	$24,948
Airport to Kees	$112.00	$224.00	$61,600	$61,600
Water Treatment Plant		$1,864,205	$246,802	$148,081
Total			$519,190	$417,943

In the appendix, water capital improvements needed to ultimate buildout are listed by project. Furthermore, each project has been assigned to growth or payment through LIDs, developer contributions and rates. The summarized results are in Table 14.

Table 14
WATER SYSTEM IMPROVEMENTS

Category	Total	Capacity
Mains	$17,786.8	$6,143.7
Wells (3.2 MGD)	$1,210.0	$930.0
Reservoirs (4 MGD)	$1,900.0	$1,900.0
Treatment Plant (4 MGD)	$1,200.0	$1,200.0
Reimbursement	$2,577.2	$417.9
Other	$385.5	$325.1
Sub-total	$25,059.5	$10,916.7
Additional Treatment (4 MGD)		$3,000.0
Additional Wells (1 MGD)		$312.5
Additional Storage (9 MGD)		$4,275.0
Existing SDC fund balance (per Staff)		($104.3)
Reduction due to Grants - 10%		($1,840.0)
Total Water Capacity Cost		$16,559.9

In identifying projects, City staff used the *Water Facility Study*. However, because of its limited scope, pipelines needed to serve the entire UGB were not included. These were added by City staff to the project listing in the Appendix. Additional capacity for central facilities (treatment, storage and wells) were not added. Thus, we have adjusted the improvements to include wells of 1 MGD, and an extra 4 MG of treatment capacity (Max day demand will reach 16 MGD, existing plus improvements includes only 8 MGD treatment capacity and 3.2 MGD of well production). Furthermore, we added 9 MG of additional storage (Existing plus improvements equals 8 MG, 17 MG required). Item costs are based on comparable facility expenses in the Water Facility Study.

It is expected to cost the City $17 million to build the water facilities necessary to provide service to new businesses and residents. This is in addition to the expenses borne directly by developers and customers. Added to the imbedded investment, this means that it will cost the City $613 for each of the new 27,000 equivalent services.

Table 15
WATER SDCs

Water SDCs	Unit	Per Unit Costs	SDC
Base Charge	27,011	$613	$548
Service Size			
3/4	1.0	$613	$548
1	2.5	$1,533	$1,370
1.5	5.0	$3,065	$2,740
2	8.0	$4,905	$4,384
3	16.0	$9,809	$8,768
4	25.0	$15,327	$13,700
6	50.0	$30,654	$27,400

The base charge in the SDC column of the table adjusts the base charge unit costs by two factors. First, an allowance of 15% underdevelopment has been included. The reason for this is that development plans are not fully realized. However, the facilities must be built in order to accommodate potential developments. Thus, in order to collect the needed funds, the systems development charge must be increased to offset the losses from underdevelopment.

Homes constructed over the next several years will pay principal on debt issued for the construction and purchase of facilities serving existing customers. The average present value of these future payments is estimated to be $173 for each equivalent connection. Consequently, this amount has been subtracted from the SDC base charge.

SANITARY SEWER SYSTEM

The City of Lebanon owns and operates a sanitary sewer treatment and collection system serving residential, commercial and industrial customers within the City limits. Like the water system, the sanitary sewerage system has been sized for the ultimate population to be served within the City's Urban Growth Boundaries.

"The wastewater system for Lebanon consists of three major components:

- Collection System
- Wastewater Treatment System
- Sludge Disposal"[13]

According to the engineers, while their are some existing deficiencies, the existing collection system is in generally good structural condition and the existing treatment plant is in very good condition.

Sanitary sewage collection systems function to transport wastewaters from the points of their origin to a central treatment facility. Thus, the waste flows from the farthest part of the system toward a central location. All pipelines, pumps and appurtenances must be sized to handle ever increasing amounts of waste as the center is approached.

The basis for the facility cost estimates included within this chapter of the report are derived from the *Wastewater Facility Study* and *Wastewater System Improvements* shown in Table III in the Appendix of this report.

City staff has evaluated the sanitary sewerage system and has made the determination that sewerage pipelines 8" in size and smaller serve as the basic service/collection purpose. It is Lebanon City Council policy that these smaller facilities be built by developers or customers and contributed to the City, or constructed by the City using funds obtained from sewerage rates. Hence the sewerage systems development charges herein capture costs associated with major trunk mains, pumping and treatment facilities. Funds generated from these fees can, therefore, only be used for construction and improvement of the type of facility specified.

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[13] *Wastewater Facility Study, Kramer, Chin & Mayo, Inc., March 1989. Page ES-1.*

The city of Lebanon charges for sewerage service based on winter water consumption. Thus, equivalent dwelling units developed for charging SDCs incorporate the amount of water used by the size of water meter connection.

There are just under 3,600 wastewater service connected to the City's sewer system. They are shown by type and size in Table 16.

Table 16
EXISTING WASTEWATER SYSTEM CONNECTIONS[14]

Size	Residential	Comm.	Ind.	Schools	Total
No Service	297	3	3	5	308
3/4"	3,041	88			3,129
1"	8	89			97
1 1/2"		38			38
2"		17	1		18
3"		6			6
4"		1	1		2
Total	3,346	242	5	5	3,598

The 3,600 sewer customers require the processing of 0.82 million gallons of flow on the average day. This is based on the average winter water consumption by the residents and businesses connected to the sewerage system. In other words, it does not include water for yard maintenance, car washing and other summer time activities.

[14] *Sewer Connections by Type and Water Meter Size, City of Lebanon, 11/17/92.*

Table 17
EXISTING WASTEWATER SYSTEM USE[15]

Size	Residential	Comm.	Ind.	Schools	Total
No Service	885	138	9	2,962	3,994
3/4"	20,048	3,504			23,552
1"	132	1,612			1,744
1 1/2"		184			184
2"		1,485	60		1,545
3"		1,675			1,675
4"		285	371		656
Total	21,065	8,883	440	2,962	33,350
Million Gallons/Day	0.52	0.22	0.01	0.07	0.82

It is important to note wastewater flows are 71.99% of water flows. Kramer, Chin & Mayo, Inc. projected equal water use and wastewater flows.[16] We do not believe that this is realistic. All water used does not return to the wastewater system. Consequently, in this work we project wastewater flows at 71.99% of projected water use.

Using the Actual winter water use, we estimate the value of each meter size based on its equivalence to a 3/4" service. We note that in the smaller sizes, equivalence are the same as water use. However, the larger meters have a greater sewer than water equivalency rating. This result is logical as water equivalence include summer flows.

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[15] *Ibid.*

[16] *See Table 4.6 in Wastewater Facility Study and Table 4.8 in Water Facility Study.*

Table 18
WASTEWATER EQUIVALENT FACTORS

Size	Water Equivalents	Wastewater Equivalents
No Service		1
3/4"	1	1
1"	2.5	2.5
1 1/2"	5	5
2"	8	14
3"	16	45
4"	25	50
Schools		95

Thus, there are currently just under 5,000 equivalent 3/4" wastewater services connected to the Lebanon sewerage system. The preponderance are residential. However, there are 1,100 commercial equivalents and very few industrial equivalent meters.

Table 19
EXISTING WASTEWATER EQUIVALENT CONNECTIONS

Size	Residential	Comm.	Ind.	Schools	Total
No Service	297	3	3	475	778
3/4"	3041	88			3,129
1"	20	223			243
1 1/2"		190			190
2"		238	14		252
3"		270			270
4"		50	50		100
Total	3,358	1,062	67	475	4,962

Using the same basic methodology employed by Kramer, Chin & Mayo, Inc., wastewater flow for Lebanon is projected. Residential flow is projected based on current winter water use per capita. New commercial activity is assumed to require 71.99% of 1,500 gallons of wastewater service per day per acre. On the other hand, new industrial developments require 71.99% of 4,000 gallons of wastewater flow per acre per day.

The 1990 commercial and industrial values shown in the Demographic section of this report are used as initial commercial acres. These are considerably greater than the acreage shown in the *Wastewater Facility Study*. However, we believe the acreage and water use more accurately reflect Lebanon's current situation.

Table 20
WASTEWATER USE PROJECTIONS

Year	Served Popula-tion	Flow (MGD)	Comm	Flow (MGD)	Ind	Flow (MGD)	Total (MGD)
1990	10,200	0.52	157	0.22	205	0.08	0.82
1995	11,150	0.57	167	0.23	256	0.23	1.03
2000	12,450	0.63	177	0.24	321	0.42	1.29
2005	13,950	0.71	187	0.25	401	0.65	1.61
2010	15,700	0.80	199	0.26	501	0.94	2.00
2015	17,600	0.89	211	0.28	627	1.30	2.47
Ultimate	39,585	2.01	226	0.29	1,768	4.58	6.89

Commercial acreage is increased as the same rate as in the *Wastewater Facility Study*. The industrial acres anticipated to be used in the *Wastewater Facility Study* are added to the initial industrial acreage shown above.

After Lebanon has fully developed all properties in the Urban Growth Boundaries, almost seven million gallons of water will be treated each day for the residents and businesses in the area. Our projections are considerably blow the result achieved by Kramer, Chin & Mayo, Inc. For example, in 2015 we project wastewater flows coming directly from the customers to be 30% below those shown in the *Wastewater Facility Study*.

Kramer, Chin & Mayo, Inc. adjusts dry weather demand forecasts to take account of infiltration and inflow during dry weather (ADWF). They then adjust for average wet weather (AWWF) and peak wet weather (PWWF) . We have replicated their procedure by developing regression equations between their flow forecasts.[17]

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[17] *ADWF = 0.989 + 1.28*Wastewater Use*
AWWF = 2.1 ADWF
PWWF = 9.164 + 1.586 AWWF

Table 21
WASTEWATER WEATHER FLOWS

Year	ADWF (MGD)	AWWF (MGD)	PWWF (MGD)
1990	2.04	4.29	15.97
1995	2.31	4.85	16.85
2000	2.64	5.55	17.97
2005	3.05	6.41	19.34
2010	3.56	7.47	21.01
2015	4.16	8.74	23.02
Ultimate	9.84	20.65	41.93

As land is developed and increased water is used, additional connections will be made to the Lebanon wastewater system. We have increased the equivalent wastwater connections at the projected rate of water use. Thus, it is anticipated that by the time Lebanon is fully developed an additional 38,000 equivalent wastewater meters will have been connected to the system. The reason that there are more wastewater than water equivalent meters is that the equivalency factor is smaller for water meters. The number of connections are comparable.

Table 22
WASTEWATER EQUIVALENT METERS PROJECTIONS

Year	Residential	Commercial	Industrial	Total
1990	3,358	1,062	542	4,962
1995	3,671	1,112	1,500	6,283
2000	4,099	1,165	2,699	7,962
2005	4,593	1,221	4,197	10,011
2010	5,169	1,281	6,071	12,521
2015	5,794	1,345	8,415	15,554
Ultimate	13,032	1,422	29,701	44,155

The City has invested $8.0 million in its wastewater system to serve current and future customers.[18] However, because many of the facilities were built some time ago, they have been partially used in providing service. Consequently, only $6.4 million of the original investment remains in service today (Original investment less depreciation).

Most of the City's current investments are required to serve existing customers. However, City staff did review major facility additions over the last several years to determine capacity committed to future customers. The results are shown in Table 23.

[18] *Annual Financial Report, Year Ended June 30, 1991. Faler, Grove & Mueller, P.C., Page 16.*

Table 23
WASTEWATER SYSTEM REIMBURSEMENT PROJECTS

Project	Year	Life	Length	Cost ($/ft.)	Capacity Cost	Depreci-ated Value
GRANT STREET	1991	75	2,501	$30.10	$75,291	$74,287
WEST SIDE INTERCEPTOR PHASE-I	1967	75	16,440	$13.48	$221,568	$147,712
WEST SIDE INTERCEPTOR PHASE-II	1982	75	21,058	$5.99	$126,044	$109,238
KARI PLACE TO WAGON WHL DR.	1987	75	515	$29.97	$15,435	$14,406
Wastewater Treatment Plant	1977	40			$422,696	$264,185
Total					$861,033	$609,827

The treatment plant is capable of producing 3 MGD dry weather flow and 7.5 MGD wet weather flow. The plant was reconstructed in 1975 and came on line in 1977. As shown above, on maximum day the plant needs to deliver just over 2.04 MGD of wastewater cleanup to its current customers during dry weather and 4.29 MGD during average wet periods. Thus, the remaining capacity is available for growth.

The City paid $4.5 million for plant reconstruction in 1975. However, $3.3 million came from the Federal Government and is not recoverable from systems development charges. Almost 63% of the remaining $1.1 million is being used by existing customers to meet their capacity requirements.

Next, City staff determined the additional per foot cost associated with building the extra main capacity. Capacity costs are obtained by multiplying the difference in construction cost by the length or size of each facility. Consequently, slightly less than $0.9 million of wastewater facilities have been constructed to serve future customers. As these facilities have been in service, they have depreciated. The remaining value of the extra capacity facilities is $600,000.

In the appendix, wastewater capital improvement needed to ultimate buildout are listed by project. Furthermore, each project has been assigned to growth or payment through LIDs, developer contributions and rates. The summarized results are in Table 24.

Table 24
WASTEWATER IMPROVEMENTS

Category	Total (000)	Capacity (000)
Interceptors	$18,561	$11,281
Force Mains	$286	$190
Pump Stations	$1,316	$818
Treatment Plant	$1,768	$1,768
Reimbursement	$1,796	$610
Other Costs	$341	$281
Sub-Total	$24,069	$14,948
Additional Pumping		$2,240
Additional Treatment		$2,720
Existing SDC Fund Balance (Added per Staff)		($452)
Reduction due to Grant Funding		($973)
Total Wastewater Capacity Cost		$18,484

In identifying projects, City staff used the *Wastewater Facility Study*. However, because of its limited scope, pipelines needed to serve the entire UGB were not included. These were added by City staff to the project listing in the Appendix. Additional capacity for central facilities (treatment, and pumping) were not added. Item costs are based on comparable facility expenses in the *Wastewater Facility Study*.

It is expected to cost the City $18 million to build the wastewater facilities necessary to provide service to new businesses and residents. This is in addition to the expenses borne directly by developers and customers. Added to the imbedded investment, this means that it will cost the

City $488 for each of the new 38,000 equivalent services.

Table 25
WASTEWATER SDCs

Sewer SDCs	Unit	Costs	SDC
Base Charge City	37,872	$488	$363
Water Service Size			
No Service	1	$488	$363
3/4	1	$488	$363
1	2.5	$1,220	$907
1.5	5	$2,440	$1,813
2	14	$6,833	$5,078
3	45	$21,962	$16,321
4	50	$24,403	$18,134
Schools	95.0	$46,365	$34,455

The base charge in the SDC column of the table adjusts the base charge unit costs by two factors. First, an allowance of 15% underdevelopment has been included. The reason for this is that development plans are not fully realized. However, the facilities must be built in order to accommodate potential developments. Thus, in order to collect the needed funds, the systems development charge must be increased to offset the losses from underdevelopment.

Homes constructed over the next several years will pay principal on debt issued for the construction and purchase of facilities serving existing customers. The average present value of these future payments is estimated to be $211 for each equivalent connection. Consequently, this amount has been subtracted from the SDC base charge.

STORM DRAINAGE SYSTEM

Water is drained from areas within Lebanon by a system of natural ravines, swales and creeks combined with storm sewers, roadside ditches, improved channels, culverts and several drywells. Many of the storm drainage facilities within the City are owned, operated and maintained by other governmental bodies. Infrastructure contained within this report is only the portion which is owned and operated by the City of Lebanon.

In January, 1992 the *Storm Drainage Master Plan* was prepared for the City of Lebanon by David J. Newton Associates, Inc. The purpose of the study was to analyze the City's existing storm drainage system to determine necessary improvements and to develop a master plan for expansion of the system for the ultimate build-out to the Urban Growth Boundary. Completion of projects included within the *Storm Drainage Master Plan* will allow the City to provide storm system services both within the City limits and to the build-out of the Urban Growth Boundary as development and annexation take place.

City engineering and operational staff has evaluated the existing storm water drainage system of the City and has determined that it is adequate to address runoff from twenty year storms at current levels of development. The *Storm Drainage Master Plan* addresses areas of deficiency within the existing system.

It would appear, many of the existing facilities have been sized to meet not only current but also future demands. However, the information on how cost assignments can be made for different pipe sizes is not presently available to the City's engineering staff. Additional thought and effort will be given to making allocations of storm facilities to existing and future users. For now, it is assumed that the existing system is needed for current users and is thus allocated fully to people and businesses residing within the city boundaries at present.

Thus, the basic assumptions for the development of the storm drainage systems development charge are that the existing system is adequate for existing customers and properties. However, they do not benefit new users. Facilities will need to be expanded and new structures built to handle the increases in runoff resulting from new development. The needed projects have <u>all</u> been identified in the *Storm Drainage Master Plan.*

The "runoff method" is used by engineers to calculate the peak storm flow from small

drainage areas. Runoff coefficients are developed for different property uses. Runoff coefficients approximate the amount of moisture or rainfall which is not absorbed into the soil. Thus, they measure the surface water which will flow into the storm water drainage system. The greater the coefficient, more water will need to be processed by the drainage system causing a greater need for facilities.

> *"The amount of runoff is increased substantially by increased impervious areas within the sub-basins....Further, these impervious area tend to concentrate the runoff into storm drains or ditches which more rapidly convey the runoff to the receiving s-tream....Transformation of agricultural lands to highly urbanized lands can increase the rates and volumes of storm runoff by a factor of 2 to 4 times. Impervious area is a very significant factor in the analysis of storm drainage systems."*[19]

We use the "mapped impervious area factors"[20] to determine the relative impact on the storm system of various types of development. Table 26 shows that there are currently just under 2,000 acres of land developed in Lebanon. This is equal to just over 2,700 acres of developed single family residential property.

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[19] *Storm Drainage Master Plan, David Newton Associates, Inc., Page 4.5.*

[20] *Ibid, Table 4.2.*

Table 26
STORM DRAINAGE EQUIVALENTS

Land Uses	Existing	Total	Percent Impervious	Equivalence Factor	Equivalent Acres	
					Existing	Total
Residential						
Mixed Density	872	3,242	60.00%	1.50	1,308	4,863
Single Family	482	717	40.00%	1.00	482	717
Commercial	157	226	90.00%	2.25	353	508
Industrial						
Light	112	1,357	85.00%	2.13	238	2,884
General	93	411	90.00%	2.25	209	925
Special Development	86	319	80.00%	2.00	172	638
Public Use	163	327	0.00%	0.00	0	0
Total	1,965	6,598			2,762	10,534

By the time the City fully develops, it will require a storm drainage system of handling the equivalents of 10,500 acres of fully developed residential property. The City's capability for handling storm water will need to be quadrupled.

As indicated previously, the *Storm Drainage Master Plan* serves as the basis for improvements required to provide service to the almost eleven thousand equivalent acres in both the Current City and Urban Growth Boundary. The *Storm Drainage Master Plan* initially contemplated an investment of $6.0 million in direct construction costs.

City has reviewed all of the projects and has changed them to meet current conditions. Some projects are required to meet existing deficiencies. In those cases, costs have been allocated between current and future customers based on required flows. Accordingly, the costs associated with future development amount to $1.8 million after making allowances for rate development and updating

costs.

Table 27
Storm Water Improvements

	Total	Capacity
Category	(000)	(000)
Interceptors	$231,190	$122,840
Channel Improvements	$354,025	$354,025
Road Crossings	$434,000	$434,000
Detention Basins	$3,372,500	$255,600
Reimbursement	$0	$0
Other Costs	$385,400	$325,100
Sub-Total	$4,777,115	$1,491,565
Existing SDC Fund Balance (Added per Jim Clark)		($73,009)
Reduction due to Grant Funding		($29,830)
Total Wastewater Capacity Cost		$1,388,726

Given the improvement requirements and the developments planned for currently vacant buildable land inside the City and Urban Growth Boundary, the improvement cost required for each equivalent acre is $179.

Land used by single family homes differ significantly. Furthermore, homes built on lots differ given that a portion of the lot is generally dedicated to structures, driveways and other impervious areas. Consequently, on average storm water contribution is expected to vary by the size of the lot. Because multi-family, industrial and commercial developments vary considerably, the storm drainage unit costs are calculated using the number of acres developed.

Table 28
STORM DRAINAGE SDCs

Storm Drainage SDCs	Unit	Per Unit Costs	SDC
Base Charge City	7,772	$179	$210
Single Family (Per 1,000 sq.ft.)	1.00	$3.28	$3.86
Mixed Density (Per Acre)	1.50	$268	$315
Commercial (Per Acre)	2.25	$402	$473
Industrial			
Light (Per Acre)	2.13	$380	$447
General (Per Acre)	2.25	$402	$473
Special Dev. (Per Acre)	2.00	$357	$420

Because all of the land is not expected to be developed at ultimate build-out, the unit cost numbers have been adjusted to reflect the under-realization of planned development. Consequently, the SDC for each single family home on a 20,000 square foot lot is $77.20 ($3.86*20). The storm SDCs are all predicated on the size of the lot.

STREET SYSTEM

The City of Lebanon is served by a mature integrated transportation system consisting of arterials, collectors and local streets. Street infrastructure contained within this report includes only arterials and collectors. Local streets are assumed to be financed directly by property owners, local improvement districts and/or developers.

In December, 1991, Carl Buttke, Inc. prepared the *City of Lebanon Transportation Master Plan*. The purpose of the study was to analyze the City's existing street system to determine necessary improvements needed by the year 2010. City staff extended the analysis to include major roadways required to ultimate buildout of Lebanon's Urban Growth Boundary. Completion of projects included in the listing provided in the Appendix Table II and included within the *Transportation Master Plan* will allow the City to provide street service inside the City and the Future Urban Areas.

The *Transportation Master Plan* bases its trip generation on population and employment in the City. These factors, in turn, are predicated on land use. We have already estimated land use, population and dwelling units in the Demographics chapter of this report. Employment is estimated on the basis of the following assumptions:

- Twenty percent (20%) of all acreage available for future commercial, industrial, and light industrial development is deducted to provide space for new roadways.
- Commercial development is assigned an employee ration of 25 per acre, light industrial development at 12 employees per acre and heavy industrial at 7 employees per acre.
- The percentage split of newly developed commercial property into "retail", "restaurant" and "office" classifications is assumed to remain the same as present levels.

Table 29
EMPLOYMENT BY LAND USE

Land Uses	Acres Developed			Employees Per Acre		Employment		
	Exist-ing	2010	Total	Ex-isting	New	Exist-ing	2010	Total
Commercial	157	199	226	7.32	25	920	1,758	2,295
Industrial								
Light	112	373	1,357	7.50	12	672	3,180	12,624
General	93	128	411		7	558	754	2,339
Special Devel-opment	86	139	319	4.36	4	300	471	1,046
Public Use	163		327					
Total	611	840	2,640			2,450	6,164	18,303

Our employment estimate is somewhat lower that shown in the *Transportation Master Plan* for the year 2010. This is relatively unimportant as the critical information for estimating total transportation demand is employment at ultimate buildout.

> *"Trip generation rates allied to these land uses were derived from measurements of residential traffic in Lebanon, from other similar cities in Oregon and from the Institute of Transportation Engineers report, "Trip Generation,"* (Fourth Edition, 1987)."[21]

"Adjustment for linked trips is made entirely from retail/commercial land use category, recognizing workers commuting from work often stop at one or more retail/commercial establishments en route. For calculation purposes it was assumed that 65 percent of the

[21] *Transportation Master Plan, Carl Buttke, Inc., Page 29.*

retail/commercial p.m. peak-hour trips represented linked trips."[22] Consequently, the retail/commercial "trips per unit" shown in Table 30 are 2.6 rather than 4.0 as listed in the ***Transportation Master Plan.***

Table 30
TRANSPORTATION SYSTEM P.M. PEAK TRIPS

Land Uses	Existing	Ultimate	Trips Per Unit	Trips	
				Existing	Ultimate
Dwelling Units					
Mixed Density	885	3,314	0.76	673	2,518
Single Family	4,281	12,520	1.09	4,666	13,647
Employment					
Commercial					
Retail/Commercial	540	1,347	2.60	1,404	3,502
Office/Government	380	948	0.59	224	559
Industrial					
Light	672	12,624	0.54	363	6,817
General	558	2,339	0.54	301	1,263
Special Development	300	1,046	3.50	1,050	3,660
			Total	8,681	31,967

Thus, the City of Lebanon residents and businesses will add 23,300 trips to the transportation system by the time the City has been fully developed.

The major street improvements required to handle the additional traffic load are shown by

[22] *Ibid, Page 86.*

street in the Appendix and are summarized below. The formal adopted City Council policy is that abutting residential property owners are required to pay for the first thirty two foot (32') section of roadway. Commercial/industrial properties pay the first forty four feet (44'). Consequently, only the cost of the additional capacity of the roadways are assigned to the growth sector. The total cost of added capacity is just under $10 million.

Table 31
TRANSPORTATION SYSTEM IMPROVEMENT COSTS

Category	Total (000)	Capacity (000)
Streets	$34,230	$7,737
Bridges	$732	$265
Signals	$1,250	$1,250
Other	$396	$396
Total	$36,608	$9,647

Roadways are partly funded by the federal government. In addition, the City has made commitments to improve certain roads through urban renewal funding. Lastly, a new County program provides timber receipts to cities for roadways. However, the latter program is used exclusively to maintain existing City streets.

The following table derives street SDCs. For single family homes and mixed density developments, the amounts shown are the SDCs. However, commercial and industrial developments vary significantly in their use of roads. Thus, each development will be evaluated by City staff at time of building permit application for the number of trips which will be generated by the development. The *Institute of Transportation Engineers, "Trip Generation"* will be used in making this evaluation.

Table 32
Street Systems Development Charges

Street SDCs	Trip Ends	SDC Basis	Per Unit Costs	SDC
Base Charge City	23,097		$341	$401
Single Family	1.09	Units	$372	$298
Mixed Density Residential	0.76	Units	$259	$427
Commercial (Examples)				
Medical/Dental	4.46	1,000 sq. ft.	$1,521	$1,749
Building Materials/Lumber	3.97	1,000 sq. ft.	$1,354	$1,557
Specialty Retail	4.93	1,000 sq. ft.	$1,681	$1,933
Discount Store	6.66	1,000 sq. ft.	$2,271	$2,611
Hardware/Paint	4.74	1,000 sq. ft.	$1,616	$1,859
New Car Sales	2.44	1,000 sq. ft.	$832	$957
Furniture Store	0.47	1,000 sq. ft.	$160	$184
General Office	3.4	10,000 sq. ft.	$1,159	$1,333
Industrial (Examples)				
Light	1.08	1,000 sq. ft.	$368	$423
General	0.68	1,000 sq. ft.	$184	$212

PARK SYSTEM

SDC SUMMARY

A summary of SDCs developed in subsequent chapters of this report are shown in Table 46. The SDCs are calculated to compensate the City the full cost of acquiring and developing all park and recreation categories for residential land uses. In total, it requires $1,529 per new single family unit to construct parks and open spaces at the standards identified in the Parks Master Plan.

Traditionally, the City has not taken primary responsibility for providing some of the park and open space facilities desired by the community. For example, regional parks have not been provided by the City but are offered by other public agencies. However, mini, neighborhood and community parks have been acquired and developed at the local level. SDCs to recover for just these type of parks are shown in Table 33.

Table 33
City of Lebanon, Oregon
Recommended SDCs for Mini, Neighborhood and Community Parks

Unit Type	SDC
Single Family	$490
Multi-Family	
Small	$358
Large	$113
Mobile Home/Other	$320

Thus, we recommend the City of Lebanon adopt a parks and recreation SDC of $490 per single family residence. The charge will be applied at the time of application for a building permit to build a new residential unit or to change the use of property. In implementing the parks SDC, we recommend the City;

- Formally accept local responsibility for mini, neighborhood and community parks. At the same time, the City should recognize that other park and open space needs will

continue to be the responsibility of other private or governmental agencies,

- Adopt the parks standards identified in the Parks Master Plan,
- Adopt the mini, community and neighborhood parks identified in the Parks Master Plan as the City's Systems Development Charge Funds Project Plan for Parks,
- Adopt necessary ordinances and resolutions specifying the SDC method, allowing for challenge to expenditures, providing for credits and setting the parks and open space SDC, and
- Develop a strategy for funding $1.3 million in current mini, neighborhood and community parks deficiencies. These are parks required to meet the local park needs of existing residents.

POPULATION AND HOUSING CHARACTERISTICS

> *"Lebanon has all the benefits of a small town with easy access to nearby cities and the Cascade Mountain recreation areas. The are has traditionally relied on an agricultural base...as well as the wood products industry. The economy is gradually becoming more diverse as local wood products manufacturers move into secondary wood processing....Lebanon has a plentiful supply of land suitable for light and medium industrial usage."*[23]

The first step in determining and assigning capital facility costs to new residents and businesses is to measure future population and employment growth targets. In this report, we utilize information developed in the master plans for streets, water, sanitary, parks and storm sewers. The engineers and consultants performing this work have relied on the City's Comprehensive Plan.

We use the 1990 Census of Lebanon to further identify the residential land uses of the City.[24] The type and size of housing unit selected by persons living in Lebanon are shown in Table 34.

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[23] *Oregon Community Profiles, Lebanon, Linn County.*

[24] *1990 Census of Population and Housing, Characteristic os the Population, City of Lebanon, Oregon.*

Table 34
City of Lebanon, Oregon
Existing Housing Units, 1990 Census

Unit Size	Occupied	Vacant	Persons
Single Family	3,263	124	8,455
Multi Family			
2	263	12	559
3 or 4	255	8	473
5 to 9	251	25	411
10 to 19	139	5	275
20 to 49	24	0	46
50 or more	74	34	44
Sub-Total	1,006	84	1,808
Mobil Home or Trailer	243	6	414
Other	42	8	79
Sub-Total	285	14	493
Total	4,554	222	10,756

The values in Table 34 are used to derive basic demographic factors used for projecting future City housing units. The demographic factors are shown in Table 35. Multi Family units have been aggregated into two separate groups - Small and Large Multi Family. Small units are multi family developments with less than fifty (50) units. Large multi family developments comprise those with fifty or more units. The reason for this breakdown is that the number of persons per unit are relatively homogeneous.

Table 35
City of Lebanon, Oregon
Housing Characteristics[1]

Unit Size	Persons Per Unit	Percent Pop
Single Family	2.6	78.61%
Multi Family		
Small[2]	1.9	16.40%
Large[3]	0.6	0.41%
Mobile Home/Other	1.7	4.58%

1. Based on 1990 Census Information.
2. Less than 50 Units.
3. 50 or more Units.

Consequently, on average, Lebanon's single houses have 2.6 people reside in them. Small multi family units house only 1.9 persons while 1.7 persons reside in mobile homes. Less than one person per unit is in a multi family unit in a large development. Using these factors, we project the total number of housing units by year for the city of Lebanon in Table 36.

Table 36
City of Lebanon, Oregon
Projected Housing Units by Type and Year

Year	Single	Small MF	Large MF	Mobile/Other	Total
1990	3,252	928	73	290	4,544
1993	3,458	987	78	308	4,831
1995	3,598	1,027	81	321	5,027
2000	3,972	1,134	90	354	5,550
2005	4,386	1,252	99	391	6,128
2010	4,843	1,383	109	432	6,767
2013	5,140	1,467	116	458	7,181
2015	5,321	1,519	120	475	7,435
Buildout	11,968	3,417	270	1,067	16,722

RECOMMENDED SERVICE LEVELS AND IMPROVEMENTS COSTS

The city of Lebanon hired *J.C. Draggoo & Associates* to conduct a review of its existing and future parks needs. The firm analyzed the existing park, open spaces and trail system, conducted a household survey, developed park standards, identified existing and future needs and developed a recommended list of facility acquisitions and developments. A summary of the results of this work are shown in the Appendix to this report.

An inventory of the existing parks systems is shown in Table 37.

Table 37
City of Lebanon, Oregon
Existing Park Inventory (In Acres)

Park Type	Developed	Disposed	Undeveloped	Total
Mini-Park	0.64	0.40	0	1.04
Neighborhood Park	4.71	0.00	1.42	6.13
Community Park	13.95	0.00	0	13.95
Regional Parks	0.00	0.00	0	0
Special Use Areas	24.02	0.25	0	24.27
Natural Open Space	0.00	0.00	13	13
Trail Corridors	0.00	0.00	0	0
Total	43.32	0.65	14.42	58.39

The developed acres are shown in the park type category to which the park is finally assigned in the Parks Master Plan. In some cases, the existing park function differs from that assigned in the Master Plan. For example, Weldwood Park is listed in the Master Plan as a community park. Its current use is as a special use area. In Table 37, Weldwood Park is part of the community park inventory.

Once having identified existing parks, park development and park condition, park standards were developed. The standards are based on NRPA Standards, comparison to other similar communities, land availability, results of the survey, national trends, financial feasibility, and an evaluation of Lebanon areas not now served by parks and open space. The recommended standards in the Master Plan are shown in Table 38.

Table 38
City of Lebanon, Oregon
Park Standards by Type

Park Type	Standard: Acres Per 1,000 People
Mini-Park	0.03
Neighborhood Park	1.80
Community Park	1.00
Regional Parks	6.20
Special Use Areas	1.70
Natural Open Space	10.50
Trail Corridors	1.64
Total	22.87

Based on the above table, almost twenty three acres of park lands are required to serve each 1,000 persons living in the city of Lebanon. Assuming these standards are applied to the current Lebanon population, park lands will need to be added to Lebanon's existing inventory to serve current residents. The developed park acres which need to be added for the existing population are shown in Table 39.

Table 39
City of Lebanon, Oregon
Developed Park Acres Required by Park Type; Existing Population

Park Type	Existing Developed Acres	Total Acres Required
Mini-Park	0.64	0.34
Neighborhood Park	4.71	20.59
Community Park	13.95	11.44
Regional Parks	0.00	70.91
Special Use Areas	24.02	19.44
Natural Open Space	0.00	120.09
Trail Corridors	0.00	18.72
Total	43.32	261.52

The strict application of the standards requires the City to add more than five times its existing developed park inventory to the park and recreation system. Every type of park is under supplied. However, a significant portion of this new land is open space which in most cases is undevelopable and will be relatively easy to acquire.

Implementation of the Lebanon Comprehensive Parks Master Plan will add more park land to the inventory. Completion of the acquisition and development programs will provide more than sufficient parks for the current Lebanon residents but will not meet the needs of the ultimate population expected to live within Lebanon's boundaries. Developed parks and recreation acres in the Master Plan and to meet ultimate population development are shown in Table 40.

Table 40
City of Lebanon, Oregon
Park Acre Development Requirements; Buildout Population

Park Type	Developed Master Plan Acres	Additional Acres Needed to Serve Ultimate Development
Mini-Park	0.00	0.55
Neighborhood Park	29.17	37.37
Community Park	5.00	20.64
Regional Parks	120.00	125.43
Special Use Areas	9.40	33.87
Natural Open Space	203.00	212.64
Trail Corridors	70.00	0.00
Total	436.57	430.50

Consequently, the Parks Master Plan develops twice the acreage required to meet the needs of the existing population. However, it falls far short of the ultimate needs of the City. In addition to the 437 acres planned in the Master Plan to serve existing and future populations, 431 acres of park and recreation land will need to be developed to serve the ultimate population of Lebanon.

The Master Plan identifies activities desired for each existing and potential park site. The activities are derived from Lebanon's parks' needs survey. The costs associated with the physical facilities required to support the activities is then estimated. Added to activity costs are contingency of just 15% and administration and engineering costs of 10% to derive the total costs of developing each existing and potential park site. The costs are summarized by park site in the Appendix and are provided in Table 41 by type of park area.

Table 41
City of Lebanon, Oregon
Cost of Developing Parks by Park Type

Park Type	Existing Parks	New Parks
Mini-Park	$56,912	$0
Neighborhood Park	$102,275	$1,714,212
Community Park	$218,878	$254,101
Regional Parks	$0	$3,107,073
Special Use Areas	$513,843	$603,690
Natural Open Space	$0	$1,061,138
Trail Corridors	$0	$1,623,450
Total	$891,908	$8,363,664

As shown above. it requires an investment of almost $900,000 to bring the existing parks up to the quality anticipated in the Parks Master Plan. An additional $8.4 million is required to acquire and develop all of the parks identified in the Plan.

As noted previously, the Parks Master Plan does not identify the park and recreation needs of the ultimate population of Lebanon. To project the costs of developing all park and recreation requirements, we have calculated the average cost of acquiring and developing each park by type listed in the Parks Master Plan. The results of these calculations are shown in 42.

Table 42
City of Lebanon, Oregon
Average Cost Per Acre to Develop Parks by Type

Type of Park	Development	Land	Total
Mini	$88,926	$20,000	$108,926
Neighborhood	$41,972	$20,000	$61,972
Community	$25,620	$20,000	$45,620
Regional Parks	$16,796	$8,333	$25,129
Special Use Areas	$28,728	$20,000	$48,728
Natural Open Space	$3,848	$1,379	$5,227
Trail Corridors	$13,192	$10,000	$23,192

The park per acre costs are then multiplied by the needed amount of park land to derive the added cost required to serve the ultimate population. Costs in excess of Master Plan projects are shown in Table 43. In addition to the projects listed in the Parks Master Plan, $9.2 million must be expended to fully meet the parks and recreation demands of Lebanon's ultimate population.

Table 43
City of Lebanon, Oregon
Additional Cost of Developing Parks to Serve Ultimate Population Growth

Growth Costs	Added Cost of Serving Ultimate Population
Mini-Park	$59,642
Neighborhood Park	$2,316,071
Community Park	$941,377
Regional Parks	$3,151,835
Special Use Areas	$1,650,630
Natural Open Space	$1,111,542
Trail Corridors	$0
Total	$9,231,098

In summary, the total park and open space costs at buildout will be $18.6 million. Just under $900,000 will need to be spent on Lebanon's existing parks. Another $8.4 million will be used to acquire and develop the new parks identified in the Parks Master Plan. In addition, $9.2 will need to be allocated to complete the parks and open space requirements associated with the buildout population.

RECOMMENDED SYSTEMS DEVELOPMENT CHARGES

In most cases, parks are not evenly distributed throughout a community. This is particularly true when parks are categorized by function. Consequently, some portions of the City are overdeveloped with parks while other areas are in need of facilities.

Table 44
City of Lebanon, Oregon
Assignment of Park Costs to Existing Population

Park Type	Master Plan Ext.Parks	Assigned To Existing[1]	Master Plan New Parks	Assigned To Existing[1]	Total Existing
Mini-Park	$56,912	$30,511	$0	$0	$30,511
Neighborhood Park	$102,275	$102,275	$1,714,212	$983,901	$1,086,176
Community Park	$218,878	$179,448	$254,101	$0	$179,448
Regional Parks	$0	$0	$3,107,073	$1,781,871	$1,781,871
Special Use Areas	$513,843	$415,928	$603,690	$0	$415,928
Natural Open Space	$0	$0	$1,061,138	$627,736	$627,736
Trail Corridors	$0	$0	$1,623,450	$434,043	$434,043
Total	$891,908	$728,163	$8,363,664	$3,827,552	$4,555,715

[1] Costs shown in these columns are the allocation of Parks Master Plan improvements to existing residents. The remainder of Park Master Plan improvement costs are assigned to future residents in Table XVII.

To equitably assign costs to existing and future City residents, we assigned costs on the basis of the population group for whom the park is intended. For example, if the existing parks are overdeveloped and are needed for the future populations, we assign a proportionate share of the existing park costs to the new residents. On the other hand, if current parks are deficient based on the standards, then a portion of the costs of developing future parks is assigned to the current population. All cost assignments are made based on populations served by the park acquisition and development.

From Table 44, a portion of the costs of further developing existing parks is assignable to future populations based on who will be served by the parks. On the other hand, a significant portion of the costs identified in the parks master plan are associated with existing park and recreation deficiencies. Almost half ($3.8 million) of the $8.4 million Parks Master Plan new park expenses are to meet the needs of the existing Lebanon population. A total of over $4.6 million is required to meet the parks and recreation needs of the existing population.

Most of the park and recreation expenses associated with the existing population are in parks which are not traditionally funded by local governments. However, the City must find the resources to fund $1.3 million in mini, neighborhood and community parks in addition to providing the matching funds on parks funded by other jurisdictions. As these are expenses which are incurred in behalf of the existing population, they can not be assigned to the growth sector.

The City must find a revenue source other than systems development charges to fund the costs of park and recreation improvements serving the existing population. Additionally, general obligation debt and/or property tax receipts are also constrained. the reason for this is that new residents are expected to pay for their park requirements through systems development charges. If they are also assessed a portion of the current users' parks cost through the property tax, they will pay twice for parks and recreation services - once through SDCs and again with property tax payments. If property tax based financing is used for meeting existing parks needs, SDCs will need to be adjusted to provide a credit to future residents for their contribution to parks for current City residents.

It is important to note, however, that if the City establishes SDCs and develops parks based on the Parks Master Plan standards, these standards must apply equally to the existing and future populations. Future residents would not be treated fairly if they paid for parks which are used by Lebanon's existing population because current residents had not provided for their own park needs.

In adopting the standards and SDCs, we recommend the City adopt an implementable long term program for funding existing park deficiencies. The financing program can be for a reasonable time period given the financial condition of the City. However, it must address the identified parks and recreation deficiencies. The essential ingredient of such a program is to make progress in eliminating the unfulfilled needs of current residents.

Park and recreation needs of the growth sector are shown in Table 45.

Table 45
City of Lebanon, Oregon
Assignment of Park Costs to Growth Sector by Park Type

Park Type	Existing Parks	Master Plan	Added Land Costs	Added For Ultimate	Total
Mini-Park	$26,401	$0	0	$59,642	$86,043
Neighborhood Park	$0	$730,311	$40,000	$2,316,071	$3,086,382
Community Park	$39,429	$254,101	$100,000	$941,377	$1,334,907
Regional Parks	$0	$1,325,202	$0	$3,151,835	$4,477,037
Special Use Areas	$97,915	$603,690	$0	$1,650,630	$2,352,235
Natural Open Space	$0	$433,401	$0	$1,111,542	$1,544,943
Trail Corridors	$0	$1,189,407	$0	$0	$1,189,407
Total	$163,745	$4,536,112	$140,000	$9,231,098	$14,070,955

At current prices, $14.1 million will need to be spent to fund the parks and recreation costs of new Lebanon residents. We have added $140,000 of land costs. In the Parks Master Plan, it is assumed that some lands will be donated by developers. In this report, we identify all park and recreation acquisition and improvement costs.

To develop properties, builders of developers may be required to set aside land or make other parks and recreation in kind contributions. To the extent such in-kind contributions meet the parks and recreation needs identified in this report, developers and builders are given SDC credits up to the amount of potential SDC revenue generated by their development.

To derive SDCs for each new housing development by type of park, we divide the growth sector's park and recreation cost for each park type by the total new population of the City at

ultimate build out. The resultant is used to calculate SDCs for each housing type based on the number of people who are expected to live in it. Only one other adjustment is made to this computation. Traditionally, not all development plans are realized. Often, lots and developments remain undeveloped for many years. In some cases, the lots are never built upon. However, public jurisdictions must build facilities based on the development potential. Consequently, if sufficient funds are to be recovered to pay for park and recreation infrastructure costs, SDCs must be adjusted to account for the underdevelopment of properties in Lebanon's urban growth area. From experience in other jurisdictions, it is estimated that approximately 15% of plans will not be realized.

The results of the SDC computations are shown in Table 46. Thus, a single family home's systems development charge for mini parks is just $9.35. A multi family unit in a small development pays $6.83 for the same service while the same type of unit in a large development pays $2.16 and a residential unit in a mobile home park pays $6.11.

Table 46
City of Lebanon, Oregon
Recommended Systems Development Charges by Park and Housing Type

Park Type	Single Family	Multi-Family		Mobile Home & Other
		Small	Large	
Mini-Park	$9.35	$6.83	$2.16	$6.11
Neighborhood Park	$335.40	$245.10	$77.40	$219.30
Community Park	$145.06	$106.01	$33.48	$94.85
Regional Parks	$486.52	$355.53	$112.27	$318.11
Special Use Areas	$255.62	$186.80	$58.99	$167.13
Natural Open Space	$167.89	$122.69	$38.74	$109.77
Trail Corridors	$129.25	$94.45	$29.83	$84.51
Total	$1,529.08	$1,117.41	$352.86	$999.78

A similar analysis is performed for each type of park. If the City assumed responsibility for all parks and did not obtain support funding from other jurisdictions, each new single family home would need to pay $1,529 for parks and recreation infrastructure. However, many of the park requirements will be met by other jurisdictions. Once the City has determined which types of parks are the direct responsibility of its residents, it can select the appropriate SDC for funding these requirements.

ADMINISTRATIVE REQUIREMENTS

HB 3224 requires the City of Lebanon to adopt new financial, planning, notification and operating methods to implement the law. Specific procedures should be developed and incorporated into the adopting ordinance. Procedures required are:

A. Expenditure Challenge - SDC funds may only be expended on projects on which the systems development charge is based. Any individual who believes the City has not spent funds collected from SDCs in conformance with Oregon Law may challenge the City's application of SDC monies.
   1. Administrative procedure for challenge must be adopted by the City,
   2. The Challenge to the City's expenditure must be filed within two years of the City spending the SDC funds on an "inappropriate" project or activity, and
   3. If expenditures are found in violation of SDC law, the City must replace the funds within one year following such determination by the courts.

B. SDC Method Challenge - Any individual may challenge the way in which the SDCs are calculated.
   1. Method must be established by ordinance. This can be done by attaching this report to the adopting ordinance.
   2. Method must be available for public inspection. Copies of this report should be readily available in the City's offices.
   3. Legal action to contest methodology must be filed within 60 days.

C. Credits - A credit may be given to developers or builders for providing in-kind contributions or for constructing facilities for which SDCs are being assessed. The credit is limited to the cost of the facilities provided or constructed and SDCs which are derivable from the development.
   1. Must be established in the same ordinance setting forth the improvement fee.

2. Legal action to contest method must be filed within 60 days.
3. To receive credits as described above, improvements must:
   a. Meet the design standards identified in Section V of the Parks Master Plan,
   b. Be readily accessible to the general public, including those living outside of the project, and
   c. Are on the Lebanon City Council adopted Systems Development Charge Funds Project Plan for parks.
4. In no case will landscaped areas and narrow greenbelts be credited as part of on-site improvements.

D. Planning

1. Plan to spend SDC revenues must be prepared. The City of Lebanon Comprehensive Parks Master Plan serves this function.
2. Plans may be modified at any time. These modifications are best done through formal action by the City Council. Please note that if projects are added or subtracted the amount of the fee is subject to change.

E. Accounting

1. Annual accounting must be provided.
2. Total collected for each system and projects funded must be disclosed.

APPENDIX

Table 1 - Page 1
STORM DRAINAGE IMPROVEMENTS

PROJECT NUMBER	PROJECT NAME	LENGTH	BASIC SIZE	RE QUIRED SIZE	TOTAL COST	CAPACITY COST
	INTERCEPTORS					
SD1	HWY 20-Industrial Way to Cemetary	670	12	21	$58,290	$21,440
SD2	GLENOAK-Jason Place to Santiam	1300	12	36	$172,900	$101,400
	CHANNEL IMPROVEMENTS					
SD10	HANSARD AVE TO COX CREEK	50575	0	15	$354,025	$354,025
	ROAD CROSSINGS					
SD20	CHEADLE LAKE BOX CULVERT	400	0	3X5 Box Cu	$434,000	$434,000
	DETENTION BASINS					
SD30	STRAWBERRY LANE-Airport & F Street	7.5	3.8	7.5	$266,250	$131,350
SD31	RUSSEL DRV.-Railroad & Porter	1	0.5	1	$35,500	$17,750
SD32	OAK CREEK-North of Rock Hill	40	39.8	40	$1,420,000	$7,100
SD33	OAK CREEK-South of Vaughn at 5th	46.5	43.7	46.5	$1,650,750	$99,400
	BUILDINGS AND GROUNDS				$75,400	$15,100
	RATE DEVELOPMENT				$10,000	$10,000
	MASTER PLAN UPDATES				$200,000	$200,000
	ADMINISTRATION				$100,000	$100,000
	EXISTING SDC FUND BALANCE (PER Staff)					($73,009)
	REDUCTION DUE TO GRANT FUNDING -2%					($29,830)
	TOTAL				$4,777,100	$1,388,661

Table 2 - Page 1
TRANSPORTATION SYSTEM IMPROVEMENTS

Project #	PROJECT NAME	LENGTH (FT)	BASE WIDTH (FT)	BASE COST ($/LF)	REQ WIDTH (FT)	UNIT COST ($/LF)	TOTAL COST ($000)	CAPACITY COST ($000)
T1	NORTH BELTWAY	8,774	44	$236	54	261	$2,290	$219
T2	WEST BELTWAY	7,639	44	$236	54	261	$1,994	$191
T3	SOUTHWEST BELTWAY	9,565	44	$236	54	261	$2,497	$239
T4	CROWFOOT ROAD HW 20 to South Main	6,021	32	$172	54	261	$1,572	$536
T5	OAK STREET EXTENSION River Street to Santiam River bridge	1,720	32	$172	44	236	$406	$110
T6	AIRPORT ROAD SPRR to Russell Drive	1,290	32	$172	44	236	$305	$83
T7	AIRPORT ROAD Highway 20 to 2nd Street	482	32	$172	44	236	$114	$31
T8	AIRPORT ROAD 2nd Street to 7th Street	1,583	32	$172	40	211	$334	$62
T9	AIRPORT ROAD 7th Street to Airway Road	3,045	32	$172	40	211	$643	$119
T10	HANSARD AVENUE HW 34 to Harrison	602	32	$172	44	236	$142	$39
T11	WALKER ROAD Main Street to South Main Street	430	44	$236	54	261	$112	$11
T12	WALKER ROAD Stoltz Hill Road to SW Beltway	3,131	32	$172	54	261	$817	$279
T13	BERLIN ROAD Brewster Road to UGB	8,344	32	$172	44	236	$1,969	$534
T14	AIRPORT ROAD Airway to UGB	1,850	32	$172	44	236	$437	$118
T15	CENTRAL AVENUE Crowfoot Road to UGB	4,043	32	$172	40	211	$853	$158

Table 2 - Page 2
TRANSPORTATION SYSTEM IMPROVEMENTS

Project #	PROJECT NAME	LENGTH (FT)	BASE WIDTH (FT)	BASE COST ($/LF)	REQ WIDTH (FT)	UNIT COST ($/LF)	TOTAL COST ($000)	CAPACITY COST ($000)
T16	CASCADE DRIVE HW 20 to Crowfoot Road	3,097	32	$172	40	211	$653	$121
T17	CASCADE DRIVE Crowfoot Road to UGB	4,473	32	$172	40	211	$944	$174
T18	FRANKLIN STREET Santiam Canal to Russell Drive	1,290	32	$172	40	211	$272	$50
T19	2ND STREET Airport Road to "H" Street	1,135	32	$172	54	261	$296	$101
T20	TANGENT Hansard to Beltway	4,200	32	$172	44	236	$991	$269
T21	5TH STREET Tangent Street to North Beltway	3,183	32	$172	50	231	$735	$188
T22	5TH STREET Vaughan Lane to SW Beltway	1,067	32	$172	40	211	$225	$42
T23	7TH STREET "E" Street to Airport Road	1,910	32	$172	40	211	$403	$74
T24	7TH STREET Airport Road to Walker Road	1,927	32	$172	40	211	$407	$75
T25	10TH STREET Tangent Street to Vine Street	1,514	32	$172	40	211	$319	$59
T26	10TH STREET Vine Street to Oak Street	1,583	32	$172	40	211	$334	$62
T27	12TH STREET Airport Road to Stoltz Hill Road	2,925	32	$172	54	261	$763	$260
T28	12TH STREET HW 34 to North Beltway	3,269	40	$211	50	231	$755	$65
T29	12TH STREET Vine Street to HW 34	1,548	32	$172	50	231	$358	$91

Table 2 - Page 3
TRANSPORTATION SYSTEM IMPROVEMENTS

Project #	PROJECT NAME	LENGTH (FT)	BASE WIDTH (FT)	BASE COST ($/LF)	REQ WIDTH (FT)	UNIT COST ($/LF)	TOTAL COST ($000)	CAPACITY COST ($000)
T30	12TH STREET Vine to Burkhart	2,430	32	$172	50	231	$561	$143
T31	12TH STREET "F" Street to Airport Road	1,548	32	$172	50	231	$358	$91
T32	"F" STREET 10th Street to Airway Road	1,892	32	$172	40	211	$399	$74
T33	PARK DRIVE Glen Oak Drive to Russel	705	32	$172	40	211	$149	$27
T34	RIVER STREET Russell Drive to River View	4,129	32	$172	44	236	$974	$264
T35	RUSSELL DRIVE River Drive Loop	2,925	32	$172	40	211	$617	$114
T36	RUSSELL DRIVE HW 20 to River Drive	2,753	32	$172	40	211	$581	$107
T37	SHERMAN STREET 8TH Street to 10TH Street	774	32	$172	40	211	$163	$30
T38	STOLTZ HILL ROAD 12TH Street Extension to Vaughan Lane	2,064	32	$172	44	236	$487	$132
T39	STOLTZ HILL ROAD Vaughan Lane to UGB	3,269	32	$172	44	236	$771	$209
T40	SOUTH MAIN ROAD Cedar Drive to Crowfoot Road	3,097	32	$172	54	261	$808	$276
T41	SOUTH MAIN ROAD Crowfoot Road to UGB	3,785	32	$172	54	261	$988	$337
T42	SOUTH MAIN ROAD Cedar Drive to 2nd Street	3,957	32	$172	54	261	$1,033	$352
T43	TANGENT STREET Hansard Avenue to 2ND Street	2,150	32	$172	54	261	$561	$191

Table 2 - Page 4
TRANSPORTATION SYSTEM IMPROVEMENTS

Project #	PROJECT NAME	LENGTH (FT)	BASE WIDTH (FT)	BASE COST ($/LF)	REQ WIDTH (FT)	UNIT COST ($/LF)	TOTAL COST ($000)	CAPACITY COST ($000)
T44	VAUGHAN LANE South Main Street to Stoltz Hill Road	5,333	32	$172	50	231	$1,232	$315
T45	WEIRICH ROAD HW 20 to UGB	2,237	32	$172	40	211	$472	$87
T46	WHEELER STREET Main Street to Williams Street	1,204	32	$172	54	261	$314	$107
T47	TENNESSEE ROAD Williams Street to UGB	4,473	32	$172	54	261	$1,167	$398
T48	WELDWOOD AVENUE S. Main to HWY 20	3,100	32	$172	40	211	$654	$121
	SUBTOTAL, STREETS	143,465					$34,230	$7,737
	BRIDGE WIDENING:							
T48	Russell Drive	45	32	$1,890	44	$2,599	$117	$32
T49	Tennessee Road at Santiam Canal	61	32	$1,890	54	$3,189	$195	$79
T50	2nd Street-South Canal Crossing	41	32	$1,890	54	$3,189	$131	$53
T51	South Main Road at Oak Creek	50	32	$1,890	54	$3,189	$159	$65
T52	Stoltz Hill Road at Oak Creek	50	32	$1,890	44	$2,599	$130	$35
	SUBTOTAL, BRIDGES						$732	$265
	TRAFFIC SIGNALS:							
T53	Crowfoot Road at South Main Road						$150	$150
T54	Beltway at HW 20 North						$150	$150
T55	Beltway at HW 34						$150	$150
T56	Crowfoot Road at Cascade Drive						$200	$200
T57	Crowfoot Road at South Main Street						$150	$150
T58	Oak Street at 5th Street						$150	$150
T59	Oak Street at 12th Street						$150	$150
T60	Airport Road at 2nd Street						$150	$150

Table 2 - Page 5
TRANSPORTATION SYSTEM IMPROVEMENTS

Project #	PROJECT NAME	LENGTH (FT)	BASE WIDTH (FT)	BASE COST ($/LF)	REQ WIDTH (FT)	UNIT COST ($/LF)	TOTAL COST ($000)	CAPACITY COST ($000)
	SUBTOTAL, TRAFFIC SIGNALS						$1,250	$1,250
	PAVEMENT MANAGEMENT SYSTEM						$10	$10
	BUILDINGS AND GROUNDS						$76	$76
	RATE DEVELOPMENT						$10	$10
	MASTER PLAN UPDATE						$200	$200
	ADMINISTRATION						$100	$100
	TOTAL						$36,608	$9,647

Table 3 - Page 1
WASTEWATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	CALC'D. LENGTH (FT)	RE-QUIRED SIZE (")	REQUIRED UNIT COST ($/LF)	TOTAL SIZE (")	TOTAL UNIT COST ($/LF)	TOTAL COST ($1000)	EXTRA CA-PACITY COST ($1000)
	INTERCEPTORS:							
S1	PARK DRIVE Glen Oak to South	3,067	8	$62.97	10	$78.71	$241.4	$48.3
S2	PARK	950	8	$62.97	24	$188.90	$179.5	$119.6
	Binshadler to Milton							
S3	MILTON	630	8	$62.97	24	$188.90	$119.0	$79.3
	Park to Franklin							
S4	FRANKLIN	860	8	$62.97	27	$212.52	$182.8	$128.6
	Milton to Elmore							
S5	ELMORE	270	8	$62.97	24	$188.90	$51.0	$34.0
	Franklin to Hiatt							
S6	HIATT	1,160	8	$62.97	30	$236.13	$273.9	$200.9
	Maple to Grant							
S7	MAPLE	400	8	$62.97	36	$283.35	$113.3	$88.2
	Hiatt to Williams							
S8	WILLIAMS STREET	110	8	$62.97	30	$236.13	$26.0	$19.0
	Maple to Canal							
S9	WILLIAMS STREET	100	8	$62.97	36	$283.35	$28.3	$22.0
	Canal Crossing							
S10	WILLIAMS STREET	1,640	8	$62.97	30	$236.13	$387.3	$284.0
	Canal to Issbella							
S11	WILLIAMS	330	8	$62.97	36	$283.35	$93.5	$72.7
	Issbella to Carolina							
S12	WILLIAMS	890	8	$62.97	27	$212.52	$189.1	$133.1
	Cedar to D							
S13	WILLIAMS	360	8	$62.97	30	$236.13	$85.0	$62.3

Table 3 - Page 2
WASTEWATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	CALC'D. LENGTH (FT)	RE-QUIRED SIZE (")	REQUIRED UNIT COST ($/LF)	TOTAL SIZE (")	TOTAL UNIT COST ($/LF)	TOTAL COST ($1000)	EXTRA CA-PACITY COST ($1000)
	Wheeler to Canal							
S14	HWY 20	3,170	12	$94.45	15	$118.06	$374.3	$74.9
	Canal to Oak							
S15	OAK	430	12	$94.45	15	$118.06	$50.8	$10.2
	HWY 20 to Oak							
S16	OAK	750	8	$62.97	15	$118.06	$88.5	$41.3
	Park to Williams							
S17	WILLIAMS	430	8	$62.97	15	$118.06	$50.8	$23.7
	Oak to Maple							
S18	HWY 20	2,150	12	$94.45	15	$118.06	$253.8	$50.8
	Railroad to Truman							
S19	TRUMAN	160	12	$94.45	15	$118.06	$18.9	$3.8
	HWY 20 to Park							
S20	TRUMAN	95	8	$62.97	15	$118.06	$11.2	$5.2
	Park to Center							
S21	PORTER	900	8	$62.97	15	$118.06	$106.3	$49.6
	Center to Russel							
S22	RUSSEL	700	8	$62.97	18	$141.68	$99.2	$55.1
	Porter to Franklin							
S23	FRANKLIN	1,325	8	$62.97	21	$165.29	$219.0	$135.6
	Russel to Garvord							
S24	GARVORD	750	8	$62.97	21	$165.29	$124.0	$76.7
	Franklin to Park Pump							
S25	CEDAR	2,380	8	$62.97	12	$94.45	$224.8	$74.9
	S. Main to HWY 20							
S26	CASCADE	2,450	8	$62.97	12	$94.45	$231.4	$77.1

Table 3 - Page 3
WASTEWATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	CALC'D. LENGTH (FT)	RE-QUIRED SIZE (")	REQUIRED UNIT COST ($/LF)	TOTAL SIZE (")	TOTAL UNIT COST ($/LF)	TOTAL COST ($1000)	EXTRA CA-PACITY COST ($1000)
	Cedar to City Limits							
S27	W. SIDE INTERCEPTOR	2,950	12	$94.45	54	$425.03	$1,253.8	$975.2
	WWPT to HWY 20							
S28	W. SIDE INTERCEPTOR	2,680	12	$94.45	48	$377.81	$1,012.5	$759.4
	HWY 20 to Hansard Ave.							
S29	HANSARD	1,450	12	$94.45	48	$377.81	$547.8	$410.9
	N of Laurel to Harrison							
S30	HARRISON	1,270	8	$62.97	48	$377.81	$479.8	$399.8
	Hansard to 12th Street							
S31	12TH STREET	330	12	$94.45	42	$330.58	$109.1	$77.9
	Harrison to Morton							
S32	12TH STREET	360	8	$62.97	42	$330.58	$119.0	$96.3
	Morton to HWY 34							
S33	HWY 34	330	12	$94.45	42	$330.58	$109.1	$77.9
	12th to 13th							
S34	HWY 34	1,240	8	$62.97	42	$330.58	$409.9	$331.8
	13th to Sunset							
S35	SUNSET	2,080	8	$62.97	42	$330.58	$687.6	$556.6
	HWY 34 to Airway							
S36	AIRWAY	620	8	$62.97	48	$377.81	$234.2	$195.2
	Sunset to Oak							
S37	OAK	2,960	8	$62.97	21	$165.29	$489.3	$302.9
	Airway to UGB							
S38	AIRWAY	3,519	8	$62.97	36	$283.35	$997.1	$775.5
	Oak to Airport							
S39	AIRPORT ROAD	2,070	8	$62.97	36	$283.35	$586.5	$456.2

Table 3 - Page 4
WASTEWATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	CALC'D. LENGTH (FT)	RE-QUIRED SIZE (")	REQUIRED UNIT COST ($/LF)	TOTAL SIZE (")	TOTAL UNIT COST ($/LF)	TOTAL COST ($1000)	EXTRA CA-PACITY COST ($1000)
	Airway to Burkhart Creek							
S40	AIRPORT ROAD	2,800	8	$62.97	21	$165.29	$462.8	$286.5
	Airway to UGB							
S41	STOLTZ HILL	2,040	8	$62.97	24	$188.90	$385.4	$256.9
	Burkhart Creek to Walker							
S42	STOLTZ HILL	2,070	8	$62.97	21	$165.29	$342.2	$211.8
	Walker to Oak Creek							
S43	STOLTZ HILL	1,600	8	$62.97	12	$94.45	$151.1	$50.4
	Oak Creek to UGB							
S44	ALONG OAK CREEK	2,000	8	$62.97	24	$188.90	$377.8	$251.9
	Stoltz Hill to 10th							
S45	VAUGHAN LANE	3,680	8	$62.97	12	$94.45	$347.6	$115.9
	10th to S. Main							
S46	S. MAIN	180	8	$62.97	12	$94.45	$17.0	$5.7
	Vaughn to Wagon Wheel							
S47	WAGON WHEEL	730	8	$62.97	21	$165.29	$120.7	$74.7
	S. Main to City Limits							
S48	WALKER ROAD	1,450	8	$62.97	21	$165.29	$239.7	$148.4
	Stoltz Hill to 1450 West							
S49	WALKER ROAD	2,860	12	$94.45	21	$165.29	$472.7	$202.6
	1450' West to UGB							
S50	ALONG OAK STREET	4,700	8	$62.97	21	$165.29	$776.9	$480.9
	Vaugh to Spur							
S51	ALONG OAK STREET	775	8	$62.97	12	$94.45	$73.2	$24.4
	Spur to 775' SE							
S52	SPUR	1860	8	$62.97	18	$141.68	$263.5	$146.4

Table 3 - Page 5
WASTEWATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	CALC'D. LENGTH (FT)	RE-QUIRED SIZE (")	REQUIRED UNIT COST ($/LF)	TOTAL SIZE (")	TOTAL UNIT COST ($/LF)	TOTAL COST ($1000)	EXTRA CA-PACITY COST ($1000)
	Oak Creek to Crowfoot							
S53	CROWFOOT	4590	8	$62.97	18	$141.68	$650.3	$361.3
	Spur to HWY 20							
S54	CENTRAL	2070	8	$62.97	12	$94.45	$195.5	$65.2
	Crowfoot to Oregon							
S55	CASCADE	2725	8	$62.97	12	$94.45	$257.4	$85.8
	SE to Crowfoot							
S56	GRANT	330	8	$62.97	15	$118.06	$39.0	$18.2
	River Park to Fork in Road							
S57	BREWSTER	1000	8	$62.97	15	$118.06	$118.1	$55.1
	Grant to Berlin							
S58	BERLIN	5200	8	$62.97	12	$94.45	$491.1	$163.7
	Grant to 5200 South							
S59	GRANT	5180	8	$62.97	12	$94.45	$489.3	$163.1
	Berlin to Ridgeway							
S60	12TH STREET	2500	12	$94.45	36	$283.35	$708.4	$472.3
	Harrison to Beltway							
S61	12TH STREET	340	8	$62.97	15	$118.06	$40.1	$18.7
	Beltway to 340 North							
S62	12TH STREET	1100	12	$94.45	15	$118.06	$129.9	$26.0
	340 North to End							
S63	HWY 20	3100	8	$62.97	15	$118.06	$366.0	$170.8
	WS Interceptor to Canal							
S64	BELWAY	2370	8	$62.97	10	$78.71	$186.5	$37.3
	HWY 20 to Hansard							
	SUBTOTAL, MAIN LINES						$18,561.0	$11,280.6

Table 3 - Page 6
WASTEWATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	CALC'D. LENGTH (FT)	RE-QUIRED SIZE (")	REQUIRED UNIT COST ($/LF)	TOTAL SIZE (")	TOTAL UNIT COST ($/LF)	TOTAL COST ($1000)	EXTRA CA-PACITY COST ($1000)
	FORCE MAINS:							
S70	TECH PARK	4,650	4	$18.08	10	$45.20	$210.2	$126.1
	Pump Station to Belway							
S71	BERLIN ROAD	1,290	0		10	$45.20	$58.3	$58.3
	Berlin Pump to Brewster Rd							
S72	HWY 20	650	4	$18.08	6	$27.12	$17.6	$5.9
	Gore to Canal							
	SUBTOTAL, FORCE MAINS						$286.2	$190.3
	PUMP STATIONS:							
S80	TECH PARK		5	$95,727.79	10	$95,727.79	$957.3	$478.6
	NW. Corner of Tech Park							
S81	GARVORD PUMP STATION		0.2	$95,727.79	0.75	$95,727.79	$71.8	$52.7
	Park Dr. & Garvord							
S82	BERLIN PUMP STATION		0	$95,727.79	2	$95,727.79	$191.5	$191.5
	Berlin Rd near Grant							
S83	GORE ROAD PUMP STA		0	$95,727.79	1	$95,727.79	$95.7	$95.7
	Gore Rd. & HWY 20							
	SUBTOTAL, PUMP STATIONS						$1,316.3	$818.5
	TREATMENT PLANT:							
S90	CLARIFIER					500	$531.82	$531.82
	And Mechanical							
S91	SURGE BASINS					422	$448.86	$448.86
	Land,Lagoon Modif. & Mech.							
S92	CLARIFIER					500	$531.82	$531.82
	And Mechanical							
S92	OUTFALL PIPING					240	$255.27	$255.27

Table 3 - Page 7
WASTEWATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	CALC'D. LENGTH (FT)	RE-QUIRED SIZE (")	REQUIRED UNIT COST ($/LF)	TOTAL SIZE (")	TOTAL UNIT COST ($/LF)	TOTAL COST ($1000)	EXTRA CA-PACITY COST ($1000)
	Additional							
S93	INFLUENT WET WELL					35	$37.23	$37.23
	Lower for W. Side Interceptor							
S94	BAFFLE EXISTING CLARIFIERS					6	$6.38	$6.38
	All Three							
	SUBTOTAL, PLANT						$1,767.8	$1,767.8
	FACILITY STUDY UPDATE						$255.3	$255.3
	BUILDING AND GROUNDS						75.4	15.1
	RATE DEVELOPMENT						$10.6	$10.6
	GRAND TOTAL						$22,272.4	$14,338.1

Table 4 - Page 1
WATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	LENGTH (FT)	BASE REQ. (")	BASE COST ($/LF)	REQ. SIZE (")	REQ. COST ($/LF)	TOTAL COST ($1,000)	CAPACITY COST ($1,000)
	DISTRIBUTION SYSTEM:							
W1	MORTON/WHEELER/HIATT	4,380	10	$95	16	$152	$665.8	$249.7
	Hwy 20 to E. Grant							
W2	5TH/TANGENT/2ND	3,060	10	$95	12	$114	$348.8	$58.1
	Sherman to 3rd Street							
W3	5TH/MARY/2ND	3,699	8	$76	16	$152	$562.2	$281.1
	Beltway to Morton							
W4	HARRISON/5TH	2,237	10	$95	12	$114	$255.0	$42.5
	Hansard to Tangent							
W5	HANSARD/ROSE/10TH	3,699	8	$76	12	$114	$421.7	$140.6
	Harrison to Grant							
W6	UNUSED NUMBER							
W7	UNUSED NUMBER							
W8	MAPLE/10TH/GRANT							
	Oak to 5th							
W9	HWY20/NURB/BELTWAY	7,742	8	$76	12	$114	$882.6	$294.2
	Hospital to Hansard							
W10	BELTWAY	1,634	12	$114	12	$114	$186.3	$0.0
	5th to Hansard							
W11	SANTIAM HWY	2,753	12	$114	12	$114	$313.8	$0.0
	Airport Rd to Elmore							
W12	7TH STREET	1,290	8	$76	12	$114	$147.1	$49.0
	Walker to Cascades Sch							
W13	CAS CADE/STURTEVANT/HWY20	7,430	8	$76	12	$114	$847.0	$282.3
	Crowfoot to Weirich							
W14	UNUSED NUMBER							
W15	7TH & A STREET	2,495	8	$76	12	$114	$284.4	$94.8

Table 4 - Page 2
WATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	LENGTH (FT)	BASE REQ. (")	BASE COST ($/LF)	REQ. SIZE (")	REQ. COST ($/LF)	TOTAL COST ($1,000)	CAPACITY COST ($1,000)
	F street to 5th							
W16	AIRPORT ROAD	3,097	8	$76	12	$114	$353.1	$117.7
	7th to Airway							
W17	AIRWAY ROAD	1,032	8	$76	12	$114	$117.6	$39.2
	Airport rd north							
W18	AIRPORT ROAD	1,376	8	$76	12	$114	$156.9	$52.3
	5th to Santiam hwy							
W19	AIRPORT ROAD	1,548	8	$76	12	$114	$176.5	$58.8
	Santiam hwy to Russell							
W20	VAUGHAN & SOUTH MAIN RD	860	8	$76	12	$114	$98.0	$32.7
	Quail to Wagon Wheel							
W21	VAUGHAN LANE	1,634	8	$76	16	$152	$248.4	$124.2
	5th to 10th							
W22	10TH STREET	430	8	$76	12	$114	$49.0	$16.3
	Vaughan to 8th							
W23	UNUSED NUMBER							
W24	UNUSED NUMBER							
W25	PORTER & TRUMAN	2,064	8	$76	16	$152	$313.7	$156.9
	Santiam hwy to Russell							
W26	RUSSELL DRIVE & NEW LOOP	4,645	8	$76	16	$152	$706.0	$353.0
	Porter to River Drive							
W27	PARK DRIVE	1,548	8	$76	12	$114	$176.5	$58.8
	Garvord to Russell							
W28	BREWSTER RD & BERLIN	1,720	14	$133	16	$152	$261.4	$32.7
	Bridge crossing to Grant							
W29	GRANT STREET	1,548	14	$133	24	$228	$352.9	$147.1
	Berlin to reservoir							

Table 4 - Page 3
WATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	LENGTH (FT)	BASE REQ. (")	BASE COST ($/LF)	REQ. SIZE (")	REQ. COST ($/LF)	TOTAL COST ($1,000)	CAPACITY COST ($1,000)
W30	TANGENT STREET	4,043	8	$76	12	$114	$460.9	$153.6
	Hansard to Beltway							
W31	OAK STREET	1,376	8	$76	12	$114	$156.9	$52.3
	Airport to Beltway							
W32	MILTON STREET	1,032	8	$76	12	$114	$117.6	$39.2
	Park Dr to Post St							
W33	UNUSED NUMBER							
W34	WAGON WHEEL DRIVE	4,731	8	$76	12	$114	$539.3	$179.8
	South Main Rd to Santiam hwy							
W35	SANTIAM HWY	6,452	12	$114	16	$152	$980.7	$245.2
	Division to Crowfoot							
W36	BELTWAY	6,538	12	$114	16	$152	$993.8	$248.4
	Hansard to Tangent							
W37	UNUSED NUMBER							
W38	BELTWAY	6,796	12	$114	16	$152	$1,033.0	$258.2
	Tangent to Airport Rd							
W39	BELTWAY	4,817	12	$114	16	$152	$732.2	$183.0
	Airport Rd to Stoltz Hill Rd							
W40	UNUSED NUMBER							
W41	WALKER ROAD	1,032	8	$76	12	$114	$117.6	$39.2
	Airway to Stoltz Hill Rd							
W42	12TH STREET	1,892	8	$76	12	$114	$215.7	$71.9
	Walker to Airport Rd							
W43	BELTWAY	2,409	8	$76	12	$114	$274.6	$91.5
	Stoltz Hill Rd to 10th							
W44	RIVER DRIVE	2,581	8	$76	16	$152	$392.3	$196.2
	New Loop to Berlin Rd							

Table 4 - Page 4
WATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	LENGTH (FT)	BASE REQ. (")	BASE COST ($/LF)	REQ. SIZE (")	REQ. COST ($/LF)	TOTAL COST ($1,000)	CAPACITY COST ($1,000)
W45	BERLIN ROAD	6,538	8	$76	16	$152	$993.8	$496.9
	River Dr to Grant							
W46	SOUTH MAIN RD & CROWFOOT	10,064	8	$76	16	$152	$1,529.7	$764.9
	Reservoir to Santiam hwy							
W47	SOUTH MAIN ROAD	1,462	8	$76	12	$114	$166.7	$55.6
	Vaughan to Crowfoot Rd							
W48	OREGON/CASCADE/STURTEVANT	10,150	8	$76	12	$114	$1,157.1	$385.7
	South Main Rd to Santiam hwy							
W49	UNUSED NUMBER							
	SUBTOTAL, MAIN LINES	133,834					$17,786.8	$6,143.7
	WELLS:		(MGD)	($/MGD)	(MGD)	($/MGD)		
W50	WELL FIELD & 1ST WELLS		0.4	$694,444	0.58	$694,444.0	$400.0	$120.0
W51	3RD WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W52	4TH WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W53	5TH WEL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W54	6TH WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W55	7TH WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W56	8TH WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W57	9TH WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W58	10TH WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
W59	11TH WELL		0	$312,500	0.29	$312,500.0	$90.0	$90.0
	SUBTOTAL, WELLS				3.19		$1,210.0	$930.0
	RESERVOIRS:			($/MG/1000)	(MG)			
W60	2 MG RESERVOIR			$475	2	$475.0	$950.0	$950.0
W61	2 MG RESERVOIR			$475	2	$475.0	$950.0	$950.0
	SUBTOTAL, RESERVOIRS						$1,900.0	$1,900.0
	TREATMENT PLANT:		(MGD)	($/MGD)	(MGD)	($/MGD)		

Table 4 - Page 5
WATER SYSTEM IMPROVEMENTS

PROJ #	PROJECT NAME	LENGTH (FT)	BASE REQ. (")	BASE COST ($/LF)	REQ. SIZE (")	REQ. COST ($/LF)	TOTAL COST ($1,000)	CAPACITY COST ($1,000)
W62	4 MGD ACCELATOR		0	$83,333	6	$83,333.0	$500.0	$500.0
W63	CLEARWELL W/ BAFFLES		0	$43,750	8	$43,750.0	$350.0	$350.0
W64	TWO FILTERS		0	$125,000	2	$125,000.0	$250.0	$250.0
W65	LAND ACQUISITION						$100.0	$100.0
	SUBTOTAL, PLANT						$1,200.0	$1,200.0
	FACILITY STUDY UPDATE						$200.0	$200.0
	SHOP SITES						$75.5	$15.1
	RATE DEVELOPMENT						$10.0	$10.0
	ADMINISTRATION						$100.0	$100.0
	SUBTOTAL OTHER						$385.5	$325.1
	GRAND TOTAL						$22,482.3	$10,498.8

Table 5 - Page 1
City of Lebanon, Oregon
Park Improvements, Parks Master Plan

Type	Name	Acres	Cost	Existing/New
Mini-Park	Jaycee Park	0.64	$56,912	Existing
	Carroll Park	0.40	$0	Dispose
Neighborhood Park	Millview Way Park	5.00	$325,000	New
	Had Irvine Park	1.42	$71,789	New
	Green Acres Park	2.00	$121,363	New
	Booth Park	2.20	$81,909	Existing
	Strawberry Lane Park	5.00	$85,514	New
	Russel Drive Park	5.00	$325,000	New
	Christopher Columbus Park	2.51	$20,367	Existing
	Christopher Columbus Park	0.75	$35,547	New
	Oak Creek Park	5.00	$375,000	New
	Cascade Drive Park	5.00	$375,000	New
Community Park	Century Park	6.25	$128,962	Existing
	Weldwood Park	5.00	$254,101	New
	Weldwood Park	7.70	$89,916	Existing
Regional Park	Regional Park	120.00	$3,107,073	New
Special Use Area	North Entrance Gateway	0.20	$11,052	New
	North Santiam Day Use Area	5.00	$330,165	New

Table 5 - Page 2
City of Lebanon, Oregon
Park Improvements, Parks Master Plan

Type	Name	Acres	Cost	Existing/New
	West Entrance Gateway	0.20	$11,052	New
	Mural Park	0.08	$0	Dispose
	River Park	22.40	$353,884	Existing
	Ralston Square	1.34	$102,465	Existing
	Gill's Landing	0.28	$57,494	Existing
	Ridgeway Butte Overlook	2.00	$150,131	New
	Cedar Lane Pathway	0.17	$0	Dispose
	South Santiam Day Use Area	2.00	$101,289	New
Natural Open Space Area	Santiam River Corridor	113.00	$643,950	New
	Willamette Industries Wild Area	50.00	$156,925	New
	Oak Creek Corridor	40.00	$260,263	New
Trail Corridor	Lebanon Loop	52.00	$1,285,325	New
	Burkhart Creek Trail	10.00	$241,680	New
	Ridgeway Butte Trail	8.00	$96,445	New
Total		480.54	$9,255,572	