THURSTON COUNTY

SEWERAGE
GENERAL PLAN

FOR UNINCORPORATED
URBAN GROWTH MANAGEMENT AREA

APRIL 17, 1990
THURSTON COUNTY
SEWERAGE GENERAL PLAN
For Unincorporated Urban Growth Management Area

Adopted April 17, 1990
Resolution 9445

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CHAPTER I

SUMMARY OF THE PLAN
I. SUMMARY OF THE PLAN

Summary of How Sewers Are Being Planned in the Urban Growth Management Area
(From Chapter II)

This County sewer plan is one of a five-part set of integrated plans for the LOTT sewer system (Lacey, Olympia, Tumwater and Thurston County). The LOTT system has one treatment plant located in Olympia on Budd Inlet. The LOTT system serves the urban fringe around and including the cities of Olympia, Lacey and Tumwater. Map 1 in Appendix A shows the Urban Growth Management Area boundaries.

A plan prepared by the LOTT partners in March, 1989 serves as an "umbrella" for the plans of the three cities and the County. The LOTT plan addresses the treatment plant, its management and costs, and contains a map of the interceptor sewers for the whole area. Each city plan contains interceptor costs, timing of interceptor construction and hook-up policies for the city and its service area in the unincorporated urban growth area. This County plan deals only with the unincorporated urban growth area, and upon its adoption takes precedence over the cities' plans for the unincorporated area. The County plan addresses ownership of sewers in the unincorporated urban growth management area, timing of construction and hook-up and payment policies. Cost estimates for the total sewer system are also presented in this County Plan for public information. The relationships among the sewer plans for the LOTT system is illustrated in Table 1 in Chapter II.

A 27-member, citizen-based task force prepared the recommendations contained in the Chapter IV of this plan, and those for follow-up work in Appendix D. The Task Force was assisted by input from 100 members of the general public who came to a series of five neighborhood meetings shortly after the Task Force began its work. In addition, over 46,000 persons in the urban area who voted in the November, 1988 General Election were mailed surveys, 4,000 of whom responded. A representative sampling of these voters was also telephoned with a separate phone survey covering similar questions. The public input from neighborhood meetings and surveys is reported in Appendices E and F.

The Board of County Commissioners are the final decision-makers on this plan, which must also be approved by the Washington State Department of Ecology (DOE). DOE's review is documented in Appendix K.

Summary of Natural Resources, Population and Development in the Urban Area
(From Chapter III)

The Urban Growth Management Area consists of approximately 84 square miles. Olympia, Lacey and Tumwater account for 40 square miles, with the remaining 44 square miles in the unincorporated urban area.
Parts of Budd and Eld Inlets are included in the Urban Growth Management Area. The area's surface waters drain into these two Puget Sound Inlets, plus Nisqually Reach and Henderson Inlet. A number of rivers, streams, lakes and wetlands are found in the Urban Growth Management Area.

Our area has been known for its clean waters. However, degradation of water quality has been increasing, due to a combination of factors. These include septic systems, stormwater runoff, pesticides and fertilizers from agriculture and residential use.

The Urban Growth Management Area, as well as most of the entire County, receives its drinking water from wells and springs that tap underground water supplies, known as aquifers. The aquifers are replenished by rainfall. Because our soils and geologic structures are of mainly coarse materials, offering little protection to the water bearing layers, our aquifers are particularly sensitive to human activities on the land's surface. Evidence of ground water pollution has been found, some of which has been of public health significance.

Adopted land use plans and zoning provide for residential, commercial and industrial uses within the unincorporated Urban Growth Management Area. The planned residential densities range from a high of 16 dwelling units per acre to a low of 2 dwelling units per acre. Some areas recently added to the urban area still retain their rural zoning of 1 dwelling per acre and 1 dwelling per 2 acres. The land use plans and zoning are being re-evaluated through joint planning with the cities.

Much development in the unincorporated Urban Growth Management Area has taken place at densities lower than those allowed by land use plans and zoning. This is because sewers have not been extended throughout the area, and the planned urban densities are generally too high to be safely served by on-site septic systems.

Population projections for the area have been prepared by Thurston Regional Planning Council. They include three different scenarios: high, medium and low growth, depending on different levels of employment. With each of the scenarios, the growth is distributed throughout the growth area within the parameters of adopted land use plans and zoning, and by considering the land's carrying capacity. Each of the population scenarios is used for a different aspect of the sewer planning. Rates and financing structures are based on low growth, treatment capacity and financial requirements of capital improvements are based on moderate growth, and interceptor sizing is based on the high growth scenario.

Thurston County has been among the nation's fastest growing counties. Over the next ten years, we are expected to grow by an average of 4,000 to 8,000 persons per year, (depending on whether the low, medium or high growth scenario is used). The County's growth management strategy calls for most of the growth to be concentrated in the three cities and surrounding urban growth areas so that the rural parts of the County may remain rural, and the costs of extending urban services may be kept as reasonable as possible.
Because of the sensitivity of our area's natural resources, and the impacts of a growing population, numerous planning efforts are underway to provide the framework for actions to correct and prevent further degradation, and to be sure all the facilities to properly accommodate the growth will be in place as future development occurs. Appendix J describes other planning efforts and programs with which this sewer plan inter-relates.

Summary of Sewerage System Recommendations
(See Chapter IV for complete recommendations)

A. Management of Sewers

Sewer Interceptors: Unless replaced by a single management agency that operates in the urban area, the cities will own and operate sewer interceptors and community on-site systems in each one's service area, which is a portion of the unincorporated urban growth management area. Each city's service area is shown on Map 1 in Appendix A. To assure accountability to unincorporated area residents on rates, the County will enter into an agreement with each city on sewer rates. These rates are to be based on cost factors, not used as a penalty for not annexing. The agreement is also to address the County's role in the City's annual construction decisions.

Treatment: This plan makes no different recommendation on treatment plant management from that in the March 1989 General Sewer Plan prepared by LOTT. This provides for management of the plant in accordance with the current intergovernmental agreement on LOTT. Under this agreement, Olympia is the operating agency, under the direction of the four LOTT partners sitting as The Advisory Committee (TAC).

B. Transitions

Because of the close tie between sewers and development, this plan recommends several actions to relate sewers to timing and location of development, and also to the issue of annexation. These recommendations are intended to:

- encourage development of the urban area from the core (cities) outward (in compliance with County Comprehensive Plan policies),

- avoid creation of urban and suburban "islands," and

- provide for urban areas to become part of cities, but not until urban development reaches an area in a logical fashion.
1. **Transition From Unsewered to Sewered Areas and from Undeveloped to Developed Lands:**

   a. Within the **short-term** urban growth management area, new subdivisions or commercial and industrial areas are to **develop only on sewers or community systems**.

   b. Within the **long-term** urban growth management area, **sewers and community systems are generally not** to be provided.

2. **Transition from "Future Urban" to Urban (Annexation and Sewers)**

   a. **Areas adjacent to cities are to annex and develop.**

   b. **Where sewer service and community on-site systems are provided within the unincorporated Urban Growth Management Area, a power of attorney to petition for annexation will be required.**

   - Where provided to **new development**, the power of attorney will not be called in until the area is **contiguous** to the city.

   - Where provided to **existing low density development** to solve health and water quality problems, the power of attorney will not be called in until a **logical boundary for annexation** is created.

C. **Interceptors**

   **Location:** Map 1 in Appendix A shows the location and sizing of interceptor sewers, which are the same as in the March, 1989 LOTT Plan. This March, 1989 Plan has more use of S.T.E.P. systems than the earlier draft LOTT Plan.

   **Timing:** Map 1 in Appendix A also shows the timing of interceptor construction. It is consistent with timing in the sewer plans of Olympia, Lacey and Tumwater. However, this county plan governs how sewers will be handled in the unincorporated portion of the Urban Growth Management Area, and it contains two key provisions that can modify the construction schedule of Map 1:

   1. **Meeting water quality needs in areas found to have a high degree of aquifer vulnerability is always to take first precedence in the timing of sewer construction. This means that new water quality data could alter the timing of interceptor construction.** In these vulnerable areas, where on-site sewage systems are not the problem, and sewers are not the solution, other solutions are to be developed for addressing the ground water vulnerability.
It is also anticipated that in undeveloped aquifer sensitive areas, solutions other than sewer will be considered, such as downzoning or purchase of development rights.

2. Five criteria are in the plan to guide annual construction decisions and changes to the planned construction phases. These criteria are listed in Chapter IV, Section D. 2. c. (2).

In addition, revised land use plans may result in amendments to this sewer plan’s timing and location of interceptors.

Rural Areas: Under limited circumstances, sewer service may be provided to rural areas outside the Urban Growth Management Area. These limited circumstances are: (1) the sewer would serve areas of existing development (not undeveloped or sparsely developed areas), (2) the existing development is at high density (because it predated current rural zoning), and (3) the development has problems with its on-site sewage systems, resulting in a formal declaration by the County of a need for sewers.

Residents of the affected rural development would participate with the County in a review of the most feasible approach to providing sewer service. If the selected approach is connection to the Urban Growth Management Area’s sewer system, the rural development would pay all the costs of extending the sewer line from the urban area. The line would be sized to serve only the affected high density development, and not any low density or sparsely developed rural areas between the Urban Growth Management Boundary and the affected rural development. This is because the planning and zoning for rural areas is set at densities low enough to accommodate use of on-site sewage disposal systems. When sewers are made widely available to rural areas, pressures to increase zoning densities often follow. Thus, Thurston County’s policy is to limit rural sewers only to areas with the combination of the three cited circumstances.
D. **Hook-up and Use of On-Site Septic Systems**

1. **Existing On-Site Systems**

   The following is recommended as a combination of fairness to those persons whose properties were developed prior to sewerizing requirements, and a desire to conserve capacity of the treatment plant, as long as ground water quality is not threatened by existing on-site systems:

   Existing individual and small community on-site systems are not required to hook-up to sewer unless needed for health or water quality reasons. (Small community systems are those with 4 or fewer dwelling units and less than 1,200 gallons per day flow.) Large community systems [over 4 dwelling units or over 1,200 gallons per day flow] will be required to hook up as sewers are built.

2. **New On-Site Systems**

   This recommendation recognizes that the urban growth management area is where overall development is to take place at urban density levels (4 units or more per acre), which are too high to safely accommodate on-site sewage disposal:

   New on-site systems are to be designed for conversion to sewer and will hook-up as sewers are built. **Two exceptions:**

   a. Areas planned for low density development (1 unit or less per acre) and long-term use of on-site systems.

   b. On large, undivided parcels, one individual on-site system will be allowed, with no hook-up or payment for sewers until the land divides.

E. **Treatment and Disposal**

The March, 1989 LOTT plan addresses Treatment and Disposal in more detail, but highlights are included for information purposes in this County plan. The treatment plant will be upgrading from Secondary to a form of Tertiary treatment where nitrogen is removed from its effluent. Other improvements will also be made to the plant's outfall, as well as modifications to enable treatment of peak storm flows at the plant's designed capacity of 22 million gallons per day average wet weather flow. The plant is expected to reach its capacity by the end of this plan's time period (2010).
This section of the plan also discusses some technical subjects required by State law, including water systems and their relationships to wastewater treatment, infiltration and inflow, other treatment facilities within 20 miles of the same drainage basin as the plan, and industrial wastes and pre-treatment.

F. **Costs and Payment Summary**

1. **Treatment**

   All users (new and existing) are to pay for upgrades to the LOTT treatment plant, through monthly rates.

2. **Interceptors**

   All **new sewer users** as a group or class are to pay for new sewer interceptors through connection fees, as opposed to monthly charges. New users are to pay as they hook-up, through a connection fee, with some sharing of costs in certain types of aquifer sensitive areas by all who draw their drinking water from the aquifer.

3. **On-going Operations and Maintenance**

   The cost of operating and maintaining both the treatment plant and the sewer lines, are to be paid by all sewer users (new and existing) through monthly rates.

4. **"Buy In" to the System**

   New sewer users pay a pro rata share of the cost of the existing sewer system. This is often referred to as "buy-in" to the system. It is included as part of the connection fee, paid upon hook up to the sewer.

5. **Collectors**

   These are the sewer lines on neighborhood streets that feed into the main interceptor lines that take the sewage to the treatment plant. All sewer users on a collector system will share in paying for the system, either through an assessment, Utility Local Improvement District or as part of the cost of the property if installed at the time the building is constructed.
6. **Side Sewers**

These are the sewer lines on private property, lying between the building and the collectors or interceptors in the street. Their initial installation and on-going maintenance and repairs are the responsibility of each property owner. They are not maintained by the public sewer provider. Though not a "sewer line," septic tanks on private property, when they are part of a STEP system, must be owned and maintained by a public entity.

7. **Community On-Site Systems**

Users of community on-site systems will pay the same fees as if on sewer (hook-up fees and monthly rates). The community system will be maintained by the city responsible for providing sewer service. The community systems will be automatically connected to sewer as interceptors are built, at no further charge.

8. **Low Income Help** is to be made available on all sewer charges.

9. **County-City Negotiation on Rates and Fees**

To assure representation of the interests of unincorporated urban area residents, the County will negotiate with each city on the rates and fees for sewers and community on-site systems built by the cities within their unincorporated urban sewer service area. The agreement is to describe the rates at the time of initial service, the procedures for changing rates in the future, and the criteria or guidelines upon which rates will be based. Rates are to be related to costs of service, not applied as a "penalty" for not annexing.

*Table 4 in Chapter IV illustrates these recommended principles, and Tables 5A and 5B in the same Chapter present cost estimates for each element of the sewer system.*
Summary of Appendix D - Recommended Follow-up Work
(See Appendix D for complete recommendation)

The Task Force made an number of recommendations for follow-up work which will be important to implementation of this sewer plan. Various members of the Task Force will take different sides when some of they are presented for public review. But they all agreed to listing them for consideration:

A. Evaluate planning and zoning in the urban area:

1. Areas that can support higher densities, especially 2 unit per acre zoning, should be considered for higher densities.

2. Identify areas where environmental conditions warrant low densities (1 or fewer per acre) and where individual on-site systems may safely be used on a permanent basis.

3. Put in place strategies to facilitate building at urban densities as planned, rather than lower, non urban densities.

4. Review urban development requirements to assure greater urban livability. (This means such requirements as buffers, landscaping, clearing, tree and vegetation retention, open space, parking lot design, tradeoff amenities for increased densities in planned communities, design of commercial and multifamily projects, etc.)

5. Consider an "impact fee" for new subdivisions in the urban area.

6. Consider encouraging farm use within the urban area

7. Consider density bonuses and incentives for public benefits such as elderly and low cost housing.

B. Evaluate Planning and Zoning in Rural areas: Immediately consider downzoning all rural areas to 1 dwelling unit per 5 acres.

C. Consider moving in the short-term urban growth boundary.

D. Consider financial incentives for providing utilities to targeted industrial areas within the urban area, but not paid for through sewer usage fees.

E. Consider sharing services between county and cities in annexing areas.

F. After areas annex, cities should consider sharing of tax revenues with the county.
G. Act to get technical information on the carrying capacity of southern Puget Sound to handle additional effluent.

H. Cities consider continuing county hook-up policies on lands that annex into the city.

After the land use reviews have taken place, the sewer plan's interceptor program should be readjusted to the new land use policies.
CHAPTER II

INTRODUCTION AND BACKGROUND
II. INTRODUCTION & BACKGROUND

A. SEWER SERVICE AND SEWER PLANNING IN THE URBAN AREA

One sewage treatment plant serves the three cities of Olympia, Lacey and Tumwater, plus the unincorporated urban growth management area surrounding these cities. All four of the jurisdictions, Lacey, Olympia, Tumwater and Thurston County, jointly manage this plant as well as some of the interceptor sewers leading to it. This is what is known as the LOTT system (LOTT is an acronym made up of the first letter of each jurisdiction’s name). The boundary of the Urban Growth Management Area is shown on Map 1 in Appendix A. It is the area where land use plans and an intergovernmental agreement between the three cities and Thurston County identify where urban levels of development are to occur and where most of the county’s growth is to take place.

1. History of Sewers and Sewer Planning in the Urban Area

The area’s first sewers were built in 1948 to serve the City of Olympia. They discharged raw sewage directly into Budd Inlet. By 1952 the first treatment plant with primary treatment was constructed at the site of the current plant. It was owned by and served only the city of Olympia. Later, Tumwater and Lacey contracted with Olympia for their sewage to be handled by the treatment plant.

By 1970 the plant was required to change to secondary treatment. In connection with this change, and the 97 percent state and federal grant funding that would finance the new construction, the state Department of Ecology required that some form of regional arrangement be established to reflect the area served by the sewer system. The consortium approach of LOTT was selected by the local governments. Through intergovernmental agreement, Olympia continues to own and manage the treatment plant and some joint interceptors and other facilities, under the direction of "The Advisory Committee" of LOTT.

A first phase of sewer planning was begun in the early 1970s, and a LOTT I plan adopted in 1976. The system of treatment and interceptors designed under the LOTT I plan was intended to serve only parts of the total planning area. It was anticipated that a later Phase II study would be needed to complete the plans for the sewer system, and to determine the total area that the Budd Inlet treatment plant is able to serve.

The secondary treatment plant was completed in 1982, and the next year the second phase of LOTT planning was initiated. In 1985 & 1986, a Department of Ecology study of Budd Inlet found that more needed to be done to protect the inlet’s water quality. The Inlet is poorly flushed and the problem is low
dissolved oxygen resulting from decomposition of algae blooms fed by nitrogen nutrients. The Department of Ecology study recommended that 90 percent of the nitrogen be removed from the treatment plant's discharge. This meant a form of tertiary treatment.

2. Current Sewer Planning -- Where This Plan Fits:

This county sewer plan is part of the second phase of LOTT planning. The intent of this phase is to plan for the full network of sewer interceptors that will utilize the designed capacity of the treatment plant. This phase also includes planning for the upgrade in treatment, as well as other plant improvements.

In this planning phase, five sets of integrated plans are being prepared and adopted by each of the cities and the county. The first plan is an "umbrella" one prepared in March, 1989 by the LOTT partners together. This umbrella plan addresses treatment and its cost estimates, as well as the location of interceptors. Each of the three cities and Thurston County are preparing plans which cover timing of interceptor construction, interceptor costs, and hook-up requirements within each one's sewer service area. These plans may also include collector systems. Each city's plan includes a service area in part of the unincorporated Urban Growth Management Area. However, after this county plan is adopted, the provisions of this county plan will govern in the unincorporated Urban Growth Management Area. Each jurisdiction will adopt its individual plan along with the LOTT "umbrella" plan. The March 1989 LOTT Plan is incorporated by reference. Together all these plans form an integrated five-part plan for the area's sewers. Table 1 lists the sewer plans within the Urban Growth Management Area and the elements covered by each.

**TABLE 1**

**SEWER PLANS IN UGMA**

(Urban Growth Management Area)

<table>
<thead>
<tr>
<th>WHO</th>
<th>WHERE</th>
<th>TOPICS</th>
<th>ADOPTED BY</th>
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<tbody>
<tr>
<td>1. LOTT (3/89 Draft)</td>
<td>Entire UGMA</td>
<td>1. Treatment &amp; Its Costs</td>
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<td>2. Management of Treatment</td>
<td>Each City and Thurston County</td>
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<td></td>
<td></td>
<td>3. Interceptors: Locations</td>
<td>DOE Approval</td>
</tr>
<tr>
<td>2. Olympia</td>
<td>Inside each city and its incorporated UGMA</td>
<td>1. Interceptors: Timing &amp; Costs</td>
<td>Each City</td>
</tr>
<tr>
<td>3. Lacey</td>
<td>service area</td>
<td>2. Hook-up Requirements</td>
<td>DOE Approval</td>
</tr>
<tr>
<td>4. Tumwater</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Thurston County</td>
<td>UGMA outside city limits</td>
<td>1. Interceptors: Timing &amp; Costs</td>
<td>County Commissioners</td>
</tr>
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<td><em>(Takes precedence over provisions of cities' plans for unincorporated UGMA)</em></td>
<td>(coordinated with cities' plans)</td>
<td>DOE Approval</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Hook-up Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Management of Sewers</td>
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</table>

II - 2
B. REASON FOR THE PLANS: TREATMENT PLANT UPGRADES AND ASSOCIATED PLANNING REQUIREMENTS

The treatment plant's federal discharge permit, which is administered by the State Department of Ecology, contains the requirements and schedule for installing the new treatment plant improvements. Also required is preparation of an associated plan for the entire system of sewers to be served by the plant up to its designed capacity of 22 million gallons per day (55 million gallons per day at storm peaks).

Studies of the county's ground water resources are currently underway by the United States Geological Survey (USGS). These studies will provide important data enabling the county to locate its ground water resources, identify and map vulnerable aquifer areas, and develop a management plan with actions to protect ground water quality and quantity. The plan is expected to be out in draft form in 1990 and adopted in 1991. One of the potential actions will be to identify where sewers may be required to protect ground water from contamination from on site septic systems and stormwater runoff. Another potential action may be to identify undeveloped portions of the urban growth management area for lower levels of development than currently planned. These lower development levels may then not require sewer service.

Because the sewer planning requirements associated with the treatment plant's discharge permit contain deadlines that fall before the ground water plan's completion, this sewer plan is written to be flexible and responsive to ongoing information from the ground water program. If the sewer plan needs changing as a result of ground water information, it is expected to be amended. Where sewers may be needed to solve ground water problems prior to the schedule of construction contained in this plan, provisions of the plan will automatically permit and authorize earlier construction without plan amendment.

C. WHO PARTICIPATED IN DEVELOPING THIS COUNTY PLAN

1. Citizen Task Force

A 27 member Task Force comprised of 22 citizens, one Indian Tribe representative, a County Commissioner and City Council Member from each of the three cities prepared the policy recommendations that form the basis for this plan. The citizens were appointed by the Board of Thurston County Commissioners. The cities and tribes were invited to send representatives. The group represented a variety of interests, including: business, builders, environmental, Indian tribe, individual residents of the unincorporated urban growth area on septic systems, neighborhood groups, municipal sewer providers (city governments), and some city and rural county residents. The Task Force met at least twice monthly between January and October, 1989.
2. Public Meetings and Surveys of Voters

Public concerns and desires were solicited through surveys and public meetings. All persons who voted in the November, 1988 general election and who reside in the urban growth management area, inside and outside of the three cities, were mailed a survey in April, 1989. It was sent to over 46,000 people. A sampling of these voters were also telephoned with survey questions. Over 8 percent (4,000) of the written surveys were returned. Four neighborhood meetings were also held in April with a total attendance of over 100 persons. The input from these surveys and public meetings was used by the task force as they deliberated what should be included in this plan. Appendices E and F contain summary results of the surveys and neighborhood meetings.

3. Adoption Process

The final decision makers on this plan are the Board of Thurston County Commissioners. The Board adopts a county sewer plan after receiving a recommendation from the County Planning Commission and a Sewer General Plan Review Committee. The County Planning Commission holds hearings prior to making its recommendation. The Planning Commission is involved because a county sewer plan is adopted as an element of the county’s comprehensive land use plan. The Sewer General Plan Review Committee is a special committee required by state law to comment on county sewer plans. It is made up of representatives of governmental jurisdictions in the area of the plan which have responsibility for sewer or water service, or other related public utility services as specified in the law. Its meetings are required by law to be open and a matter of public record, but the group is not required to hold public hearings.
CHAPTER III

NATURAL RESOURCES, POPULATION AND DEVELOPMENT
III. NATURAL RESOURCES, POPULATION AND DEVELOPMENT

This chapter addresses several elements required by state law and regulation, including descriptions of the area's topography and surface drainage; streams, lakes and other water bodies; and population trends and projections for the plan's design period. More background is provided on these subjects than is often found in sewer plans in recognition of concerns of local residents and elected officials about how growth and associated facilities such as sewers relate to the quality of our natural environment. The area in question is the area where sewers are being planned, which is primarily the Urban Growth Management Area as illustrated on Map 1 in Appendix A.

A. NATURAL RESOURCES

Thurston County is located at the southern end of Puget Sound and includes land forms varying from coastal lowlands in the north county to Cascade foothills in the southeast. Within the County as a whole there are over 90 miles of Puget Sound shoreline, three major river basins, over 100 lakes and ponds, and a total land area of 727 square miles (758 including bodies of water).

The urban growth management area consists of approximately 84 square miles. Within this area are located the county's three largest cities, Olympia, Lacey and Tumwater. The combined area of the three cities is almost 40 square miles. The remaining area with 44 square miles is outside the cities, and is the area where this plan applies.

1. Bodies of Water

Puget Sound: The urban growth management area is located in the north central part of the county. It includes the lower portion of Budd Inlet which is inside Olympia city limits, and also touches on small parts of Eld Inlet and Nisqually Reach.

Both surface and ground water drainages flow into Nisqually Reach and three of the county's four inlets, Budd, Henderson and Eld.

All waters of the state are classified by the state Department of Ecology. Waters are classified as AA (Extraordinary), A (Excellent), B (Good), and C (Fair). Marine Waters in Thurston County Range from AA to B. AA waters are acceptable for all fish and shellfish rearing, spawning and harvesting. Water quality is also adequate for human primary contact recreation, sport fishing and boating. Class A waters are similar to Class AA, except temperatures may be slightly higher and there may be less dissolved oxygen present. Class B waters should meet or exceed requirements for human use.
for sport fishing, boating and secondary contact recreation (but not swimming). The waters should also be acceptable for fish and shellfish rearing and spawning and harvesting of selected species. A brief description each inlet follows, referring to each one's classification.

**Budd Inlet** contains the urban area of downtown Olympia, as well as the Port of Olympia, a deep water shipping port and industrial area. The LOTT sewage treatment plant, located on the Port of Olympia peninsula, discharges into Budd Inlet. The water quality of the lower, more southerly parts of Budd Inlet is classified as "Class B." Budd Inlet has been decertified for commercial shellfish operations, but some personal shellfish harvesting occurs. There is a major commercial salmon fishery in Budd Inlet during the fall migration period. The Squaxin Island Tribe conducts its principal fall chinook salmon fishery in Budd Inlet, and the State Department of Fisheries maintains a hatchery on the Deschutes River for coho and chinook species. The flushing action of Budd Inlet waters is very slow, particularly in the lower portion of the inlet where it borders the city of Olympia, and where the sewage treatment plant is located. The inlet suffers from low dissolved oxygen in the late summer and early fall months, leading to occurrences of fish kills. Because the sewage treatment plant's effluent adds nitrogen to the inlet (the key nutrient contributing to low dissolved oxygen), the sewage treatment plant is being required to add a form of tertiary treatment (nitrogen removal). Budd Inlet's more northerly portions are Class A waters. They are more effectively flushed than the southerly, lower portions.

**Nisqually Reach** waters are classified as Class AA. Current activities in Nisqually Reach include commercial geoduck and oyster harvesting, personal shellfish harvesting, sport fishing and the Nisqually Wildlife Refuge. The area adjacent to Tolmie State Park is an underwater park used for recreational SCUBA diving. The waters of Nisqually Reach support a large fish and shellfish population, and the area surrounding the Reach provides habitat for several wildlife populations.

**Henderson Inlet** waters are classified as Class AA. This inlet has felt the effects of pollution. Water quality samples in recent years show the Class AA standards are not being met. Some shellfish beds have been closed for commercial harvesting, and others are restricted after heavy rains occur that can wash concentrations of pollutants into the inlet. Salmon runs have declined. Fecal coliform bacteria have been increasing since studies began in 1981. Sources of fecal coliform contamination in Henderson Inlet are from urban stormwater, poor agricultural practices, and failing on-site sewage disposal systems. A 1984 study by the county Health Department indicated that stormwater is the most significant source. Henderson Inlet is the second
most urbanized inlet after Budd inlet. Its watershed includes some of the
highest-density residential and commercial development in Thurston County:
the core of the city of Lacey, developed portions of the city of Olympia, and
the urban incorporated fringe around those two cities.

Eld Inlet waters are classified as Class A. Over the past decade the water
quality in southern Eld Inlet has been deteriorating. It has particularly affected
the inlet's shellfish industry. Land use in Eld Inlet's watershed is mostly rural,
but with dense development along its shoreline. Some commercial
development and small-acreage farms are scattered throughout the watershed.
The primary sources of pollution in Eld Inlet are poor agricultural practices and
failing on-site sewage disposal systems.

Rivers and Streams: Several rivers and streams are located within the urban
growth management area: Deschutes River; Black and Chambers Lakes
Drainage Ditches; and the following Creeks: Green Cove, Indian, Mission,
Moxlie, Percival, Woodland and Woodward. Most of these are fish bearing
waters.

The water quality in Thurston County's rivers and streams is generally
considered good. However, some streams in the urban area have been
degraded according to the Department of Ecology. The 1988 Shoreline Water
Quality Assessment identifies most of the urban area's streams being
adversely affected by nonpoint pollution. Woodland and Woodard have been
impacted by bacterial contamination from stormwater runoff, inadequate farm
practices and failing septic systems. Moxlie and Indian Creeks have been
severely impacted by urban development along their stream channels. These
creeks are also the major contributors of bacterial contamination to Budd Inlet.
Percival creek has been impacted by increased stormwater quantity and
velocity which has affected in-stream habitat and the Department of Fisheries
facilities at Percival Cove. While the Deschutes River does not have the same
level of contamination as these streams, it is also affected. Probable sources
include failing septic systems and inadequate farm practices along the river
and its wetlands.

Lakes and Wetlands: Widespread glaciation of the region has resulted in
numerous low, water-filled areas, both lakes and wetlands (bogs, marshes and
swamps). Lakes within the Urban Growth Management Area, both inside and
outside the cities, include: Barnes, Bigelow, Black, Capitol, Chambers, Grass,
Hewitt, Hicks, Ken, Lois, Long, Munn & Susan, Smith, Pattison, Southwick,
Stretchfield, Trails End, Trosper and Ward Lakes.
The urban area lakes are an important environmental asset, and most have attracted intensive residential development along their shores. The larger lakes include recreational use such as public swimming and fishing. Those lakes with suburban and urban densities surrounding them are being adversely impacted by nutrients and hence aquatic vegetation in the water. The primary sources of these nutrients are believed to be septic systems, storm water runoff and agricultural fertilizer applications, among others. Lakes within the urban area currently undergoing restoration efforts include Capitol, Chambers, Lois, Long and Pattison Lakes.

Thurston County is distinguished from other Puget Sound counties by the relative abundance of wetlands. Wetlands currently cover approximately 36,990 acres (or 9.6 percent) of Thurston County, excluding Fort Lewis, Capital Forest and lands inside cities. Within the Urban Growth Management Area itself, there are significantly fewer wetlands than in other parts of the county. Nevertheless, the unincorporated Urban Growth Management Area contains some important wetlands, including the Kaiser Road Grass Lake area, Woodland Creek and Bigelow Lake areas, those in the area of Hicks, Pattison and Long Lakes, and east of Black Lake.

2. Drainages

The great majority of the urban area's surface and ground water drains into Puget Sound. A small part in the southwest corner drains into Black Lake, in an area that drains into both Puget Sound and the Pacific Ocean (Grays Harbor). Major surface drainages for the Urban Growth Management Area are Deschutes and Black Rivers, and Puget Sound (Budd, Eld, and Henderson Inlets and Nisqually Basin). The LOTT treatment plant outfall is located in Budd Inlet.

3. Topography

Within the Urban Growth Management Area, topography is mostly flat or gently sloped prairie, formed with the retreat of the last glacial period. The prairies include numerous depressions left by melting glacial ice, which now contain the lakes, ponds, and wetlands referred to above. Portions of the Black Hills protrude into part of the western portion of the area.
State law requires that a sewer plan include a topographical map with ground elevations. Because of the problem of readability of this information on a small map that will fit into this plan, the reader is referred to topographical maps available in the County Planning and Public Works Departments. To generally illustrate the County and urban area’s topography, Map 2 (Physiography) in Appendix A is included in this plan.

4. Soils, Geology and Ground Water Resources

a. Soils, Geology and Aquifers: The soils of northern Thurston County have been deposited primarily by the actions of the last glacial advance and recession. The soils that are sands and gravels form permeable areas with abundant water but little protection. The soils known as clays and silts, left during slow glacial movement, provide less water and give some protection to lower regions. These water bearing soils are in layers which occur throughout the entire north county area. These layers are called aquifers, and are almost totally replenished, (or "recharged") from rainfall in the immediate area. Because of this reliance for recharge on rainfall, the aquifers can be contaminated by polluted stormwater.

b. Quality of Our Ground Water

Thurston County is very fortunate to have abundant, clean supplies of ground water, easily available in the immediate area. Virtually all of Thurston County’s drinking water comes from ground water or aquifers through wells and springs. We do not have to purify polluted river waters, nor bring in water from distant sources. However, because of their lack of protection, aquifers in the area can and have been influenced by human activity on the land’s surface. This is evidenced by areas of ground water pollution, in some cases of public health significance.

The water strata of northern Thurston County are currently under study by the United States Geological Survey. These studies will show which layers of water have protective layers and which layers are recharged from which exact geographic areas. They will also show which layers have had changes in their water quality, and will eventually show the most likely location of sources of water quality change.
Preliminary evaluation of the hydrogeologic data from the USGS studies indicates that there are areas of fairly complete protection but many more areas of little or no protection from surface contamination. Findings are also showing large areas of aquifer sensitivity in the urban growth management area where elevated nitrates and boron indicate impacts from on site septic systems. These areas include the prairies east and south of Lacey and southeast of Tumwater in the airport area.

In the past, various spills in the vicinity of the Olympia Airport have reached the ground water. This area, which has relatively little protection from surface soils, will continue to be threatened. Of particular concern are the large industrially zoned areas surrounding the Port of Olympia's Airport.

The area east and south of Lacey is one of the highest growth areas in the county. Studies conducted in the aquifers of this area have detected increased nitrates, phosphates, and toxic compounds, like the pesticide EDB. The aquifers in this area are unprotected and are susceptible to activities on the land's surface. The aquifer supplying McAllister Springs provides 95 percent of the drinking water for the City of Olympia, with a capacity to serve up to 90,000 people. Large increases in residential development in the recharge area of McAllister Springs have occurred and more are proposed. During the past ten years, nitrate levels in the water from the Springs have significantly increased. The combination of the area's very rapid growth rate east of Lacey, and many examples of water quality degradation by commercial, residential and agricultural sources has led the Thurston County Commissioners, acting as the County Board of Health, to declare a partial development moratorium in the recharge area. They also instituted stronger standards for septic systems and best management practices for the use of pesticides, herbicides, inorganic fertilizers, and application of manures.

For related discussions see:

- water systems and their relationships to on-site treatment and disposal of sewage in Chapter IV, Section F, Treatment and Disposal, part 2, and

- this sewer plan's relationship to the Ground Water Plan and studies in Appendix J, Section 2.
B. CURRENT AND PLANNED LEVELS OF DEVELOPMENT

1. Land Use Plans and Zoning

Within the unincorporated Urban Growth Management Area, land use plans and zoning allow land uses and residential densities ranging from a high of 16 dwelling units per acre, to a low of 2 dwelling units per acre. It also includes existing and planned commercial and industrial land uses. Map 3 in Appendix A shows the planned land uses from county subarea plans. Current zoning corresponds closely to this map; however, the June, 1988 County Comprehensive Plan has new guidelines for rural land use designations, and the county is expected to reconsider rural zoning in 1990 under the new comprehensive plan guidelines.

The boundary of the urban growth management area was changed somewhat in June of 1988, at which time some areas that previously had been designated "rural" were added to the urban growth area, and some that had been part of the "urban" area were redesignated as rural. Although these changes were made to the boundary, follow up planning and zoning has not yet taken place to change the land use densities and zoning designations to urban levels. In some places inside the urban growth management area, the zoning is therefore still at rural levels of 1 dwelling per acre and one dwelling per 2 acres.

The newly added urban areas with one dwelling unit per acre zoning are located immediately east of Black Lake and along Littlerock Road south of 81st S.W. The one dwelling unit per 2 acres area that was added is located south of the Olympia Airport. It is anticipated that the planned land use and zoning of these areas will be re-evaluated in the next year or two in light of their incorporation within the urban growth management area.

2. Existing Development

Most of the unincorporated urban growth management area has developed at densities lower than permitted by land use plans and zoning. Most of the planned residential densities are 4 dwelling units and more per acre. A big reason that existing development is at lower densities is because sewers are needed to achieve densities of 4 and more dwelling units per acre. Because sewers have not been built to most parts of the unincorporated Urban Growth Management Area, residential subdivisions have only been able to develop on septic systems, and at densities considered "safe" for on site septic system use. This "safe" density is never higher than 3.5 dwelling units per acre, and
may be lower, depending on soil conditions. It is also the typical "suburban" density that many people like if it is affordable.

Map 4 in Appendix A shows the pattern of urban and suburban development in the urban growth management area and surrounding northern Thurston County in 1969 and 1988. It also shows what the future pattern of growth may be over the next 20 years based on population forecasts, available developable land, and existing zoning and land use plans. This map shows that since 1969, urban and suburban type growth has occurred throughout the urban growth management area, with the majority occurring outside city limits. West Olympia and the Lakes area east and south of Lacey have received the most intensive amount of growth. In addition, there has been a scattering of suburban subdivisions along the Puget Sound peninsulas and Black Lake shoreline.

C. EXISTING AND FORECAST POPULATION

1. Population Forecasts and Sewer Planning

Population forecasts are used in the sewer planning process to determine the size and location of the pipes, and the size of the treatment plant needed during the forecast period. Thurston Regional Planning Council has developed three scenarios to show different potential population growth rates: Low, Moderate, and High population growth scenarios. The High Growth population scenario is used as a basis for planning capacity of interceptors, since the life expectancy of sewer lines is between 50 to 100 years. The Moderate Growth scenario is used for estimating the treatment capacity that will be required and for projecting the financial requirements of the capital improvement program. The Low Growth population scenario is used as the basis for rates and financing structure required. This approach establishes conservative forecasts that provide for the uncertainty involved in 25 year population forecasts.

Table 2 shows current and forecast population at the medium growth scenario for Thurston County as a whole and the urban growth management area, both inside and outside city limits. A more detailed discussion of the county's population forecasts, and tables on all three scenarios are found in Appendix C.
TABLE 2
CURRENT AND PROJECTED POPULATION

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<th>1989 Population</th>
<th>2010 Population (Medium Growth Scenario)</th>
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<tr>
<td>Thurston County</td>
<td>155,100</td>
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<td>Total UGMA</td>
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<td>44,781</td>
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<td>(Outside City Limits)</td>
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NOTES:

- Forecast 2010 population inside and outside cities is at today’s boundaries, although by 2010 part of the unincorporated area shown above is likely to be inside the cities.
- Amount of population inside and outside the UGMA is based on 66% of the county’s total population being located inside the UGMA.
- Forecasts for the county as a whole were made by TRPC in October, 1989, and for the cities in April, 1985.

2. Methodology for Forecasts

The model used by Thurston Regional Planning Council to forecast county population examines demographics, labor force trends, commuting patterns, adopted land use plans and zoning, vacant and developable lands, and building trends. The underlying premise of the forecast is that growth is determined mainly by job opportunities. More jobs mean more people; fewer jobs mean fewer people. The model is programmed with the assumption that the county will attract new industrial jobs because of the area’s economic development efforts. Comprehensive land use plans of the cities and county reflect this policy of attracting new jobs. The three different growth scenarios (high, medium and low) are based on varying assumptions about the number of new jobs that will be created. Within these three scenarios the new population is then distributed on the land within the limits of land uses and densities in adopted land use plans, land availability for development, and land with environmental constraints to development.
CHAPTER IV

THE SEWERAGE SYSTEM
IV. THE SEWERAGE SYSTEM

A. HOW THIS CHAPTER IS ORGANIZED

1. Subjects Covered: This chapter describes six aspects of sewer service within the unincorporated urban growth management area:

a. Management: Who will own, operate and maintain the sewer system, including who will own and manage the interceptors and community on-site systems in the unincorporated portion of the Urban Growth Management Area, who will manage the treatment plant, and who will own and manage any interceptors outside the urban growth management area which will tie into the urban area sewer system.

b. Transitions: What kind of sewage treatment and disposal should be used for new development in areas transitioning from on site septic use to sewers; and also, how sewers will relate to annexation, or the issue of transitions from county to city as the area urbanizes.

c. Interceptors: Where are interceptors to be located and when are they to be constructed.

d. Hook up of On Site Septic Systems: Which on site septic systems will be required to hook up to sewer, and when.

e. Treatment and Disposal: How is treatment to be provided and its adequacy, including discussion of several related issues: public water supplies as they relate to wastewater treatment facilities, infiltration and inflow, and industrial wastes and pre-treatment.

f. Costs and Payment Principles: What is the estimated cost per service, including debt service and operation and maintenance costs, of all facilities (existing and proposed) during the planning period; and, who should pay (and in what form of payment) for which sewer facilities and services.

2. Content Addressed Under Each Subject: Each of the six sections will always include two things:

a. This plan's recommendation on how the sewer service or issue should be handled, and

b. Alternatives that were considered.
Three other topics are included in some of the sections, if applicable:

c. Introductory background information,

d. Public input on the subject from neighborhood meetings and a survey of voters in April, 1989. Public input is not included on all subjects because not all the issues were addressed at the neighborhood meetings or in the survey.

e. Description of how the particular service or issue is handled now.

B. MANAGEMENT OF SEWERS AND TREATMENT PLANT

1. Public Concerns about Management

At the April, 1989, neighborhood meetings the subject of sewer system management was raised by the public less frequently than others; but when it was, accountability was the concern. Results of the survey of voters on the question of urban growth area sewer system management were split among three choices: (1) management by the cities (29% favored this approach); (2) management by the cities inside city limits, and by the county outside (21% were for this approach); and (3) one governing body combining all sewer systems (44% were in favor). None of the three options received a clear majority, but a plurality was in favor of one single system. For a more detailed report of the meetings and surveys, see Appendices E and F.

2. Recommended Management

a. Special Single Agency Recommendation: The Task Force which drafted the policies that formed the basis for this plan recommended that the management system set forth in this plan should apply unless replaced by a single management agency that operates in the area. See further discussion of this issue in section 3 on Management Alternatives.

b. Treatment Plant: This plan's recommendation for management of the treatment plant is the same as that in the March, 1989 Proposed General Sewer Plan prepared by LOTT. It provides for management under the terms of the current intergovernmental agreement which is described in the next paragraph.
Currently, an intergovernmental LOTT agreement between Lacey, Olympia, Tumwater and Thurston County, establishes the management structure and organization for sewers in the Urban Growth Management Area. This agreement provides for the four agencies to achieve a coordinated wastewater management, planning, treatment, and disposal program. Under the terms of the Agreement, the City of Olympia is to operate the LOTT Treatment plant and other facilities as agreed by the LOTT agencies. Overall LOTT policies and operating procedures are developed by the four LOTT partners sitting as The Advisory Committee (TAC) in accordance with the Agreement. TAC is composed of one elected and one appointed official from each of the member agencies. Neither LOTT nor TAC has corporate powers, but operates through the member agencies and through the City of Olympia as the operating agency. TAC will recommend financing for treatment plant improvements and rates for treatment, within the parameters of the March, 1989 LOTT General Sewer Plan and this County plan.

c. **Sewer Interceptors and Community On Site Systems:**

   (1) **City Ownership**

   Unless replaced by a single management agency that operates in the urban area, each of the three cities (Olympia, Lacey and Tumwater) will own and operate interceptors and community on site systems within their unincorporated urban service area as shown on Map 1 in Appendix A.

   Any sewers serving rural areas outside the Urban Growth Management Area, however, will be owned and managed by Thurston County.

   City ownership of sewers within the boundary of the Urban Growth Management Area would not apply to any lands subsequently removed and designated as "rural," except for sewers built by a city prior to removal of the lands from the Urban Growth Management Area, in which case the city will retain ownership of the sewer.
(2) **Joint City-County Review of Community On-site Systems**

There should be joint city-county review and approval of the
design and location of community on-site systems in individual
development proposals to assure that the systems will meet
standards of the city which will be operating and maintaining the
community system. Note: This joint review applies only to
community on-site systems inside the Urban Growth
Management Area, and not to any within rural areas.

(3) **County-City Agreement on Fees, Rates and Annual Construction
Decisions**

As sewers and community on site systems are constructed in
the unincorporated Urban Growth Management Area, the county
and each city shall enter into agreements that will address two
things. One is rates and fees for sewers and community
systems. The other is the County's role in decisions on the
city's annual interceptor construction program as to how such
annual construction relates to and implements this sewer
plan. On the subject of rates, the agreement will describe the
rates at the time of initial service, the procedures for changing
rates in the future, and the criteria or guidelines upon which
changes in rates will be based. Rates are to be related to costs
of service, not applied as a "penalty" for not annexing.

3. **Management Alternatives Considered**

a. **Single Management Agency:** The Task Force responsible for drafting
the recommendations for this plan agreed that the most ideal
management of the urban area's sewer system, would be one single
management agency that manages sewers in all three cities and the
unincorporated urban growth management area. *(Management of local
collector sewers, however, was not an issue that the Task Force took a position on one
way or another. Often, even with regional sewer systems, responsibility for local
collector sewers remain with the cities because of their close connection with city
streets, and the need to retain control over construction in the streets). A single
management agency was not established through this plan because
this action is beyond its scope (this plan applies only to the
unincorporated county), and because the issue was felt to be an
appropriate one to leave to drafting of a Home Rule Charter, a process
recently initiated by Thurston County voters.*
b. **County Ownership and Management In Unincorporated Urban Growth Management Area:** The alternative of County ownership in the unincorporated growth area was considered but discarded for several reasons:

- There would be fewer systems to convert to one when and if moving to a single management agency.
- City ownership would ease ultimate transition of urban areas to city,
- County role in sewer decisions and accountability to county residents is built into this plan. (For Example: Although, the cities will be responsible for building the sewers, this county plan's construction timing guidelines will govern. The County plan also provides a special agreement to be negotiated between the county and each city on the subject of rates. Accountability to county residents is assured through this agreement.)

Another alternative was also considered whereby the county would own and manage the sewers and community on site systems in declared aquifer sensitive areas lying within the Urban Growth Management Area. It was decided that it made more sense for the cities to also operate these systems within the Urban Growth Management Area. The county-city agreement on rates would provide for accountability to sensitive area residents.

C. **TRANSITIONS**

*The Task Force recommends the following actions as ways to:*

- encourage development of the urban area from the core area outward,
- avoid future creation of urban and suburban "islands," and
- provide for urban areas to become part of cities, but not until urban development reaches an area in a logical fashion.

*These recommendations refer to short and long-term portions of the Urban Growth Management Area. Current boundaries of these short and long-term areas are shown on Map 1 in Appendix A. Recommendation A. 5 in Appendix D recommends that moving in the short-term boundary be considered.*
1. **Sewers and the Timing and Location of Development**

a. **Sewers and Development within the Short-Term Urban Growth Management Area**

(1) New subdivisions or commercial and industrial development in this short-term area may develop only on sewers or community systems.

*EXCEPTION:* Subdivisions in areas where adopted land use plans call for low density development of one unit or less per acre, and where individual on-site systems are determined to be an appropriate long-term solution to sewage disposal, will not be required to develop on sewers or community systems.

(2) Undeveloped parcels and lots outside subdivisions with community systems may develop using one individual on-site system per parcel.

(3) Existing plats not yet developed should be encouraged to resubmit for replatting using community systems; for example, by waiving plating fees.

b. **Sewers and Development within the Long Term Urban Growth Management Area**

(1) Sewers and community systems are generally not to be provided in the long-term Urban Growth Management Area. Where they are provided, the cities would own them.

(2) Preferred approach to subdividing within the long term Urban Growth Management Area is to subdivide at densities and in configurations that allow re-dividing or later additional development at planned urban densities as the short term boundary expands. The use of community systems may be part of this strategy.

This plan is intended to be consistent with County land use policy in the Comprehensive Plan which states "Short-term and long-term growth areas should be designated as a means of gradually phasing outward development. Land use designations, standards and utility policies should provide growth area development incentives within short-term growth areas and preserve long-term growth area development options in long-term growth areas." (This is policy A. 10 on Page 2-8 of the Thurston County Comprehensive Plan).
Thus, it is not anticipated that the County will approve development in the long-term growth area at its planned urban density (which would require sewer) until the short-term boundary is moved into the area.

The words "generally not to be provided" are used in section (1) because the only exception to not providing sewers or community systems in the long-term area might be in the case of sewer extension into the long-term area to serve existing development in need of conversion to sewer to solve ground water problems where on-site septic systems are a problem.

Similarly, the use of community on-site systems in the long-term growth area would only be envisioned where developments are allowed at densities lower than ultimate planned densities, but in configurations that allow later re-dividing or later additional development, meaning that the current development is clustered into smaller lots on one part of the property and a community system is used rather than individual on-site systems on each lot. The overall density on the whole parcel, however, would be lower than the land use plan will allow when the area becomes part of the short-term urban area.

2. Sewers and Annexation–Within Short and Long Term Urban Growth Management Area

a. Properties contiguous to a city, where the owner wishes to subdivide or develop, must be annexed. EXCEPTION: For subdivisions in areas where adopted land use plans call for low density (one and fewer dwelling units per acre), and where on site systems are determined to be an appropriate long term solution to sewage disposal, development on sewers or community systems will not be required; and they may not be required to annex.

b. Approval of sewer service and community systems will require that property owners agree to sign a power of attorney or covenant running with the land promising to sign and support annexation petitions, to take effect when the area becomes contiguous to the city. Sales agreements and Title Reports will disclose the commitment to eventually annex into the city.

c. Approval of sewer extension to existing low density residential areas to solve health or water quality problems will require that property owners agree to sign a power of attorney or covenant running with the land promising to sign and support annexation petitions, to take effect when a logical boundary for annexation is created. Sales agreements and Title Reports will disclose the commitment to eventually annex into the city.
D. INTERCEPTORS

1. Introduction

Sewer interceptors are the major sewer lines that carry raw sewage (solids and liquids) from specific geographic areas into the treatment plant. S.T.E.P. systems (S.T.E.P. stands for Septic Tank Effluent Pump) combine the use of a standard septic tank for primary treatment of the solids and centralized treatment of the liquids, rather than on-site treatment and disposal on each individual property. With the S.T.E.P. system, there is a septic tank, but no drain field. The liquid sewage effluent is pumped to a gravity interceptor and flows to the central treatment plant. Solids remain in the septic tank undergoing biological treatment and are pumped out every 7 to 15 years. A S.T.E.P. system is an advantage in an area with high ground water table or considerable existing development. This is because the main S.T.E.P. pipes in the street do not have to be dug as deep as gravity flow interceptors since more pumping is involved with S.T.E.P. pipes. They are, therefore, more workable in problem topography, less disruptive to existing development, and in those areas are a more economical alternative to deep gravity systems.

Each gravity and S.T.E.P. interceptor serves a certain geographic area within which a network of "collector" lines runs throughout local neighborhoods. These collectors feed into the interceptors. Some properties located adjacent to interceptors may connect directly to them, but most will connect to a collector line which leads in turn to an interceptor.

NOTE: The requirements of RCW 36.94.010, subsection 3(a), that a sewer plan include details on trunk sewers, collection systems, and related facilities, are not included in this plan because the county will not build and operate the sewer interceptor and collector systems. The reader is referred to the cities' plans for these elements. This County plan includes the policies to be followed by the cities for interceptor location, phasing or timing of their construction, extension into rural areas outside the Urban Growth Management Area, and hook up of septic systems. Location and general phasing schedule of interceptor construction is seen on Map 1 in Appendix A. Other phasing and construction policies are found in this plan in the following section. The costs of interceptors are estimated in the plan in Tables 5A and 5B at the end of this Chapter. They include the estimated cost of hookup per residential unit or equivalent (businesses pay according to their "equivalent" residential unit). Even though this is not a plan for collector system construction, an estimated range of costs for collector systems is also given in Table 5B, so that property owners may see the overall estimated costs for sewers, including local collector systems.
2. Existing and Recommended Interceptors in the Urban Growth Management Area

a. Maps

Existing Sewer Service Area: Map 5 in Appendix A shows the current service area of the existing sewage system within the Urban Growth Management Area. In 1984, this system served approximately 40,000 people. The system consists generally of small diameter collection lines which receive individual connections from each customer, and larger diameter interceptor lines which intercept these collection lines and transmit the wastewater flow to the treatment plant. The system consists of approximately 118,000 feet of gravity pipelines varying in size from 8-inch to 60-inch diameter. The system also includes four major pump stations and about 20,000 feet of force main varying in size from 8 inch to 30 inch diameter.

Existing and Proposed Interceptor System: Map 1 in Appendix A shows the existing and proposed interceptor system in the Urban Growth Management Area. This county plan's map is the same as that in the March, 1989 LOTT General Sewer Plan. The phasing is also the same as that in the General Sewer Plans of Olympia, Lacey and Tumwater. A complete listing and description of characteristics and costs of all interceptor lines within the unincorporated Urban Growth Management Area is found in Appendix B of this plan.

Because this County plan's interceptor locations and sizing are the same as those in the March, 1989 LOTT Plan and the plans for cities, it relies on those plans for the technical engineering information to support sizing and locations. The only changes in this County plan relate to sewers outside the Urban Growth Management Area. The LOTT and Cities' Plans show the extension of some interceptors to rural areas. This County plan deletes those interceptors from the interceptor map, but addresses the potential for future service to rural areas in the text of this plan. It is found in Part 3 of this section, titled "Extension of Interceptors into Adjacent Rural Areas."

b. Recommended Interceptor Location

The routing or location of proposed interceptors throughout the urban growth management area has been developed to satisfy a combination of objectives. The capacity requirements for the interceptor system are based on a combination of planned and zoned land uses and the High Growth scenario of the Thurston Regional Planning Council population.
forecasts. Using the high growth population forecast scenario ensures the system plan will be able to accommodate any variations in the projected pattern of development that results in higher local flows. All population projections by Thurston Regional Planning are based on planned and zoned land uses, including the High Growth Scenario. Interceptor sizing and routing has also been designed around natural topography and drainage basins to minimize the need for pump stations and to minimize environmental impact.

Each interceptor serves a specific geographic area. More detailed pre-design studies will be undertaken prior to individual interceptor construction. At that time, the final design could result in an adjustment in location of interceptors serving a given geographic area. Even though the location may change, it should still serve the same area. Size and location changes may also be adjusted to reflect changes in land use planning and zoning.

c. **Timing of Interceptor Construction**

New interceptors and associated improvements are scheduled for three construction periods: Phase I 1987-1992, Phase II 1992-1997, and Phase III 1997-2010. Proposed improvements for these construction periods are shown on Map 1 in Appendix A. This construction phasing is the same as the sewer plans of Olympia, Lacey and Tumwater.

However, this county plan governs how sewers will be handled in the unincorporated area, and two key provisions of this county plan can modify the planned construction schedule as noted on Map 1. These provisions are in the following sections on (1) timing of construction in areas found to have a high degree of aquifer vulnerability, and (2) criteria to guide annual construction decisions or changes to the planned construction phases:

**(1) Timing of Interceptor Construction in Aquifer Sensitive Areas**

Within areas found to have a high degree of aquifer vulnerability, ongoing decisions on interceptor and S.T.E.P. main location, sizing and timing are to be responsive to data from the USGS study or future ground water studies that indicate aquifer vulnerability and a specific need for sewers to solve problems from existing on site sewage systems. Within these areas, where on-site sewage systems are not the problem and sewers are not the solution, other resources should be analyzed and
appropriate solutions developed to address the ground water problems. For undeveloped portions of these aquifer sensitive areas, it is also anticipated that solutions to ground water problems will be considered other than the extension of sewers, such as acquiring property or development rights or limiting development.

This means that if ground water findings indicate sewers are needed to serve developed areas in advance of the planned timing of interceptors for that area, they will be provided when needed regardless of the planned schedule. It also means that if on site septic systems aren't the cause of the ground water problems, solutions other than sewers will be sought to solve the problems. In the case of undeveloped areas with high aquifer vulnerability, solutions other than sewering should be considered, such as downzoning or purchase of development rights.

(2) Criteria for Timing or Phasing of Interceptor and ST.E.P. Main Construction

The following criteria will guide annual construction decisions for location and timing of interceptors and S.T.E.P. mains, or changes that may be considered in the planned phasing periods.

In addition to the provisions in (1) above which guide sewer decisions in aquifer sensitive areas, the phasing of interceptor and S.T.E.P. main construction should be determined by community needs for:

- **Prevention or correction of ground water degradation.**
- **Infilling** of development within the urban area from the core cities outward.
- **New development as planned** in adopted land use plans and zoning.
- **Flexibility** in responding to new information, particularly new water quality protection data.
- **Ability to meet interceptor plan objectives through developer financing or other mechanisms.**

*NOTE:* These criteria are not given in any preferred order of priority in order to provide the greatest flexibility in responding to needs at the time sewer
construction decisions are being made. The overriding concern is protection of ground water, from which all the drinking water of the urban area residents is drawn. This plan in section (1) above provides that in areas of identified aquifer (ground water) sensitivity this concern always be given first priority.

Infilling is another concern of many urban area residents. It refers to developing on skipped over lands within or in close proximity to areas already generally developed. It does not necessarily mean developing more densely than the surrounding development. This plan addresses infill by recommending follow up reevaluation and pulling in of the short term urban boundary. See the recommendations for follow-up work in Appendix D. It is within this short term boundary that sewers and urban levels of land subdivision are to be provided first. The recommendation also states that the re-evaluation is to balance concerns for strict infill against adequate market availability of land for development.

3. Extension of Interceptors into Rural Areas

a. Thurston County Policy on Sewers for Rural Areas

It is Thurston County’s policy that sewer systems are to be provided only in designated growth areas (such as the Urban Growth Management Area around Olympia, Lacey and Tumwater). Sewers are NOT to be provided in areas planned for long term rural use, except to correct identified health hazards or water quality problems in high density developments that predated rural zoning. This is because densities (or lot sizes) in rural areas are planned to be low enough to safely accommodate on-site sewage disposal systems. Urban or growth areas are generally the only areas with densities high enough to make sewer service economically viable. When expensive services, such as sewers are extended into rural areas, it is often followed by pressure to "upzone" or increase the densities so there are more people to share the cost of the sewer. Therefore, the county’s policy is to allow sewers for rural areas only where existing pockets of higher density development pre-dating rural zoning have created health or water quality problems. Where sewer service is provided to such higher density rural pockets, the service is to be limited to the high density area, only, and is not to be extended to any other rural area in the vicinity. This is done to assure maintenance of overall rural densities.
In addition, where sewer service is to be provided to these special rural pockets, the county is to be the sewer provider. This is done as a further means of assuring maximum coordination with county land use and service policies and to achieve coordinated planning, programming, and management of multiple sewerage systems.

Owners of the rural properties receiving special sewer service pay the full cost of their sewer system or service. In the case of a sewer line extended from the urban growth area system to a nearby high density rural area in need of sewer service for health or water quality problems, the owners of the development requiring the service would pay the full cost of the line extended from the boundary of the urban growth area (or from the place where the planned sewer line ends, if this is not at the boundary) to their development. They would also pay the costs of adding capacity to the urban system in order to accommodate the rural area, plus any additional facilities that are required only by the rural area (such as a pump or lift station).

This urban area wastewater plan anticipates that some nearby pockets of high density rural areas may in the future need sewer service, and the most economical approach may be to use the urban area system. The urban system is reserving capacity to serve these areas if the need arises in the future. Service would be available on the basis described in this section, and providing capacity is still available. Should other high density rural areas develop problems, and capacity is available in the urban system, they could connect to the system on the same basis as the other rural systems.

b. **Potential Needs For Rural Area Interceptors Outside the Urban Growth Management Area**

1. **West Shore Black Lake**

   **Background:** This is an existing fairly high density area, and "future urban" zoning would be consistent with the subarea land use planning that was done for the area and adopted in 1980. However, the 1988 Comprehensive Plan and Urban Growth Management Agreement do not include the west shore of Black Lake in the urban area, not even as future or long term urban.

   **Recommendation:** Reconsider adding the area west of Black Lake as "long-term urban" through a follow up planning process. When and if it is accomplished, then plan for its sewer service.
The location of the long term Urban Growth Management boundary, short and long term zoning, and the exact sizing of sewer interceptors in the area on the west side of Black Lake should be finalized through joint planning between Thurston County and the City of Tumwater. This joint planning process should involve affected residents and property owners of the area, as well as any other interested persons from throughout the County.

(2) **Scott, Sunwood and St. Clair Lakes**

**Background:** Some older subdivisions on Scott, Sunwood and St. Clair Lakes were platted at densities higher than are now permitted under current rural zoning. Lots in some of these developments are experiencing failures of their subsurface sewage disposal systems. Other lots have remained undeveloped because they are not able to meet current health standards for on site sewage systems. Some lots with failing systems may be too small to install new systems, and the only solution to their health hazard problems may be sewer ing.

**Recommendation:**

Capacity has been provided in the urban area interceptor system to serve the older high density subdivisions along these lakes in the event the Board of Health orders sewer service to solve a subdivision-wide health hazard problem. Should this occur, the sewer line out to the development should be sized to serve the subdivision with the problem, both existing development in the subdivision and limited additional development to the extent approved by the Board of Health. In addition, the line may be sized to serve any existing development between the Urban Growth Management boundary and the subdivision being served that may need sewer to correct failing on-site systems or area water quality problems. The extension and additional costs of adding capacity to the urban interceptor are to be fully paid for by property owners receiving the service. Because such sewer lines would be served by the urban area sewer system, there should be joint city-county review of the capacity of the urban area system to serve the area outside the Urban Growth Management Boundary.
3. Alternatives Considered

Interceptor Map -- Rural Area Interceptors:

The Task Force considered having the interceptor Map 1 an Appendix A include interceptors to selected rural areas where future health or water quality problems might be anticipated, such as West side Black Lake, Scott Lake, Sunwood Lakes. It was decided that showing these lines on the sewer map at this time would not accurately reflect county policy about sewers to rural areas, and their contingency nature. Instead, the text of the plan refers to the fact that capacity is built into the system to provide limited service to some of these lakes, as well as other rural areas, provided capacity still exists when sewers might be needed. This way the other contingencies of rural area sewer service can also be described in the text. The map refers readers to this discussion in the plan.

In addition, it was decided not to consider the west side of Black Lake in this same category (possible service to a high density rural development with on-site septic problems), but to have the map refer to the recommendation in the text that planning, zoning and placement of the urban growth boundary on the west side of the lake should be reconsidered through a follow up planning process. Exact placement and sizing of a sewer line could then be done after this re-evaluation is done. This option was selected because urban land uses along the west side of Black Lake would be consistent with the Black Lake-Littlerock-Delphi Sub-Area Plan which called for clustered 4 unit per acre development on the lake’s West Side when sewers are available.

E. HOOK-UP AND USE OF ON-SITE SEPTIC SYSTEMS

1. Public Concerns about Hook-Up and Use of On-Site Systems

At the April, 1989 neighborhood meetings, a number of concerns were expressed on this issue:

- Whether on-site sewage disposal isn't better than polluting Puget Sound;
- Whether we know enough about the conditions of our ground water and the degree to which on site sewage disposal affects it;
- Whether other alternatives to either traditional septic systems and sewage treatment plants are being considered and might be more economical;
• Controlling and consolidating growth instead of sewering too large a growth area;

• The expense of paying twice for sewage systems: once for an on-site system before sewers are built and again to connect to sewer; and

• Maintenance: mandatory periodic pumping was suggested by some.

The April, 1989 surveys of voters indicated that voters are split on the question of septic versus sewer when framed in terms of using sewers to direct or force growth in certain directions. But when framed in terms of whether sewers do a better job of protecting our drinking water, a slight majority favored changeover to sewers as areas become more developed. When framed in terms of population growth and drinking water protection, a very strong majority (69% - 78%) felt that sheer numbers of people on septic tanks in our area increases the likelihood of drinking water pollution. Only a small portion (18% -25%) felt no matter how populated we become people should have the choice between septic systems and sewers.

Appendices E and F contains more detailed reports of the April, 1989 neighborhood meetings and voter surveys.

2. Recommended Sewer Connection Policies

a. Existing On-Site Systems

   (1) Existing Individual and Small Community Systems (serving up to 4 dwelling units or flows of up to 1,200 gallons per day) should be required to connect to sewer only upon failure of the system or in areas found to have a high degree of aquifer vulnerability and where on-site systems pose a water quality problem and sewers are a solution.

   (2) Existing Larger Community Systems (serving 5 or more dwelling units and with flows over 1,200 gallons per day) should hook up to sewers as they are built and become available.

Rationale for this policy is a combination of fairness to those whose property was developed prior to sewer requirements, and a desire to conserve capacity of the treatment plant as long as ground or surface water quality is not threatened by existing on-site systems.
b. **New On-Site Systems (Individual and Community)**

All new individual and community on-site systems should be designed for eventual conversion to sewer, and required to hook up when planned sewers become available, with the following exceptions:

1. **Areas where adopted land use plans allow low density development (one unit or less per acre), and long term use of on-site systems.**

   The sewering strategy for these areas should be to use on-site systems (until a change in conditions or information occurs, and it is found that sewers are required to solve health or water quality problems).

2. **Large, undivided parcels**

   One individual on-site system should be allowed on these properties prior to their subdivision. They should hook up and pay for sewers in a latecomer fashion only when the land divides.

The recommendation to require new development within the unincorporated Urban Growth Management Area to be built on sewer, or on septic systems designed for conversion to sewer, recognizes the need to develop this area at its planned urban densities. (Generally, 4 or more dwelling units per acre). Such urban densities are too high to safely accommodate on-site sewage disposal. A recommendation for follow up land use work suggests looking at strategies to facilitate infill and eventual building out at planned urban densities, rather than lower densities. (See recommendation A. 3. in Appendix D). Also recommended is identification of new low density areas (1 or fewer dwelling units per acre) within the urban area where long term use of on-site systems will be safely allowed (See Recommendation A. 2. in Appendix D).

3. **Alternatives Considered**

The option of both new and existing on site septic systems connecting to sewer only in cases of health or water quality problems was considered. This option was discarded for new on site systems because it would be a disincentive to building at planned urban densities, and result in using up the urban lands at too fast a rate.
F. TREATMENT AND DISPOSAL

This section includes recommendations for treatment at the LOTT Treatment Plant and treatment alternatives that were considered in the planning process. They are from (or incorporated by reference) the March, 1989 General Sewer Plan prepared by LOTT’s TAC (The Advisory Committee -- elected officials representing the four LOTT partners). This county plan makes no recommendation on treatment separate from that contained in the March, 1989 LOTT plan.

This section also includes discussion of four related issues required by state law: (1) water systems as they relate to wastewater treatment facilities, (2) inflow and infiltration, (3) other wastewater facilities within 20 miles of the plan area and within the same drainage basin, (4) industrial wastes and pretreatment. State law requires a list of establishments producing industrial wastes with a description of their characteristics. In addition, the Department of Ecology has requested that the plan refer to how industrial pre-treatment is to be handled.

1. LOTT Treatment Plant

The treatment element of this plan is contained in the March, 1989 General Sewer Plan prepared by LOTT. The LOTT treatment plant located on Budd Inlet inside the city of Olympia serves the entire Urban Growth Management Area, both outside and inside the cities of Olympia, Lacey and Tumwater.

a. LOTT Treatment Plant and Outfall

The LOTT Treatment Plant is a secondary treatment facility utilizing the pure oxygen activated sludge process. Other unit processes employed in treatment include screening, grit removal, primary and secondary sedimentation, sludge handling, and disinfection. The plant is achieving in excess of 90 percent Biochemical Oxygen Demand (BOD) and Suspended Solids (SS) removal efficiency based on present operation data. The plant discharges treated effluent to Budd Inlet via two separate outfall pipes.

The capacity of the LOTT Treatment Plant has been evaluated in terms of design criteria, as built conditions, and operational data. A summary of the existing as-built plant capacity to process wastewater to secondary treatment levels is presented below:
<table>
<thead>
<tr>
<th><strong>Plant flow, MGD (Million Gallons Per Day)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Daily Wet Weather</td>
<td>22.0</td>
</tr>
<tr>
<td>Maximum Daily</td>
<td>27.0</td>
</tr>
<tr>
<td>Peak</td>
<td>35.0 (Current)</td>
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<tr>
<td></td>
<td>55.0 (Planned)</td>
</tr>
<tr>
<td><strong>Biochemical Oxygen Demand, lbs/day</strong></td>
<td></td>
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<tr>
<td>Maximum Daily</td>
<td>49,000</td>
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<tr>
<td><strong>Suspended Solids, lbs/day</strong></td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>49,000</td>
</tr>
</tbody>
</table>

The Department of Ecology has defined a treatment facility as having reached its treatment capacity when the wastewater flow which occurs during any month (normally between October and March) reaches the plant capacity flow level. Since the plant flow level capacity has been identified as 22.0 MGD, when the maximum monthly flow at the LOTT plant reaches this value, the plant will have reached its capacity.

In order for the plant to not reach capacity prematurely, the plant must be capable of also handling the peak instantaneous flow associated with the average wet weather flow of 22.0 MGD. Based on existing flow relationships at the plant, the peak instantaneous flow for an average wet weather flow of 22.0 MGD would be 55.0 MGD. Therefore, the plant must be able to pass a peak instantaneous flow of 55.0 MGD without problems. To accommodate 55.0 MGD certain hydraulic improvements are necessary. These include modifications to plant components such as the bar screens, grit chambers, primary clarifiers, pumping systems, and disinfection systems. These modifications will help achieve the maximum possible efficiency from the existing plant with a minimum expenditure. No expansion of the existing treatment plant site will be required.

At present the treatment plant does not provide sufficient removal of nitrogen compounds from the effluent to adequately protect the water quality of Budd Inlet. The Department of Ecology has issued an administrative order supporting the NPDES permit requiring the LOTT partners to design and install additional treatment processes.
Due to the urban nature of the area, limited land availability, and the sensitivity of the region’s ground water resources, the following alternative was chosen by LOTT’s TAC during a study of possible upgrades to the system process: Nitrogen removal will be added to the existing treatment plant, with outfall improvements and discharge to Budd Inlet via the existing diffuser.

Bacteria and reduced dissolved oxygen have been the causes of Budd Inlet’s recurring water quality problems. Sources of bacteria have been identified and for the most part corrected. Dissolved oxygen problems remain and are less easily resolved. In estuaries such as Budd Inlet, nutrients are located within the surface area where algae grow. As they grow, the algae respire—they use oxygen—and when they die, the bacteria to decompose them consume oxygen as well, all of which has the tendency to reduce dissolved oxygen. Additionally, algae will sink to the bottom, decompose, and cause further oxygen to be consumed.

The nutrient nitrogen has been identified by the Department of Ecology in a study of Budd Inlet water quality as the most important nutrient in Budd Inlet. In the southern part of the Inlet, about 50 percent of the nitrogen at surface levels comes from the treatment plant, and 50 percent from other less easily traceable sources. Note that sewage effluent is not the total problem here.

The limits of what Budd Inlet or Southern Puget Sound "can take" in terms of sewage effluent have not been identified. This is a complex issue relating to factors of discharge sources and location, tide, algae, weather, wind, etc. Any resulting conclusions are subjective. No studies are planned on Southern Puget Sound’s carrying capacity, but expanded monitoring is planned. Although "carrying capacity" for sewage effluent is not known, the Department of Ecology’s intent in requiring removal of 90 percent of the treatment plant’s nitrogen, is to improve and strengthen current conditions.

If 90 percent of the nitrogen is removed from 16 million gallons per day average summer flow (which is the time when the algae grows), less nitrogen will be going into Budd Inlet from the treatment plant than is the case today, a net benefit to the inlet. As a result, the algae will be reduced, sediments will decrease and the dissolved oxygen will increase. (Sixteen million gallons per day with nitrogen removal is the maximum summer flow of the plant at its planned capacity under the Sewerage General Plan. Currently, the average daily summer flow is 11 million gallons per day, without nitrogen removal).
The improvements to this plant are being jointly undertaken by the LOTT partners (Lacey, Olympia, Tumwater and Thurston County) under the terms of an intergovernmental contract signed January 3, 1989.

When flows at the existing plant approach 22 MGD sometime near the end of the planning period, additional studies would be initiated to plan for additional treatment to meet future needs. The plant's waste discharge permit requires that the planning be initiated when the current plant reaches 85 percent of its design capacity.

b. **Treatment Alternatives**

Several treatment alternatives were considered and are reviewed in the March, 1989 LOTT General Sewer Plan. These are incorporated by reference in this Plan. In addition, the LOTT partners during 1989 further evaluated the nitrogen removal process, including both on-site and off-site (land disposal) options. In 1990, further evaluation of outfall location options was also done.

2. **Water Systems and Their Relationship to Wastewater Treatment**

*This section of the plan responds to the state law requirement that a sewer plan include discussion of existing sources of water supply in relationship to wastewater treatment facilities.*

The central treatment plant for the LOTT system is located in the City of Olympia and discharges its effluent into Budd Inlet. This plant processes sewage that would otherwise be discharged into the ground through on site treatment systems, the other most common form of sewage treatment in the county. A significant share of the Urban Growth Management Area's current sewage treatment outside city limits is through on site subsurface treatment and disposal. This plan provides for most of these existing on site systems to continue in operation, even after sewers become available. They will not be required to connect to sewers, except where health or water quality problems call for sewer connection as the solution. Therefore, this discussion relates to water supply systems and their sources of water to on site treatment and disposal of sewage.
The Urban Growth Management Area depends solely on ground water for its drinking water, as does practically all of Thurston County. There are 220 public water supply systems located throughout the entire urban growth management area, both inside and outside city limits. They all receive their water from wells and springs located throughout or immediately adjacent to the Urban Growth Management Area. In addition, there are numerous individual wells in the area. Map 5 in Appendix A shows the location of wells and springs that supply the water to systems with 2 to 100 or more service connections, including businesses which serve less than 25 to 1,000 or more people per day.

Approximately 100,000 people reside in the urban growth management area. About half are served by water from McAllister Springs. The springs are located just outside the eastern boundary of the urban growth area. The rest of the population receives its water from wells located throughout the area and one other spring on Olympia's west side.

Many of the 220 public water systems get their water from aquifers less than 100 feet deep. This is considered a shallow well, which is more vulnerable to activities on the land's surface, including stormwater. Our ground water is replenished (or "recharged"), not by some distant underground river sources, but by rain falling on the land directly over the aquifers. For this reason, contaminated stormwater can enter the aquifers.

There are four factors that determine ground water vulnerability. These factors, combined with data from ground water studies and monitoring about changes that may be occurring in our underground water supplies, can give good indications of when or under what circumstances actions are called for to prevent pollution of aquifers:

a. **Depth to Ground Water**: The more shallow the ground water, the more directly it can be exposed to pollution.

b. **Protective Soil Layers**: Coarse soils can transmit contamination more readily.

c. **Recharge**: Water from rainfall, irrigation or other discharges can transport contaminants down into ground water.

d. **Geologic Structures**: Deeper geologic structures help to determine degree of protectiveness, and can influence the path that pollution may travel.
Ground water quality is of special concern in the McAllister Springs recharge area. The McAllister Springs supply drinking water to over 45,000 people in Olympia and Lacey. The local soils, geology and groundwater conditions of the recharge area make it highly vulnerable to ground water contamination. As a result, the McAllister Springs Geologically Sensitive Area has been designated and land use restrictions imposed.

Current studies and ongoing monitoring of the area's geology, hydrology and underground water quality are providing guidance about areas and aquifers that may be especially vulnerable to surface activities, including subsurface disposal of sewage. Studies by the United States Geological Survey will provide data on location, depth, interconnection, flow, recharge area, and water quality of the aquifers. Over 1200 wells in northern Thurston County are being used for detailed examination. As this information becomes available, the county will be better able to determine areas of particular vulnerability to on-site sewage disposal, and where existing on site systems may be required to convert to sewers as they are built.

3. Infiltration and Inflow

a. Ground Water Infiltration and Today’s Construction Methods and Materials

The quantity of water which infiltrates into a sewer system increases in direct proportion to the height of the groundwater above the pipe. The water enters the system primarily through cracks in the pipe, open or loose joints, and porous manholes. Infiltration normally increases with the age of the system. As a pipe ages, infiltration usually occurs at the joints; therefore, a pipe with longer sections (i.e., with fewer joints) will have less infiltration in the future.

The types of materials that are used for the fabrication of pipe and other appurtenances to the system should affect the amount of infiltration that occurs. Sanitary sewer lines, constructed with plastic pipe will have less infiltration than a similar line which has Portland cement concrete pipe or clay pipe because there are fewer joints and the joint is considerably more water tight. Current sewer construction standards specify that all sewer pipe shall use flexible rubber or neoprene gaskets in the joints. Most sewer systems installed prior to the early sixties have non-flexible joints and have considerably more infiltration entering the sewer through the joints.
b. **Sewage Exfiltration**

Sewage exfiltration occurs when the groundwater recedes to a level at or below the pipe. The sewage flows out of the system into the groundwater aquifer through the same openings in the pipes and/or manholes that groundwater infiltrated during the period of the high water table. The damage which can occur to a shallow potable aquifer from exfiltration can exceed that caused from infiltration by several magnitudes. Construction methods and materials of today also minimize exfiltration.

c. **Surface and Ground Water Inflows**

Inflow occurs when a surface inlet, roof drain, area drain, or a foundation drain is connected into the sewer system. Current local ordinances prohibit the connection of any stormwater inflow sources into the system because of the extra and unnecessary load capacity on the treatment plant required to treat the combined flows.

Where the area was once served by a combined sewer, as is the case in downtown Olympia, inlets from a public roadway were connected into the system if a local drain was not available. Also, connection of ground and surface waters sources were permitted with the provision that each can be disconnected from the sewer and recommitted into the storm drain when separate systems are installed.

During the collection of data for the LOTT Study, it was discovered that several illegal sources from private property had been connected into the sewer system where separate drainage systems were available. A program has been developed which will be implemented to notify a property owner that an illegal connection exists and must be removed.

4. **Other Treatment Facilities**

State law requires that a sewer plan contain information on existing wastewater facilities within 20 miles of the plan area and within the same topographical drainage basin. Within this area there are five small satellite sewage treatment plants, with another under construction at Boston Harbor.
Map 6 in Appendix A shows the satellite plant locations. The plants range in size from 3,000 to 45,000 gallons per day. The Tamoshan, Beverly Beach, Boston Harbor and Seashore Villa treatment plants discharge directly to Budd Inlet, while the St. Martins College and Shorewood Estates plants discharge their effluent to a lagoon and a drain field, respectively, and will be required to hook up as soon as sewer is available. Table 3 lists the physical characteristics of these plants.

In addition, there are 38 known existing individual and small community chlorinated septic systems which will be required to hook up to a sewer system if and as service becomes available. These systems are located along Budd, Henderson and Eld Inlets. A large number of these systems are in the Boston Harbor area and will soon be serviced by the new treatment plant facility under construction.

**TABLE 3**

**SATELLITE PLANTS AND PHYSICAL CHARACTERISTICS**

(See their location on Map 6 in Appendix A)

<table>
<thead>
<tr>
<th>Plant</th>
<th>Type of Wastewater</th>
<th>Approximate flows</th>
<th>Receiving Water</th>
<th>Type of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Present (gpd)*</td>
<td>Ultimate (gpd)*</td>
<td></td>
</tr>
<tr>
<td>Tamoshan</td>
<td>Domestic</td>
<td>18,000</td>
<td>35,000</td>
<td>Budd Inlet</td>
</tr>
<tr>
<td>Beverly Beach</td>
<td>Domestic</td>
<td>3,000</td>
<td>5,000</td>
<td>Budd Inlet</td>
</tr>
<tr>
<td>Seashore Villa</td>
<td>Domestic</td>
<td>5,000</td>
<td>15,000</td>
<td>Budd Inlet</td>
</tr>
<tr>
<td>St. Martin’s College</td>
<td>Domestic</td>
<td>--</td>
<td>--</td>
<td>Ground Water/Evaporation</td>
</tr>
<tr>
<td>(in city limits)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shorewood Estates</td>
<td>Domestic</td>
<td>10,000</td>
<td>23,000</td>
<td>Ground Water</td>
</tr>
<tr>
<td>Boston Harbor (under</td>
<td>Domestic</td>
<td>45,000</td>
<td>--</td>
<td>Budd Inlet</td>
</tr>
<tr>
<td>construction)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* gpd = gallons per day
5. **Industrial Wastes and Pre-Treatment**

Generally, industries producing large volumes of wastes or toxic or hazardous materials must be served by sewers and, where appropriate, their wastes must also undergo pre-treatment before discharging into municipal sewers. On-site septic systems do not generally serve industries or industrial areas, except for the domestic component of industries that do not have industrial wastes.

As sewers are extended into the area covered by this plan, they will serve industrial areas. Guidelines for the pretreatment of industrial waste should be developed prior to the connection of industrial wastewater generators to the sewer system. These guidelines should be designed to prohibit the discharge of dangerous wastes and other pollutants that interfere with the normal operation of the system or that cannot be treated adequately at the treatment plant. They should also be designed to improve the opportunity to recycle and reclaim wastewater and sludge from the system.

State regulations on discharges to the POTW currently require the use of all known available and reasonable methods of prevention, control and treatment and prohibit the discharge of dangerous wastes to the POTW.

A draft pretreatment ordinance can be found in the March, 1989 General Sewer Plan prepared by LOTT. This draft should be used as the basis for one that should be adopted by all the jurisdictions operating sewers within the Urban Growth Management Area, and the County as a whole. The objective should be to have a single, consistent approach to pretreatment throughout the County.

Any industrial waste discharges will be under NPDES or Washington State Discharge Permit from DOE or required to be in compliance with DOE approval pretreatment standards. These discharges must hook up to sewer when required as part of their discharge permit.
G. COSTS AND PAYMENT PROGRAM

1. Introduction

   a. What Needs to be Paid For

      A sewerage system includes six kinds of facilities and services that need to be paid for: (1) Treatment (new construction), (2) Interceptor Sewer lines, (3) Collector Sewer lines, (4) System "Buy-in" [pro-rata share for new users of costs of existing system], (5) Maintenance & Operations [of both treatment plant and sewer lines], (6) "Side Sewers" [lines between building and street].

   b. How Sewer Facilities are Usually Paid For -- Equity Considerations

      Sewer facilities and services are usually paid for through a combination of three basic revenue sources, including (1) Bonded Indebtedness, (2) Grants and Loans, and (3) Cash from sewer users, both pay-as-you go and cash from reserve funds from connection charges, assessments or rate payments. There are two basic ways that individuals pay for their sewer service: monthly rates and hook up or connection fees, or some combination.

      Choices about which revenue sources to use, who pays, and through what method, are closely related to both the availability and expense of using various revenue sources at any given time, and considerations of fairness and equity. For example, in some systems, the construction costs of all sewer lines larger than eight inches in diameter, pumping stations, interceptor sewers and treatment facilities are considered as general costs to be financed by the entire sponsoring agency. Construction of 8-inch lateral or collector sewers are often assessed against the property directly benefitted. However, the method of financing is tailored to each community's needs, preferences, capabilities, and sense of what's fair and equitable for their area. The financing-payment system proposed in this plan contains a combination tailored to needs and desires for our community.
c. Description of Funding Sources and Methods of Financing Sewer Construction and Services

Pay as You Go: Costs of facilities and services of a non construction nature, such as ongoing operations and maintenance, are usually paid for on a "pay as you go" basis, such as monthly rates. Cash payments may also be used to build reserve funds to cover future construction costs or to repay advances made on construction. This is typical of hook up fees, which cover the costs of building interceptors and other facilities.

Revenue Bonds: Revenue Bonds are the most common method of financing sewer construction. They are issued for major sewerage system improvements that benefit an entire sewer system or a major portion of the system, typically pumping stations, interceptors and treatment facilities. In addition, it is common practice to assess the cost of local collection systems to the benefitted properties in the immediate area by forming an improvement district and issuing special assessment revenue bonds to pay for the collection improvements.

The amount to be financed through revenue bonds is limited only by the ability of the issuer to repay. It must be demonstrated that there is sufficient income to pay all maintenance and operation costs of the system and the annual debt service on the bonds, plus an additional 20 to 40 percent of the annual debt service for "coverage."

This "debt coverage" is the ratio of annual net system revenue to average annual bond repayment. "Annual net system revenue" is gross revenue minus operating costs. The ratio needs to be greater than one (it will vary from 1.25 to 1.6, depending on the financial stability of the utility). The higher the ratio, the more secure the bond and the lower the interest rate that can be expected to be paid. If a utility has insufficient revenue to provide the "coverage," it must increase the rates charged to its users until it does. Otherwise, the bonds will not sell. Coverage provided one year may be spent the following year.

Some of the sources of funds which may be used to support revenue bonds are ULD property assessments and interest on assessments, monthly rates for service, connection charges, permit fees, and contract charges for service provided.
General Obligation Bonds: These are bonds that are secured by the value of taxable property within the taxing district (for example, city wide or county wide). Normally, general obligation bonds are repaid from general tax collections from everyone in the taxing jurisdiction. However, in the case of sewer projects, revenues from user fees and hook up charges may be dedicated to repay the debt. The taxing authority and revenue of the jurisdiction would be used only as "insurance" that the debt service would be paid.

General Obligation bonds generally have a lower interest rate than revenue bonds because the good faith, credit and taxing authority of the jurisdiction is pledged to ensure that the debt service is paid. In addition, the "coverage" portion of the financing requirements of revenue bonds is eliminated when revenues are pledged against general obligation bonds rather than revenue bonds.

Utility Local Improvement District (ULID): A ULID may be formed to finance new sewer systems or system extensions. Usually these districts are formed to pay for the construction of local collection systems, but they may also be used to pay for construction of area interceptors, particularly when some properties may connect directly to interceptors.

The most common practice is to assess the cost of local collection or interceptor systems to the benefitted properties in the immediate area by forming an improvement district and issuing special assessment revenue bonds to pay for the improvements. An assessment roll is prepared, and residents pay an annual assessment for the term of the bonds. Assessments may be computed on the basis of property fronting a sewer line, total land area, number of units served, or a combination. A petition to form a ULID may be initiated by property owners or the legislative body of the city or county. A vote is held on the formation of the ULID. It must be approved by landowners who in the aggregate hold at least 51 percent of the affected property.
Aquifer Protection District: An aquifer protection district is and are 
a within which charges can be collected to help finance services related 
to ground water protection. The charges are imposed on the basis of 
septic systems and/or water withdrawal. Sewer construction for 
protection of ground water quality is one of the services that can be 
funded by an aquifer protection district. A proposal aquifer protection 
district must be placed on the ballot and submitted to registered voters 
within the area. The ballot must state maximum monthly charge, 
number of years the rate may be improved and activities to be funded. 
A simple majority vote is required for approval of the district.

Grants and Loans For Treatment Plant Construction:

Two main sources of grants and loans are currently available to fund 
treatment plant construction projects, but none are likely to be available 
for our urban area sewer program.

• State Centennial Clean Water Grants are available for treatment 
  plant projects in the following order of priority: First, 
  Construction of secondary treatment facilities; second, reduction 
  of combined sewer overflows; and third; all others. The LOTT 
  treatment plant is already secondary. A form of tertiary treatment 
  is being added. Therefore, funding assistance is not expected 
  from the limited funds available.

• Federal Treatment Plant Construction Grants and Loans: The 
  federal grants are all but gone. All that remains is a revolving 
  fund loan program with no or low interest loans. The loan 
  program is administered by the state through a "State Water 
  Pollution Control Revolving Fund." As with the Centennial 
  Grants, communities moving from primary to secondary 
  treatment receive priority consideration for these loans.

Grants and Loans For Interceptors and Collectors:

Three programs provide limited assistance for construction of 
interceptor and collector sewers.

• State Water Pollution Control Revolving Fund--highest priority for 
  this low and no interest loan fund is treatment plant 
  improvements for systems going to secondary treatment, and 
  correction of combined sewer overflows. Loans for interceptors 
  and collectors have low priority.
• State Centennial, Clean Water Program provides grants and loans for interceptors and certain kinds of collectors. Eligible collector sewers are those serving existing residents, and constructed to eliminate a public health emergency or severe public health hazard or those associated with S.T.E.P. systems (because they are integral to the treatment process). For both interceptors and collectors, priority use of program monies for marine water facilities is given to secondary sewage treatment facilities and reduction of combined sewer overflows. Facilities associated with the Spokane aquifer receive priority for the portion of the program dedicated to prevention and reduction of underground pollution. Thus, interceptors and certain collectors, though eligible for these funds, are not high on the priority list.

• State Public Works Trust Fund provides low interest loans for repair, replacement, rehabilitation and reconstruction of existing systems to serve current population, but not for new construction and new growth. The unincorporated urban growth management area (outside cities) has very few existing sewer lines. Its main need is for new construction, for which this fund would not apply.

2. Public and Task Force Concerns

Concerns about equity and fairness were voiced by the public in neighborhood meetings held in April, 1989. In addition, the point was frequently made that "Growth should pay for growth."

The survey of voters, also in April, 1989, presented a series of choices on who should share in the payment of constructing sewer interceptors. There was overwhelming support for these costs to be paid for by new housing and businesses connecting to the sewer line, as well as by those converting from septic tanks to sewer. But there was also very strong support for these costs to be shared (a minor share in the case of the mail survey) by all who draw their drinking water from the area. There was also a strong percentage who favored some sharing of sewer construction costs by new development on septic tanks, but less support for sharing of sewer construction costs by those staying on septic tanks.

See Appendices E and F for more detailed reports on the voter surveys and neighborhood meetings.
The Task Force which developed the recommendations upon which this plan is based, felt that a fair and equitable payment program should be based on (1) benefit received, (2) contribution to the problem and (3) ability to pay. They felt that the combination of an equitable system of financing sewers and protecting future ground water purity would provide an investment in the community's future. Many Task Force members were concerned about assessing sewer fees against those not connecting to sewer, persons losing property or retirement savings to pay for sewer assessments, and about keeping sewer fees comparable among jurisdictions. These interests are addressed in the following payment recommendations.

3. **Recommended Payment Principles and Estimated Costs**

a. **Interceptors and Collectors:**

This Plan recommends that new sewer and community on-site system users as a group or class pay for new sewer interceptors through connection fees, as opposed to monthly charges. New users are to pay through a "connection fee" that is assessed at the time of hook up to sewer or community on-site system. Only those using sewers or community on-site systems are to pay, with one exception.

The exception is for **certain** aquifer sensitive areas where this plan recommends that all who draw their drinking water from that aquifer share on a **limited** basis in the costs of constructing sewers to these specified aquifer sensitive areas. The sensitive areas for this limited sharing would be only those where:

- New development is being limited.
- The limit on development results in fewer sewer users to share in the costs of the new sewer line.
- The sensitive areas is located on the outer edge of the Urban Growth Management Area.
- Sewers are declared to be needed to solve the problems.
Sharing of costs would only occur if the hook up costs in the aquifer sensitive area are higher than those for other areas. In such cases, the drinking water users would pay only an amount to enable those converting from existing septic tanks to pay no higher hook up charge than those in other areas. New development, however, would pay its full costs, without any sharing by drinking water users. The funds for this sharing of costs should come from an Aquifer Protection District, or other appropriate sources.

Currently, each area requiring a collector system to take the sewage from individual properties to the interceptor or S.T.E.P. main, also pays for its own collector system. In the case of new subdivisions, the developer installs the collector system, and its costs are part of the price of the new home, lot or business within the subdivision. For collector systems installed after an area is built, or after lots have been divided and sold, the collector system is often paid for through Utility Local Improvement Districts (ULIDs). Each property owner votes a utility assessment to pay for construction of the collector system. When ULIDs are used to fund construction of collectors, this plan recommends that they be based on ERUs (Equivalent Residential Units), as opposed to area or front footage.

Because ULIDs are based on existing and potential ERUs rather than strictly existing ERUs, there is a possibility for financial hardships on existing residences who are on parcels not developed to the potential density allowed by zoning.

Possible methods which can be used to reduce this financial hardship are:

- Exclusion from ULID boundaries,
- Use of payment methods other than ULIDs, such as developer or city financing with latecomer agreements.

Therefore, this plan recommends that as new areas are proposed for sewer service, the County and Cities must agree to the payment method for providing collectors to that area. If ULIDs are used, they must also agree to the ULID boundaries.
b. **Treatment**

The waste water treatment and disposal costs associated with the LOTT facilities are currently financed through a combination of a monthly User Charge and a Reserve Capacity Charge (RCC) which is part of the "connection fees." The User Charge finances the operating cost, a portion of the debt service on the non-grant funded share of the capital facilities, and a fund allocated for renewal and replacement of the LOTT treatment facilities. The RCC, is assessed on an Equivalent Residential Unit (ERU) basis and is assessed by the Cities and paid to LOTT for each new ERU connected to the system.

Under the recently revised LOTT agreement, the monthly User Charge will continue to finance the operation and maintenance of the LOTT facilities, present debt service, the renewal and replacement fund, and also pay for debt service on the expanded wastewater treatment process required by the Department of Ecology. The Agreement provides for a study to be conducted to evaluate and recommend a new "buy-in" General Facilities Charge (G.F.C.) for new LOTT customers for their proportionate share of the improvements to the treatment plant and associated studies. This charge would replace the existing RCC.

c. **Community On-Site Systems**

The same fees (hook up fees and monthly charges) will be paid by users of community on-site systems as if on sewer. The on-site system will be maintained by the city responsible for sewer management in the area; and as interceptors are built, the system will be automatically connected to sewer at no additional cost.

d. **Low Income Help** is to be made available on all charges.

e. **County City Rates Agreement**

This plan's recommendation for management of sewer interceptors (found in Section A. 2. c. of this Chapter) is that they be built and owned by each city in its unincorporated urban service area. To assure representation of the interests of unincorporated area residents on the issue of rates and fees, this plan recommends that the County negotiate with the cities on the amount rates and fees for both community systems and sewers located in the unincorporated Urban Growth Management Area. The agreement is to describe the rates at the time of initial service, the procedures for changing rates in the
future, and the criteria or guidelines upon which changes in rates will be based. Rates are to be related to costs of service, not applied as a "penalty" for not annexing.

f. Estimated Costs and Rates

Table 4 summarizes this plan's recommendation as to who should pay for sewer improvements and how. Tables 5A and 5B show estimated costs and rates for existing and planned sewer facilities included in this package of urban sewer plans. Treatment costs include the current estimates based on recently completed LOTT engineering studies for the probable outfall location and selected nitrogen removal process. Costs of new interceptors are estimates taken from each city's Sewer General Plan, where the engineering studies were done for these interceptors. This plan shows the costs of the portions of the interceptors located outside city limits. Also included is an estimate of the typical range of costs per hook-up for collector sewers. Interceptor costs are in 1988 dollars, others are calculated on other bases as footnoted in Tables 5A and 5B. Costs may change as a result of additional design studies.
### TABLE 4

**WHO SHOULD PAY FOR WHAT AND HOW**

<table>
<thead>
<tr>
<th>WHAT FACILITY OR SERVICE</th>
<th>WHO SHOULD PAY</th>
<th>HOW PAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. LOTT Treatment Plant</td>
<td>All Users</td>
<td>*</td>
</tr>
<tr>
<td>Upgrades</td>
<td>(New &amp; Existing)</td>
<td>Monthly Rates</td>
</tr>
<tr>
<td>2. Interceptors and Step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mains</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Selected Aquifer Sensitive Areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Growth Cap&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distant Location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Declared Sewer Need</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where sewers will cost</td>
<td>Septic Conversions: Aided by APD so costs are no more than other sewers (see Note E)</td>
<td>Hookup Fee</td>
</tr>
<tr>
<td>more per unit than other sewers</td>
<td></td>
<td>APD Assessment</td>
</tr>
<tr>
<td>See Note E</td>
<td>New Construction: pay full cost</td>
<td></td>
</tr>
<tr>
<td>b. All Other Locations</td>
<td>New Users</td>
<td>Hookup Fee</td>
</tr>
<tr>
<td>3. System Buy-In</td>
<td>New Users</td>
<td>Hookup Fee</td>
</tr>
<tr>
<td>4. Maintenance and Operation</td>
<td>All Users</td>
<td>Monthly Rates</td>
</tr>
<tr>
<td>(New and Existing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Collectors</td>
<td>All on Collector System</td>
<td>Cash or ULID Based on ERUs OR Developer install and incorporate in selling price (see Note F)</td>
</tr>
<tr>
<td>(Equalizing Aid to conversions on same basis and in same ASAs as in 2a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Side Sewers (Between building and the street) Initial installation and all maintenance</td>
<td>Each Owner</td>
<td>Cash OR Developer install and incorporate in selling price</td>
</tr>
</tbody>
</table>

* Amount and method of paying for system buy-in, maintenance and operation for LOTT treatment plant will be jointly determined by the LOTT partners.

(See notes on next page)
NOTES FOR TABLE 4

A. Special help should be provided to low income persons on all categories of charges.

B. Community systems will pay as if connecting to sewer (Hook up Fees and Monthly Rates)

C. Rural interceptors: pay total costs of building the lines from the UGMA boundary to their areas, including cost of building excess capacity into the urban lines, and special facilities needed only by the rural line (e.g., pump station).

D. County Will Negotiate with Cities on Amount Fees and Rates for both community systems and sewers on systems owned by cities but located in unincorporated areas. Charges are to be based on cost factors, not assessed as a penalty for not annexing

E. Selected Aquifer Sensitive Areas (2.a above): Because interceptors to these special need aquifer sensitive areas are intended to address water quality concerns, and because a broader population may benefit from their construction, those on existing on-site systems, only, (who will be converting to sewer) should be assisted in their payment of interceptor construction by an assessment through an "Aquifer Protection District" comprised of all who draw their drinking water from the aquifer. This "assistance" would be an equalizing share so that those converting from on-site systems to sewer would not pay more than users of other interceptors. If this assessment is not approved in a voter election, other appropriate sources of funds should be sought. This equalizing share would not be applied to new development connecting up to sewer in the Sensitive Area.

F. ULDs for Collectors: Assessments should be based on ERUs (Equivalent Residential Units), not area or front footage. These ERUs should be assessed on an existing per residence basis, not the potential residences under zoning. If properties are subsequently divided and more residences added, they should pay later in a latecomer fashion.
**TABLE 5A**

Tables 5A and 5B consolidate cost estimates and current rates for (1) treatment improvements planned in the March, 1989 LOTT General Sewer Plan, and (2) new interceptors from cost estimates in the Sewer Plans of the three cities.

**CAPITAL AND OPERATING COST ESTIMATES**

<table>
<thead>
<tr>
<th>Capital Costs</th>
<th>1990 Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Improvements and Outfall Upgrades</td>
<td>$7,160,000(^1)</td>
</tr>
<tr>
<td>(Treatment Plant)</td>
<td></td>
</tr>
<tr>
<td>Add Nitrogen Removal (Treatment Plant)</td>
<td>$20,946,000(^1)</td>
</tr>
<tr>
<td>Interceptors - Unincorporated Growth Area</td>
<td>$34,022,922(^2)</td>
</tr>
<tr>
<td>Interceptors - Inside Cities</td>
<td>$19,063,611(^2)</td>
</tr>
<tr>
<td>Planning and Studies (For the Years 1990-1993)(^3)</td>
<td>$450,255(^3)</td>
</tr>
<tr>
<td>Capital Support</td>
<td>$147,658(^4)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$81,790,445</td>
</tr>
</tbody>
</table>

*NOTE: This total represents a mix of 1988 and 1990 dollars.*

**Operating Costs (Annual) (at 1990 costs)**

<table>
<thead>
<tr>
<th>Operating Costs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTT Administration</td>
<td>$184,000</td>
</tr>
<tr>
<td>LOTT Facilities Operation</td>
<td></td>
</tr>
<tr>
<td>Existing Facilities</td>
<td>$4,253,150(^1)</td>
</tr>
<tr>
<td>Nitrogen Facilities</td>
<td>$325,000(^1)</td>
</tr>
<tr>
<td>Operating Costs</td>
<td>?</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$4,762,150</td>
</tr>
</tbody>
</table>

**FOOTNOTES FOR CAPITAL AND OPERATING COSTS**

\(^1\) These are cost estimates as of November, 1989 based on the Engineering Report for the probable outfall location and selected nitrogen removal process. They are costs in constant 1990 dollars.

\(^2\) Interceptor costs are broken out by the portions inside and outside city limits. The estimates are extracted from General Sewer Plans of the Cities of Olympia, Lacey and Tumwater, and are in 1988 dollars.

\(^3\) For completion of Water Quality Studies for outfall sites and other miscellaneous studies (in 1990 dollars).

\(^4\) 75 percent cost of staff engineer for completion of final design and assistance with construction management, 1990-1993 (in 1990 dollars)
## TABLE 5B

### RATES

<table>
<thead>
<tr>
<th></th>
<th>CURRENT (Dec. 89)</th>
<th>1995 (Estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTT ERU Rate(^1)</td>
<td>$13.90</td>
<td>$26.75(^6)</td>
</tr>
<tr>
<td>City ERU Rate(^1)</td>
<td>$7.65 - 8.95</td>
<td>?(^5)</td>
</tr>
<tr>
<td>LOTT RCC Rate(^2)</td>
<td>$459(^3)</td>
<td>?(^4)</td>
</tr>
<tr>
<td>City GFC Rate(^2)</td>
<td>$800 - 856</td>
<td>?(^5)</td>
</tr>
<tr>
<td>City Interceptor Connection Fee</td>
<td>?(^6)</td>
<td>?(^6)</td>
</tr>
<tr>
<td>Collector System Charges(^7)</td>
<td>$2,100 - 5,100(^7)</td>
<td>$2,100 - 5,100(^7)</td>
</tr>
</tbody>
</table>

### FOOTNOTES FOR RATES

\(^1\) ERU means "Equivalent Residential Unit." ERU rates are usually assessed monthly and cover the costs of on-going operation and maintenance. The LOTT ERU rate is for operation of the treatment plant and joint interceptors. It includes an amount for Capital/Debt Service. City ERU rates are for operation and maintenance of city interceptors and collectors. Titanwater's includes an amount for new interceptor construction.

\(^2\) RCC and GFC Rates are one time connection fees that are in "buy-in" for new connections to the system. They compensate for capacity available to new users, but which had been paid for by long time sewer users.

\(^3\) This is the LOTT RCC rate as of the end of 1989. The fee increases $3 per month.

\(^4\) Future "buy-in" fee for LOTT facilities is to be established. An estimate will be based on the monthly cost of treatment upgrade and associated studies.

\(^5\) Future city monthly and GFC rates are to be established.

\(^6\) In addition to the RCC and GFC "buy-in" fees, the cities assess a connection charge for properties connecting directly to an interceptor. This connection fee is the new customer's share of the cost of constructing the interceptor. It may be collected through a Utility Local Improvement District or by direct assessment by the City.

\(^7\) $2,100 - $5,100 is the typical range of costs per connection for the costs of a collector sewer. Most properties will not connect directly to an interceptor, but will require a collector system to pick up the sewage and feed it to the area interceptor.

\(^8\) Based on a program including on-site nitrogen removal and continued discharge into Budd Inlet, per Mike Sharer, LOTT Project Administrator, 12/8/89.
4. Other Alternatives Considered

a. "Equity Financing"

To save interest costs for long term debt financing, one alternative considered was to pay for treatment plant upgrades and new interceptors through increased sewer bills for a set period of time (e.g. 5 years). The increase would be removed once the facilities are paid for.

It was felt the increased costs, even for a few years, would be prohibitively high for many people.

b. Interceptor Financing

Another alternative considered was for existing sewer users to pay a minor share of the costs of constructing new interceptors, with new users paying most.

This was discarded in favor of having only new users pay for new interceptors other than those in specified aquifer sensitive areas where there would be some sharing by all persons who draw their drinking water from the interceptor. In discarding the alternative of all sewer users helping to pay for the other (non aquifer sensitive area) interceptors, it was felt that those actually using the new sewers should pay for their construction. Existing sewer users should not subsidize this cost.

c. Financing of Interceptors Serving Targeted Industrial and Commercial Areas

Still another alternative considered was for all sewer users to help pay a portion of the costs for these interceptors as a means of supporting the county’s economic health.

It was decided that it may be desirable to provide special public support for construction of sewer lines to targeted industrial and commercial areas, but a broader means of funding should be found, not just sewer usage fees.
CHAPTER V

GLOSSARY OF TERMS
V. GLOSSARY OF TERMS

GLOSSARY OF WASTEWATER AND RELATED TERMS

Terms are listed in alphabetical order under three categories:

A. Terms associated with Treatment Process
B. Terms associated with Environmental Measures or Observation
C. Terms associated with On-Site Sewage Disposal

A. TERMS ASSOCIATED WITH TREATMENT PROCESSES

Activated Sludge Process - The process of using biologically active sewage sludge (sludge that's been created and subjected to bacterial action) to hasten breakdown of organic matter in raw sewage during secondary waste treatment.

Average Wet Weather Flow - The average wastewater flow that occurs in rainy months.

Biochemical Oxygen Demand (BOD) - A measure of the organic matter in waste that uses oxygen to be digested. Large amounts of organic waste use up large amounts of dissolved oxygen, thus the greater the degree of pollution, the greater the BOD.

Collector - A sewer that serves to collect wastewater from individual service connections.

Combined Sewers - A sewerage system that carries both sanitary sewage and storm water runoff. During storms, a combined sewer can overflow directly into a receiving water when the capacity of the sewer is exceeded. The LOTT system is now constructed so there are no overflows before reaching the treatment plant. Once there, storm flows are held in "equalization basins" or holding ponds. When the basins overflow, the effluent is disinfected and discharged into Budd Inlet. The remainder goes through the treatment plant.

Diffuser - The device used to mix the wastewater with the receiving water.

Digestion - The biochemical decomposition of organic matter. Digestion of sewage sludge takes place in tanks where the sludge decomposes, resulting in partial gasification, liquefaction and mineralization of pollutants.
Dilution Ratio - The ratio of the volume of water of receiving waters to the volume of incoming waste. The capacity of the receiving water to assimilate waste is partially dependent upon the dilution ratio.

Dry Line Sewers - Sewer lines constructed for future use, usually installed to avoid future road reconstruction or other future reconstruction expense.

Dual Plumbing - Plumbing systems that are constructed to utilize on site sewage systems but are readily connected to a public sewer when it becomes available.

Effluent - The wastewater as it leaves the treatment device.

Equivalent Residential Unit (ERU) - The average quantity of wastewater generated in a single family residence. The water quantity of 900 cubic feet per month at average waste strength, Biochemical Oxygen Demand and Suspended Solids

Flow (Q) - The quantity of wastewater per unit time.

High Purity Oxygen Activated Sludge Process - The secondary treatment process used at the LOTT treatment plant to produce an effluent which exceeds federal secondary treatment standards. It is a biological process which results in lower bacteria/virus discharge.

Infiltration/Inflow (I/I) - Total quantity of water entering a sewer system. Infiltration means entry through such sources as defective pipes, pipe joints, connections, or manhole walls. Inflow signifies discharge into the sewer system through service connections from such sources as area or foundation drainage, springs and swamps, storm waters, street wash water, or sewers. (Infiltration = leakage; Inflow = intentional connection)

Influent - The wastewater as it enters a treatment plant or device.

Interceptor - A sewer that transmits larger volumes of wastewater from collectors to treatment facilities.

MGD - Million gallons per day. Commonly used to express rate of flow.

Outfall - The wastewater discharge to receiving water.

Pre-treatment - Removal of products toxic to the treatment process or other toxic products or materials damaging to the sewage transport to treatment system. This is mandated by Federal and State Law.
**Primary Treatment** - Removal of material that simply settles or sinks and that floats to the surface of the settling chamber.

**Receiving Water** - The water body that receives a wastewater discharge. Usually thought of as surface water but includes groundwater also.

**Secondary Treatment** - The removal or reduction of Biochemical Oxygen Demand and Suspended Soils, by biological processes, usually by the addition of air or oxygen to encourage microbial growth and encourage further settling of suspended solids.

**Sewage** - The total of organic waste and wastewater generated (by residential and commercial establishments).

**Sewer** - A pipe that collects and carries away sewage or storm water runoff.

**Sewerage** - The entire system of sewage collection, treatment and disposal, also applies to all effluent carried by sewers whether it is sanitary sewage, industrial or storm water runoff.

**Sludge** - The materials removed from wastewater, usually digested by anaerobic (natural) processes producing methane and smaller volumes of solids. Sludge is then disposed of separate from the wastewater, for example incineration or burial.

**STEP System (Septic Tank Effluent Pump)** - A system combining a septic tank, an effluent pump, controls and an effluent carrying pipe. The effluent may be carried to a sewer or to a subsurface disposal system.

**Suspended Solids (SS)** - A measure of the particulate matter contained in the wastewater.

**Tertiary Treatment** - The removal of materials such as plant nutrients that cause increased growth of algae or other plants or weeds. In marine water ecological systems Nitrate (NO3) is usually the key plant nutrient. In fresh water ecological systems, Phosphate is usually the key nutrient.

**Treatment** - Removal or reduction of materials contained in wastewater.

**Treatment Plant Capacity** - The quantity of wastewater that the treatment plant can handle. It is normally measured in terms of average dry weather flows and average wet weather flows that can pass through the plant and meet required levels of treatment.
B. TERMS ASSOCIATED WITH ENVIRONMENTAL MEASUREMENT OR OBSERVATION

Aquifer - An underground bed or stratum of earth, gravel or porous stone that contains water in enough quantity to yield usable amounts of water to wells and springs.

Aquifer Recharge Area - Ground above an aquifer where water moves into the aquifer.

Aquifer Sensitive Area - Lands over unprotected aquifers (see separate definition for unprotected aquifer).

Dissolved Oxygen - The oxygen that is dissolved in water, much like the gas dissolved in a soft drink. It is the form necessary for aquatic organisms respiration.

Dissolved Oxygen Sag (DO Sag) - a relatively sudden drop in dissolved oxygen (the kind that fish breathe), in a surface water due to a large microorganism population demanding Oxygen for ordinary respiration or being digested by organisms digesting the dying organisms.

Fecal Coliform Bacteria - A group of organisms common to the intestinal tracts of man and of animals. The presence of fecal coliform bacteria in water is an indicator of pollution and of potentially dangerous bacterial contamination.

Ground Water - Water contained in the land, below the surface in the zone of saturation.

Heavy Metals - The metals or metallic ions such as lead, mercury, copper, iron, zinc, cadmium, manganese, chromium, cobalt and others. These and others are found in natural environment water in low concentrations. Many are necessary for life processes in low concentrations, (e.g. copper, zinc) and are toxic in high concentrations or some chemical forms. Different animals exhibit different sensitivities to different metals.

Nitrogenous Oxygen Demand (NOD) - The demand for oxygen that is associated with nitrogen input to an aquatic system. This would include the oxygen necessary for oxidation of ammonia, and that associated with increase in oxygen use by increased algae density.

Surface Water - Water exposed or flowing on the land surface, including lakes, streams, intermittent streams and marine waters.
Unprotected Aquifer - An aquifer that is susceptible to contamination by activity on the land surface in the immediate vicinity. Every aquifer has the potential for contamination, but the unprotected one is most susceptible due to a covering of highly porous soils.

C. TERMS ASSOCIATED WITH ON-SITE SEWAGE DISPOSAL

Alternative System - A system consisting of components other than or in addition to a septic tank and SSAS.

Community On-Site Systems - Any system using on-site treatment and subsurface disposal that serves two or more dwelling units or non-residential uses with daily flows of 600 gallons per day or more.

Drain Field - A system of trenches or beds designed to distribute septic tank or otherwise treated effluent for absorption into and through the soil.

Experimental System - A sewage treatment and disposal system for which guidelines have not yet been established.

Failure - With regards to a sewage disposal system, conditions that are or cause a health hazard or that contaminate surface or groundwater or that make the water using fixtures within a facility unusable.

Holding Tank - A tank designed to receive sewage for storage until it can be removed by a tank truck.

Off-Site Disposal - Disposal of sewage or sewage effluent off the property of generation.

On-Site Systems - See "Subsurface" and "Standard Subsurface Soil Absorption Systems"

Pressure Distribution System - A subsurface absorption system that employs small diameter pipe, and an effluent pump to evenly distribute effluent to achieve a higher degree of treatment.

Reserve Area - The land area held free from encroachment or damage for use as drainfield replacement area.

Septage - The settled materials from septic tanks, a mixture of digested and partially digested settled solids and liquids.
Septic Tank - An underground tank used for the deposition of domestic wastes. Bacteria in the wastes decompose the organic matter, and the sludge settles in the bottom. The effluent flows through drains into the ground. Sludge is pumped out at regular intervals.

Standard Subsurface Soil Absorption System - A sewage system consisting of a septic tank and subsurface gravel trench(es) three feet or less in depth, and with a vertical separating three feet or more.

Subsurface Absorption System (SSAS) - A system of trenches or beds designed to receive effluent from a septic tank or other treatment device.
CHAPTER VI

APPENDICES
A. MAPS

1. Existing and Proposed Interceptors, Urban Growth Management Boundary with Sewer Service Areas of Cities
2. Physiography
3. Sub-Area Land Use
5. Existing Sewer Service Area with Water Systems and Wells
6. Existing Wastewater Facilities
7. Soil Limitations for Septic Systems
8. Aquifer Sensitive Areas
Thurston County
SEWERAGE GENERAL PLAN
For the Unincorporated Urban Growth Management Area (Outside Cities)

PHYSIOGRAPHIC MAP

LONG TERM URBAN GROWTH MANAGEMENT BOUNDARY
EXPLANATION: Long Term Area is where urban growth will occur within 11 to 25 years (1979 - 2000) as the short-term boundary moves out. Public policies & actions will emphasize planning for longer term utility provisions (e.g., sewer/water) and preserving long-term urban development options.

DEPARTMENT OF CONSERVATION
DIVISION OF WATER RESOURCES
1980

Map prepared by Thurston County Planning Department
Northern Thurston County

Development Patterns for 1969, 1988 and 2010

- Growth before 1969
- Growth between 1969 - 1988
- Growth between 1988 - 2010
- Olympia/Lacey/Tumwater City Limits
- UGMA Long Term Boundary

This map shows the pattern of urban and suburban development in 1969 and 1988 in north Thurston County. In addition, the map shows what the pattern of development may look like in the future, through the year 2010 based on current trends and forecasts for the future. This map is intended to show patterns of growth, not specific developments. The 1969 and 1988 representations are based on interpretations from aerial photos of this area in 1969 and 1988.

The 2010 representation is based on Thurston Regional Planning Council population forecasts, identification of vacant buildable land and existing zoning. It represents what the development pattern may look like in 20 years assuming existing zoning densities stay substantially the same. The 2010 representation does not attempt to identify where specific developments will locate, nor does it represent an endorsement for development to occur in specific areas.

This map is best used to help identify the historic and future pattern of urban and suburban growth in north Thurston County. Rural (less than two homes per acre) developments are not shown. This is not a land use map.

Definition: For the purpose of this map, development means residential development, both urban and suburban, with a density of at least two houses per acre, and non-residential development or an industrial or commercialenser that moderately adds to the built environment of an area.
Thurston County
SEWERAGE GENERAL PLAN
For the Unincorporated Urban Growth Management Area (Outside Cities)
EXISTING WASTEWATER FACILITIES

1. TAMOSHAN
2. BEVERLY BEACH
3. SEASHORE VILLA
4. ST. MARTIN'S COLLEGE
5. SHOREWOOD ESTATES
6. BOSTON HARBOR
7. L.O.T.T.

LIMIT USE OF CHLORINATED SEPTIC TANK EFFLUENT ALONG SHORELINES

U.G.M. BOUNDARY

Maps prepared by Thurston County Planning Department
Thurston County
SEWERAGE GENERAL PLAN
For the Unincorporated Urban Growth Management Area (Outside Cities)

SOIL LIMITATIONS for SEPTIC SYSTEMS

AREAS OF LOW AND POORLY DRAINING SOILS

EXPLANATION:
- Surface water is susceptible to contamination by human activities.
- Groundwater protection is greater.
- On-site sewage systems may be difficult to design and construct, and may not be possible.

SOURCE:

---

SHORT-TERM U.G.M. BOUNDARY
LONG-TERM U.G.M. BOUNDARY

Map 7

Maps prepared by Thurston County Planning Department
Thurston County
SEWERAGE GENERAL PLAN
For the Unincorporated Urban Growth Management Area (Outside Cities)

AQUIFER SENSITIVE AREAS

UNPROTECTED AQUIFERS
EXPLANATION:
UNPROTECTED AQUIFERS -- those susceptible to contamination by land activities due to a covering of highly porous soils.

SOURCE:

LONG-TERM U.G.M. BOUNDARY

Map prepared by Thurston County Planning Department
APPENDIX B

DESCRIPTION AND COST ESTIMATES OF INTERCEPTORS
B. DESCRIPTION AND COST ESTIMATES OF INTERCEPTORS

The location, size, capacity, construction phasing and cost estimates for the proposed sewer interceptors within the unincorporated parts (outside cities) of the Urban Growth Management Area as shown on Map 1, Appendix A were taken directly from the March 1989 LOTT General Sewer Plan and the current comprehensive sewer plans of the three cities. The capacity requirements for the interceptor system are based on the high growth scenario of the Thurston Regional Planning Council population forecasts. Interceptor sizing and routing were designed around natural topography and drainage basins to minimize the need for pump stations and to minimize environmental impacts. To this end, the interceptor system also includes the use of S.T.E.P. systems where they are deemed more environmentally and cost effective than standard gravity or pump station construction.

The proposed interceptor plan and construction schedule is staged over three construction periods. The first two are 5 year construction periods and the third is a 15 year period.

The sewer interceptors' locations, capacity, construction phasing and resulting construction cost estimates are based on several factors such as topography, existing hydraulic overloading in other interceptors, public health, ground water protection and in-filling. Their location, capacity, construction phasing and ultimate construction costs are subject to changes and updating as each city and the County normally review the area sewer service needs; as new ground and surface water data becomes available; and/or the potential or existing need for ground water protection changes. Changes to land use plans and zoning could also result in sewer location or sizing changes. The final routing, capacity and construction scheduling for specific interceptors will be established by more detailed pre-design studies prior to individual interceptor construction. Timing policies of this plan are contained in Chapter IV, Section D. 2. b.

This appendix contains a brief description of each interceptor and includes location of the information on its phasing, size, length and estimated construction cost. Each one is identified by a letter and number which corresponds to Map 1 in Appendix A.

Total costs are shown on Table 5A in Chapter IV. Table 5A includes the costs of the new interceptors outside city limits which are detailed in this Appendix, ($33,706,932) and the costs of new interceptors inside city limits ($19,482,600). Combined total is $53,086,532. These figures are in 1988 dollars.
CITY OF OLYMPIA'S
SEWER SERVICE AREA WITHIN THE
UNINCORPORATED URBAN GROWTH MANAGEMENT AREA
(in 1988 Dollars)

PHASE I

PERCIVAL CREEK BASIN (Line 0-1)

Percival Extension - Construct 15 inch Interceptor from 9th and
Cooper Point Road to Goldcrest/Grass Lake area near
14th Avenue N.W. $ 705,400

Percival Extension Pump Station and Force Main -
Construct 3.8 M.G.D. Pump Station and 12" Force Main from
Kaiser Road to Grass Lake Interceptor.
Pump Station $1,279,000; Force Main $516,600

HENDERSON BASIN (Line 0-2)

Yelm Highway West - Construct 5,900 feet of 24" Interceptor on
Yelm Highway from Rich Road vicinity to Henderson Interceptor. 464,900

PHASE II

PERCIVAL CREEK BASIN (Line 0-3)

Mud Bay Road - Outletting area on Kaiser Road along Mud Bay from
West to outlet into Percival Extension (at the present Grass Lake
line). 342,900

PHASE III

WEST BAY BASIN (Line 0-4)

Butler Cove Pump Station - Construct 1.9 M.G.D. capacity
Pump Station at Butler Cove near French Road. 881,700

Butler Cove Force Main Construct 8,200 feet of Force Main from
Butler Cove Pump Station, along French Road and Crestline Drive,
etc. to West Bay Drive Pump Station. 806,900
INDIAN CREEK BASIN (Line 0-5)

South Bay Subinterceptor - Outletting into Woodard Creek Pump Station from along South Bay Road lying south of 26th Avenue. $ 68,600

Woodard Creek Pump Station - Construct 1.9 M.G.D. capacity at Woodard Creek and 26th Avenue. 858,000

Woodard Creek Force Main - Construct Force Main and gravity outlet from Woodard Creek Pump Station at Woodard Creek and 26th Avenue, along South Bay Road, outletting into existing line at Martin Way and Devoe Street. 1,033,000

TOTAL $ 6,957,000
CITY OF LACEY'S  
SEWER SERVICE AREA 
WITHIN THE 
URBAN GROWTH MANAGEMENT AREA  
(In 1988 Dollars)

<table>
<thead>
<tr>
<th>PHASE I</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LINE L-1</strong></td>
<td></td>
</tr>
<tr>
<td>Chehalis West R.R./Yelm Highway Pump Station (Pump Station &quot;B&quot;) and 4&quot; Force Main to College Street</td>
<td>$268,000</td>
</tr>
<tr>
<td><strong>LINE L-2</strong></td>
<td></td>
</tr>
<tr>
<td>Martin Way Pump Station (Pump Station &quot;A&quot;) and Force Main connection to L.O.T.T. System</td>
<td>2,800,000</td>
</tr>
<tr>
<td>15&quot;-36&quot; Pipe East from Martin Way P.S. to Kinwood Street</td>
<td>196,000</td>
</tr>
<tr>
<td>42&quot; Pipe South from Martin Way Pump Station to DOE</td>
<td>361,000</td>
</tr>
<tr>
<td>42&quot; Pipe on Bowker Street to Pacific Avenue</td>
<td>265,000</td>
</tr>
<tr>
<td><strong>LINE L-3</strong></td>
<td></td>
</tr>
<tr>
<td>Boring for 24&quot; Pipe Under I-5 for 24&quot; Pipe North to Meridian Campus and Hawks Prairie plus 18&quot; Connection to Meridian Campus (U.L.I.D. 11)</td>
<td>694,000</td>
</tr>
<tr>
<td>15&quot; Pipe East on D.N.R. Easement on Marvin Road</td>
<td>141,000</td>
</tr>
</tbody>
</table>

**PHASE II**

| LINE L-4                              |         |
| 15" S.T.E.P. Line on Carpenter Rd from 14th Avenue to 33rd Avenue | 393,504 |
| 15" S.T.E.P. Line on Carpenter Rd from 33rd Avenue to Mullen Rd | 227,900 |
| **LINE L-5**                          |         |
| 15" S.T.E.P. Line on R.R.R.O.W. from Carpenter Rd to Mayes Rd | 232,523 |
| 12" S.T.E.P. Line on R.R.R.O.W. from Mayes Rd to Marvin Rd | 78,434 |
| **LINE L-6**                          |         |
| 30" Pipe East from Bowker Street to Carpenter Road on R.R.R.O.W. | 345,000 |
| **LINE L-7**                          |         |
| 21" Pipe on Husky Way to Kinwood Street | 55,000  |
| 15" Pipe on Kinwood, Seahawk, and Pacific Avenue  | 277,000 |

B - 4
**LINE L-8**
Draham Street Pump Station (Pump Station "E") and 12" Force Main to Martin Way Force Main $ 1,252,000

**LINE L-9**
10" Pipe West from Pump Station "E" to Abernathy Street 282,000
8" Pipe West of Abernathy Street on 15th 48,000

**LINE L-10**
18" Pipe, North side of I-5, Woodland Creek to West Line Section 11 420,000

**LINE L-11**
15" Pipe on Martin Way from D.N.R. to High School Pump Station "A" 141,000
Upgrade and Force Main
Upgrade from Pump Station "A" to L.O.T.T. System 1,050,000

**PHASE III**

**LINE L-12**
8" Pipe Upstream from Pump Station "B" 85,000

**LINE L-13**
10" Pipe on 56th from Sarazen to College Street 33,000
8" Pipe on Sarazen from 66th to 56th 95,000
Rainier Road Pump Station (Pump Station "S") and 4" Force Main to Sarazen Street 295,000

**LINE L-14**
10" Pipe on Ruddell Road from 54th to Yelm Highway 61,500

**LINE L-15**
8" S.T.E.P. Line on Carpenter Road from Mullen Road to B.N.R.R. 82,320
6" S.T.E.P. Line from Yelm Highway North to B.N.R.R., connect to Carpenter Interceptor
4" S.T.E.P. Line on Yelm Highway to Kelly Beach Road 35,000
LINE L-16
12" S.T.E.P. Line of Mullen Road from Carpenter Road to Afflebraugh $ 97,954
10" S.T.E.P. Line East on Mullen Road from Afflebraugh 45,270
10" S.T.E.P. Line West on Mullen Road from Kagy 33,054
8" S.T.E.P. Line on Mullen Road from Kagy to Marvin Road 27,982
6" S.T.E.P. Line East on Mullen Road from Marvin Road 72,443
8" S.T.E.P. Line South on Kagy from Mullen Road 59,617
6" S.T.E.P. Line on 58th from Patteson Lake to Meridian Road 84,014
4" S.T.E.P. Line West on 58th from Meridian Road 42,182

LINE L-17
6" S.T.E.P. Line on Marvin Road from Woodgrove to Lake Forest 56,517
4" S.T.E.P. Line on Marvin Road from Lake Forest to Kyro Road 43,544
8" S.T.E.P. Line on Marvin Road from Walther to Woodgrove 33,949
8" S.T.E.P. Line North on Marvin Road from R.R.R.O.W. 33,534

LINE L-17 (continued)
10" S.T.E.P. Line North on Marvin Road from R.R.R.O.W. to Walthew 145,744
8" S.T.E.P. Line South on Marvin Road from Pacific Avenue 39,087

LINE L-18
12" Pipe East on Pacific Avenue from Steilacoom Road 241,000
6" S.T.E.P. Line on Pacific Highway from Marvin Road to Gregory 26,985
6" S.T.E.P. Line on Pacific East from Gregory 75,749
8" Pipe on Steilacoom Road 97,000

LINE L-19
8" S.T.E.P. Line East on R.R.R.O.W. from Marvin Road 94,612
6" S.T.E.P. Line on Pacific and R.R.R.O.W. 84,014

LINE L-20
15" Pipe on Husky Way from Kinwood to Marvin Road 380,000
15" Pipe East on Steilacoom Road from Marvin Road 219,000
Steilacoom Road Pump Station (Pump Station "K") and 6" Force Main to Steilacoom Road Interceptor 353,000
10" Pipe Upstream from Pump Station "K" 176,000
12" Pipe on Martin Way from High School to Meridian Road 120,000
8" Pipe Upstream from Pump Station 169,000
8" Pipe on Meridian Road Upstream from 12" on Martin Way 152,000
Meridian Heights Pump Station (Pump Station "L") and 4" Force Main to 8" Pipe on Meridian Road 234,000
| LINE L-21                                      | $ 614,000 |
| Beachcrest Pump Station (Pump Station "T") and 4" Force Main to Hawks Prairie Interceptor |
| LINE L-22                                      | 166,000   |
| 18" Pipe, North Side of I-5, West Line Section 11 to Marvin Road |
| LINE L-23                                      | 1,035,000 |
| 12" Pipe Upstream from Pump Station "E"        |           |
| Pump Station "A" Upgrade and                   |           |
| Force Main Upgrade Pump Station "A" to L.O.T.T. System |
| LINE L-24                                      | 3,600,000 |
| Abernathy Street Pump Station (Pump Station "R") and 4" Force Main to Abernathy Street Interceptor | 311,000   |
| 8" Pipe Upstream from Pump Station "R"         | 152,000   |
| LINE L-25                                      |           |
| Meridian Campus Pump Station (Pump Station "J") and 10" Force Main to Item 3 18" Connection, plus  | 1,190,000 |
| Major Interceptor for Meridian Campus Development |
| **TOTAL**                                      | **$20,519,932** |

B - 7
<table>
<thead>
<tr>
<th>PHASE II</th>
<th>COST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LINE T-1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Capitol Boulevard/Old Highway 99 Interception</strong></td>
<td></td>
</tr>
<tr>
<td>Capitol Boulevard Pump Station at 88th Avenue with 12&quot; Force main</td>
<td>$1,651,000</td>
</tr>
<tr>
<td>to 84th Avenue 18&quot; Pipe to Henderson Boulevard</td>
<td></td>
</tr>
<tr>
<td><strong>LINE T-5</strong></td>
<td></td>
</tr>
<tr>
<td><strong>88th Avenue Interceptor</strong></td>
<td></td>
</tr>
<tr>
<td>18&quot; Pipe from Case Road to Old Highway 99</td>
<td>667,000</td>
</tr>
<tr>
<td><strong>LINE T-2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Littlerock Road Interceptor</strong></td>
<td></td>
</tr>
<tr>
<td>21&quot; Pipe from Prine Drive to Airdustrial Way</td>
<td>203,000</td>
</tr>
<tr>
<td><strong>LINE T-3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Black Lake-Belmore Interceptor</strong></td>
<td></td>
</tr>
<tr>
<td>Black Lake Pump Station at Black Lake-Belmore Road 8&quot; Force Main</td>
<td>916,000</td>
</tr>
<tr>
<td>on Sapp Road 12&quot; Pipe to City Limits just North of Sapp Road</td>
<td></td>
</tr>
<tr>
<td><strong>PHASE III</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LINE T-3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Littlerock Interceptor</strong></td>
<td></td>
</tr>
<tr>
<td>12&quot; Pipe from 93rd to 88th Avenue Life Station, 15&quot; Pipe to 83rd</td>
<td>2,101,000</td>
</tr>
<tr>
<td>Avenue, 18&quot; Pipe to Prine Drive</td>
<td></td>
</tr>
<tr>
<td><strong>LINE T-6</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Case Road Interceptor</strong></td>
<td></td>
</tr>
<tr>
<td>10&quot; Pipe to 93rd Avenue, 15&quot; Pipe to 88th Avenue</td>
<td>326,000</td>
</tr>
<tr>
<td><strong>LINE T-7</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Henderson Boulevard Interceptor</strong></td>
<td></td>
</tr>
<tr>
<td>8&quot; Pipe to Israel Road, 10&quot; Pipe to Deschutes River Pump Station,</td>
<td>1,041,000</td>
</tr>
<tr>
<td>8&quot; Force Main to Elm Street</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$6,905,000</td>
</tr>
<tr>
<td>in 1988 dollars:</td>
<td>$6,607,655</td>
</tr>
</tbody>
</table>

B - 8
APPENDIX C

HIGH, MEDIUM AND LOW POPULATION PROJECTIONS
A. INTRODUCTION

In a national study of population changes Thurston County was projected to be the fifth fastest growing county in the United States between now and the end of the century.

But what do we mean by the word growth? In demographics we generally use the word growth to mean an increase in population or employment levels, but the real meaning of growth depends upon one's perspective.

For example, from the perspective of several miles above the Puget Sound Region one can see Thurston County nestled at the Sound's southern end, relatively undeveloped compared to the other counties that line the Central Puget Sound shoreline. From this aerial view, Thurston County doesn't look like one of the fastest growing counties in the United States.

But visit one of the county's growing school districts and one can see a near explosion of new schools and portable classrooms being added to serve the needs of new students. Some classes seem to add students on a daily basis. This is growth and its meaning is felt by teachers, students, and parents. But schools are not the only issue facing our community. Growth is also a driving force behind concerns over water quality, sewer planning and transportation issues. This perspective gives us a very different impression than the one we have from the air.

Which meaning is the most accurate? Neither. Rather it is that both perspectives add to our understanding of what this thing called growth means.

So it is perspectives on growth that we offer here. In the following pages we will look at growth from: 1) the perspective of our place in time, examining past growth trends and how much growth we might expect in the future; 2) the perspective of how we compare to other counties in the Puget Sound Region; 3) the perspective of where growth is occurring within our county; and 4) the perspective of some of the key growth related issues that face our community.

We do not pretend that what we say here is the last word on growth. But we hope that by offering these perspectives we can help the reader gain a fuller understanding of the changes, challenges and opportunities that Thurston County faces in the future.
B. PERSPECTIVES ON GROWTH

Where We Were -- Where We Are -- Where We Are Going

1. Our Recent Past

The 1970's

The explosive growth of the recent past has been based on a number of factors that may or may not be repeated in the next few decades. Thurston County entered the 1970's with its economy in transition. The 1960's saw the gradual decline of the local forest products industry, culminating in the closure of two mills in 1967. At the same time, state government employment was on the rise, taking over the role of major employer in the community. During the 1970's, it continued to grow strongly, reflected in a large expansion of the State Capitol Campus to the east of Capitol Way.

Other major events also dramatically changed the community, reflecting a diversification of the local economy. The Evergreen State College opened in 1971, starting the growth spurt of the Westside. St. Peter Hospital moved to Lilly Road in 1971 too, eventually taking most of the medical community with it. Employment in medical services has since grown rapidly, accounting for half the employment in the local service sector, compared to a state-wide norm of one-third. Thus Thurston County now "exports" these services to several nearby counties.

Similarly, West Olympia saw the construction of a regional shopping center in 1978, with spin-off developments popping up like mushrooms after the first rains of autumn. This development reflected an expansion of our secondary retail trade area into adjacent counties, and a decrease in the "leakage" of retail sales to Pierce and King Counties.

In nearby Grays Harbor County, construction of the Satsop Nuclear Plant began in 1977. Roughly half of the peak employment of 4,000 lived in Thurston County. This added a considerable stimulus to our local economy.

While state and federal government employment grew by 52 percent during the 1970's, employment in trade grew by 87 percent and services grew by 145 percent. Population grew by 62 percent during the 1970's, as housing starts doubled previous levels. To meet the needs, we built new schools all over the County. We completely rebuilt our sewage treatment plant, which became operational in 1982, and many of the major trunk lines.
The 1980's

As quickly as the boom began, it ended. By 1980, we were in the start of a long slump that lasted until the middle of the decade. From 1980 through 1983, manufacturing employment declined. State and federal government employment dropped in both 1981 and 1982. In 1983 work on the Satap Nuclear Plant was halted. Growth slowed to a trickle.

But business cycles are the way of the world. It is useful to remember that the late 1960's were also boom years, and the early 1970's were also a slow period. The late 1980's have brought a resurgence of strength to our local economy.

As we pulled out of the recession of the early 1980's, new construction began to boom once again. Major projects began to change the face of our several communities. Olympia built a new performing arts center, a community center, a farmers market, and several major expansions of the successful Percival Landing waterfront boardwalks. Private dollars flowed into many renovated historic downtown buildings. Other downtown sites saw major new office complexes.

Olympia's Westside saw the construction of our community's second hospital. Many new offices were built near the Capital Mall and near the Courthouse. Several large apartment complexes and a large new retirement center also came to the Westside.

Lacey's Core Area was the scene of major renovations and expansions to South Sound Shopping Center. Major new offices sprang up in Rowe Six and Woodland Square. Other commercial development followed the strong growth to the south and east of Lacey. Major new community commercial development came to the Yelm Highway and the Hawks Prairie areas. Responding to the growth of large subdivisions east of Lacey, the North Thurston School District rebuilt the North Thurston High School and the South Bay Elementary School, and built new grade schools on Abernathy Road and in The Meadows subdivision.

Tumwater saw strong residential growth, especially on the Mottman Hill and along the Yelm Highway. Industrial growth was strong, especially in the Mottman Industrial Park and at the Thurston Airdustrial Center. Tumwater expanded its industrial land base with annexations to the west and to the south, taking in the airport and the Airdustrial Center. Strong growth to the west of Tumwater led the Tumwater School District to build a new grade school at Black Lake.
The South County has also seen strong growth, especially in the Yelm area. Although the South County is still rural in nature, many people have been moving there and commute to jobs in the North County, or to Fort Lewis, Tacoma, Centralia or perhaps even farther.

Even though our growth rate has rebounded from its low point in the early 1980's, it has not regained the extreme high of the late 1970's when we grew by 7.7 percent annually; now we are growing by about 2.4 percent annually.

2. Forecasting the Future

The future will bring changes. But what things will change? How much? In what ways? And what things will not change? Will we still recognize the community we love, after the next twenty years have passed? Will we still have clean air and water? Or will we have pollution, congestion, and overcrowding? What do we need to do now, if we are to avoid being overwhelmed by coming changes?

Every forecast is an exercise in prophesy. Although we cannot know the future, we can make systematic and reasonable assumptions about it. When we prepare forecasts, we interpret past trends in the national, state, and local economy, and then use what we learn to build a computer model to project future employment and population in Thurston County.

Forecasting Growth Depends on Identifying Future Job Opportunities

The underlying premise of our forecast is that our growth is generated by job opportunities. More jobs mean more people; less jobs mean less people. The first step is to forecast employment and labor force needs. We do this by dividing the local economy into its basic and nonbasic sectors.

The basic sector is defined as the industries which produce goods or services which are mainly for "export" to markets outside the local economy. The Olympia Brewery is a classic example of a basic industry. It "exports" beer to the rest of the nation, bringing home jobs and dollars. In Thurston County, state government is also a basic industry, exporting services to the rest of the state. To forecast employment in the basic industries we use projected state-wide trends in population, per capita income, and the employment outlook for jobs in lumber, food processing, and so on. These basic industries are important because they bring in "new" dollars. A large proportion of these dollars will be spent to buy local goods and services supporting local business.
The nonbasic sector is defined as the industries that mainly serve local demand. A grocery store is a classic example of a nonbasic business. To forecast employment in the nonbasic industries we use projected levels of local employment in various other trades, both basic and nonbasic.

Under this theory of economic base analysis, our growth is tied to our ability to produce goods and services for outside markets. In other words, if poor market conditions lead to layoffs in state government and manufacturing, there will be adverse effects on all other local businesses. With good market conditions, the opposite occurs. To determine how much nonbasic employment will increase as a result of basic employment growth we looked at past employment trends for Washington State and Thurston County from 1968 to 1986.

Once total employment is determined, the total local labor force is predicted on the basis of assumed levels of unemployment. But not everyone who works here lives here. And not every worker who lives here works here. Many people commute either into or out of the county every day. The number who commute out is greater than the number who commute in. That difference is growing and we assume a continuation of that trend.

The most difficult factor to forecast is migration. It is also the most important factor at the local level. Migration has accounted for 62 percent of our growth during the 1980's, compared to 33 percent of the growth at the state level. Between 1980 and 1988 about 15,000 people moved to Thurston County and about 10,000 more babies were born than people who died. By comparing the labor force available from natural increase (births minus deaths) with the forecasted need for jobs to be filled we can determine how many more people are likely to move in. It is interesting to note that those who are most likely to migrate tend to be young families and young singles (the 25 - 35 year olds). Thus a community that is growing rapidly with in-migrants will have a younger average age.

3. Economic Outlook for the Northwest and Washington State

Our fortunes are tied to those of the larger world. Thus we should look at what regional forecasters predict for the state and region.

Forest Products will Continue to be Important but with Less Employment.

In general, there is close agreement on the basic picture. The economy of the Pacific Northwest has historically been heavily dependent on the forest products industry. Although industry output has nearly regained the all-time
highs of the late 1970's, industry employment has not. Nor is it likely to. Increased automation has reduced the demand for many jobs. This industry will remain a mainstay of the regional economy, but will have declining employment.

Increased Competition but Boeing Should Remain Strong

Our second largest manufacturing industry is transportation equipment, primarily aerospace. The outlook here is rosier for the mid-range. Boeing has enough orders to keep busy through the 1990's. After that, who knows? In the long run, Boeing's dominance in international sales faces stiff competition from Airbus Industry, an international consortium. Airbus is subsidized in both manufacturing and sales financing by the governments of France, England, and Germany. It is a competitive business, but Boeing has kept a strong market position for decades.

Cautious Expectations In Electronics

The third largest manufacturing sector in the Northwest is electronics, a major bright spot in the region's future. Attracted by a high quality environment and labor force, electronics has been one of the region's growth industries during the past decade and a half. On the other hand, much of the recent growth in employment in the industry has been overseas. Manufacturing plants have moved in large numbers to third world countries to take advantage of low cost labor. Some plant openings were announced in our state with great fanfare, but never materialized. For the most part, research and development has stayed in the U.S., as well as software development. But the optimism of the early 1980's has been replaced by more cautious expectations.

State Will Continue to Grow at the Present Rate

Because of these overall factors, there is a general consensus that the average future growth rate in Washington will neither be as high as in the late 1970's, nor as low as in the early 1980's. On the whole, the state is expected to continue growing at about the moderate rate it is experiencing now.

4. The Forecast for Thurston County

Local Employment Will Grow at Modest Pace

The implication of these state and regional trends is that Thurston County's major employer -- state government -- is unlikely to grow as rapidly in coming decades as it did during the 1970's. Existing manufacturing industries in the County -- dominated by wood products and the Olympia Brewery -- are also
unlikely to see strong growth. Consequently, trade and services will not expand as rapidly as in the late 1970's, but should continue their current moderate growth rate. However, tourism may become more important with the opening of the Olympic Academy. Aquaculture, which is dependent upon clean water, may also increase. This means that by maintaining environmental quality we protect our existing economic base and help attract new jobs.

To sum it up, the employment forecast indicates that local employment will grow moderately in the next 20 years unless there is a significant broadening of the economic base industries.

The employment forecast model allows us to try varying assumptions about employment in "new industries". Assuming great success in attracting a high number of new jobs in economic base industries (those exporting products and services) leads to a high population growth rate. Assuming a low number of such new jobs leads to a low population growth rate.

In plain language, the employment forecast model indicates that our future growth rate will be determined more by the outcome of efforts to bring in new industry than by any other factor.

The Medium Growth Scenario assumes a rate of growth similar to the 1985-1988 growth rate of 3,000 - 4,000 people per year. (Table VII-1, Page C-24) shows moderate growth until the year 2000 (projected population: 197,000). It would increase after that due to higher employment in new industries (projected population in 2010: 261,000). The annual growth rate through 2000 would be 2.3 percent, with 2.8 percent thereafter.

The High Growth Scenario assumes our late 1970's growth rate of 5,000-10,000 people per year. (Table VII-3, Page C-26) shows rapid growth (annual rate 3.3 percent) through the year 2000, and more rapid after that (annual rate 3.8 percent). By comparison, the absolute growth would be comparable to what we experienced during the 1970's, but extended for two decades. The population in 2000 would be 220,000; in 2010 it would be 320,000.

The Low Growth Scenario assumes a growth rate like we had in the early 70's and early 80's. Table VII-5, Page C-28 shows slow to moderate growth (annual rate 1.8 percent to 2000, 2.3 percent to 2010). This would compare to the recessionary period from 1981 to 1984, extended for one decade, followed by a rate like today's. The population in 2000 would be 186,000; in 2010 it would be 232,000.
C. PERSPECTIVES ON GROWTH: THURSTON COUNTY AND GROWTH REGION WIDE

How does Thurston County compare to its neighboring counties in the Central Puget Sound region?

With a growth rate of 2.5 percent between 1980 and 1988 Thurston County is growing at a faster rate than many of its neighboring counties. But percentages can be deceiving. Within the Central Puget Sound region there are four counties that have added more people since 1980 (King, Snohomish, Pierce, Kitsap). King County has added over 140,000 people since 1980. That is nearly one whole Thurston County. But because King County's total population is over one million even an increase of that magnitude only translates into a percentage increase of 1.3 percent.

When compared to these other four fast growing counties, Thurston County is growing moderately. Thurston County accounts for about 8 percent of the increase in population that has occurred since 1980 in the Puget Sound region.

FIGURE -- VII-2

POPULATION GROWTH SOUTHERN PUGET SOUND COUNTIES

![Population Growth Chart]

POPULATION GROWTH 1980-1988 (Southern Puget Sound Counties)

- King
- Pierce
- Snohomish
- Kitsap
- Thurston

- 1980
- 1988

C - 9
FIGURE -- VII-3

ANNUAL PERCENT CHANGES WASHINGTON COUNTIES 1980 - 1988

[Map of Washington state with county boundaries and a legend showing growth categories: No growth or loss (Less than 0.1%), Slow growth (0.1-1.0%), Moderate growth (1.1-2.5%)]

C - 10
D. PERSPECTIVES ON GROWTH: THE LOCATION AND PATTERN OF GROWTH

In this section we look at growth from the perspective of where it is occurring and where it might occur in the future in Thurston County.

Why is it important to know the location and pattern of growth? Growth, in the form of residential, industrial, and commercial development creates needs for private and public services. Where should the next school site be, what about the next fire station? Should we plan sewer lines for this area or that area? Is growth occurring in areas that are difficult and costly to serve? Is it beginning to spill into environmentally sensitive areas or farming valleys? Do we need to change zoning and land use policies to encourage growth in some areas and discourage it in others?

By identifying where growth is occurring we can do a better job of deciding where that new school or fire station should be. Looking at where growth may be going in the future can help us get ahead and plan for the wave of service needs that future growth may need. We can also identify whether our zoning and land use policies are creating a pattern of growth that is efficient to serve and has the least chance of being harmful to the environment.

1. Location of Growth: Majority of residential development is locating in unincorporated Thurston County. Commercial and industrial developments are locating in incorporated areas.

When we look at where growth has been occurring in Thurston County we can see the important effect that local land use policies have on location of development. Until 1981, most of unincorporated Thurston County was not zoned. Partly as a result of this, in the 1970's residential developments of varying densities reached nearly every corner of the county. The entire county population grew by 62 percent during this period, with over 70 percent of that growth occurring in unincorporated Thurston County. Because of minimal land use controls much of the development occurred without regard to how it would affect adjacent land uses or the ability of the county, cities, schools and fire districts to provide services.

In 1981, the county adopted zoning for about half the unincorporated area. In part, this zoning and subsequent policy change have helped prevent large scale high density developments from occurring far out in rural areas. Even though in the 1980's, 70 percent of the population growth is occurring in unincorporated areas, most of that growth is occurring just outside the three north county cities and the Town of Yelm (see Map 9, Page 14). Residential developments still occur throughout the county, but usually at lower densities.
The majority of commercial and industrial developments have historically located within the incorporated areas of Thurston County. They have done so for a variety of reasons including proximity to a ready transportation network, access to city services and proximity to other businesses. Today this trend still holds true with 70 percent of new commercial and industrial developments locating in incorporated areas of Thurston County (primarily in Olympia, Lacey, and Tumwater) during the 1980’s.

This situation of having commercial development locating in the cities and suburban residential development locating in outlying unincorporated areas creates a complex tax base and service provision program for the county and cities. Past decisions allowed extensive residential development to occur in the county without a plan for funding the services those developments need. The county does not have a high tax base that comes from commercial/industrial land uses to balance its extensive residential land uses. This imbalance has also affected the cities. Because many of the unincorporated residential developments are located near the three north county cities, the cities find themselves supplying services such as libraries and parks to county residents. While it may not matter to residents where or how their service demands are met, it can be a complex issue for specific jurisdictions who are having to face increasing costs of services.

2. The Pattern of Growth. Two decades of planned and unplanned growth is determining the growth pattern of the future.

Map 4, Appendix A shows the pattern of urban and suburban development for North Thurston County in 1969 and 1988. It also shows what the future pattern of growth may be over the next 20 years based on population projections, vacant developable land, and existing zoning. This map shows that since 1969, urban and suburban type growth has occurred throughout the Lacey, Olympia, and Tumwater areas, with the majority occurring outside city limits. The lakes area east and south of Lacey and West Olympia received the most intensive amount of growth. In addition, there has been a scattering of suburban subdivisions along the Puget Sound peninsulas and Black Lake shoreline.

In an effort to prevent expansion of this urban and suburban development, elected officials from Olympia, Tumwater, Lacey, and Thurston County have adopted the Urban Growth Management Agreement. This agreement sets forth goals and policies to protect rural areas from urban and suburban developments and promote orderly growth within an established urban growth boundary. This boundary is also shown on the growth map (Map 4, Appendix A).
Where Will Future Urban and Suburban Growth Occur Over the Next 20 Years?

We estimate that over 60 percent of the growth will occur within the urban growth area, given existing zoning and amounts of vacant land. As shown on the growth map, the future pattern of growth will largely fill out the existing growth pattern. This pattern would meet some of the goals of the aforementioned Urban Growth Agreement, with some important exceptions. As shown on the map, in the future the Nisqually Valley could develop extensively, unless further action is taken to retain rural uses and densities. While this area is outside the Urban Growth boundary, it still remains in suburban density zoning.

This future pattern also shows us that without further steps being taken, many of the open spaces and farming areas near the cities may disappear in the future because they are otherwise in the path of future growth.

What About Rural Growth?

While the growth map is limited to showing just the pattern of urban and suburban growth in north Thurston County, low density rural growth will occur in other areas of the county. We forecast that up to 40 percent of future residents will live outside the urban area. This means there will continue to be rural low density (one home per two acres, and one home per five acres) developments throughout Thurston County. In addition, there are likely to be higher density developments locating in and around the rural towns and communities of Yelm, Tenino, Rainier, Bucoda and the Rochester/Grand Mound area.

Some Key Issues for the Future.

These trends in location and pattern of growth in Thurston County bring forth several key issues. These issues include: 1) How to protect environmentally sensitive areas, open space and farmlands within and outside the Urban Growth Area; 2) Addressing the situation of areas planned for rural densities but still zoned for urban densities; 3) Identifying and purchasing future sites for schools, parks and fire stations in future residential areas; 4) Financing improvements to roads, sewers and other infrastructure that will be necessary to accommodate new growth; and 5) Providing services to residential and commercial neighborhoods that span more than one jurisdiction.
E. PERSPECTIVES ON GROWTH: ISSUES AND OPPORTUNITIES

The Chinese symbol for crisis is a combination of two symbols, the symbol for danger and the symbol for opportunity. Growth is sometimes seen as causing crises and in this sense like the Chinese symbol, growth combines elements of danger and opportunity.

Clearly, as our population increases, we are challenged to deal with critical issues and problems. In 2010, even if we grow at only a moderate pace, we will add another 120,000 vehicles to our local road network, and 18,000 more children to our schools. Without changes in the way we handle garbage, we will also be sending to the landfill an additional 200 tons of garbage a day.

But, growth is also often the force that helps us face these issues. After all, many of these issues exist to some degree even without growth. Growth serves to intensify and draw our attention to the problems, and sometimes can provide the means (economic wealth) to support the usually costly solutions.

It is clear, however, that if we as a community do not take the opportunity to face the challenges of growth, then undesirable results may follow. Options that address these challenges are discussed in following sections.

FIGURE VII-4
POPULATION FORECAST PERSON BY AGE 1985 VS. 2010

C - 14
1. DEMOGRAPHIC TRENDS

Demographic trends will lead to a population that is different in its make-up as well as its overall size. Some of these changes have dramatic implications.

Increase in the Average Age of the Population

First of all, the average age of the population will increase with the aging of the Post-War Baby Boom. By the year 2010, baby boomers will have reached the ages of 45 to 65 and their numbers will nearly triple. The strongest percentage increase will be in these age groups. Most will be in their peak earning years. Look for vigorous commercial activity in retail and personal services to serve this market. For many, their families will have grown up and left home; increasing numbers will be looking for smaller homes with less maintenance, but with high quality features.

Continued Influx of 25 - 35 Years Old

At the same time, we will continue to have many younger singles, couples, and families in-migrating. This will keep the 25 to 35 year age group the most numerous. This is also the age group which has the most babies. Thus, our school age population will continue to grow strongly. Right now, the children of the baby-boomers (the "baby boom echo") are mostly in grade school. Middle and high school enrollments have grown little during the last decade. That will change dramatically. In 1989, there were 31,000 kindergarten through 12th grade students. With moderate growth there will be 49,000 Kindergarten through 12th grade students by 2010. Growth in middle and high school students will exceed growth in elementary students by the late 1990's, continuing until 2010. The college age population will also see a rebound from the current doldrums of the "baby bust" generation.

Steady Increase in Senior Citizen Population

The ranks of the senior citizens will grow steadily. The strongest growth will be in the 75 and over age group. Their numbers will more than double between now and 2010. In 1989, there were about 6,000 citizens 75 years or older. By 2010 there will be about 12,000. We will see an increasing demand for medical services, retirement centers, nursing homes, home health services, and other services for the elderly.
More Women in the Work Place – Low Unemployment Rates

Our work force will also see dramatic changes. In sum, it will be older, and with more representation of women and minorities. Nationally, new entrants to the work force come from three major pools: young people just getting out of school, immigrants from foreign lands, and -- increasingly -- women adding a second income to the household. The baby boom generation is now at work; it is the baby bust generation that is just getting out of school. This will severely constrain growth of the labor force. Therefore national labor force analysts predict that women and minorities will make up most of the labor force growth through the year 2000. But minorities are, after all, in the minority. The key to an adequate labor force will therefore be women workers.

In order for the labor force to grow, women’s labor force participation rates will have to approach those of men. Two-income families will be increasingly the norm. But for that to work, there must be more child care available.
Labor Costs Rise - More Job Benefits Offered

When labor is in short supply, economic theory says two things will happen: the cost of labor will rise, and capital will be substituted for labor. On the average, we can expect to see lower unemployment rates than during most of the 1970's and 1980's. We can expect to see businesses offering better benefit or salary packages to keep workers, such as more flexible hours, or help with child care. An older work force may be increasingly interested in health care and retirement packages. And we can expect to see more automation of business functions, to improve the productivity of workers.

2. SCHOOLS: Growth in student population, especially high school age, will create a need for at least 20 new schools over the next 20 years.

Currently, there are approximately 31,000 children in Thurston County schools. By 2010, there will be an additional 18,000 (49,000 total) school age children. What effect will this have on our school system? This increase may bring opportunities to expand curriculum choices and cultural activities for our children. But our school resources will also be challenged. In order to accommodate an additional 18,000 students, the county’s school districts will need to build at least 20 to 25 more schools. We estimate that Thurston County will need up to 14 new elementary schools, 5 new middle schools, and 6 more high schools.

FIGURE VII-8
CHILDREN (AGES 5-19)

FIGURE VII-8
CHILDREN (AGES 5-19)
3. TRANSPORTATION: Impact of growth on the transportation system will be dramatic with few easy solutions.

The impact of growth in population and employment on the local transportation network, especially the urban transportation system, will be dramatic over the next twenty years. At the current rate of automobile use, there will be an additional 120,000 vehicles in Thurston County (an increase of 77%). More importantly, according to the Thurston Regional Planning Council's transportation forecasting model, the number of daily vehicle trips in the urban area will increase by 200,000 trips (a 50% increase).

With this number of vehicles and increased vehicle trips, the level of service in a number of travel corridors will be poor unless productive steps are taken. According to TRPC studies, Interstate 5 and Martin Way may become heavily congested during peak travel periods for their entire length within the urbanized area. Downtown Olympia may also experience heavy levels of traffic congestion as traffic capacity is exceeded on 4th and State Avenues. Those sections of the Yelm Highway, Black Lake Boulevard, and Littlerock Road/2nd Avenue that are in the urban areas may approach serious levels of congestion and hazard as early as the mid 1990's.

In addition to this serious congestion, growth in vehicle use will also affect air quality and energy consumption.

What can be done? How can our community avoid these potential crises?

Several options and opportunities exist that can reduce the potential negative effects described above:

* Road Improvements;
* Exclusive bus and carpool lanes;
* Transit service improvements;
* Ridesharing and flexible working hours;
* Alternative fuels and engines;
* Park and ride lots;
* On street parking controls;
* Improved traffic signage and flow improvements;
* Improved bicycle lanes; and
* Intercity rail.
These and other options are the opportunities that will need to be explored and developed in order to avoid the adverse implications of future growth. One common factor affecting the efficient and successful development of these options is the degree to which our main employment and residential areas become more or less dispersed. The more dispersed the land use pattern the more difficult it will be to transport people via bus or other mass transit modes.

4. PARKS, RECREATION AND OPEN SPACE

Where will the additional 112,000 people who will live in Thurston County in 20 years go to satisfy their parks and recreation needs? And what will happen to the open spaces that are interspersed between our neighborhoods? These are special places that offer visual relief and separation from all that is paved and built on and that serve as natural filtration systems protecting surface and ground water.

Various parks planning efforts in the cities, towns and in the county unincorporated areas have recognized the impact that future growth could have on parks, recreation, and open space. These separate planning efforts, some underway, others recently completed, grapple with similar issues. What are the needs, and how do we find the funds to meet those needs?

Looking at the needs broadly, and county wide one can sense the urgency that the park planning groups must bring to their tasks. Based on national standards for parks and recreation needs we estimate that the addition of 112,000 people will create a need for an additional 2,000 acres of parks and playfields, 5 swimming facilities and 50 multi-purpose (tennis, racquetball, etc.) court facilities over the next 20 years. (These estimates do not take into account the fact that in many areas we do not currently meet the national standards.)

The loss of open space is often the most visible and emotional issue related to new growth. The stand of trees in a neighborhood or the unobstructed view of mountains and sky that we enjoy day to day can change overnight.

Most of the cities, towns and the county currently require new development to set aside open space. The county also administers a program to provide property tax reduction for landowners who commit to keeping their land in open space for ten years or longer. However, the preservation of large areas for long-term protection may require the purchase of more land or development rights.
5. ENVIRONMENT

Can the County grow and still sustain its environmental quality?

In terms of the environment, growth presents both real opportunities and significant challenges. The forecasted 112,000 increase in county population over the next 20 years has the potential to seriously affect the environment. With that population increase we will potentially generate an additional 200 tons per day of garbage, a million more gallons of sewage per day, 120,000 more registered vehicles, and 200,000 more vehicle trips per day.

Will Thurston County be able to grow in ways that will allow it to sustain its air, water, and land resources? Or will growth occur in ways that deplete those resources? The answers to these questions will determine how Thurston County drinks and breathes in 20 years. The answer will also be important for the economy as well. We know that industries such as tourism, aquaculture and farming are linked to a healthy environment. But, in a larger sense maintaining environmental quality also enhances the entire economic base. A recent article in Pacific Northwest Executive magazine identifies environmental quality as an important factor in the Pacific Northwest competitive edge in business. According to the article, residents of the Northwest

"seem to accept their ready access to the region's environmental and cultural amenities as part of their real income--a supplementary paycheck denominated in fish, trees, birds, and clean air and water, rather than dollars and cents. In return, firms in the Pacific Northwest enjoy labor costs that are not as high as they would be if this supplementary paycheck were to disappear... Without amenities, we will lose our competitive edge." (Pacific Northwest Executive, January 1989)

Recognizing the impact growth has had and will potentially have on the environment, local elected officials and citizens have begun several efforts to develop programs that will sustain and possibly improve the county's environment. These efforts include:

1. Water Quality Protection. Wide ranging plans and programs are being developed to ensure that land use activities and water runoff do not contaminate surface and ground water resources. Programs underway include storm water and ground water management planning, watershed protection plans, water quality monitoring, sewer planning and development of wetland protection regulations.
2. Solid Waste Management. Plans and programs are underway to reduce the amount of waste sent to the county landfill. Potential programs include recycling, composting yard waste, and incineration. Importantly, the City of Olympia has begun a residential curbside recycling program and the County has a recycling center at the landfill.

3. Transportation Planning. Currently, the local transit system (InterCity Transit) carries less than one percent of the commuter traffic. In order to reduce reliance on the automobile and therefore reduce air pollution, the Metropolitan Transportation Plan identifies several strategies to increase bus ridership and other alternative modes of transportation. Beginning in 1989, there will also be a major update of the Metropolitan Transportation Plan. This update will provide an opportunity to develop strategies to meet our future transportation needs.

4. Environmentally Sound Economic Development. Through programs with the Thurston County Economic Development Council, industries are encouraged to locate here that do not negatively affect the environment. Rather than chasing smokestacks, the Council seeks and attracts industries, such as fish processors that add value to an existing resource base industry.
F. APPENDIX

1. Medium Growth Scenario
   a. Employment, Labor and Population Forecast 1985-2010
   b. Population Forecast by Age and Sex 1985-2010

2. High Growth Scenario
   a. Employment, Labor and Population Forecast 1985-2010
   b. Population Forecast by Age and Sex 1985-2010

3. Low Growth Scenario
   a. Employment
   b. Population

4. Population Forecast by Area 1988 - 2010 - Medium Growth Scenario
## TABLE VII-1

**THURSTON COUNTY EMPLOYMENT, LABOR FORCE, AND POPULATION FORECAST**

**1985-2010**

**** MEDIUM GROWTH SCENARIO ****

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### Number of Workers

| Total Wage and Salary Workers | 47,046| 56,149| 63,251| 70,655| 79,951| 90,938|
| Self-Employed/Uncovered by WSES' | 8,889| 10,668| 12,650| 14,838| 17,589| 20,916|
| Local Employment | 56,935| 66,818| 75,901| 85,493| 97,540| 111,854|
| Unemployed         | 5,600| 5,029| 5,277| 5,457| 6,226| 7,140|
| County Labor Force (est) | 61,800| 71,847| 81,177| 90,950| 103,766| 118,994|
| Total Labor Force (est) | 66,600| 78,313| 89,295| 100,954| 116,219| 134,463|

Population | 139,500| 157,320| 176,506| 197,242| 225,629| 261,204|

**EXPLANATION:** 'WSES - Washington State Employment Security
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Subtotal: 60,952, 63,312

Total: 124,264, 139,500

1980-2010 MEDIUM GROWTH SCENARIO
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| Total Wage and Salary Workers   | 47,046| 57,750| 68,155| 80,087| 98,914| 114,070|
| Self-Employed/Uncovered by WSES | 8,889 | 10,972| 13,631| 16,818| 21,761| 26,230 |
| Local Employment                | 56,935| 68,722| 81,785| 96,906| 120,675| 140,310|
| Unemployed                      | 5,600 | 4,777 | 5,220 | 5,640 | 6,351 | 7,380 |
| County Labor Force (est)        | 61,800| 73,499| 87,006| 102,546| 127,027| 147,690|
| Total Labor Force (est)          | 66,600| 80,114| 95,706| 113,826| 142,270| 166,900|

| Population                      | 139,500| 160,546| 187,901| 220,116| 272,015| 320,060|

EXPLANATION: 'WSES - Washington State Employment Security
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TABLE VII-5
THURSTON COUNTY EMPLOYMENT, LABOR FORCE, AND POPULATION FORECAST
1985-2010

**** LOW GROWTH SCENARIO ****

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<td>328</td>
<td>330</td>
<td>323</td>
<td>312</td>
<td>290</td>
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<td>480</td>
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<td>254</td>
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<td>561</td>
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<td>850</td>
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<td>550</td>
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<td>660</td>
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<td>18,832</td>
<td>20,256</td>
<td>21,740</td>
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<td>6,023</td>
<td>6,557</td>
<td>7,126</td>
<td>7,770</td>
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| Number of Jobs             | 47,046| 54,224| 58,625| 64,157| 70,228| 77,640|
| Self-Employed/Uncovered by WSES | 8,889 | 10,303| 11,725| 13,471| 15,450| 17,850|
| Local Employment           | 56,935| 64,526| 70,350| 77,618| 85,679| 95,490|
| Unemployed                 | 5,800 | 5,611| 6,958| 7,677| 8,474| 9,440|
| Local Labor Force (est)    | 61,800| 70,137| 77,308| 85,295| 94,152| 109,940|
| Total Labor Force (est)    | 66,800| 76,800| 85,039| 94,677| 105,451| 118,580|
| Population                 | 139,500| 154,610| 168,923| 185,981| 206,324| 232,510|

EXPLANATION: 1WSES - Washington State Employment Security
### TABLE VII-6

**FORECAST OF POPULATION DISTRIBUTION BY AGE AND SEX**

**1980 - 2010**

**LOW GROWTH SCENARIO**

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<td>Total</td>
<td>Males</td>
<td>Females</td>
<td>Total</td>
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Subtotal: 60,952 63,312 68,601 70,899 76,179 78,431 63,344 65,579 91,918 94,063 102,173 104,151 115,383 117,127

Total: 124,264 139,500 154,610 168,923 185,961 206,324 232,510
TABLE VII-7

POPULATION FORECAST BY AREA

1988-2010

**** MEDIUM GROWTH SCENARIO ****

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<td>9,476</td>
<td>10,830</td>
<td>11,672</td>
<td>12,227</td>
<td>13,040</td>
</tr>
<tr>
<td>Old Lacey</td>
<td>6,376</td>
<td>6,380</td>
<td>6,496</td>
<td>6,642</td>
<td>6,865</td>
<td>7,075</td>
</tr>
<tr>
<td>New Lacey</td>
<td>12,268</td>
<td>13,097</td>
<td>14,657</td>
<td>15,883</td>
<td>17,187</td>
<td>18,760</td>
</tr>
<tr>
<td>Nisqually</td>
<td>1,222</td>
<td>1,288</td>
<td>1,441</td>
<td>1,603</td>
<td>1,821</td>
<td>2,235</td>
</tr>
<tr>
<td>Griffin</td>
<td>3,957</td>
<td>4,151</td>
<td>4,602</td>
<td>5,085</td>
<td>5,743</td>
<td>6,613</td>
</tr>
<tr>
<td>Littlerock</td>
<td>6,405</td>
<td>6,797</td>
<td>7,696</td>
<td>8,664</td>
<td>9,986</td>
<td>11,731</td>
</tr>
<tr>
<td>Rochester</td>
<td>7,280</td>
<td>7,680</td>
<td>8,595</td>
<td>9,587</td>
<td>10,946</td>
<td>12,744</td>
</tr>
<tr>
<td>Tenino</td>
<td>4,937</td>
<td>5,179</td>
<td>5,758</td>
<td>6,388</td>
<td>7,254</td>
<td>8,400</td>
</tr>
<tr>
<td>Yelm/Rainier</td>
<td>12,050</td>
<td>12,808</td>
<td>14,558</td>
<td>16,440</td>
<td>19,004</td>
<td>22,389</td>
</tr>
<tr>
<td>Summit Lake</td>
<td>1,595</td>
<td>1,597</td>
<td>1,625</td>
<td>1,665</td>
<td>1,734</td>
<td>1,827</td>
</tr>
<tr>
<td>Hawks Prairie</td>
<td>2,429</td>
<td>2,844</td>
<td>4,639</td>
<td>6,984</td>
<td>10,076</td>
<td>14,482</td>
</tr>
</tbody>
</table>


EXPLANATION: Population forecast estimates are the latest figures available. Totals for Thurston County may not agree with the age and employment medium growth tables due to rounding.
Population Forecasting Areas
Map 2 Urban Area

1. Griffin
2. Cooper Point
3. West Olympia
4. Tumwater
5. Black Lake
6. Central Olympia
7. North Olympia
8. South Olympia
9. New Lacey
10. Old Lacey
11. Northeast Thurston
12. Hawks Prairie
13. Lacey Environs
14. Nisqually Valley
15. Yelm Highway
5. **Assumptions**

Every forecast is the product of the assumptions that have been made. Some of the assumptions are detailed and explicit. These assumptions are discussed in separate technical documentation. Other assumptions are more general and implicit, but also have major importance in determining the outcome. They are as follows:

a. There will be no major war, depression, or extensive natural disaster during the period covered by this forecast. In fact, the model is designed to look at "average" economic conditions; it does not attempt to predict the timing of business cycles.

b. Thurston County will continue to share in the extended growth of Washington State and the Puget Sound Region. Future demographic and employment patterns will reflect the general trends of the last twenty years or so.

c. There will be no dramatic changes in our general lifestyle or living patterns within the time period covered by this forecast.

d. The primary determinant of population growth in our community is the growth of jobs. That is, people may want to move here for the lifestyle, but they can only do so if there are jobs for them.

e. No major existing employment centers will close or move from the County during the forecast period.

f. Fort Lewis will remain a major military installation. On the average, its population and economic contribution will neither increase nor decrease significantly over the next 25 years.

g. The regression analysis model used to predict future employment trends adequately interprets historical trends and typifies the local economy.

h. The demographic model used to predict future population trends adequately interprets historical trends, and typifies local birth rates, death rates, and the age characteristics of in-migrants.

**POSTSCRIPT**

To paraphrase one prominent demographer, there are three standard requirements for anyone engaged in producing population estimates: one, a good database; two, a good set of assumptions; and three, a good sense of humor. After all it's been several thousand years since prophecy has been done really well.

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APPENDIX D

RECOMMENDED FOLLOW-UP WORK
D. RECOMMENDED FOLLOW-UP WORK

A. RECOMMENDED FOLLOW-UP RE-EVALUATION OF LAND USE PLANNING AND ZONING

A number of new land use approaches have been identified as necessary adjuncts to the effective implementation of the sewer plan's policies, and should be evaluated for implementation immediately following adoption of the sewer plan. These will involve considerable public participation, particularly items 1, 3, 5, 6, 10, 11, and 12.

Various members of the Task Force will take different sides when some of these issues come up for follow-up consideration. But they all agreed to listing the following for consideration.

1. Use information as it comes in from ground water studies and ground water plan to identify areas for:
   a. Permanent use of on site systems and lower density development, either at suburban or non urban densities, (one unit or less per acre) and
   b. Future sewer use, where infill and build-out at planned urban densities will be encouraged, or where lower densities on sewer will be required for environmental reasons.

2. Review planning and zoning in the UGMA, especially the areas with densities of 2 units per acre, which is neither urban or rural.

Those that can support higher densities should be considered for higher urban densities. Those where environmental conditions call for low densities, should be considered for possible densities even lower than 2 units per acre.

* See further explanation, Page D-4.
* 3. Except for 1. a., put in place strategies to facilitate building within the urban area at urban densities as planned (rather than at lower densities).

For example:

- Require that subdivisions be built at the density planned for the area, rather than a lower one, OR
- Design subdivisions in such a way that larger lots may be divided later into smaller lots at the zoned density; OR
- Design subdivisions at maximum zoned densities and persons wishing a lower density could purchase more than one lot, OR
- Institute both minimum & maximum densities within each zoning district, etc.

* 4. Review, with public participation, urban development requirements to assure their adequacy in terms of urban livability.

This is particularly important in conjunction with the other recommendations to encourage development within the urban area at the planned urban densities rather than lower densities. What would be done is to look at such requirements as landscaping, buffers, clearing, tree and vegetation retention, open space, parking lot design, tradeoff amenities for increased densities in planned unit developments, design of commercial and multifamily projects, lighting, historic preservation, etc.

* 5. Re-evaluate the short-term Urban Growth Boundary: Within a 2-year period, reassess for solving both urban sprawl and market availability. Consider bringing the short-term boundary closer in to enable reasonable infill.

6. After this land use review has taken place, readjust this sewer plan’s interceptor program to the new land use policies.

7. Immediately consider downzoning the higher density rural areas outside the Urban Growth Management Boundary (e.g., 1 dwelling per acre and 1 dwelling per 2 acres) to 1 dwelling per 5 acres.

8. Consider an "impact fee" for new subdivisions in the urban area (e.g., a fee to cover off-site traffic improvements).

* See further explanation, Page D-4.
9. Recommend to the cities that they review planning and zoning for building at planned urban densities similar to recommendation #3 for the county review.

10. Encourage farm uses within the UGMA (buffers and purchase development rights).

11. Evaluate commercial and industrial areas to determine if availability of utilities would provide the incentive to encourage targeted industrial users to locate in unincorporated urban growth areas. Discuss creative financial incentive options (not paid for by sewer users) for providing utilities to achieve County economic goals to attract these users.

12. Discuss density bonuses and incentives for innovative site design techniques to achieve public benefits such as housing for the elderly, low costs housing, significant historic preservation, energy conservation and the preservation or creation of environmental amenities, open space and natural land features.

B. RECOMMENDED GENERAL GOVERNMENT ACTION

Task Force members agree to placing this list for follow-up action, although not all agreed to Recommendation 3.

1. In annexing areas, consider sharing of services between County and City.

2. After areas annex, there should be consideration of cities sharing of tax revenue with the County.

3. Sewer hook-up policies should continue when unincorporated areas annex into cities.

4. The County should initiate action to get technical information on the carrying capacity of southern Puget Sound for handling additional effluent. Logical partners would be Puget Sound Water Quality Authority, Department of Ecology, Pierce and Mason Counties.
EXPLANATION OF RECOMMENDATION TO REVIEW LAND USE DENSITIES AND DEVELOPMENT REQUIREMENTS IN THE URBAN GROWTH MANAGEMENT AREA

Task Force members who support recommendations A, 2, 3, 4, and 5 are proposing these reviews after noting that current building trends are resulting in filling up our large Urban Growth Management Area with low density and fairly large lot "sprawl" type development.

Table 6 on the last page of this Appendix compares the land area, total population and population per square mile of our urban area to some other cities in the State. Note that our Urban Growth Management Area is about the same size as the City of Seattle (both are approximately 84 square miles), yet our area is slated to become practically fully built out by the year 2010 with low density development. This will mean that new population in our area after that date will need to be housed in the County's rural area, resulting in a loss of rural environments as they change from rural to urban.

The information in this section describes our current building trends and how the recommended land use reviews could result in reversing these trends.

Building Trends and Their Influence on Population Forecasts:

According to the latest forecasts as shown on Table 1, Chapter II, population of the County as a whole is expected to increase 75.5 percent, and the Urban Growth Management Area by 74.5 percent by the year of 2010. Earlier population projections prepared in 1984 for the LOTT II sewer planning had indicated that the urban growth management area had several times the needed room for the anticipated growth. Revised forecasts, done in 1989 now indicate that the Urban Growth Management Area is filling up faster than had been anticipated earlier.

The different forecast for the Urban Growth Management Area is due to changes in two key trends: the share of overall county growth locating within the Urban Growth Management Area, and the predominant lot size being created. First, the 1984 forecast used building trends from 1970 to 1983 to establish development trends. These trends mostly predated the adoption of county-wide zoning in 1980. The new trends show a clear increase in the share of county growth that is locating in the Urban Growth Management Area. In other words, the county's planning policy of encouraging growth in the urban area, rather than in rural areas, is clearly having an effect. Second, the earlier forecast assumed that holding capacity should be based on full zoning density. This is, people would build new housing mostly on the smallest permitted lot size. During the recession of the early 1980s, this seemed to be the pattern. But since then, very little single-family development has been at the minimum lot size. Most people want larger lots. In fact, many developers who
platted minimum lot size subdivisions in the early 1980s replatted them into bigger lots in the late 1980s.

These changing trends have resulted in revised estimates of the amount of vacant land that remains in the Urban Growth Management Area. Because more development is actually taking place in the Urban Growth Area, less vacant land remains than had been thought in 1984. The result is:

(1) the population of the Urban Growth Management Area is growing a little faster than had been expected earlier, and

(2) more significantly, the new development is using considerably more land area than expected.

Thus the Urban Growth Management Area is filling up faster, and with "suburban sprawl" (low "suburban" densities, under 4 dwelling units per acre) as the dominant land use form. Hence the slightly slower rate of population increase for the Urban Growth Management Area than for the county as a whole. (75.5 percent population increase by 2010 for the county as a whole; 74.4 percent increase for the Urban Growth Management Area). This is reflecting the fact that by 2010 the Urban Growth Management Area will be largely full if current development practices (lot sizes) continue.

Sewer Plan Recommendations aimed at Reversing Current Building Trends:

Recommendations A. 2. and 3. are aimed at reversing this "suburban sprawl" trend. The objective is to conserve urban land, and in turn control urban spill over into rural lands. Whether or not these trends are reversed, however, will depend on the outcome of the recommended land use reviews.

Recommendation A. 6. (to look at moving in the short-term urban boundary) is also intended to reverse the current trends of building at lower densities than planned in the urban area. This is because the Plan recommends in Chapter IV. C. (Transitions) that new subdividing and commercial and industrial development within the short-term urban growth management Area is to be done only on sewers and community on-site systems, rather than on individual on-site systems. Moving in the short-term boundary will enable reasonable infill within this area, particularly since Chapter IV. C. also recommends that development within the long-term Urban Growth Management Area is to take place only at very low densities and in configurations that allow replatting or full build out at planned urban densities when sewers become available.
## TABLE 6

### URBAN LAND AREA AND DENSITY COMPARISONS

<table>
<thead>
<tr>
<th>PLACE</th>
<th>POPULATION RANK*</th>
<th>LAND AREA (Square Miles)</th>
<th>DENSITY (Population per Sq. Mile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Three Cities: 1989 Olympia-Lacey-Tumwater (2010) 56,210 (83,522)</td>
<td>6</td>
<td>39.6</td>
<td>1,419</td>
</tr>
<tr>
<td>Our UGMA: 1989 Within Cities (Outside cities) 88,000 (31,790)</td>
<td></td>
<td>84</td>
<td>1,047 (716)</td>
</tr>
<tr>
<td>Our UGMA: 2010 Within Cities (Outside cities) 141,400 (56,878)</td>
<td></td>
<td>84</td>
<td>1,864 (1,303)</td>
</tr>
</tbody>
</table>

At current low density development trends, the urban area would be full in 2010.

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Rank*</th>
<th>Land Area</th>
<th>Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seattle</td>
<td>497,200</td>
<td>1</td>
<td>83.6</td>
<td>5,947</td>
</tr>
<tr>
<td>Tacoma</td>
<td>162,100</td>
<td>3</td>
<td>47.7</td>
<td>3,398</td>
</tr>
<tr>
<td>Bellevue</td>
<td>86,350</td>
<td>4</td>
<td>25.9</td>
<td>3,333</td>
</tr>
<tr>
<td>Yakima</td>
<td>50,610</td>
<td>7</td>
<td>13.8</td>
<td>3,667</td>
</tr>
<tr>
<td>Bellingham</td>
<td>47,290</td>
<td>8</td>
<td>24</td>
<td>1,970</td>
</tr>
</tbody>
</table>

* Rank refers to population size. Number 1, Seattle has largest population in the State. Olympia, Lacey and Tumwater combined would rank sixth.

**NOTE:** That our UGMA has about the same land area as the City of Seattle, although Seattle's population per square mile is much higher. This table also shows that certain other cities which are not considered "high density" cities, such as Yakima and Bellingham have higher densities than our area now or as anticipated in the future (at our current building trends).
APPENDIX E

NEIGHBORHOOD MEETINGS
E. NEIGHBORHOOD MEETINGS

PUBLIC INPUT FROM APRIL, 1989 NEIGHBORHOOD MEETINGS

CONTENTS

1. INTRODUCTION ....................................................... E-1
2. MANAGEMENT .......................................................... E-1
3. INTERCEPTORS, SEWER SERVICE AREA AND USE OF ON-SITE ...... E-2
4. COST AND INCENTIVES ............................................... E-6
5. WATER QUALITY .......................................................... E-9
6. GROWTH - ZONING ....................................................... E-11
7. STORM WATER ........................................................... E-13
8. TREATMENT ............................................................... E-13
9. ON-SITE POLICIES ....................................................... E-14
10. USE OF SURVEY ......................................................... E-14
11. THE PLANNING PROCESS ............................................. E-15
MAIL
SURVEY
FORM
1. **INTRODUCTION**

_When Held:_ Before the Task Force began any deliberations on substantive issues, they went to the public to find out their concerns about sewer service in the Urban Growth Management Area. During April, 1989, mail and telephone surveys of voters were done (they are reported in Appendix F), and a series of five neighborhood meetings were held in locations throughout the Urban Growth Management Area. These neighborhood meetings provided an opportunity for people to expand on issues beyond what is possible in a survey, and to bring up other issues not part of the survey.

_Attendance:_ A total of 117 people attended the neighborhood meetings (not counting staff members, elected officials and Task Force members in attendance). The meetings were announced in the media and in the mailed voter surveys which were sent to over 46,000 people in the urban area. (The mail surveys, however, were not received by many people until just before the meetings, so those who didn’t find out about them in the media or newsletters did not have much advance notice). The meetings were also announced in a newsletter sent to over 200 persons representing neighborhood and other groups and individuals who had expressed interest in the sewer planning effort.

_Meeting Format:_

_Information Packet:_ A packet of informational material was given to everyone attending. It included an address of where to send letters, as well as staff names and phone numbers to call for more information. There were six items in the packets: (1) a fact sheet about the sewer planning process—how it relates to LOTT, who’s doing it, time frame and activities, (2) Schedule of Task Force meetings with time and location, (3) Detailed Process and Timeline, (4) Names and addresses of Task Force members and staff, (5) List of briefing papers for subjects on which the Task Force wanted more information, and (6) a sign up sheet for the newsletter (for people to get names of others who’d like to be on the newsletter mailing list).

_Discussion:_ After brief opening remarks about the process, the public made comments and asked questions. These were capsulized and recorded on large pads of easel paper. After the meeting people were asked to record any other comments they wished to make on the easel pads. The pages which follow contain these notes from all the meetings, arranged by topic. These notes were given to each Task Force member and were referred to throughout the planning process.
2. MANAGEMENT

a. **Comment on Preferred Management**: 1st: County; 2nd: Metropolitan organization with broader planning/management responsibilities.

b. **Comment**: Need accountability

3. INTERCEPTORS, SEWER SERVICE AREA AND USE OF ON-SITE

a. **Question**: Use other septic systems in vulnerable areas?

**Answer**: Expensive

b. **Question**: When will sewer be scheduled down Mullen Road? Heard 2010.

**Answer**: 6/88 LOTT plan with scheduling was a draft plan -- not adopted. Now this sewer plan involves reviewing, re-doing interceptor location and timing. (Linda Hoffman)

c. **Question**: Isn’t septic most efficient way to handle human waste? Sewers just transfer problem (e.g. to Budd Inlet) and septics cost only $1,500-$2,000.

**Answer**: Sewage treatment has progressed from dilution to secondary...is much better than it used to be. Budd may not be only plant -- there is an economy of size for trunks. Septics getting into $8,000-$10,000 now. (Chuck Lyon, Task Force Member)

d. **Question**: Use septic tank waste water? (STEP SYSTEM). (Septic tank not the problem -- its the waste water).

**Answer**: Working on Alternative Systems (Don Leaf)

- Boston Harbor STEP system
- Lacey: near Log Cabin Road
- Olympia: Boulevard Road

e. **Question**: New timetable Carpenter Road?

**Answer**: Ask City of Lacey -- most of Carpenter is in City. (Don Leaf)
f. **Comment:** Sewage problems on street (15th Court). Don't want to put in sophisticated septic just to have sewer come in. Encourage sewer line down his street.

g. **Comment:** Cited Palm Bay and Lakewood approaches.

- Costs: Who pays -- always "other guy"
- Need equity for person who invested in septic, all share their cost
- Stop hit and miss building
- Get going with sewers -- expensive to study
- It may hurt now, but will cost more later

h. **Comment:** Intend to sewer entire growth area? Criteria should be:

- Failing systems
- Densities -- actual built density
- Cost of serving problem subdivisions should be borne by those subdivisions.

i. **Comment:** Need conservation, e.g.,

- No garbage disposals
- Composting toilet
- Wetland treatment
- Separate gray water, treat separately

Build in incentives for alternatives to traditional sewers.

j. **Comment:** Alternative Technology: Suggests we get information from other older areas.

k. **Concern:** Septic system inspection...requiring new septic system...then sewers; this double system is expensive.

l. **Comment:** Wants Sewer (On 7th in City)

- Concerned about conditions of septic systems; impact of Indian Creek
- Need incentives for sewer; Help with LID

m. **Question:** Where intend to extend sewers?

**Answer:** This is what to be planned
n. **Question:** Will hook up be required if line goes by property even if good individual system?

**Answer:** To be looked at

o. **Comment:** High density new subdivisions should be sewered

p. **Comment:** Don't assume sewering everything. Explore other possibilities, e.g., more advanced septic systems--efficient. (Mass., N.J.)--$500 to $1,000 extra. Improve septic designer program...training.

**Response regarding costs of septics:**

More advanced systems cost more than $500 - 1,000

$3,000 - 3,500 - pump - extra sand costs start to parallel sewer variables: distance to line, number people sharing

$7,000 - 10,000 for special systems

$14,000 - on some water fronts

q. **Question:** What parts of county are more vulnerable?

**Answer:** Sensitive Area Maps and Preliminary DRASTIC Map explained

r. **Question:** Will ground water results come in after sewer plan done...heard it'll be another 18 months?

**Answer:** Coming in phases

- To build in mechanisms to sewer plan to revise based on on-going information

s. **Question:** Will there be no more septic systems in 20 years?

**Answer:**

- They'll remain rural parts of County
- Some expected to be used permanently in Urban Area

**t. Question:** What about ban on septic systems now (McAllister Springs)?

**Answer:** Temporary ban...new subdivisions, only
u. **Question:** People should be asked how much we should grow and where?
   
   **Answer:** This addressed via Comprehensive Planning and Zoning. Process and current Joint Planning Programs explained...public participation

v. **Question:** What variables are considered in planning/zoning?
   
   **Answer:**
   - Environmental Conditions
   - Carrying capacity
   - Roads and other services/facilities that available
   - Peoples desires, etc.
   - Sewer Planning is and needs to be based on certain assumptions regarding growth to intensity of development. Those assumptions established via planning and zoning, although it is always open to re-evaluation, re-consideration.

w. **Question:** Considering composting toilets--incentives and education for their use? Deal with waste so we aren't flushing with lots of water and dumping wastewater elsewhere.
   
   **Answer:**
   - They're Allowed
   - But not focused on. Some difficulty with public acceptance of composting toilets. Where new owner moves into residence with one, they tend to change over

x. **Concern:** Regarding growth rate--wants it slowed. Don't over encourage it. Downzone. Don't need more sewer interceptors. This area is a jewel.
   
   Advantages of LESS growth
   
   - Less crime
   - Less pollution
   - Better quality of life
   - Cancerous, uncontrolled after certain point
   - No growth beyond natural carrying capacity

y. **Concern:** Wants urban boundary held--not spread further

z. **Concern:** Hope someone's connecting all the efforts

aa. **Concern:** The Urban Growth boundary is too large
bb. **Concern:** The Evergreen State College should have a Rural Area around it (should not be in Urban Growth boundary)

c. **Concern:** Kaiser Road area should be downzoned

dd. **Concern:** Work in harmony with Mother Nature

e. **Concern:** Wants to keep water clean
   - Harder with more growth
   - Be Safe...start as quickly as possible, especially in vulnerable areas
   - High Priority--new sewer system in downtown Olympia--not know what lines where (leaks/breaks into Capital Lake from sewer lines that they did not even know were there--old sewers apparently not mapped.)

ff. **Concern:** Do most efficient, natural approach

gg. **Concern:** Concerned about investment in septic if all have to convert to sewer.

hh. **Concern:** Look at chlorination and filtration of water system. More concerned about industrial pollution and septic.

ii: **Concern:** Costs and 25-year Plan: Cheaper to plan adequately and pay now versus increased costs later. Suggest more than 25 year plan, e.g larger Urban Area.

   Scott Lake--prefer to pay for line to Lake now versus later.

jj. **Concern:** Consider sewer to high density rural areas

   **Staff Comment:** Who pays for oversizing back-up line?
   (Don Leaf)

   Consider holding tank and trucking out of sewage.
4. COSTS AND INCENTIVES

a. **Question:** Is there assistance for septic repair before sewers become available?
   
   **Answer:** Need community system to receive grant (can't loan pub. $ to individuals). (Don Leaf)

b. **Question:** How to pay for clean-up (how many people can the land handle)?
   
   **Answer:** Cheaper to keep clean vs. clean-up. (Linda Hoffman)

c. **Question:** How do it with so much new development? I'm willing to pay if spread cost over 20 years (city water/sewer) spent money new well, septic. Better if other way (City water/sewer at time it was needed, rather than after installing new well and septic).
   
   **Answer:** Described Aquifer Protection District. (Linda Hoffman)

d. **Question:** Concerned about whether can afford sewer system. Nearby farm sizes are increasing -- what about their pollution and contribution to costs?
   
   **Answer:** Ground water plan assessing this (farm practices). (Don Leaf)

c. **Concern:** Combined Storm Water - Sanitary Sewer Lines -- Olympia Sewers
   
   - Everyone should not pay for separation.
   - Owner of line should pay for repair of own line.

   **Staff Comment:** Removal benefits everyone because of increased capacity. (Don Leaf)

f. **Concern** Costs should not be by street frontage, rather by house (size, number of residents, etc.). Interceptors that mainly serve large development (e.g., Hawks Prairie Planned Communities) should be paid by that developer.
g. **Concern:** Cited Palm Bay and Lakewood approaches and:
   - Costs -- who pay -- always "other guy"
   - Need equity for person who invested in septic...all share their cost
   - Stop hit -- miss building
   - Get going with sewers -- expensive to study
   - It may hurt now...but will cost more later

h. **Comment:** Will anyone be willing to pay?

i. **Comment:** Rate increases hard on City laundromat business--wants more accurate cost estimates...so don't get immediate revisions and increases

j. **Question:** Any grant money for interceptors?

k. **Comment:** Developers should pay for sewer extensions

l. **Comment:** Please consider tax incentives for developers and homeowners for adding/maintaining greenbelts, pumping out septic tanks regularly, and using other ecological efforts

m. **Comment** Concerned about costs increases: consider less expensive alternatives (e.g. nitrogen removal).

n. **Comment:** Worried about costs when have large road frontage

o. **Comment:** Growth pay for growth
   - Existing people *not* pay on basis of water protection
   - Sewer cost not as large a portion of new housing cost as other variables

p. **Comment:** Can not expect someone else to pay.
   - Everyone will have to share
   - Need equitability
q. **Question:** Any federal funds?

**Answer:** For study portion (a part)

- Some construction help
- Less than in past
- Primary treatment plants compete better than our secondary plant for limited grants

r. **Comment:** Bought on sewer because didn’t want to chance failing septic/water:

- Wants inevitable growth done well so it won’t impact him.
- Costs: Doesn’t want to pay for new development’s share.
- Need good transition between Single-Family and Multifamily (Zoning). Look at Land Use Planning to resolve conflicts between uses, especially lesser or higher intensity uses.
- Does not want to pay for stormwater facilities for new developments.

s. **Comment:** Economics Concern: May be out of pocket expenses now, but worth it to keep good water amenity.

t. **Comment:** Higher density developments should pay more than lower, e.g. apartments, especially in areas where older, large lot developments exist as hold-over from earlier rural lifestyle.

u. **Phone-in addition from one of the attendees:**

- For water quality threats due to sources such as lawn fertilizers, issue yard signs that owners of this property have agreed not to use chemicals.
- Supports adding the costs of sewers to new housing. Housing already costs more due to building code compliance, some which may not be absolutely necessary (e.g. stud spacing, insulations, smoke alarms). If willing to do these, another thousand dollars should also be spent to assure clean water.

v. **Comment:** Regarding growth paying for growth:

- Willing to pay my fair schedule
- What’s equitable is fair
- He will pay, but at lesser rate than high density (same point as #20 above).
w. **Comment:** Costs and 25-year Plan: Cheaper to plan adequately and pay now versus increased costs later. Suggest more than 25 year plan, e.g. larger Urban Area.

Scott Lake--prefer to pay for line to Lake now versus later.

5. **WATER QUALITY**

a. **Question:** What are the results of well testing and monitoring?

**Answer:**
- Thurston County -- no trend data.
- Getting answers to this now (USGS).
- No testing required for private, individual wells
- But USGS sampling does include private wells in order to get information on various aquifers. (Don Leaf)

b. **Question:** What other water supplies are there besides McAllister Springs?

**Answer:**
- Olympia: 1st: McAllister Springs; 2nd: Allison Springs, Wiggens Road well for Yelm Highway (Wilderness/Shanna Park), and
- UGMA: 200+ water supplies on record of 2 services or more
- County-wide: 1200 community water supplies (2 services or more). (Don Leaf)

c. **Question:** Concern regarding logging/clearing while McAllister moratorium is in place...run-off and other impacts.

**Answer:** Temporary moratorium in McAllister Geologically Sensitive Area. It’s not a total moratorium -- Land may be cleared, but no new septic hook-ups for newly created lots (already approved lots may build). It’s not permanent (results of Ground water studies will provide information for permanent or long range solution). (Loretta Swanson)

d. **Question:** U.S. Geological Survey -- came and asked for sample from his capped well. They got no water, so how good is USGS?

**Answer:** USGS is as good as they come. (Chuck Lyon, Task Force Member)
e. **Question:** How safe is drinking water now? How long remain safe?

**Answer:** Safe now. Don't know for how long.

- There are signs of stress
- Increasing nitrates
- Increasing land use activities
- Don't know time before problem
- Best is prevention

g. **Question:** Know the percent of deterioration in the last 10 years?

**Answer:** No

h. **Question:** Are we throwing darts regarding purity of water? Why don't you know trends if we're testing?

**Answer:** Deschutes Basin Study indicates some pollution problems from other than sewage. (Don Leaf)

Percival Creek Drainage Basin study is beginning. It should identify pollution sources from that creek's basin. (Loretta Swanson)

i. **Concern:** We have good water--keep it.

j. **Concern:** Will water quality be determining factor in shaping growth (or economic factors)?

k. **Question:** Deschutes River - Black, smelly water from Falls Terrace

**Answer:** To check out
6. GROWTH - ZONING

Concerns:

• Losing Quality of Life
• Traffic Increase
• Air Quality Slowly Deteriorating
• Clear Cuts, Need to Preserve Trees
• Need Balance (between quality of life and growth)
• Need Some Growth But Not Overdone
• Limit Construction to Reasonable Amount
• Growth Keeps Coming -- need to accept it
• Solve Problems Together
• Don't Need Government Telling Us What To Do
• Preserve rural character -- concerned about growth area filling up
• Doesn't want 2 dwelling per acre in/throughout Rural. Rural is trees, farms, etc., not "2 units per acre."
• Why isn't Black Lake included in Urban Area?
• Seen water quality Budd Inlet deteriorate. Stop industrial growth and using Puget Sound to transport goods
• Bought on sewer because didn't want to chance failing septic/water:
  • Wants inevitable growth done well so it won't impact him.
  • Costs - does want to pay for new development's share.
• Need good transition between Single-Family and Multifamily (Zoning). Look at Land Use Planning to resolve conflicts between uses, especially lesser or higher intensity uses.
• Does not want to pay for stormwater facilities for new developments.

a. Question: People should be asked how much we should grow and where?

Answer: This addressed via Comprehensive Planning and Zoning. Process and current Joint Planning Programs explained...public participation

b. Question: What variables are considered in planning/zoning?

Answer: • Environmental Conditions
  • Carrying capacity
  • Roads and other services/facilities that are available
  • Peoples desires, etc.
  • Sewer Planning is and needs to be based on certain assumptions regarding growth to intensity of development. Those assumptions established via planning and zoning, although it is always open to re-evaluation, re-consideration.
Concern regarding growth rate—wants it slowed. Don't over encourage it. Downzone. Don't need more sewer interceptors. This area is a jewel.

Advantages of LESS growth

- Less crime
- Less pollution
- Better quality of life
- Cancerous, uncontrolled after certain point
- No growth beyond natural carrying capacity

Wants urban boundary held—not spread further

The Urban Growth boundary is too large

The Evergreen State College should have a Rural Area around it (should not be in Urban Growth boundary)

Kaiser Road area should be downzoned

7. STORM WATER

- Storm water fee should be based on area, not household—also based on amount the property is paved and developed.

- Combined Storm water - Sanitary Sewer Lines -- Olympia Sewers

  - Everyone should not pay for separation.
  - Owner of line should pay for repair of own line.

Staff Response:

Removal benefits everyone because of increased capacity (Don Leaf)

- Bought on sewer because didn't want to chance failing septic/water:

  - Wants inevitable growth done well so it won't impact him
  - Costs: Does not want to pay for new development's share.
  - Need good transition between Single-Family and Multifamily (Zoning). Look at Land Use Planning to resolve conflicts between uses, especially lesser or higher intensity uses.
  - Does not want to pay for stormwater facilities for new developments.
a. **Question:** Is Stormwater being taken care of from new large parking lots?

**Answer:**
- There are existing standards
- In process of improving them: Design Manual/Basin Plan described in introductory remarks.

8. **TREATMENT**

a. **Question:** Cites Ft. Lewis plant -- no cost over run, works well.

**Answer:** Discharges into different type waters (deep). Budd is problem.

b. **Question:** Sludge - Will current solution be adequate for future? Consider this issue in our plan. Regarding ozone...why increased pipe size as reported in paper.

**Answer:** (it was explained)

c. **Concern:** Concern regarding Budd Inlet--show flushing--ability to accommodate whole area's sewage. Interested in lagoon system -- wants it positively evaluated.

d. **Question** Regarding whether taking care of backup during storms

e. **Comment:** Wants plan to include how sludge disposal will be handled.

f. **Comment:** Do Not Trust Information Regarding Nitrogen Problem in Budd Inlet

- There are other contributors to the problem of Budd Inlet Pollution
9. **ON-SITE POLICIES**

- **Septic Problems**: Maintenance  
  
  **ISSUE**: Sludge disposal  

  Carrot: 5-6 places for commercial septic pumpers to dump sludge  
  - Nominal change to encourage use.  

  With pumping, certify conditions of septic systems via post card to County Assessor (to go on property assessment record).  

  Stick: Assess a fine if system is not drained every 3 years.  

- Septic pumping is required in some places--a good idea  

  **Question**: Why pay to pump if one's system is fine?  
  **Answer**: Monitoring would determine need for pumping  

  He and his neighbors prefer monitoring--more equitable  

  **Comment**: But testing will cost, too  

  **Comment**: Septic pumping would be desirable  

  **Comment**: Do we have surfacing effluent? Saturated ground conditions?  

  Don Leaf responded

10. **USE OF SURVEY**

- Survey biased, unclear, closes off some options (she's Community Relations specialist)  

- Survey biased in some places; by and large good, (he's written a lot of surveys)  

- Survey: Thanks. How Binding on the County?  

- Not necessary to be bound to survey results--he may change his mind with more information.
11. THE PLANNING PROCESS

a. **Question:** Where is "Let's Do It Right" on this Task Force?
   **Answer:** People with environmental concerns are on. One is an LDIR recruit—he keeps in touch with the leaders.

b. **Comment:** Glad of more time for citizen appraisal of sewer planning. Growth inevitable, Planning complex.

c. **Comment:** People need to know of planning efforts and development projects.
   - How we grow is important (e.g., trees between parking lots). People need to know they can influence
   - City/Co. officials need to ask for more amenities with big projects/annexations
   - Communicate better/ahead of time with citizens about development and planning projects.

d. **Comment:** Want enough and adequate time for planning—not rushed
APPENDIX F

SURVEYS OF VOTERS
F. SURVEYS OF VOTERS

APRIL, 1989

CONTENTS

1. INTRODUCTION ................................................. F- 1
2. MANAGEMENT .................................................. F- 2
3. INTERCEPTORS, SEWER SERVICE AREA AND USE OF ON-SITE ..... F- 3
4. COSTS AND INCENTIVES ...................................... F- 6
5. WATER QUALITY ................................................ F- 8
6. GROWTH - ZONING ............................................. F-13
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9. MAIL SURVEY FORM ......................................... F-22
1. INTRODUCTION

During April and May, 1989, the opinions of local voters on growth and sewer issues were sought through two surveys. Over 46,000 persons who voted in the November, 1988 general election and who resided in the Urban Growth Management Area (both inside and outside the cities of Olympia, Lacey and Tumwater) were mailed written surveys. In addition, five hundred were randomly selected for a telephone survey. Out of the 46,000 mail surveys, the county received 3,771 responses, or an 8% return. This is considered to be a fairly high return for this type of survey, where a normal return is 2 to 5 percent. Although the telephone survey represents a more statistically accurate sampling of public opinion than the mail survey, the results of both methods were very similar. Both surveys were conducted for Thurston by the Gilmore Research Group of Seattle.

This appendix contains copies of both surveys and a summary report of the results prepared by the Gilmore Research Group. More detailed reports are available for public review in the Thurston County Office of Water Quality.
WHO SHOULD MANAGE THE SEWER SYSTEM?

SPLIT OPINIONS.

<table>
<thead>
<tr>
<th></th>
<th>Mail</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CITIES ONLY</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>As now</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>Without annexation</td>
<td>11%</td>
<td>17%</td>
</tr>
<tr>
<td><strong>(CITIES IN CITIES,)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COUNTY IN UNINCORPORATED AREA</td>
<td>29%</td>
<td>21%</td>
</tr>
<tr>
<td><strong>ONE GOVERNMENTAL BODY,</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMBINING ALL SEWER SYSTEMS</td>
<td>45%</td>
<td>44%</td>
</tr>
<tr>
<td>City resident</td>
<td>47%</td>
<td></td>
</tr>
<tr>
<td>Unincorporated areas</td>
<td>42%</td>
<td></td>
</tr>
</tbody>
</table>
HOW DO UGMA RESIDENTS VIEW SEWER DEVELOPMENT --

IN RELATION TO GROWTH AND PROTECTION OF WATER QUALITY?

A WAY TO DIRECT -- NOT FORCE -- GROWTH.

Sewers should be built where urban development is desired, so that urban neighborhoods, businesses, and industry won't spread out over rural areas.  

Mail: 69%  
Telephone: 61%  

Sewers should not be used as a way to direct growth. People should be able to make their own decisions as to where to build their homes or businesses.  

Mail: 27%  
Telephone: 32%  

All new development and new homes in the Olympia-Lacey-Tumwater area, even unincorporated Thurston County, should be on sewers.  

Mail: 53%  
Telephone: 44%  

It is all right to put septic tanks in for new homes in the unincorporated area around the cities.  

Mail: 43%  
Telephone: 45%  

Sewers do a better job of protecting our drinking water than septic tanks do, so areas should change to sewer as they become more developed.  

Mail: 54%  
Telephone: 50%  

As long as a person's septic tank is working properly, there is no need for a person to change over to a sewer system.  

Mail: 44%  
Telephone: 44%
HOW DO UGMA RESIDENTS VIEW SEWER DEVELOPMENT --
IN RELATION TO GROWTH AND PROTECTION OF WATER QUALITY?

RECOGNITION OF COMPLEXITY.

Even though individual septic tanks may be an effective way of treating waste, the sheer number of people on septic tanks in our area increases the likelihood of pollution of our drinking water.

<table>
<thead>
<tr>
<th>Mail</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>78%</td>
<td>69%</td>
</tr>
</tbody>
</table>

No matter how populated our area becomes, people should still have the choice of septic tanks or sewers.

<table>
<thead>
<tr>
<th>Mail</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>18%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Sewer systems will protect us from many water-quality problems, but we still have to deal with things like storm-water run-off, or our drinking water will be in danger.

<table>
<thead>
<tr>
<th>Mail</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>80%</td>
<td>60%</td>
</tr>
</tbody>
</table>

By extending sewers to areas of new development, we can safeguard our drinking water for the foreseeable future.

<table>
<thead>
<tr>
<th>Mail</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>16%</td>
<td>31%</td>
</tr>
</tbody>
</table>
SEWER/SEPTIC USERS

People now on sewers tend to choose sewers over septic, even if it means regulation.

People on septic tanks agree that sewers, overall, do a better job of protecting water quality, but they do not agree that all should be on sewers . . . at least, not yet.

Both recognize that sewers do help protect water quality. Both recognize that sewers do not protect against all threats to water quality.

<table>
<thead>
<tr>
<th></th>
<th>Mail</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewers . . . where urban development is desired . . .</td>
<td>76%</td>
<td>63%</td>
</tr>
<tr>
<td>People should be able to make their own decisions.</td>
<td>20%</td>
<td>33%</td>
</tr>
<tr>
<td>. . . all right . . . septic tanks in unincorporated areas . . .</td>
<td>29%</td>
<td>55%</td>
</tr>
<tr>
<td>All new development . . . on sewers.</td>
<td>66%</td>
<td>42%</td>
</tr>
<tr>
<td>. . . change to sewers as . . . become developed.</td>
<td>72%</td>
<td>39%</td>
</tr>
<tr>
<td>. . . no need to change.</td>
<td>26%</td>
<td>59%</td>
</tr>
<tr>
<td>. . . sheer numbers on septic tanks increase likelihood of pollution of drinking water</td>
<td>88%</td>
<td>69%</td>
</tr>
<tr>
<td>. . . people should still have a choice</td>
<td>8%</td>
<td>26%</td>
</tr>
<tr>
<td>. . . still have to deal with things like storm-water run-off....</td>
<td>82%</td>
<td>78%</td>
</tr>
<tr>
<td>. . . sewers . . . safeguard drinking water . . .</td>
<td>15%</td>
<td>16%</td>
</tr>
</tbody>
</table>

F-5
WHO SHOULD PAY THE COSTS OF NEW INTERCEPTOR DEVELOPMENT?

MOST DEFINITELY NEW SEWER USERS, BUT STRONG SUPPORT FOR ALL WHO BENEFIT SHARING COST.

| New housing or business development, where the sewer lines are being extended. | 100% | 91% | 9% | 95% |
| Existing homes or businesses which have been on septic tanks and are converting to sewers. | 92% | 39% | 53% | 85% |
| All households and businesses which draw their drinking water from the area. | 71% | 14% | 57% | 63% |
| New housing or business development on septic tanks. | 85% | 50% | 35% | 62% |
| All households and businesses on the present sewer system. | 64% | 13% | 51% | 55% |
| Existing homes or business staying on septic tanks. | 60% | 16% | 44% | 42% |
## ARE THEY WILLING TO PAY?

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>City</th>
<th>Uninc.</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.00 a month to help finance</td>
<td>59%</td>
<td>60%</td>
<td>58%</td>
<td>74%</td>
</tr>
<tr>
<td>new interceptor construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1.00 a month for monitoring,</td>
<td>48%</td>
<td>49%</td>
<td>46%</td>
<td>75%</td>
</tr>
<tr>
<td>testing, and education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes to both</td>
<td>16%</td>
<td>18%</td>
<td>15%</td>
<td>64%</td>
</tr>
<tr>
<td>Tax or special fee to buy up</td>
<td>N/A</td>
<td></td>
<td></td>
<td>31%</td>
</tr>
<tr>
<td>development rights in vulnerable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HOW DO UGMA RESIDENTS VIEW WATER QUALITY?

<table>
<thead>
<tr>
<th>Item</th>
<th>In danger now</th>
<th>Not now, but in the next few years</th>
<th>Not in danger in the foreseeable future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lakes and streams</td>
<td>75%</td>
<td>20%</td>
<td>6%</td>
</tr>
<tr>
<td>Salt-water bays and inlets</td>
<td>80%</td>
<td>15%</td>
<td>6%</td>
</tr>
<tr>
<td>Underground drinking-water supplies (including wells and springs)</td>
<td>56%</td>
<td>33%</td>
<td>10%</td>
</tr>
<tr>
<td>Telephone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other recreation water</td>
<td>78%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Swimming areas</td>
<td>74%</td>
<td>8%</td>
<td>7%</td>
</tr>
<tr>
<td>Commercial fishing/shellfish water</td>
<td>69%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Drinking-water sources</td>
<td>46%</td>
<td>22%</td>
<td>21%</td>
</tr>
</tbody>
</table>
PRIORITIES
(Choose two)

(mail only)

Testing and monitoring water supplies 38%

Sewage-treatment plan improvements 37%

Sewer construction 36%

Septic-tank controls and enforcement 33%

Storm-water control and treatment facilities 24%

Buying development rights on property needing protection 20%

Public-education programs 15%

Other written in:
Conservation programs 17%
Slow down growth 10%
<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming or water sports</td>
<td>44%</td>
</tr>
<tr>
<td>Recreational shellfishing</td>
<td>35%</td>
</tr>
<tr>
<td>Buying or eating seafood</td>
<td>29%</td>
</tr>
<tr>
<td>Recreational fishing</td>
<td>25%</td>
</tr>
<tr>
<td>Anything to do with drinking water</td>
<td>14%</td>
</tr>
<tr>
<td>Commercial shellfish growing</td>
<td>5%</td>
</tr>
<tr>
<td>Commercial fishing</td>
<td>4%</td>
</tr>
</tbody>
</table>
WHAT SPECIFIC PROBLEMS DO THEY SEE?

<table>
<thead>
<tr>
<th>Location</th>
<th>Mail</th>
<th>Telephone</th>
<th>Personally Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUDD INLET</td>
<td>28%</td>
<td>18%</td>
<td>6%</td>
</tr>
<tr>
<td>Sewage/Human waste/Industrial waste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPITAL LAKE</td>
<td>18%</td>
<td>17%</td>
<td>7%</td>
</tr>
<tr>
<td>Sewage/Human waste/Industrial waste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WELLS, UNDERGROUND DRINKING WATER</td>
<td>11%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUGET SOUND/SOUTH PUGET SOUND</td>
<td></td>
<td>13%</td>
<td>4%</td>
</tr>
<tr>
<td>Industrial waste</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McALLISTER SPRINGS</td>
<td>9%</td>
<td>7%</td>
<td>2%</td>
</tr>
<tr>
<td>Poor septic tanks</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**POTENTIAL THREATS TO THE QUALITY OF DRINKING WATER**

*(mail only)*

<table>
<thead>
<tr>
<th>Threat</th>
<th>Causing Problems Now</th>
<th>Next Few Years</th>
<th>Will Not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticides, fertilizers, and animal wastes from agriculture</td>
<td>70%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Chemicals from commercial and industrial areas</td>
<td>70</td>
<td>23</td>
<td>7</td>
</tr>
<tr>
<td>Run-off from driveways, roads, and parking lots</td>
<td>58</td>
<td>28</td>
<td>15</td>
</tr>
<tr>
<td>Pesticides, fertilizers, and animal wastes from residential areas</td>
<td>57</td>
<td>30</td>
<td>14</td>
</tr>
<tr>
<td>Septic tanks</td>
<td>53</td>
<td>30</td>
<td>17</td>
</tr>
</tbody>
</table>
**HOW DO UGMA RESIDENTS VIEW GROWTH?**

**BENEFICIAL -- IF PLANNED FOR.**

<table>
<thead>
<tr>
<th>Mail</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth can be beneficial to Thurston County if we plan properly and carefully for it.</td>
<td>72%</td>
</tr>
<tr>
<td>There will be growth in Thurston County, but it won't hurt the county if we control how and where the growth occurs.</td>
<td>25%</td>
</tr>
<tr>
<td>We need to keep growth to a minimum (by using laws to make it as difficult as possible for new development and building).</td>
<td>24%</td>
</tr>
<tr>
<td>Growth is inevitable. There isn't anything we can do about it.</td>
<td>4%</td>
</tr>
</tbody>
</table>
STORM-WATER FACILITIES

(mail only)

Households in unincorporated Thurston County, within UGMA, should pay $2.50 per month for storm-water facilities (as do those in cities) 55%

City residents 70%
Unincorporated 30%
TELEPHONE
SURVEY
QUESTIONS
Hello, this is [NAME] of Gilmore Research Group. We are conducting a study for Thurston County about water-quality issues in your part of the county.

1. First, I'm going to read you four statements about growth. Please tell me which of these four statements you agree with the most. READ "First," "Second," "Third," "Fourth"; READ a - d OR d - a:

   [ ] a. Growth is inevitable. There isn't anything we can do about it. 1
   [ ] b. Growth can be beneficial to Thurston County if we plan properly and carefully for it. 2
   [ ] c. There will be growth in Thurston County, but it won't hurt the County if we control how and where the growth occurs. 3
   [ ] d. We need to keep growth to a minimum by using laws to make it as difficult as possible for new development and building. 4

   Don't know/Refused 5

2a. These next questions are about water quality in your local area. Please tell me which, if any, you feel are in danger of pollution now? READ a - d; CIRCLE UNDER "Now".

2b. FOR ANY NOT MENTIONED, ASK: "Do you think that will be in danger within the next few years, or not in danger in the foreseeable future? RECORD UNDER "Soon" or "Not" AS APPROPRIATE.

<table>
<thead>
<tr>
<th>q.2a</th>
<th>q.2b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Now</td>
<td>Soon</td>
</tr>
<tr>
<td>a. Drinking water sources</td>
<td>1</td>
</tr>
<tr>
<td>b. Swimming areas</td>
<td>2</td>
</tr>
<tr>
<td>c. Other recreation water, such as for fishing or shellfish</td>
<td>3</td>
</tr>
<tr>
<td>d. Commercial fishing or shellfish waters</td>
<td>4</td>
</tr>
</tbody>
</table>

3. Thinking about the greater Olympia-Lacey-Tumwater area, where has the most serious water-pollution problem been? PAUSE What, briefly, is the problem? PROBE FOR LOCATION AND TYPE OF PROBLEM.

4. From what you may have seen or heard, what caused the problem?
5. Were you or your family, personally, affected by this problem?

   Yes  1
   No  2
   Don’t know/Refused 3

6. Where do you get most of your information about water-quality issues and water-quality problems? DO NOT READ. PROBE FOR ALL.

   Newspapers  1
   Television  2
   Friends  3
   Neighborhood or community groups  4
   Public hearings or public meetings  5
   Other (SPECIFY):  6
   Don’t know/Refused 7

7. The County Commissioners will be making decisions in the near future about sewer programs in unincorporated Thurston County areas near Olympia, Lacey, and Tumwater. They want to know the opinions of voters like you.

   I'm going to read you some pairs of statements that different groups of people have made about putting in sewers. Please tell me which statement, in each pair, you agree with the most. READ a-e; ROTATE SETS AND PAIRS WITHIN SETS:

   [ ] a. [ ] Sewers do a better job of protecting our drinking water than septic tanks do, so areas should change to sewer as they become more developed.

   OR [ ] As long as a person’s septic tank is working properly, there is no need for a person to change over to a sewer system.

   Don’t know/Refused 3

   [ ] b. [ ] Sewers should be built where urban development is desired, so that urban neighborhoods, businesses, and industry won’t spread out over rural lands.

   OR [ ] Sewers should not be used as a way to direct growth. People should be able to make their own decisions as to where to build their homes or businesses.

   Don’t know/Refused 3

   [ ] c. [ ] All new development and new homes in the Olympia-Lacey-Tumwater area, even unincorporated Thurston County, should be on sewers.

   OR [ ] It is all right to put septic tanks in for new homes in the unincorporated area around the cities.

   Don’t know/Refused 3

   [ ] d. [ ] Even though individual septic tanks may be an effective way of treating waste, the sheer number of people on septic tanks in our area increases the likelihood of pollution of our drinking water.

   OR [ ] No matter how populated our area becomes, people should still have the choice of septic tanks or sewers.

   Don’t know/Refused 3

   [ ] e. [ ] Sewer systems will protect us from many water-quality problems, but we still have to deal with things like storm-water run-off, or our drinking water can be in danger.

   OR [ ] By extending sewers to areas of new development, we can safeguard our drinking water for the foreseeable future.

   Don’t know/Refused 3

F-17
8. These next questions are about the urban and near-urban areas of Thurston County, that is, Olympia, Lacey, Tumwater, and the unincorporated area within about three miles of these cities.

Because of the high rate of growth in this area, it is important that the cities and the county develop plans for protecting water quality. New parts of this area may be putting in sewer systems. These next questions are about financing and managing the new sewers and sewer systems.

Currently, each city, that is, Olympia, Lacey, and Tumwater, has its own sewer system. People in the unincorporated areas who are on sewer lines are connected to the closest city and are either annexed or must agree to annexation.

Which one of these four alternatives do you think would be the best? READ "First," "Second," "Third," "Fourth"; READ 1-4 OR 4-1:

[ ] Keep it the way it is now.  
1  Have the cities manage the sewer systems around the cities in unincorporated Thurston County but without annexation.  
2  Have the cities manage the sewer systems within the cities, but have County government put in and manage sewer systems in unincorporated Thurston County.  
3  [ ] Allow one governmental body to combine all three sewer systems into one and have that new agency put in and manage sewers for the whole urban growth area.  
4  -------------------------------------
5  Don't know/Refused

9. The question of who should pay for the building of sewers is a very controversial question. While the homeowners benefit directly from the sewer hook-up, all residents in the greater Olympia-Lacey-Tumwater area will benefit from the protection of their drinking water.

Local sewer lines to individual houses and businesses are paid for by the local property owners. In addition, new major sewer lines also need to be built that will feed into the treatment plant itself. Who do you think should share in the cost of constructing these major sewer lines? First, (STATEMENT FROM BELOW), do you think they should share the cost of constructing major sewer lines? REPEAT FOR a - e, THEN f. MULTIPLE RESPONSE OK.

[ ] a. New housing or business development, where the sewer lines are being extended  
1  2  3  Yes  No  Don't Know/Refused

[ ] b. New housing or business development on septic tanks  
1  2  3

c. Existing homes or businesses, which have been on septic tanks and are converting to sewers  
1  2  3

d. Existing homes or businesses staying on septic tanks  
1  2  3

e. All households and businesses on the present sewer system  
1  2  3

f. All households and businesses which draw their drinking water from the area  
1  2  3
20. What is your age? RECORD: ________________________
   IF REFUSED, ASK: "Is that . . . ?" READ 1-6:
   18 - 24 years  1
   25 - 34        2
   35 - 44        3
   45 - 54        4
   55 - 64        5
   65 and over    6
   Refused        7

21. Which of these broad income categories is correct for your total annual household income? READ 1-5:
   Under $15,000  1
   $15,000 to just under $25,000  2
   $25,000 to just under $40,000  3
   $40,000 to just under $65,000  4
   $65,000 and over           5
   Refused/Don't know         6

Thank you so much for your time and opinions. Have a good (day)/(evening).
10. The cost of this type of sewer-line construction would be about $25 a year, or about $2 a month, for each household in the greater Olympia-Lacey-Tumwater area.

Another way to help protect drinking water would be to set up an overall program which would include such things as testing drinking water sources, public education, and outreach. This type of program would cost about $12 a year, or $1 a month, for each household in the Olympia-Lacey-Tumwater area.

Would you, yourself, be willing to pay ... READ a - b:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Don't Know</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. About $2 a month to help finance major sewer-line construction.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>b. About $1 a month for a monitoring- and-testing program.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

11. We've talked about growth, water quality, and sewers. Another approach to protecting drinking water would be for local government to buy development rights for specific pieces of land to protect the water. In general, are you in favor of the county buying up development rights, or are you opposed to the county doing so?

ASK Q.12 <------------- Favor 1
SKIP TO Q.13 <------------- Opposed 2
ASK Q.12 <------------- Don't know/Refused 3

12. Would you, yourself, be willing to pay a fee or special tax to help the county purchase such property?

Yes 1
No 2
Don't know 3
Refused 4

These last questions are to help us group your answers with the answers of other people in this survey.

13. First, including yourself, how many people live in your household?

SKIP TO Q.15 <-------- One 1

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Two</td>
<td>2</td>
</tr>
<tr>
<td>Three</td>
<td>3</td>
</tr>
<tr>
<td>Four</td>
<td>4</td>
</tr>
<tr>
<td>Five</td>
<td>5</td>
</tr>
</tbody>
</table>

ASK Q.14 <--------

<p>| | |</p>
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<th></th>
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<tbody>
<tr>
<td>Six</td>
<td>6</td>
</tr>
<tr>
<td>Seven</td>
<td>7</td>
</tr>
<tr>
<td>Eight or more</td>
<td>8</td>
</tr>
</tbody>
</table>

SKIP TO Q.15 <-------- Refused 9
14. How many are under eighteen years of age?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>One</td>
<td>1</td>
</tr>
<tr>
<td>Two</td>
<td>2</td>
</tr>
<tr>
<td>Three</td>
<td>3</td>
</tr>
<tr>
<td>Four</td>
<td>4</td>
</tr>
<tr>
<td>Five</td>
<td>5</td>
</tr>
<tr>
<td>Six</td>
<td>6</td>
</tr>
<tr>
<td>Seven</td>
<td>7</td>
</tr>
<tr>
<td>Eight or more</td>
<td>8</td>
</tr>
<tr>
<td>Refused</td>
<td>9</td>
</tr>
</tbody>
</table>

15. Do you own or rent your home?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Own</td>
<td>1</td>
</tr>
<tr>
<td>Rent</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>Refused</td>
<td>4</td>
</tr>
</tbody>
</table>

16. Is your home on a sewer or a septic tank?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer</td>
<td>1</td>
</tr>
<tr>
<td>Septic tank</td>
<td>2</td>
</tr>
<tr>
<td>Don't know/Refused</td>
<td>3</td>
</tr>
</tbody>
</table>

17a. How old is your septic tank? DO NOT READ.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Under two years</td>
<td>1</td>
</tr>
<tr>
<td>2 - 4 years</td>
<td>2</td>
</tr>
<tr>
<td>5 - 7 yrs.</td>
<td>3</td>
</tr>
<tr>
<td>Eight yrs. or more</td>
<td>4</td>
</tr>
<tr>
<td>Don't know/Refused</td>
<td>5</td>
</tr>
</tbody>
</table>

17b. About how long ago was it since you last had it pumped?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Within one year</td>
<td>1</td>
</tr>
<tr>
<td>1 - 5 years</td>
<td>2</td>
</tr>
<tr>
<td>6 - 10 yrs.</td>
<td>3</td>
</tr>
<tr>
<td>Over ten years</td>
<td>4</td>
</tr>
<tr>
<td>Don't know/Refused</td>
<td>5</td>
</tr>
</tbody>
</table>

18. Are you currently ... READ 1-5: ONE ONLY.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>1</td>
</tr>
<tr>
<td>A homemaker</td>
<td>2</td>
</tr>
<tr>
<td>A student</td>
<td>3</td>
</tr>
<tr>
<td>Retired</td>
<td>4</td>
</tr>
<tr>
<td>Unemployed</td>
<td>5</td>
</tr>
<tr>
<td>Refused</td>
<td>6</td>
</tr>
</tbody>
</table>

19. What is the highest grade of school you have completed? DO NOT READ. PROBE TO FIT.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Some high school or less</td>
<td>1</td>
</tr>
<tr>
<td>High-school graduate</td>
<td>2</td>
</tr>
<tr>
<td>Some college/Associate's degree</td>
<td>3</td>
</tr>
<tr>
<td>College graduate</td>
<td>4</td>
</tr>
<tr>
<td>Post-graduate work or degree</td>
<td>5</td>
</tr>
<tr>
<td>Refused</td>
<td>6</td>
</tr>
</tbody>
</table>
MAIL
SURVEY
FORM
GROWTH

- Our Survey Starts With GROWTH. Of these three statements, please check the one you agree with most.
  - Growth is inevitable. There isn't anything we can do about it.
  - Growth can be beneficial to Thurston County if we plan properly and carefully for it.
  - We need to keep growth to a minimum.

How would you like to see this accomplished?

WATER QUALITY

<table>
<thead>
<tr>
<th>Much better</th>
<th>Somewhat better</th>
<th>Same</th>
<th>Somewhat worse</th>
<th>Much worse</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How do you feel that water quality in the greater Olympia/Lacey/Tumwater area compares to water quality five years ago?

In the greater Olympia/Lacey/Tumwater area, what, if any, bodies of water are in danger? Please check once for each type of water.

<table>
<thead>
<tr>
<th>Lakes and streams</th>
<th>In danger of being polluted now</th>
<th>In danger within the next few years</th>
<th>Not in danger in the foreseeable future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt-water bays and inlets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underground drinking-water supplies (including wells and springs)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Within the greater Olympia/Lacey/Tumwater area, where is the most serious water-pollution problem?

What, briefly, is the problem?

From what you may have seen or heard, what caused the problem?

Which of your activities have changed because of water pollution?

- Swimming or water sports
- Commercial fishing
- Commercial shellfish growing
- Recreational shellfishing
- Recreational fishing
- Anything to do with drinking water
- Buying or eating seafood

Where do you get most of your information about water-quality issues and water-quality problems?

- Newspapers
- Public hearings or public meetings
- Television
- Neighborhood or community groups
- Friends
- Other (Specify):
### DRINKING WATER

Because there is abundant ground water in the Olympia/Tumwater/Lacey area, public water systems and private wells both draw their water from springs and other underground sources within the map area (check page 6). Here is a list of things which potentially pose a threat to the quality of the drinking water:

<table>
<thead>
<tr>
<th></th>
<th>Are causing problems now</th>
<th>Will cause problems within the next few years</th>
<th>Will not cause problems in this area</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Septic tanks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Run-off from driveways, roads and parking lots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Chemicals from commercial and industrial areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pesticides, fertilizers, and animal wastes from agriculture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pesticides, fertilizers and animal wastes from residential areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Other (write in please)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WHAT ARE YOUR THOUGHTS

The County Commissioners will soon be making decisions about sewer programs in unincorporated Thurston County areas near Olympia, Lacey, and Tumwater. They want to know the opinions of voters. Please choose the one statement, in each pair of statements below, which agrees the most with your personal opinion:

- Sewers do a better job of protecting our drinking water than septic tanks do, so areas should change to sewer as they become more developed.
- As long as a person's septic tank is working properly, there is no need for a person to change over to a sewer system.
- No opinion

- Sewers should be built where urban development is desired, so that urban neighborhoods, businesses, and industry won't spread out over rural lands.

- Sewers should not be used as a way to direct growth. People should be able to make their own decisions as to where to build their homes or businesses.
- No opinion

- All new development and new homes in the Olympia/Lacey/Tumwater area, even unincorporated Thurston County, should be on sewers.
- It is all right to put septic tanks in for new homes in the unincorporated area around the cities.
- No opinion

- Even though individual septic tanks may be an effective way of treating waste, the sheer number of people on septic tanks in our area increases the likelihood of pollution of our drinking water.
- No matter how populated our area becomes, people should still have the choice of septic tanks or sewers.
- No opinion

- Sewer systems are only part of the solution to protecting our drinking water. We still need to deal with pollution from other sources like storm water run-off or our drinking water will still be in danger.
- By extending sewers to areas of new development, we can safeguard our drinking water for the foreseeable future.
- No opinion
April 5, 1989

Dear Voter,

When the draft LOTT Wastewater Plan came out for review last summer, we heard a strong message from people that more time should be put into sewer planning. We are responding by re-examining the issues and providing more communication between government planners and citizens. You elect us to make decisions on allocating your valuable tax dollars, and we need your advice in reaching those decisions. We are sending this questionnaire to all those in the sewer planning area who voted in the last election. (Some who live outside this area have this survey because some voting precincts include both urban and rural areas). Please take a few minutes to fill this out and send it back in the next day or two to let us know what you think about key issues related to growth, sewers and water quality.

Your opinions are important to us, and the information gathered will help a citizen task force draft a new plan for public hearings by the end of this summer to meet a State deadline of January 31, 1990 for adoption of a plan for the sewers feeding into the Olympia treatment plant on Budd Inlet. We are planning sewers when, where and if needed within the "Urban Growth Management Area" shown on the map. This is where city and county zoning provides for urban and suburban development, and where most new county growth has been and is expected to occur in the next few years. Focusing growth in urban areas keeps it from spreading into rural lands and turning them into suburbs.

Concentrating growth, rather than spreading it out, also makes it less expensive to build facilities, such as streets, sidewalks, and systems for transit, drinking water, stormwater and sewage. If development isn't handled well, however, it can result in contaminated drinking water supplies and polluted lakes, streams and salt waters. The county has initiated steps to protect our environment with programs for groundwater, lakes, stormwater and watershed areas. We want to deal with these issues while there's still time to make thoughtful decisions.

We have also scheduled neighborhood meetings so you may speak to us directly and say more than is possible in a written survey. Please come to the neighborhood meeting that's most convenient for you. They're listed elsewhere in this survey. If you can't make the meetings, write to us. Your responses to this questionnaire and comments at the meetings or in letters will help us and the Task Force develop a reasonable and forward-looking plan for sewers in our urbanizing area.

IF YOU NEED MORE INFORMATION, CALL OUR STAFF AT 754-4111, Thurston County Office of Water Quality (Ask for Marie Cameron or Linda Hoffman).

Sincerely yours,

BOARD OF THURSTON COUNTY COMMISSIONERS

Les Eldridge
Chairman

George L. Barner, Jr.
Commissioner

Diane Oberquell
Commissioner

05:zh/SGP/tlr.bcc
SEWERS AND SEPTIC TANKS

Currently, sewer service in the urban area is offered through the cities of Olympia, Lacey and Tumwater. They extend sewers beyond their city limits, in which case, they require annexation or agreement to annex. Which type of local government do you think should own and operate the major sewer lines in the unincorporated areas of the county?

- The nearest city, after annexation or agreement of future annexation
- The nearest city, without annexation or agreement to annex
- The county
- A new governmental body which combines the three city sewer systems and manages sewers for the whole urban-growth area

PAYING FOR SEWER SYSTEMS

We want to know your opinion on how the costs of extending sewer systems can be distributed fairly. While those connecting to the sewer system will directly benefit from the sewer hook-up, all residents in the greater Olympia/Lacey/Tumwater area will benefit because sewers are one way of protecting everyone's drinking water. Local sewer lines to individual houses and businesses are paid for by the local property owners. Who do you think should share in the cost of constructing these major sewer lines that will feed into the treatment plant itself?

Check once for each option.

<table>
<thead>
<tr>
<th>Should share major portion of cost</th>
<th>Should share small portion of cost</th>
<th>Should not share in the cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>New housing or business development, where the sewer lines are being extended</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New housing or business development on septic tanks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing homes or businesses, which have been on septic tanks and are converting to sewers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing homes or businesses staying on septic tanks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All households and businesses on the present sewer system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All households and businesses which draw their drinking water from the area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The sewer system discussed above is one way of protecting drinking water. Another way would be an overall program which would include things such as testing of drinking water sources, public education, and outreach. Which, if either, would you be willing to pay for:

- $25 a year or about $2 a month, per household, to build main sewer lines
- $12 a year or about $1 a month, per household, for the testing and education program

In the cities of Olympia, Lacey, and Tumwater, households pay a fee for the planning, monitoring, and maintenance of storm water facilities. Should households in unincorporated Thurston County, in the urban growth area (see map), pay a fee of $30 a year or $2.50 a month, per household, for storm water facilities?

- Yes
- No
- Don't Know
• Realizing that we will not have enough money to do everything, in which two areas would you like to see our initial water-quality improvement efforts directed?

<table>
<thead>
<tr>
<th>Testing and monitoring water supplies</th>
<th>Public-education programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer construction</td>
<td>Storm water control and treatment facilities</td>
</tr>
<tr>
<td>Sewage treatment-plant improvements</td>
<td>Septic-tank controls and enforcement</td>
</tr>
<tr>
<td>Buying development rights on property needing protection</td>
<td></td>
</tr>
</tbody>
</table>

• Other than those programs mentioned above, is there anything else you would like to see county government do to safeguard local water quality?


AND FINALLY...

• Please fill out a few questions about yourself to help us to group your answers with those of other residents like yourself in the Greater Olympia/Lacey/Tumwater area.

• Are you _____ Male _____ Female

• Do you own or rent your home? ____ Own ____ Rent

• What is the highest grade of school you have completed?  
  1. Some high school or less  
  2. High-school graduate  
  3. Some college/Associate degree  
  4. College degree  
  5. Post-graduate work or degree

• What is your age group?  
  1. 18 to 24 years  
  2. 25 to 34 years  
  3. 35 to 44 years  
  4. 45 to 54 years  
  5. 55 to 64 years  
  6. 65 years or older

• Do you live within:  
  1. the Olympia city limits  
  2. the Lacey city limits  
  3. the Tumwater city limits  
  4. unincorporated Thurston County

• Including yourself, how many people live in your household? ___________

• Is your home on:  
  1. Sewer  
  2. Septic tank  
  3. Don’t know/Not sure

• If you checked septic tank, how old is your septic tank?  
  1. under 2 years  
  2. 2-4 years  
  3. 5-7 years  
  4. 8 years or more  
  5. Don’t know

• About how long ago did you last have your septic tank pumped?  
  1. within 1 year  
  2. 1-5 years  
  3. 6-10 years  
  4. over ten years ago  
  5. Don’t know

Please fold the questionnaire so that the Gilmore Research Group address is on the outside. Either staple or tape the questionnaire closed and drop it in the mail. Postage is paid. Thank you very much. Please do not remove the label with your name and address. It contains your voting precinct number which we will use to report responses by location. You may black out your name and address if you wish. We will not use these.
Realizing that we will not have enough money to do everything, in which two areas would you like to see our initial water-quality improvement efforts directed?

- Testing and monitoring water supplies
- Sewer construction
- Sewage treatment-plant improvements
- Buying development rights on property needing protection
- Public-education programs
- Storm water control and treatment facilities
- Septic-tank controls and enforcement

Other than those programs mentioned above, is there anything else you would like to see county government do to safeguard local water quality?

AND FINALLY...

Please fill out a few questions about yourself to help us to group your answers with those of other residents like yourself in the Greater Olympia/Lacey/Tumwater area.

- Are you ___ Male ___ Female
- Do you own or rent your home? ___ Own ___ Rent
- What is the highest grade of school you have completed?
  1. Some high school or less
  2. High-school graduate
  3. Some college/Associate degree
  4. College degree
  5. Post-graduate work or degree

- What is your age group?
  1. 18 to 24 years
  2. 25 to 34 years
  3. 35 to 44 years
  4. 45 to 54 years
  5. 55 to 64 years
  6. 65 years or older

- Do you live within:
  1. the Olympia city limits
  2. the Lacey city limits
  3. the Tumwater city limits
  4. unincorporated Thurston County

- Including yourself, how many people live in your household? _____________

- Is your home on: ___ Sewer ___ Septic tank ___ Don't know/Not sure
  If you checked septic tank, how old is your septic tank?
  1. under 2 years
  2. 2-4 years
  3. 5-7 years
  4. 8 years or more
  5. Don't know

- About how long ago did you last have your septic tank pumped?
  1. within 1 year
  2. 1-5 years
  3. 6-10 years
  4. over ten years ago
  5. Don't know

Please fold the questionnaire so that the Gilmore Research Group address is on the outside. Either staple or tape the questionnaire closed and drop it in the mail. Postage is paid. Thank you very much. Please do not remove the label with your name and address. It contains your voting precinct number which we will use to report responses by location. You may black out your name and address if you wish. We will not use these.
APPENDIX G

AMENDMENT PROCESS
G. AMENDMENT PROCESS

1. Process for Amending this Plan

Under state law for county sewer plans, Chapter 36.94.110 R.C.W., amendments are to follow the same process as initial adoption.

This process includes:

a. Review and recommendation by a sewer general plan review committee, a committee whose composition and duties are specified in Chapter 36.94.050-070.

b. Public hearing(s) and recommendation by the County Planning Commission

c. Public Hearing and Adoption by the Board of Thurston County Commissioners

d. Approval by Washington State Departments of Social and Health Services and Ecology.

2. Actions that Would and Would Not Require Plan Amendment

This plan is written to provide for flexibility and responsiveness to changing information. Certain kinds of actions would be considered consistent with provisions of this plan and may, therefore, be taken without plan amendments. However, other kinds of actions will require formal plan amendment following the amendment processes outlined above. This section is written to clarify the distinction between the two.

a. Actions Requiring Amendment

Examples of actions that would require plan amendment:

- **Interceptors**: Deletion of a planned sewered area, or changes to the area covered by the plan (that is, change to the Urban Growth Management Area boundary).

- **Management**: Change in ownership and operation of the sewer system within the unincorporated Urban Growth Management Area.
• **On Site Hook up**  Change in policy about which on site systems hook up and when.

• **Costs and Payment Policies**  Changes in the principles outlined in Chapter IV, Section G. 3. as to who pays and how for what facilities.

b. **Actions that Would NOT Require Amendment**

• **Hook up Order for Existing On Site Systems:** Action by the County Board of Health or Health Department declaring a finding of health or water quality problem related to on site septic systems and requiring systems that were in existence prior to this sewer plan to hook up to sewer.

  This action is consistent with provisions of this plan that this is a circumstance under which existing on site systems would be required to hook up to sewer.

• **Exact rates for sewer service:** Table 4 in Chapter, IV, Section G.5. shows estimated costs of various sewer facilities.

  Final rates may vary from these estimates. This plan provides for rates in the unincorporated urban growth management area to be based on cost of service and on the payment principles outlined in the section on that subject, with the exact amount of fees and rates to be negotiated between the county and the city providing the sewer service.

• **Construction of Interceptors at a Different Time Than Specified on the Plan Map:**

  Construction phases are given on Map 1, but other provisions in this plan will also guide construction timing without requiring formal plan amendment: There are criteria to guide timing, which is in Chapter IV, Section D. 2. of this plan. In addition, agreements between the county and each city on the subject of rates are also to include a role for the county in the city’s annual interceptor construction program "as to how such construction relates to and implements the county’s Urban Area Sewerage General Plan." These agreements are discussed in Chapter IV, Section B. 2. c. (2)
APPENDIX H

REGULATORY RELATIONSHIPS
AND
COMPLIANCE WITH STATE AND FEDERAL LAWS AND REGULATIONS
H. REGULATORY RELATIONSHIPS AND COMPLIANCE WITH
STATE AND FEDERAL LAWS AND REGULATIONS

1. Federal and State Water Pollution Control Acts

This Sewer General Plan is designed to enhance the quality of all water resources
within its service area and to comply with all provisions of the Federal Water Pollution
Control Act and Washington State's Water Pollution Control Act (RCW 90.48) and the
Clean Water Act of 1971 (RCW 90.54).

2. State Environmental Policy Act

This plan will be reviewed under the provisions of the State Environmental Policy Act
prior to its adoption and implementation.

Because this sewer plan is prepared under the umbrella of the LOTT urban area
management plan, the environmental documentation prepared for the LOTT plan will
also be applied to this County plan. The LOTT plan has undergone two drafts. The
first was dated June, 1988, and was never adopted. A second, dated March 1989,
has been prepared as a general "umbrella" plan, to be accompanied by plans with
more specific details prepared by each of the three cities and Thurston County. The
umbrella plan has been adopted by all three cities, and will be considered for
adoption by the county along with this plan which contains details applicable to the
unincorporated portion of the urban growth management area.

The environmental documentation, therefore, includes three items: (1) the LOTT
Phase II Final Environmental Impact Statement of June, 1988, (2) a July, 1989
Addendum for the revised March, 1989 General Sewer Plan for Interceptor,
Treatment, and Disposal System Serving the Cities of Lacey, Olympia, and Tumwater
and the Urban Growth Area of Thurston County (Based on the Unadopted June,
1988 Urban Area Wastewater Management Plan), and (3) an environmental checklist
prepared for this County plan.
3. United States Environmental Protection Agency (EPA) Regulations--Pollution Discharge Permit

EPA issues permits for discharge of treated wastewater into receiving waters. These permits (National Pollutant Discharge Elimination System Permits -- NPDES Permits) are periodically renewed. They mandate levels of treatment and maximum discharge volumes. In Washington State, management responsibility for NPDES permits has been delegated by EPA to the Department of Ecology.

The treatment plant's current NPDES permit, issued in September, 1987, requires the following, along with a schedule of compliance dates:

- upgrades to the treatment plant so that 90 percent of the nitrogen is removed;
- elimination of one of the plant's two discharge points;
- certain hydraulics improvements to assure that peak stormwater flows will be treated at the plant's permitted flow capacity; and
- the system of interceptors with their flow volumes, population and period of time that will be served by the sewage system and accommodated by the plant at its permitted capacity.

4. Washington State Department of Ecology (DOE)

DOE exercises extensive authority over wastewater collection and treatment, in addition to its delegated responsibilities from EPA to manage NPDES permits. Under Chapter 36.94 RCW and WAC 173.240, DOE approves locally adopted sewerage plans. Chapter 36.94 RCW and WAC 173.240 establish standards and content for sewerage plans. These include projections for time frame, population and amounts of flow for the area to be served, location and sizing of facilities, cost estimates and other information. Both DOE and DSHS (below) review plans to be sure standards are met. This plan has been developed to assure compliance with these requirements.

5. Washington State Department of Health

The State Health Department approves this plan under Chapter 36.94.100 RCW in its role of protecting public health and administering state requirements for on-site disposal systems.

Puget Sound has been declared an estuary of national significance under the Federal Clean Water Act. This act requires preparation of a management plan for the estuary. The Puget Sound Water Quality Authority was created by the Washington Legislature to comply with this requirement. The Authority has prepared two plans to date, one for 1987 and another for 1989. They will be issuing another in 1991, following review and implementation of the 1989 plan.

The Puget Sound Plan notes that most pollution is not "flushed" from the Puget Sound system. Water and pollutants are recirculated, and some inlets and bays experience only limited tidal exchange. The plan identifies municipal sewage treatment plants as one "point" source of Puget Sound pollution. The plan calls for several actions in connection with treatment plant discharges, including strengthened regulation by the State Department of Ecology, more complete monitoring of their discharges, increased unannounced discharge inspections and implementation of industrial pre-treatment requirements. The State Department of Ecology is to report how well waste discharge permits issued after the effective date of the plan have met the requirements of this program.

Upgrades to the LOTT treatment plant and preparation of this sewer plan are required under the authority of the Federal and State Clean Water Acts. Their completion has been made part of the plant's federal pollutant discharge permit. The planning and treatment upgrades do not come from the Puget Sound Water Quality Management Plan, but will implement objectives of the Puget Sound Plan.

7. **Other Local Sewer Plans in the Urban Growth Management Area (UGMA)**

All sewers in the UGMA use the same treatment plant. This plant, along with certain other shared facilities, are jointly managed by the Cities of Olympia, Lacey, Tumwater and Thurston County. The relationships and responsibilities for planning and management of this sewer system are established in an intergovernmental agreement and State law.

Through the intergovernmental agreement, all four jurisdictions jointly assume responsibility for the sewage system in the following manner:

a. The City of Olympia formally owns and operates the treatment plant, with management and policy advice of all of the LOTT partners. (Although owned by Olympia, federal and state grants paid for 97 percent of the costs of its construction as a secondary treatment plant in the 1970s and early 1980s).

b. All four partners have equal access to the plant's capacity, on a first come first served basis.
c. Some sewer interceptors leading to the treatment plant are managed jointly by the LOTT partners, but most others, including all new interceptors have been and will be built and owned by each individual city within its city limits and its service area within the unincorporated urban growth management area.

The four jurisdictions are also preparing sewer plans that integrate. This county plan is one. State law specifies how county and city plans are to inter-relate for such systems as ours. Cities may plan for and construct sewers to serve areas outside their boundaries. County sewer plans, according to RCW 36.94.040, must incorporate the provisions of existing comprehensive plans relating to sewerage systems of cities to the extent the city plans have been implemented. In addition to coordinating where sewers in unincorporated areas tie into sewers within city boundaries, this also means that any city sewers built into unincorporated areas must be recognized by the county sewer plan. However, after a county sewer plan has been adopted, according to RCW 36.94.110, cities must abide by and adhere to the county plan for future development of their city systems within the county plan area. Thus, this County Sewer Plan's provisions on hook up, payment, construction timing, etc. will apply even though city systems are built into the area covered by this plan.
APPENDIX J

COORDINATION WITH OTHER PLANS, SERVICES AND FACILITIES
J. COORDINATION WITH OTHER PLANS, SERVICES AND FACILITIES

Sewer planning is only one of several programs under way in Thurston County that will provide services, facilities, and protection of resources to assure safe, economical growth while maintaining a high quality environment. Thurston County has experienced one of the fastest growth rates in the United States. In the 1970s, the county grew by 62 percent. Most of this growth occurred outside the cities, in unincorporated Thurston County, on septic systems and without urban facilities and services. A lesser growth rate, but still high, has been taking place in the 1980s, and is expected to continue over the next 20 years.

This section describes how the sewer plan coordinates with other programs currently in place or underway for land use planning and zoning and for ground water protection, on-site sewage disposal, and stormwater management.

1. Land Use Plans and Zoning
   a. Sewers for Urban, Not Rural Areas

   This sewer plan provides for sewers to serve those areas where adopted land use plans and zoning permit urban land uses. This means that sewers will be planned to serve primarily the urban growth area around Olympia, Lacey and Tumwater, where the types of planned land uses and densities are higher than can be safely served by on-site sewage systems.

   Rural areas outside this growth management area are planned for much lower densities and less intense types of land uses. Sewers in rural areas are used in exceptional circumstances, only. One example is where dense development took place prior to rural zoning, and subsequently requires sewer service because of health or water quality problems associated with on-site sewage disposal on small lots.
b. **Sewer Sizing and Location--Geared to Planned Land Uses and Groundwater Protection**

Land use plans and zoning will guide the sizes and location of sewers within the urban area. For example, pipe sizing will be larger in areas where land use plans and land capability would result in greater numbers of people and higher volumes of sewage. In addition, where environmentally sensitive areas inside the Urban Growth Management Area require less dense development, and this may safely be done using on-site sewage systems, sewers will not be planned to serve those areas. However, ground water protection findings may indicate a need for sewers in some of these areas. Both land use planning decisions and ground water protection programs will guide sewer decisions in these cases.

In other parts of the urban area, adopted land use plans may allow higher intensities of uses than currently exist in the area. Future higher intensity uses would result in larger volumes of sewage if the areas are re-developed to the planning potential. In those areas, sewer pipe sizing and locations will be programmed to accommodate planned land uses. Where such areas are fairly new, however, and not likely to be redeveloped for some time, if at all, such existing land uses will be considered when planning sewer service for those areas.

c. **Sewers outside the Urban Area to solve existing health problems:**

Areas planned for long-term rural use outside the Urban Growth Management Area are planned and zoned for development at levels which may be safely served by on-site sewage systems. Therefore, rural areas do not normally require services such as sewers. Extending sewers into rural areas, because of their expense, can lead to pressures for rezoning to allow greater densities so that more people can share the cost burden of sewers. Within some rural areas, however, a few scattered developments of higher density than are now allowed under current rural zoning were built prior to the zoning. Lots in some of these developments are experiencing failures of their subsurface sewage disposal systems. Other lots have remained undeveloped because they are not able to meet current health standards for on site sewage systems. Some lots with failing systems may be too small to install new systems, and the only solution to their health hazard problems may be sewering. In those limited instances where it might be feasible to be served by the urban area sewer system, such service may be considered. The requirement of sewer service would occur only upon order by the County Board of Health. The sewer service, and sizing of the sewer line extended to the rural development, would be limited so that it would be available to serve only the development with the problems. It should not serve any other rural area along the sewer line.
d. **Other options to solve problems in rural areas:**

Some parts of the rural area outside, but near the urban growth area, share the same sensitive aquifers as the growth area. As our understanding of needs for ground water protection becomes more clear, it may be necessary to consider actions such as more stringent controls on subsurface sewage disposal, the use of sewers in aquifer sensitive rural areas, or "downzoning" to lower densities. The recommendation as to which route to follow would come from the ground water plan currently under development. Because the extension of sewers into low density areas is often accompanied by pressure to increase those densities, priority should be given to options that would minimize rural growth.

e. **Planning and Zoning Re-Evaluation with Sewer Plan Amendment**

This sewer plan recommends that land use planning and zoning be re-examined for changes that would better provide for infill and for development closer to densities as planned. Currently, most development in the urban growth management area is taking place at lower suburban densities. This is more expensive to sewer and will use up the urban land at a faster rate and bring pressure for expansion into rural areas. The recommended land use re-examination is found in Appendix B. After the land use re-examinations are completed and if changes are made, this sewer plan should be reviewed for amendments that may be needed to synchronize the sewer plan with revised planning and zoning.

2. **Ground Water Program**

A ground water planning program is currently taking place in the northern portion of Thurston County. This area includes both the urban growth management area where this sewer plan applies, as well as some rural lands outside that area. The Ground Water Plan is scheduled for completion and adoption by the Washington State Department of Ecology in the fall of 1991, with prior concurrence by the Board of Thurston County Commissioners and the Cities of Olympia, Lacey and Tumwater. This plan will address major sources of contamination and specify a full program of protection, including recommendations on such issues as septic system use, sewers, pesticides, fertilizers, agricultural activities, underground storage tanks, and stormwater control.
A problem for this sewer plan is how to deal with just one of these issues—sewers, and make decisions on it prior to knowing the full ground water protection strategy for Thurston County. Completion of the sewer plan is under a schedule set in the sewage treatment plant's federal operating permit. This schedule requires adoption of the sewer plans prior to the time the ground water plan will be completed. Therefore, the sewer plan contains provisions that provide for ongoing decision-making and amendment based on information and recommendations as they come from the ground water program.

Some ground water information from earlier general sources, as well as the current ground water study, is available now to guide this urban area sewer plan:

- We know that some areas are more vulnerable to surface land use activities and associated pollutants. This information is based on geology, soils, and monitoring to date, and is found on the following maps:

  Map 3: Soil Limitations for Septic Systems--This map illustrates where on-site sewage disposal is generally inappropriate because of poor drainage and high water table.

  Map 4: Aquifer Sensitive Areas--This map is based primarily on soils and what has been known about subsurface geology. This map will be replaced or changed as USGS maps are prepared. It illustrates aquifers that are susceptible to contamination by land activities because they are considered "unprotected" or covered by highly porous material.

- We know that on-site septic systems are only one source of potential ground water contamination, and sewers are only one potential solution. Other pollution sources and solutions are being addressed by the Ground Water Plan and associated action programs.

Chapter III, in Section A. 4. on Soils, Geology and Ground Water Resources, describes what is known to date from current studies.

This sewer plan's strategy for protecting ground water is to (1) reduce potential ground water contamination by eliminating and limiting sources of contamination, including septic systems where & when necessary, and (2) use ground water study results in making sewer location and timing decisions so ground water is protected.
3. **On-Site Subsurface Treatment and Disposal**

New policies and Sanitary Code regulations for on-site sewage disposal are being developed in another planning program going on at the same time as this urban area sewer plan. A 14-member on-site advisory committee of citizens, private engineers/on-site designers and representatives from the three cities and the county developed new approaches for dealing with on-site sewage disposal county-wide. The County Board of Health makes the final decisions after public hearings. The Board of Health is made up of the three County Commissioners, who are also the final decision-makers for the county urban area sewer plan.

Within the Urban Growth Management Area the new on-site policies will facilitate transition to sewers, as well as require maintenance of on-site systems to support their long term use. The new on-site policies provide for renewable permits for new systems which will allow (1) conditions to be set for eventual connection to sewer where the sewer plan requires and (2) review of projects for conformance with the sewer plan, including:

- **Hook Up** requirements (that is, which on-site systems are to hook up to sewers and when) as found in Chapter IV, Section E. 2.

- **Management and Ownership** of community on-site systems as found in Chapter IV, Section B. 2. c.

- **Sewer Costs and Fees** and when they are applicable to community and individual on-site systems, as found in Chapter IV, Section G. 3., and

- **Types of Sewage Treatment** to be used within short and long-term portions of the Urban Growth Management Area, as found in Chapter IV, Section C.1.
4. Stormwater Control

**Stormwater and the Sewage Treatment Plant:** Before sewage was treated in our urban area, it was combined in the same pipes with stormwater. After treatment was initiated in 1948 at the Olympia Sewage Treatment Plant, it made sense to separate sewage and stormwater because it used to be felt that stormwater could be discharged without treatment. Since the 1950s, therefore, the two have been separated.

Where stormwater is now flowing into the sewage system through older city sewers, and where some amounts of stormwater infiltrate into sewer lines through pipe joints, manholes, etc., it will be treated at the treatment plant. The current plan for hydraulic improvements at the treatment plant virtually assures full treatment of all flows, except in the event of extreme wet weather flows coincidental with extreme high tides. In that case, the treatment process would be bypassed. This is expected to happen less than once a year, which is within a State Department of Ecology limit of one bypass per year under the terms of the treatment plant's discharge permit.

**Stormwater and Sewer Planning:** Construction of sewers in the unincorporated Urban Growth Management Area will enable land uses and densities to be built as planned in adopted land use plans. These urban densities will require improved methods of handling stormwater so that degradation to surface and ground water from polluted runoff will be avoided.

Therefore, new approaches to managing stormwater are being planned in Thurston County, in a project similar to the planning programs for ground water, on-site systems and sewers. A stormwater citizen's committee, advisory to the Board of County Commissioners, is analyzing stormwater needs and developing new requirements for both urban and rural areas in Thurston County. New methods of controlling and treating stormwater will be used, such as systems for using grasses and soil to filter contaminants.

The new stormwater program has 3 components:

a. **New standards and requirements for stormwater facilities serving individual development projects.**

   These new requirements will apply in the County and the three cities. They will do two new things:

   (i) Stormwater facilities will be designed to protect the **quality** of waters receiving storm flows (both ground and surface waters), not just to control stormwater **quantity**, and
(ii) Ongoing **maintenance and operation** of stormwater systems will be addressed, not just how to build them.

Furthermore, **it is the county's intent that both stormwater control and provision of sewers will be coordinated as development takes place**, which is why the plans for sewers and stormwater facilities are being done at the same time. The new stormwater approaches will be adopted and in place, well ahead of the time sewers are constructed in the unincorporated urban growth management area.

b. **Drainage Basin Plans**

The new requirements for stormwater facilities will regulate how stormwater is handled in each individual development. The drainage basin plans will look at how land development throughout an entire drainage basin affects the area's ability to assimilate the stormwater.

These plans will identify anticipated drainage problems and propose actions and regional stormwater facilities that may be required to protect water resources.

c. **Establishment of a County Stormwater Utility**

The Board of County Commissioners has recently adopted a resolution to establish a storm and surface water rate utility. Funds will support County stormwater actions, including:

- Maintenance of stormwater facilities
- Drainage basin reports to plan and design stormwater facilities
- Development of new ordinances
- Regulate and enforce stormwater requirements
- Public information and technical assistance services, and
- On-going planning and monitoring of surface water quality and quantity.
Summary: This Plan’s Goals In Addressing Growth and Water Quality Issues

Because of the sensitivity of our area’s natural resources, and the impacts of a growing population, the planning efforts outlined in this Appendix will provide the framework for actions to correct and prevent environmental degradation, and to be sure all the facilities to properly handle the physical effects of growth will be in place as further development occurs. Some of the key provisions of this sewer plan (found in Chapter IV) will contribute to this effort, and are intended to fulfill the following goals:

a. To provide sewers to serve new urban development where planned densities and land uses cannot safely accommodate on-site sewage disposal.

b. To encourage urban development at densities as planned, rather than at lower densities, in order to maximize use of the Urban Growth Management Area for new development. The goal is to discourage filling the Urban Growth Management Area with low density development, resulting in pressure to expand future urban growth into planned rural areas.

c. To recognize areas of environmental and ground water sensitivity within the urban growth management area where development densities will need to be kept low (one unit or less per acre), and where on-site sewage disposal may be safely used with the lower densities.

d. To allow existing on-site sewage disposal systems in areas developed at low densities within the urban area to continue operation until required to connect to sewer for health or water quality reasons.

e. To schedule construction of sewer interceptors into:

- the short-term urban growth area before the long-term growth area, and
- core areas (cities) first, and gradually outward as the core develops.

Exceptions are cases where sewers may be needed out of planned sequence to serve areas of aquifer vulnerability where it is declared that sewers are needed to solve problems of on-site sewage disposal.
APPENDIX K

RECORDS OF REVIEW OF THIS PLAN
K. RECORDS OF REVIEW OF THIS PLAN

CONTENTS

1. March 20, 1990 Letter from Sewerage General Plan Review Committee with recommended amendments. . . . . . . . K- 1
4. May 1, 1990 Reply from Thurston County Office of Water Quality . . K-34
March 20, 1990

Board of Thurston County Commissioners
Thurston County Courthouse
2000 Lakeridge Drive SW
Olympia, WA 98502

Dear Commissioners:

Thank you for the opportunity to review the draft Sewerage General Plan for the Unincorporated Urban Growth Management Area. We appreciate the staff assistance provided to us, and the lunches which enabled us to conduct our meetings during noon hours.

We met five times during the three month period provided by statute for our review. We began by asking staff to brief us on the plan, focusing on the basic assumptions and premises of each recommendation and the plan in general. Following this overview, we spent the month of February studying the plan on our own, returning in March with a list of concerns and questions for discussion. These were narrowed to the nine recommendations which are enclosed.

We feel these recommendations are within the scope and spirit of the Sewer Task Force recommendations upon which this plan is based. They include:

1. **Clarification of ownership of sewers constructed on lands inside UGMA that may subsequently be removed from the UGMA.** The plan provides that the cities would not own any sewers within parts of the UGMA that are now inside the boundary but subsequently removed and designated as rural. Our first recommendation clarifies that cities retain ownership of any sewers that may have been built by the cities inside such areas prior to their designation as rural.

2. **Joint city-county review & approval of community on-site systems.** Because the plan recommends that the cities own and operate community on-site systems in the unincorporated UGMA, our second recommendation requests language that provides for joint city-county review of the design and location of these systems within individual development proposals.
3. Explanation of intent of plan language regarding the extent sewers and community on-site systems will be used in the long term growth area. One section of the plan describes the preferred approach for developing within the long term urban growth area (at low density now, but with subdivisions designed in such a way that additional development may be added later, up to the area’s planned future urban density). In this long term growth area, the plan also recommends that sewers and community on-site systems generally not be used. We recommend language be added to this section explaining the reasons for this recommendation and the limited circumstances under which sewers and community systems would be used.

4. Aquifer Sensitive Areas. The plan contains a provision about timing of sewer construction in aquifer sensitive areas, which states that sewer construction is to be responsive to ground water data. An explanatory note in the plan says that this means that if ground water findings indicate a need for sewers in advance of their planned timing, they will be provided when needed regardless of the planned schedule. This provision of the plan may be well for existing development on septic systems within aquifer vulnerable areas, but we feel the plan should recognize the potential for other alternatives to sewer within parts of aquifer sensitive areas not yet developed. Therefore, our fourth recommendation suggests that the plan include direction that solutions other than sewer be considered for undeveloped parts of aquifer vulnerable areas.

5. Sizing of lines to rural areas. We support the county’s policy regarding limited sewer service in rural areas, and that it serve existing development, only. However, we feel the note in the plan about sizing any lines extended to provide sewer service to such limited development be expanded slightly to include two things: (1) some limited new development in the subdivision requiring the sewer service to correct problems (as was done in Boston Harbor), and (2) the ability to serve existing development between the UGM and the rural subdivision which may need sewer to correct its problems. As long as a sewer line is going by, it should be able to be utilized for solution of health problems of existing development.

6. Piece of Littlerock Road interceptor that leaves the urban area. Because the UGM Agreement on this issue states that the UGM boundary is to be finalized through Tumwater-County joint planning, we recommend taking the discussion of this sewer line out of the section of the plan relating to rural area
sewer service. Instead we recommend transferring the note about finalization of the sewer line and UGM boundary from the text of the plan to Map 1.

7. **Payment of sewer fees by community on-site systems.** We recommend that the plan strongly say that community systems "will" pay sewer fees, instead of customary plan language of "should" pay these fees.

8. & 9. **Map Changes.** Map 1 in the draft county plan is not now consistent with the LOTT and Tumwater plans for interceptors in the Tumwater service area. County staff asked to have this checked by Tumwater because at the time the county plan was being drafted in December, Tumwater’s plan was not yet finalized. Tumwater submitted a clarification which should be incorporated into Map 1 of the county plan. It was the intent of the Sewer Task Force that the interceptor map be consistent with the LOTT map and those of the cities so there is a coordinated interceptor system within the urban area. These changes will accomplish that. The map changes will also affect the description of interceptors in Appendix B and cost estimates of the unincorporated portions of the interceptors on page IV-34. Recommendations 8 & 9 refer to these recommended changes.

We will have a representative present at your March 27 briefing to discuss these recommendations with you.

Sincerely,

SEWER GENERAL PLAN REVIEW COMMITTEE

[Signatures]

David Combs, Chair
Representing Thurston County Public Utility District, Water District #2 and Drainage District #3

Rex Derr
Representing City of Olympia

Peter Fleutsch
Representing Cities of Tumwater and Lacey

Dave Howard
Representing Thurston County at-large
AMENDMENTS TO THE DRAFT URBAN AREA SEWERAGE GENERAL PLAN
RECOMMENDED BY THE SEWERAGE GENERAL PLAN REVIEW COMMITTEE
MARCH 20, 1990

1. Page IV-3  -- Continuation of city Ownership of any city sewers built inside
UGMA but subsequently removed from UGMA:

In response to point 4 in City of Lacey letter of March 5, 1990 that sewers built by the city
should remain in city ownership even in areas subsequently downzoned to Rural and removed
from the urban growth management area:

Add language to 3rd paragraph on Page IV-3, section c (1) City Ownership:

City ownership of sewers within the boundary of the Urban Growth Management
Area would not apply to any lands subsequently removed and designated as
"rural," except for sewers built by a city prior to removal of the lands from the
urban growth management area, in which case the city will retain ownership of
the sewer.

2. Page IV-3 -- Joint City-County Review of Community On-Site Systems

The SGP Review Committee recommends that the plan include new language providing a role
for cities to review community on site systems at the approval stage since the cities will be
responsible for their operation. Insert language about joint review of community on-site systems
as new paragraph 2 under "City Ownership" on page IV-3:

There should be joint city-county review and approval of the design and location
of community on-site systems in individual development proposals to assure that
the systems will meet standards of the city which will be operating and
maintaining the community system.

3. Page IV-5, Section l.b, Long Term Urban Growth Area

In response to concern raised by City of Lacey in March 5, 1990 letter (point #1) that sewers
or community systems should be required if the county approves higher density subdivisions in
the long term area, add a new explanation after the following subsections on page IV-5:

Existing Language:

(i) Sewers and community systems are generally not to be provided in the
long term Urban Growth Management Area. Where they are provided,
the cities would own them.

(ii) Preferred approach to subdividing within the long term Urban Growth
Management Area is to subdivide at densities and in configurations that
allow re-dividing or later additional development at planned urban
densities as the short term boundary expands. The use of community
systems may be part of this strategy.
New Language:

This plan is intended to be consistent with County land use policy in the Comprehensive Plan which states: “Short-term and long-term growth areas should be designated as a means of gradually phasing outward development. Land use designations, standards and utility policies should provide growth area development incentives within short-term growth areas and preserve long-term growth area development options in long-term growth areas.” (This is policy A.10 on page 2-6 of the Thurston County Comprehensive Plan).

Thus, it is not anticipated that the County will approve development in the long term growth area at its planned urban density (which would require sewer) until the short term boundary is moved into the area.

The words “generally not to be provided” are used in section (i) because the only exception to not providing sewers or community systems in the long term area might be in the case of sewer extension into the long term area to serve existing development in need of conversion to sewer to solve ground water problems where on-site septic systems are a problem.

Similarly, the use of community on-site systems in the long term growth area would only be envisioned where developments are allowed at densities lower than ultimate planned densities, but in configurations that allow later re-dividing or later additional development, meaning that the current development is clustered into smaller lots on one part of the property and a community system is used rather than individual on-site systems on each lot. The overall density on the whole parcel, however, would be lower than the land use plan will allow when the area becomes part of the short term urban area.

4. Page IV-9, Section (1) Timing of Interceptor Construction in Aquifer Sensitive Areas:

In response to point 3 in letter from City of Lacey, March 5, 1990, add language calling for (1) findings both of aquifer vulnerability and a need for sewers to serve existing development, and (2) the consideration of other solutions than sewering for undeveloped parts of aquifer vulnerable areas. Put all the thoughts together into a single paragraph as follows:

Within areas found to have a high degree of aquifer vulnerability, ongoing decisions on interceptor and S.T.E.P. main location, sizing and timing are to be responsive to data from the USGS study or future ground water studies that indicate aquifer vulnerability and a specific need for sewers to solve problems from existing on site sewage systems. Also within these areas, where on-site sewage systems are not the problem and sewers are not the solution, other resources should be analyzed and appropriate solutions developed to address the ground water problems. For undeveloped portions of these aquifer sensitive areas, it is also anticipated that solutions to ground water problems will be considered other than the extension of sewers, such as acquiring property or development rights or limiting development.
5. Pages IV-12, Section 2, Extension of Interceptors into Rural Areas -- Scott, Sunwood and St. Clair Lakes.

(a) The SGP review committee recommends that when sewer lines are extended into rural areas to serve problems in existing high density subdivisions, that these lines also be sized to enable them to pick up (1) limited undeveloped lots within the problem subdivision (as was done in Boston Harbor), and (2) any existing development along the line which could use sewer to correct failing septic systems or area water quality problems. The SGP Review committee feels this is still within the intent of the county's policy for very limited sewer service in rural areas. This would mean changing the second sentence of the recommendation on page IV-12 under section (2) Scott, Sunwood and St. Clair Lakes:

Capacity has been provided in the urban area interceptor system to serve the older high density subdivisions along these lakes in the even the Board of Health orders sewer service to solve a subdivision-wide health hazard problem. Should this occur, the sewer line out to the development should be sized to serve only the subdivision with the problem, both existing development in the subdivision and limited additional development to the extent approved by the Board of Health. In addition, the line may be sized to serve any existing development between the Urban Growth Management boundary and the subdivision being served that may need sewer to correct failing on-site systems or area water quality problems.

(b) In addition, the SGP Review Committee recommends city involvement in decisions to extent urban area sewers into the rural area, in order to give the cities a voice in utilization of system capacity. To implement this recommendation add a last sentence to the above section as follows:

Because such sewer lines would be served by the urban area sewer system, there should be joint city-county review of the capacity of the urban area system to serve the area outside the urban growth boundary.

6. Pages IV-12 and 13, item (3) re Litterrock Road interceptor & UGM Boundary:

In response to February 21 letter from City of Tumwater, and direction from March 6 meeting:

a. Delete this whole section and

b. Move the note from the top of page IV-13 to Map 1, coded to refer to the Litterrock Road interceptor at the point it is shown leaving the UGM boundary.
7. Payment of Sewer Fees by Community On-Site Systems

City of Lacey in point 2 in letter of March 5, 1990 notes inconsistent language in the plan on the subject of whether community systems "should" and "will" pay fees as if on sewer. The Task Force wanted strong direction that sewer fees will be paid by community on-site systems.

Staff explained that the language recommended by the Task Force was changed from "will" to "should," not in any attempt to "water down" the recommendation, but to use customary plan language of "should" instead of ordinance-type language of "shall" and "will" (although it wasn't changed in all parts of the plan).

The SGP Review Committee recommends that the stronger "Will" or "Shall" language be used as a means of expressing very strong direction. This would mean changing the "should" on pages IV-30 (Section c on Community On-Site Systems) and IV-33 (Note "B") to "will." (The language in the Plan Summary chapter does use "will," on Page I-7, #7). Also substitute "will" on page IV-33, note B.

8. Map Changes

For consistency with Tumwater Sewer Plan which had not been finalized when the December draft of County Plan was prepared, the following changes are recommended:

(a) Change Map 1 as noted on map sent by City of Tumwater. These changes reflect interceptors that are constructed and three proposed interceptors or portions of interceptors in the Tumwater portion of the unincorporated UGMA that were inadvertently left off Map 1.

(b) Also change the legend on Map 1 to call all future interceptors "future sewers" instead of "future gravity sewers," as recommended by Tumwater, since not all future sewers are the gravity type.

9. Finalized Tumwater Interceptor Costs:

(a) Substitute new corrected page B-9 from City of Tumwater for the one currently in the plan.
(b) Change capital costs on Table 5A, page IV-34 to reflect changes on page B-9.

SGP\AMEND

K - 7
March 26, 1990

The Honorable Les Eldridge, Chairman
Board of Thurston County Commissioners
Thurston County Courthouse
2000 Lakeridge Drive S.W.
Olympia, WA 98502

Dear Les:

Our review of the draft Thurston County Sewerage General Plan for the unincorporated UGMA is complete. We are pleased with the content of this plan and feel that it addresses the concerns we had raised in 1988 on the earlier LOTT plan.

We held a public hearing on the draft plan on February 21, 1990. Our recommendation to you includes amendments in response to concerns raised at the public hearing, as well as some editing to bring the text up to date from the time it was drafted in December, 1989.

We feel that our amendments will help clarify and strengthen the plan. We do not feel that any of these change the scope and spirit of the Sewer Task Force recommendations upon which the plan is based.

Enclosures include:

1. 15 recommended amendments to the plan.

These include 6 from us, 3 made jointly with the Sewerage General Plan Review Committee (in response to letter from City of Tumwater), and 6 made by the Sewerage General Plan Review Committee and endorsed by us.

We added one thing to a recommendation by the Sewerage General Plan Review Committee. It is recommendation #3 on the subject of joint county-city review of community on-site systems. We added a statement that the joint review applies only to those community systems within the UGMA.

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2. Findings and Recommendation for adoption of the Sewer General Plan as part of the County Comprehensive Plan and Sub Area Plans.

In the sections amending the Cooper Point Plan and Northeast Thurston Subarea Plan, we added explanatory language referring to the fact that at the time this sewer plan is being adopted, the land uses within parts of the subarea are being re-evaluated, and this re-evaluation may require subsequent amendment of the Sewerage General Plan.

3. Correspondence and minutes from the February 21, 1990 public hearing.

Thank you for the additional public involvement which you built into the development of this plan. It resulted in one that is more acceptable and understandable to the public and has paid off in terms of the degree of public support for sewer planning in the urban area.

Sincerely,

[Signature]

Alan Corwin
Chairman

sgp\letters\03-27-90
THURSTON COUNTY PLANNING COMMISSION

FINDINGS OF FACT

AND

ADOPTION OF SEWER PLAN

AS PART OF COMPREHENSIVE AND SUB-AREA PLANS

WITH

RECOMMENDED AMENDMENTS TO THE SEWER PLAN
Thurston County Planning Commission recommendations and findings of fact on the draft December 11, 1989 Thurston County Sewerage General Plan for the Unincorporated Urban Growth Management Area:

I. **RECOMMENDATIONS**

A. **AMENDMENTS TO THE SEWERAGE GENERAL PLAN**

See Attachment "A" for 15 recommended amendments.

B. **COUNTY COMPREHENSIVE PLAN:**

The Thurston County Planning Commission recommends

1) Amendment to the Thurston County Comprehensive Plan to adopt by reference the unincorporated Urban Growth Management Area Sewer General Plan (draft dated 12/11/89) as an element of the Comprehensive Plan, and

2) Amendments to Sub-Area plans described below for consistency with the above adoption of the Sewer General Plan as part of the Comprehensive Plan.

B. **SUB-AREA AND URBAN AREA JOINT PLANS:**

1. **JOINT PLANS:**

   All future Urban Area Joint Plans should refer to the Urban Area Sewer Plan in their Sections on Utility Services. (No joint plans have as yet been adopted.)

2. **COOPER POINT SUB-AREA PLAN:**

   Amend C.2 on page 37 as follows:

   (2) The Comprehensive Sewer Study should be implemented by installing sewers in a logical sequence to accommodate orderly development. The 1990 Sewerage General Plan for the Unincorporated Urban Growth Management Area has been coordinated with the Cooper Point Plan's recommended land uses and should be used to guide provision of sewer within the portions of the sub-area that are inside the Urban Growth Management boundary.
Note: At the time of adoption of the 1990 Sewerage General Plan for the unincorporated Urban Growth Management Area (UGMA), the urban area land uses in the Cooper Point Sub-Area are being re-evaluated. This re-evaluation may require subsequent amendment of the 1990 Sewer General Plan for the unincorporated UGMA.

3. NORTHEAST THURSTON SUB-AREA PLAN:

Amend the Section on Public Services and Facilities on page 85 as follows:

PUBLIC SERVICES AND FACILITIES

A. Water and Sewer

The proposed land uses and densities under this alternative Sub-Area Plan indicate that only immediately adjacent to Olympia and Lacey, and in the vicinity of Hawks Prairie within the Urban Growth Management Boundary would it ever be economically feasible or desirable to provide public water or sewer.

1. Boston Harbor Water and Sewer: However, the limited provision of sewage services proposed in the Boston Harbor Sewerage General Plan may be both economically feasible and desirable to remedy existing health hazards caused by failing on-site disposal systems. It may also be desirable to connect the Boston Harbor Grade School to such a system, as also contemplated in the General Plan. Furthermore, limited provision of water service proposed in the Boston Harbor Water General Plan may be both economically feasible and desirable, due to the age and inadequate capacity of the current system. It may also be desirable to connect the Boston Harbor Grade School to such a system, as also contemplated in the General Plan.

Throughout the rural portions of the Sub-Area Except on Hawks—Prairie, ground water supplies are generally inadequate to support large residential systems, so this will provide a natural limiting factor in helping to retain the area’s rural character. The extension of public water systems would encourage an undesirable level of growth, and would thus run counter to the land use recommendations of this alternative Plan in most of the Sub-Area. However, provision of water service as proposed in the Boston Harbor Water General Plan would not encourage an undesirable level of growth, in that the water
service would be provided for those residences within the sewer service area and the Boston Harbor Grade School, and the area's poor soils outside the sewer service area restrict growth regardless of water service provisions. Ground water supplies are adequate to support the systems discussed in the Boston Harbor Water General Plan.

2. **Urban Area Sewer:** The Sewerage General Plan for the unincorporated urban growth management area has been coordinated with this Sub-Area Plan's recommended land uses and should be used to guide provision of sewer within the portions of the sub-area that are inside the Urban Growth Management boundary. On Hawks Prairie, however, abundant ground-water availability combined with soils favorable to residential development could allow growth densities that may some day justify the provision of sewers, especially if they are eventually provided first to nearby Tanglewilde and Thompson Place. Therefore, except to the limited extent proposed in the Boston Harbor Sewerage General Plan, future facilities planning should not further consider providing sewers to Boston Harbor, South Bay or points in-between outside the Urban Growth Management boundary. However, it may someday be feasible or desirable to provide them to Hawks Prairie.

*Note:* At the time of adoption of the 1990 Sewer General Plan for the unincorporated UGMA, the urban area land uses in the Nisqually Bluff portion of the Sub-Area are being re-evaluated. This re-evaluation may require subsequent amendment of the 1990 Sewer General Plan for the unincorporated UGMA.

B. **Public Transit**

The County shall also work toward providing public transit to the Sub-Area facilitating carpools, and so on, to encourage less energy-consumptive patterns of transportation.

4. **LACEY ENVIRONS/EAST OLYMPIA SUB-AREA PLAN**

Amend Public Service and Facilities Section on pages 87 and 88:

PUBLIC SERVICES AND FACILITIES

1. **Water and Sewer in Rural Areas** (outside the Urban Growth Management boundary):
With the exception of the Long/Patterson Lakes area, the low intensity of land uses in the proposed rural areas of the Sub-Area will not require either public water or public sewer. These areas should be able to be served adequately by individual wells or community water systems and by septic tanks. Where individual parcels have soils which are unfavorable for septic tanks, larger lots may be required, as discussed under the Land Use Classification Section. The extension of public water and sewer to the rural areas would only generate pressure to develop at densities greater than those proposed in the Plan.

For the Long/Patterson Lakes drainage area, development on septic tanks has been found to be one of several factors contributing to the high nutrient levels in the lakes\(^1\). It has been proposed in the Land Use Recommendations Section that development on septic tanks within the lakes drainage basin should be limited to a maximum of two units per acre. For the western portion of the drainage basin in the Chambers Prairie Neighborhood, development at densities of four to eight units per acre might be permitted if served by public sewer. For the rest of the drainage basin, it appears that it may be a longer time before sewers are available. It is proposed that the density for this area be reviewed in three years to see if sufficient changes in the situation have taken place to warrant a change in density.

It is also recommended that an on-site Waste Water Management District should be established for the lakes drainage basin. As proposed in the Lakes Study\(^2\) this District would perform the following duties: establishment of standards for on-site systems, review of proposed designs for systems according to standards, maintenance of systems, monitoring the functioning of the systems, and correction of malfunctioning systems.

2. **Urban Area Sewers and Water**

   A. **Sewers**

   Because the suburban and growth areas are not now served by public sewer, development which takes place in those areas in the future will either have to be at densities lower than the permitted maximum or alternative methods of sewage treatment will have to be used in place of individual septic tanks. The LOTT I Complex Facility Plan does project sewer trunk lines to those


\(^2\)IBID
areas in 1985 and 2000. The sewer lines would help implement the recommendation for clustering higher density development in the suburban and growth areas and for keeping the lower intensity uses in the rural area. It is recommended that in the interim, very careful consideration of sewage treatment provision should be made prior to approving developments at suburban and growth area densities and proposals for commercial and industrial development. The cumulative effects of individual or community septic tanks on ground water quality should be evaluated, particularly in areas of rapidly percolating soils (much of Chambers Prairie, Union Mills/Mushroom Corner and Tanglewilde/Thompson Place Neighborhoods).

As previously mentioned in the Land Use Section, any development at a density greater than four units per acre should have community sewage treatment and should hook-up to sewers when and if they become available.

The 1990 Sewerage General Plan for the Unincorporated Urban Growth Management Area has been coordinated with this Sub-Area Plan's recommended future land uses and should be used to guide provision of sewer within the portions of the sub-area that are inside the Urban Management Growth boundary.

B. Water

Figure 13 on Page 39 shows the portion of the Sub-Area served by public water. Figure 15, showing the public water service area as identified by the three cities, indicates the portions of the Sub-Area which are projected for water service in the future. Although not all of the proposed suburban and growth area are served by public water at the present time, it is anticipated that they will receive public water in the future.

5. BLACK LAKE/LITTLE ROCK/DELPHI SUB-AREA PLAN

Add a new Section to page 54:

E. Public Services and Facilities

Sewer within Urban Areas:

The 1990 Sewerage General Plan for the Unincorporated Urban Growth Management Area has been coordinated with land use recommendations in this sub-area plan and should be used to guide provision of sewers within the portions of the sub-area that are inside the Urban Management Growth boundary.
6. **MCKINLEY AREA PLAN**

Add a new paragraph to page 28, **Public Services and Facilities**:

E. **Public Services and Facilities**

   **Sewer within Urban Areas:**

   The 1990 Sewerage General Plan for the Unincorporated Urban Growth Management Area has been coordinated with land use recommendations in this sub-area plan and should be used to guide provisions of sewers within the McKinley area, all of which lies inside the Urban Management Growth area.

II. **FINDINGS OF FACT**

1. The Purpose of the Thurston County Sewerage General Plan for the Unincorporated Urban Growth Management Area is to plan for sewers to serve the area where adopted land use plans provide for urban land uses.

2. The public health and welfare is served by adoption and implementation of this Plan because sewers will remove failing septic system discharges into ground and surface waters. Sewers will also be available to serve areas with a high degree of aquifer vulnerability where existing on-site septic systems may be found to pose a water quality problem. The provision of sewers will also enable new development to be built at the urban densities envisioned in adopted land use plans rather than lower septic system densities. The lower density development results in widespread suburban sprawl-type development throughout the urban area, with its associated problems such as increased use of energy, rapid use of urban land and open spaces, an automobile oriented transportation system, greater costs for utility services, and greater police and fire response rates.

3. The County Services Act, RCW 36.94, requires adoption of any County Sewerage General Plan as an element of the County Comprehensive Plan.

4. On February 21, 1990 the Thurston County Planning Commission held a public hearing on adoption of the Sewerage General Plan for the Unincorporated Urban Growth Management Area as an amendment to the County Comprehensive Plan.

5. The Sewerage General Plan for the Unincorporated Urban Growth Management Area is consistent with Comprehensive Plan land use and sewerage policies, and urban-rural land use boundaries, and with recommended land uses in applicable Sub-Area Plans.

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6. The Thurston County Comprehensive Plan, Sub-Area and Joint Plans and Zoning Ordinance will continue to govern achievable land uses and densities.

7. The Sewerage General Plan for the Unincorporated Urban Growth Management Area has received a Determination of Nonsignificance adopting three associated environmental documents, pursuant to the State Environmental Policy Act: (1) LOTT Urban Area Wastewater Plan Final Environmental Impact Statement, June, 1988; (2) Addendum to (1), July, 1989; and (3) Thurston County Comprehensive Plan Final Environmental Impact Statement, Sept, 1987.

[Signature]
Chairman
Thurston County Planning Commission

05:zh\SGP\REVIEW\FACTS
ATTACHMENT A
AMENDMENTS TO THE DRAFT URBAN AREA SEWERAGE GENERAL PLAN
RECOMMENDED BY
THURSTON COUNTY PLANNING COMMISSION
AND
SEWERAGE GENERAL PLAN REVIEW COMMITTEE
March 21, 1990

These recommendations are a combination of those made solely by the Planning Commission and those by the Sewerage General Plan (SGP) Review Committee. On March 21, 1990, the Thurston County Planning Commission endorsed the March 20 recommendations of the SGP Review Committee and voted to incorporate the Review Committee’s into those of the Planning Commission.

The Planning Commission recommends one addition to the Review Committee’s recommendation on joint city-county review of Community On-Site Systems. The addition emphasizes that this joint review is to apply to community on-site systems only within the Urban Growth Management Area (UGMA). (See this addition to number 3 on page 2.)

FROM PLANNING COMMISSION, ONLY:

1. Page III-2, Paragraph 2 regarding Budd Inlet

The section of the Plan describing Budd Inlet makes no reference to its fishery resource. The Thurston County Planning Commission recommends adding a section referring to this resource.

Add after the fourth sentence:

There is a major commercial salmon fishery in Budd Inlet during the fall migration period. The Squaxin Island Tribe conducts its principal fall chinook salmon fishery in Budd Inlet, and the State Department of Fisheries maintains a hatchery on the Deschutes River for coho and chinook species.

2. Page IV-3, Continuation of city ownership of any city sewers built inside UGMA but subsequently removed from UGMA

The Plan provides that the cities would not own any sewers within parts of the Urban Growth Management Area that are now inside the boundary, but which may subsequently be removed and designated as rural. The SGP Review Committee (supported by the Planning Commission) recommends that if sewers are built by cities on any lands prior to their designation as rural, the cities should be able to retain ownership of such sewers.
Add language to 3rd paragraph on Page IV-3, Section c (1) City Ownership:

City ownership of sewers within the boundary of the Urban Growth Management Area would not apply to any lands subsequently removed and designated as "rural," except for sewers built by a city prior to removal of the lands from the Urban Growth Management Area, in which case the city will retain ownership of the sewer.

3. Page IV-3, Joint City-County Review of Community On-Site Systems

The SGP Review Committee (supported by the Thurston County Planning Commission, with one addition) recommends that the Plan include new language providing a role for cities to review community on-site systems at the approval stage, since the cities will be responsible for their operation. Insert language about joint review of community on-site systems as new paragraph 2 under "City Ownership" on Page IV-3:

There should be joint city-county review and approval of the design and location of community on-site systems in individual development proposals to assure that the systems will meet standards of the city which will be operating and maintaining the community system. Recommended addition from Thurston County Planning Commission: Note: This joint review applies only to community on-site systems inside the Urban Growth Management Area, and not to any within rural areas.

4. Page IV-5, Section l. b., Long-Term Urban Growth Area

This section of the Plan describes the preferred approach for developing within the long-term Urban Growth Management Area. In summary, it says the approach is to develop at low density now, but with subdivisions designed in such a way that additional development may be added later, up to the future urban density allowed in adopted land use plans. In this long-term growth area, the Plan also recommends the sewers and community on-site systems generally not be used. The SGP Review Committee (supported by the Thurston County Planning Commission) recommends that language be added to this section of the Plan, explaining the reasons for this recommended approach to development and describing the limited circumstances under which the sewers and community systems could be used:

Existing Language in the Plan:

(i) Sewers and community systems are generally not to be provided in the long-term Urban Growth Management Area. Where they are provided, the cities would own them.

(ii) Preferred approach to subdividing within the long-term Urban Growth Management Area is to subdivide at densities and in configurations that allow re-dividing or later additional development at planned urban densities as the short-term boundary expands. The use of community systems may be part of this strategy.
New Language:

This plan is intended to be consistent with County land use policy in the Comprehensive Plan which states "Short-term and long-term growth areas should be designated as a means of gradually phasing outward development. Land use designations, standards and utility policies should provide growth area development incentives within short-term growth areas and preserve long-term growth area development options in long-term growth areas." (This is policy A. 10 on Page 2-8 of the Thurston County Comprehensive Plan).

Thus, it is not anticipated that the County will approve development in the long-term growth area at its planned urban density (which would require sewer) until the short-term boundary is moved into the area.

The words "generally not to be provided" are used in section (i) because the only exception to not providing sewers or community systems in the long-term area might be in the case of sewer extension into the long-term area to serve existing development in need of conversion to sewer to solve ground water problems where on-site septic systems are a problem.

Similarly, the use of community on-site systems in the long-term growth area would only be envisioned where developments are allowed at densities lower than ultimate planned densities, but in configurations that allow later re-dividing or later additional development, meaning that the current development is clustered into smaller lots on one part of the property and a community system is used rather than individual on-site systems on each lot. The overall density on the whole parcel, however, would be lower than the land use plan will allow when the area becomes part of the short-term urban area.

FROM PLANNING COMMISSION, ONLY

5. Page IV-6, Section 2. Sewers and Annexation

The following is an editing suggestion to make it clear that the Plan's annexation provisions would be applicable only inside the Urban Growth Management Area, and NOT to any sewer extensions outside the UGMA into the rural area.

Add to the title: " -- Within the Unincorporated Short and Long-Term Urban Growth Management Area"

6. Page IV-9, Section (1) Timing of Interceptor Construction in Aquifer Sensitive Areas

This section of the Plan discusses timing of sewer construction in aquifer sensitive areas, and includes a statement that sewer construction is to be responsive to ground water data. An explanatory note says that this means that if ground water findings indicate a need for sewers in advance of their planned timing, they will be provided when needed regardless of the planned
schedule. SGP Review Committee (supported by the Thurston County Planning Commission) notes that this may be a desirable action for parts of aquifer sensitive areas containing existing development on septic systems which may need to convert to sewer. However the Plan should recognize the potential for other alternatives to sewer within parts of aquifer sensitive areas not yet developed. Therefore, it is recommended that the Plan include direction that solutions other than sewer be considered for undeveloped parts of aquifer vulnerable areas:

Within areas found to have a high degree of aquifer vulnerability, ongoing decisions on interceptor and S.T.E.P. main location, sizing and timing are to be responsive to data from the USGS study or future ground water studies that indicate aquifer vulnerability and a specific need for sewers to solve problems from existing on site sewage systems. Also within these areas, where on-site sewage systems are not the problem and sewers are not the solution, other resources should be analyzed and appropriate solutions developed to address the ground water problems. For undeveloped portions of these aquifer sensitive areas, it is also anticipated that solutions to ground water problems will be considered other than the extension of sewers, such as acquiring property or development rights or limiting development.

7. Pages IV-12, Section 2, Extension of Interceptors into Rural Areas -- Scott, Sunwood and St. Clair Lakes

(a) Sizing of Lines Extended to Rural Areas

The Plan describes the county’s policy regarding limited sewer service in rural areas, and that it serve existing development, only. The SGP Review Committee (supported by the Thurston County Planning Commission) recommends that when sewer lines are extended into rural areas to serve problems in existing high density subdivisions, that these lines also be sized to enable them to pick up (1) limited undeveloped lots within the problem subdivision (as was done in Boston Harbor), and (2) any existing development along the line which could use sewer to correct failing septic systems or area water quality problems. The SGP Review Committee feels this is still within the intent of the county’s policy for very limited sewer service in rural areas. This would mean changing the second sentence of the recommendation on Page IV-12 under section (2) Scott, Sunwood and St. Clair Lakes:

Capacity has been provided in the urban area interceptor system to serve the older high density subdivisions along these lakes in the event the Board of Health orders sewer service to solve a subdivision-wide health hazard problem. Should this occur, the sewer line out to the development should be sized to serve only the subdivision with the problem, both existing development in the subdivision and limited additional development to the extent approved by the Board of Health. In addition, the line may be sized to serve any existing development between the Urban Growth Management boundary and the subdivision being served that may need sewer to correct failing on-site systems or area water quality problems.
(b) Joint City-County review of Decisions on Capacity of the Urban System

In addition, the SGP Review Committee (supported by the Thurston County Planning Commission) recommends city involvement in decisions to extend urban area sewers into the rural area, in order to give the cities a voice in utilization of system capacity. To implement this recommendation add a last sentence to the above section as follows:

Because such sewer lines would be served by the urban area sewer system, there should be joint city-county review of the capacity of the urban area system to serve the area outside the Urban Growth Management Boundary.

8. Pages IV-12 and 13, item (3) regarding Littlerock Road Interceptor and Urban Growth Management Boundary

The Urban Growth Management (UGM) Agreement states that the UGM boundary in the Littlerock Road area is to be finalized through Tumwater-County joint planning. Therefore, the SGP Review Committee and the Thurston County Planning Commission recommend taking the discussion of this sewer line out of the section of the Plan relating to rural area sewer service. Instead it is recommended that the note about finalization of the sewer line location and the UGM boundary be placed directly on the map of proposed sewer interceptors, Map 1:

a. Delete this whole section (3) on Pages IV-12 and 13, and

b. Move the note from the top of Page IV-13 to Map 1, coded to refer to the Littlerock Road interceptor at the point it is shown leaving the UGM boundary.

FROM PLANNING COMMISSION, ONLY:

9. Pages IV-16 to 18, Section 1. LOTT Treatment Plant

In response to questions raised at the Planning Commission's public hearing on February 21, 1990 about the effect of the treatment plant on Budd Inlet, add new paragraphs providing information on this subject. The new paragraphs should be added before the second paragraph on Page IV-18, and should read as follows:

All New Language:

Bacteria and reduced dissolved oxygen have been the causes of Budd Inlet's recurring water quality problems. Sources of bacteria have been identified and for the most part corrected. Dissolved oxygen problems remain and are less easily resolved. In estuaries such as Budd Inlet, nutrients are located within the surface area where algae grow. As they grow, the algae respire--they use oxygen--and when they die, the bacteria to decompose them consume oxygen
as well, all of which has the tendency to reduce dissolved oxygen. Additionally, algae will sink to the bottom, decompose, and cause further oxygen to be consumed.

The nutrient nitrogen has been identified by the Department of Ecology in a study of Budd Inlet water quality as the most important nutrient in Budd Inlet. In the southern part of the Inlet, about 50 percent of the nitrogen at surface levels comes from the treatment plant, and 50 percent from other less easily traceable sources. Note that sewage effluent is not the total problem here.

The limits of what Budd Inlet or Southern Puget Sound "can take" in terms of sewage effluent have not been identified. This is a complex issue relating to factors of discharge sources and location, tide, algae, weather, wind, etc. Any resulting conclusions are subjective. No studies are planned on Southern Puget Sound's carrying capacity, but expanded monitoring is planned. Although "carrying capacity" for sewage effluent is not known, the Department of Ecology's intent in requiring removal of 90 percent of the treatment plant's nitrogen, is to improve and strengthen current conditions.

If 90 percent of the nitrogen is removed from 16 million gallons per day average summer flow (which is the time when the algae grows), less nitrogen will be going into Budd Inlet from the treatment plant than is the case today, a net benefit to the Inlet. As a result, the algae will be reduced, sediments will decrease and the dissolved oxygen will increase. (Sixteen million gallons per day with nitrogen removal is the maximum summer flow of the plant at its planned capacity under the Sewerage General Plan. Currently, the average daily summer flow is 11 million gallons per day, without nitrogen removal).

FROM PLANNING COMMISSION, ONLY:

10. Page IV-18, part b. Treatment Alternatives

This is an editing change, only, to reflect what has taken place since the Plan was drafted in December, 1989:

Several treatment alternatives were considered and reviewed in the March, 1989 LOTT General Sewer Plan. These are incorporated by reference in this Plan. In addition, the LOTT partners during 1989 further evaluated the nitrogen removal process, including both on-site and off-site (land disposal) options. In 1990, further evaluation of outfall location options will also be done.
FROM PLANNING COMMISSION, ONLY:

11. Page IV-29, Basis for Assessing ULIDs

The Thurston County Planning Commission recommends deletion of the Plan's reference to assessing ULIDs on the basis of existing use of property rather than potential use. Deputy Prosecuting Attorney Thomas Bjorgen advises that assessments may not be based on existing use to the exclusion of potential uses.

Tom Bjorgen explains as follows: A special assessment must be based on the special benefit received by the property from the improvement being financed. Special benefit is the increase in fair market value of the property caused by the improvement. Special benefit, therefore, may depend somewhat on the current use of the property, but is determined in larger part by the uses which are permitted on the property. The rule is: not only the actual present use of the property is considered, but also any use to which the property is presently adaptable and any future use to which the property is reasonably adaptable within a reasonably foreseeable time. Property cannot be relieved from the burden of an assessment simply because its owner has seen fit to devote it to a use which presently may not specially benefit from the improvement.

Delete last two sentences on Page IV-29 to address this legal issue raised by Tom Bjorgen:

This plan recommends that when the ULIDs are used to fund construction of collectors, that they be based on ERUs (Equivalent Residential Units), as opposed to area or front footage. It is further recommended that the ERU be assessed on an existing residence basis rather than potential residences allowed under zoning. If a parcel is subsequently divided, the new ERUs should be paid in a "latecomer" fee approach.

FROM PLANNING COMMISSION, ONLY:

12. Pages IV-28 and 29, Section 3. a., Recommended Payment Principles for Interceptors and Collectors -- reference to payments for interceptors by community on-site systems:

To correct a drafting oversight, the Thurston County Planning Commission recommends changes to this section beginning on the bottom of Page IV-28 to reflect the Plan's recommended policy that users of community on-site systems pay the sewer hook-up fee. It is stated explicitly on Page IV-30 in section c. "Community On-Site Systems," but should also be stated on Pages IV-28 and 29 in the section on interceptors, as follows:

This Plan recommends that new sewer and community on-site system users as a group or class pay for new sewer interceptors through connection fees, as opposed to monthly charges. New users are to pay through a "connection fee" that is assessed at the time of hook-up to sewer or community on-site system. Only those using sewers or community on-site systems are to pay, with one exception.
The exception is for in certain aquifer sensitive areas, however, where this plan recommends that . . .

13. Payment of Sewer Fees by Community On-Site Systems

The Plan contains inconsistent language on the subject of whether community systems "should" and "will" pay fees as if on sewer. The Task Force wanted strong direction that sewer fees will be paid by community on-site systems. In drafting the Plan, the staff changed the language from "will" to "should," not in any attempt to "water down" the recommendation, but to use customary plan language of "should" instead of ordinance-type language of "shall" and "will" (although it wasn't changed in all parts of the Plan).

The SGP Review Committee (supported by the Thurston County Planning Commission) recommends that the stronger "Will" or "Shall" language be used as a means of expressing very strong direction, as follows:

Page IV-30, first sentence of Section c. Community On-Site Systems

The same fees (hook up fees and monthly charges) should will be paid by users of community on-site systems as if on sewer.

Page IV-33, Note "B":

B. Community systems should will pay as if connecting to sewer (Hook-up Fees and Monthly Rates).

14. Map Changes

It is the intent of this plan, and of the Sewer Task Force responsible for the recommendations on which this plan was based, that the interceptor map be consistent with the March, 1989 LOTT map of interceptors and those of the three cities so there is a coordinated interceptor system within the urban area. Map 1 in the Plan is not consistent with the LOTT and Tumwater plans for interceptors in the Tumwater service area because of an oversight in drafting the Plan in December, 1989. Tumwater has submitted a clarification of how the interceptors should be shown for their service area.

Both the SGP Review Committee and the Thurston County Planning Commission recommend the following map changes in order to accomplish consistency among all four interceptor maps:

(a) See Attachment "A-1" for changes to Map 1 of the Plan. These changes reflect interceptors that are constructed and three proposed interceptors or portions of interceptors in the Tumwater portion of the unincorporated UGMA that were inadvertently left off Map 1.

(b) Also change the legend on Map 1 to call all future interceptors "future sewers" instead of "future gravity sewers," since not all future sewers are the gravity type.
15. **Finalized Tumwater Interceptor Costs**

The map changes above require changes to the description and estimated costs of interceptors in the Tumwater service area on Page B-9 and the costs table on Page IV-34, as follows:

(a) See Attachment "A-2" for new Page B-9 in Appendix B of the Plan.

(b) Change the following capital costs on Table 5A, Page IV-34 to reflect changes on Page B-9:

| Interceptors - Unincorporated Growth Area | $33,603,932 | $35,454,922 |
| Interceptors - Inside Cities              | $49,482,699  | $17,631,610  |

zh\sgp\review\amend
## ATTACHMENT A-2

### CITY OF TUMWATER'S
Sewer Service Area  
Urban Growth Management Area  
(1989 Dollars)

### PHASE II

#### LINE T-1

**Capitol Boulevard/Old Highway 99 Interception**  
Capitol Boulevard pump station at 88th Avenue  
with 12" F.M. to 84th Avenue 18" pipe to Henderson Boulevard  

$1,651,000

#### LINE T-5

**88th Avenue Interceptor**  
18" pipe from Case Road to Old Highway 99  

667,000

#### LINE T-2

**Littlerock Road Interceptor**  
21" pipe from Prine Drive to Airdustrial Way  

203,000

#### LINE T-3

**Black Lake-Belmore Interceptor**  
Black Lake pump station at Black Lake-Belmore Road 8"  
F.M. on Sapp Road 12" pipe to 34th Avenue pump station,  
8" F.M. to Percival Creek  
just north of Sapp Road  

916,000  
2,348,000

### PHASE III

#### LINE T-3

**Littlerock Road Interceptor**  
12" pipe from 93rd to 88th Avenue  
station, 15" pipe to 83rd Avenue, 18"  
pipe to Prine Drive  

2,101,000

#### LINE T-6

**Case Road Interceptor**  
10" pipe to 93rd Avenue, 15" pipe to 88th Avenue  

326,000

#### LINE T-7

**Henderson Boulevard Interceptor**  
8" pipe to Israel Road, 10" pipe to Deschutes River  
pump station, 8" F.M. to Elm Street  

1,041,000

### TOTAL

in 1988 dollars:

- $8,597,000
- $16,607,155
- $7,977,990

**K - 27**
Ms. Marie Cameron  
Senior Planner  
Thurston County Office of Water Quality and Resource Management  
2000 Lakeridge Drive Southwest  
Olympia, Washington 98502  

Re: Thurston County Sewerage General Plan  

Dear Ms. Cameron:

I have completed review of the above referenced document dated December 11, 1989. Most of my comments are minor in nature and should not substantially alter the plan, however, a major item of concern is the treatment of existing on-site sewerage systems when sewers become available.

The plan as drafted will not require hookup of existing individual or small on-site systems unless necessary for health or water quality reasons. Ecology would prefer the more environmentally conservative approach; to require hookup of all systems when sewer service is available. Most septic systems do a very good job of removing Biochemical Oxygen Demand (BOD), solids, and microorganisms. However, even a well designed and operated septic system is contributing some nitrogen and toxic organics to ground water. Where the density of systems is fairly high, ground water will be particularly vulnerable.

A comment included in the summary description of the sewerage plan indicates that one rationale for allowing continued use of existing on-site systems, when sewers are available, is to conserve sewage treatment plant capacity. It must be clearly understood that the current secondary treatment plant does a much better job of removing pollutants than an on-site subsurface disposal system. The planned tertiary treatment plant will do an even better job.

The report indicates that existing individual and small community on-site systems will be required to connect under certain conditions. A requirement for hookup will be based on aquifer vulnerability information, water quality correction, and water quality contamination information. The report includes very little information regarding how that will be accomplished.

- Will decisions be made on a case-by-case basis?
- Will maps be generated outlining specific vulnerable areas?
- Will there be a set of criteria that would define vulnerable areas?
Ms. Marie Cameron  
April 12, 1990  
Page 2

- Will there be a set of criteria that would define vulnerable areas?

- How will existing systems be flagged for a determination when sewers are available?

- Will it be proactive or will it be response to complaints?

- Does the county have a computerized database of existing permitted on-site systems that would lend itself to a proactive process?

- How will the current on-site regulations be changed in response to achieve the goals of this policy?

This type of information should be included in the plan in a specific section. If this information is to be generated later the plan may be approvable on condition of resubmittal and subsequent approval.

I have had several discussions with county staff regarding the implementation process. The information should be included in the sewer plan or in an amendment.

I was encouraged that the policy requiring hookup of new on-site disposal systems has remained intact within the sewerage plan. Ecology is supportive of revocable on-site system permits and the concept of systems identified and permitted as interim systems.

Additional Comments

1. Page I-7 defines side sewers; STEP systems are the exception to the rule in that the septic tank is a part of the treatment system and must be owned and maintained by a public entity.

2. Because the report references capacity information included in the LOTT Hydraulic Improvements Report and individual city sewer plans, it cannot be finally approved until those reports are approved.

3. Page IV-21 discusses 38 known existing individual and small community chlorinated septic systems. Ecology has been aware of these systems but would appreciate receiving an updated list of these systems from the county for our information.

4. Page IV-21 also discusses other treatment facilities. Shorewood Estates and Saint Martin's College will be required to hookup as soon as sewer is available.

5. Industrial wastes were discussed on page IV-23 and 24. The discussion was limited to the Weyerhaeuser Box Plant and did not include other potential dischargers. They include Olympia Cheese, Ostrum Mushrooms, CH2O Chemicals, Setina Manufacturing, and Thurston County landfill leachate. These potential dischargers should be discussed in the report.
6. Map 1 is confusing in not identifying what "future" sewers means and how it differs from Phase 1-3. An explanation should be provided.

If you have any questions please call me at 753-8532.

Sincerely,

Nancy Kincl
Water Quality Municipal Engineer

NK: pb

cc: Mike Sharar, LOTT Project Manager
SECTION 6: CONNECTION TO PUBLIC SEWER, ABANDONMENT OF ON-SITE SEWAGE DISPOSAL SYSTEM

6.1 Any dwelling unit or other premises where sewage originates within two hundred (200) feet of a public sewer system shall be connected to the public sewer system if all of the following conditions are met:

6.1.1 The public sewer system has the capacity to handle additional sewage.

6.1.2 The public sewer lines are designed to accommodate the connection of building sewers.

6.1.3 The connection is consistent with the County and Municipal Comprehensive Sewerage Plans.

6.1.4 Such connection is permitted by the sewer facility.

6.1.5 The health officer determines it is necessary to protect surface water, ground water, or otherwise protect public health.

NEW 6.1.5.1 The determination of necessity shall be made by the Health Officer and be based on aquifer vulnerability information, water quality correction and water contamination prevention information. The geological and hydrological information produced by the United States Geological Survey shall be employed for this purpose. Water quality information from other sources such as the Department of Ecology, the Health Department or other reliable sources may also be used.

6.2 Such connection shall be made and the use of the on-site sewage disposal system discontinued when repair or replacement of the on-site sewage disposal system is required or when directed by local ordinance, whichever is sooner, but in any case shall be accomplished within two (2) years after public sewer service becomes available. This requirement may be waived if the health officer determines that such connection is not feasible or necessary.

6.3 The distances set forth in paragraph 6.1 of this section shall be calculated along the shortest route, in road rights-of-way and easements consistent with the comprehensive planning and sewer extension practices of the sewer utility involved, from the existing sewer to a properly selected point of connection for the side sewer of the premises to be served.

Revised
5.4 If the distance between the facility (ies) to be served and adequate public sewer is greater than two hundred
(200) feet and where the total design sewage flow from all sources on a single parcel or the total design flow from sources on contiguous parcels under single or common ownership is greater than one thousand (1,000) gallons per day, connections shall be made thereto, as per paragraph 6.1.

6.5 Where connection to public sewer is required, the same shall be made in accordance with rules, regulations and resolutions of the public sewer utility; PROVIDED, That if the public sewer utility's requirements are less restrictive, paragraphs 6.1 and 6.2 of this section shall apply.

6.6 Abandonment of On-Site Sewage Disposal System. Every cesspool, septic tank, seepage pit or other receptacle for sewage which has been abandoned or has been discontinued otherwise from further use or to which no waste or soil pipe from a plumbing fixture is connected shall have the sewage removed therefrom and be completely filled with earth, sand, gravel, concrete or other approved material.

6.6.1 The owner or contractor shall notify the health officer of the filling of the sewage receptacle within five (5) days of completing the work.

6.6.2 Where disposal facilities are abandoned consequent to connecting any premises with the public sewer, the person making the connection shall fill all abandoned facilities as required by the health officer within thirty (30) days from the time of connecting to the public sewer.

NEW 6.7 Where subsurface disposal systems have been constructed in accordance with an approved sewer plan, conditions of sewer connection may be contained in the Operational Permit.

NEW 6.8 Declaration of Sewerage Need. The Health Officer may declare the preferred means of sewage disposal or the need for the creation of a sewerage project. This declaration shall be based on findings as contained in section 6.1.5.1 above. This declaration shall be transmitted to the legislative body of the jurisdictional sewer utility. This declaration shall be used in the setting of sewerage priorities within the jurisdiction's sewer service area.

SECTION 7: LOCATION OF ON-SITE SEWAGE SYSTEMS

7.1 The minimum distances for location of the various component parts of an on-site sewage system are measured horizontally and shall comply with Table II.
May 1, 1990

Ms. Nancy Kmet
WA State Department of Ecology
7272 Cleanwater Lane LU-11
Olympia, WA 98504

Dear Nancy:

This letter is provided as response to your April 12 letter regarding the Thurston County Sewerage General Plan. Before commenting on the substance of your letter I want to share my concern about receiving it so late in our process. We transmitted the Plan to you on December 15, 1989. As you recall, I called you in March to specifically request your comments prior to the Board of Commissioners' hearing. This was in order to address any of your concerns before the Plan was adopted and to avoid immediate amendments after adoption. Your letter reached the Planning Department Monday, April 16th and since Marie Cameron was on vacation, I got a copy after you called me on April 18th. The only way we could have received it prior to the Board hearing would be if it had been hand carried on April 12th, the day you mailed it.

Because the Plan is now adopted, our first step is to explore ways to address your comments without going through a full amendment process. I have outlined our response to your comments below.

Hook up Requirements for Existing On-site Sewerage Systems

You have requested that the Sewerage Plan include a specific section to address the basis on which existing systems would be required to hook up to sewers. As you know, our new Health Code revisions and the Groundwater Management plan (expected to be completed, in 1991) will contain more specific information to be used as a basis for hook-up decisions. When those efforts are completed we can update Appendix J of the Sewerage Plan, "Coordination with Other Plans, Services and Facilities" to reference appropriate language and requirements.

With regards to your specific questions, the following are our responses:

1. Will decisions be made on a case-by-case basis?
   -yes, for failing systems
   -no, for hook-up decisions related to vulnerability and water quality problems. Those will be established through the groundwater Plan.
2. Will maps be generated outlining vulnerable areas?  
   - yes, in the Groundwater Management Plan

3. Will there be a set of criteria to define vulnerable areas?  
   - County staff are working with DOE, EPA to develop state-wide criteria  
   - interim criteria will be used to develop Groundwater Plan maps (based on soils, depth to groundwater, and recharge)

4. How will existing systems be flagged for a determination when sewers are available?  
   - through a combination of complaints, loan transactions, sanitary surveys, and monitoring as part of the operational permit program

5. Will it be proactive or a response to complaints?  
   - for vulnerable areas, we will be proactive, using Groundwater Plan data and maps  
   - for failures we will be proactive through our loan transaction work and will also respond to complaints  
   - we will use neighborhood sanitary survey data where funds are available (such as through watershed grants)  
   - we will do monitoring as a part of the operational permit program and use that data to identify failures and areas of water quality problems

6. Does the county have a computerized database of existing permitted on-site systems?  
   - yes, we do

7. How will current on-site regulations be changed in response to achieve goals of this policy?  
   - refer to Section 6 of the Health Code Revisions attached.

Additional Comments:
We appreciate your additional comments and have the following responses:
1. We will clarify the language on page 1-7 in the Final Plan, as you suggested.
2. No response needed.
3. We have attached a list.
4. We will add language for clarification in final Plan.
5. We propose to delete specific reference to Weyerhaeuser Box Plant on page IV-23. We will replace those two paragraphs with the following language: "Any industrial waste discharges will be under NPDES or WA State Discharge Permit from DOE or required to be in compliance with DOE - approved pretreatment standards. These discharges must hook up to sewer when required as part of
their discharge permit."

6. We agree, map 1 is being revised.

I trust we have sufficiently responded to your comments for you to move forward to approve the Plan. We have been making every effort to work cooperatively with DOE and our City sewer partners to complete this Plan. I hope you will work with us to address the concerns without going through a full amendment process.

Sincerely,

[Signature]
Linda Hoffman,
Director

LH490.17

cc: Pat Lee, Regional Director, WDOE
Tom Fitzsimmons, chief Administrative Officer
Pat Libbey, Director, Public Health & Social Services
Martin Cameron, Senior Planner
AGREEMENT

AN AGREEMENT regarding the COUNTY and CITY responsibilities in implementation of the Thurston County Sewerage General Plan for the Unincorporated Urban Growth Management Area.

This Agreement is made and entered into on this 12 day of October, 1992, by and between the cities of Lacey, Olympia and Tumwater, municipal corporations of the State of Washington (hereinafter referred to as CITIES), and the County of Thurston (hereinafter referred to as COUNTY). References to "CITY" in this Agreement are to the City in whose sewer service area the system or interceptor under discussion is located. Sewer service areas are identified in applicable sewerage plans approved by the Department of Ecology.

WHEREAS, the CITIES and the COUNTY have entered into an Urban Growth Management Agreement, dated June, 1988, wherein the CITIES and the COUNTY have agreed that the CITIES will be the primary sewer service providers within the Urban Growth Management Area, and other policies relating to development and service provision within the Urban Growth Management Area; and

WHEREAS, the COUNTY adopted a Sewerage General Plan for the unincorporated Urban Growth Management Area on April 17, 1990, under the authority of Chapter 36.94 RCW; and

WHEREAS, the policies of the Urban Growth Management Agreement and the Sewerage General Plan are intended to:

1. Encourage development of the urban area from the core (cities outward) in compliance with COUNTY comprehensive plan policies;

2. Encourage development inside the short-term growth area, and encourage the provision of sewers and community systems within the short-term growth area;

3. Encourage orderly annexation of property served by municipal sewerage services; and

4. Avoid creation of, and reduce or eliminate existing urban and suburban "islands;"

5. Provide for urban areas to become part of cities, but not until urban development reaches an area in a logical fashion;
6. Require that within the short term urban growth management area, new subdivisions, commercial and industrial areas are to develop on sewers or community systems;

WHEREAS, this Agreement is intended to implement the policies of the Sewerage General Plan and the Urban Growth Management Agreement; and

WHEREAS, the County Sewerage General Plan policies support the administration of the Sewerage System recommendations of the Urban Growth Management Agreement within the boundaries of the Urban Growth Management Area of Thurston County; and

WHEREAS, the implementation of the Sewerage General Plan for the unincorporated portion of the Urban Growth Management Area is intended to prevent and mitigate health hazards and ground water and surface water quality problems; and

WHEREAS, the CITIES and the COUNTY wish to continue to implement the Urban Growth Management Area Agreement and the Thurston County Sewerage General Plan for unincorporated urban growth management areas by identifying responsibilities for the orderly creation, siting, design, construction, operation, maintenance, repair, ownership, and eventual interception of individual and community on-site systems, within the area covered by the Sewerage General Plan; and

WHEREAS, the Interlocal Cooperation Act, Chapter 39.34 RCW, provides for intergovernmental agreements between units of local government, including the COUNTY and the CITIES, to allow the performance of functions or activities of one unit of local government for another;

NOW, THEREFORE, pursuant to the provisions of Chapter 39.34 RCW, the Urban Growth Management Agreement, and the Thurston County Sewerage General Plan (hereinafter known as the SGP), the CITIES and the COUNTY agree to the following:

1. PURPOSE. The purpose of this Agreement is:

a. To identify who will own, operate, and maintain the sanitary sewer system(s), including who will own and manage the interceptors and appurtenances and community on-site systems and appurtenances in the unincorporated portions of the Urban Growth Management Area.

b. To establish administrative procedures for case-by-case review of projects which are under the jurisdiction of the SGP, to include implementation of annexation policy that is included in the Urban Growth Management Agreement and the SGP.
c. To implement the actions and policies identified in the SGP.

d. To identify the methods for determining charges for service, including debt service and operation and maintenance of all sanitary sewer facilities which are necessary to serve the proposed area, and the costs of transition to sewer connection; who should pay; and form and timing of payment for which the sewer facilities and services are incurred.

e. To clarify the roles of the CITIES and the COUNTY in implementation of the SGP.

f. To clarify the COUNTY’S role in participating in the CITIES’ decisions regarding their annual interceptor construction plan.

2. GEOGRAPHIC APPLICATION OF THIS AGREEMENT. This Agreement shall be applied in that portion of Thurston County that is within the long term urban growth boundaries identified in the Urban Growth Management Area Agreement, dated June, 1988 and any agreed modifications thereto.

3. OWNERSHIP. The CITY agrees to own and operate all sanitary sewer interceptors, and community on-site systems as defined in the SGP, for which an on-site sewage system application is approved after the date of this Agreement. The ownership of community on-site systems and sewer systems shall be to the point of private property ownership. This shall include the tanks, pipes and controls identified in Septic Tank Effluent Pump (STEP) systems. This ownership authority and responsibility shall apply in the sewer service area(s) identified in sewerage plans approved by the Department of Ecology. The CITY may own and operate community on-site sewage systems within its corporate boundaries when it is in its interests to do so.

4. RATES, CHARGES AND FEES.

a. For the purposes of this Agreement, rates and charges shall include the Lacey, Olympia, Tumwater and Thurston County (LOTT) reserve capacity charge, and the CITY General Facility Charge, connection charges, monthly charges for operation and maintenance, and charges to cover other legitimate costs incurred by the CITY. It shall be the responsibility of the CITY to establish the schedule of such rates and charges for sanitary sewers and community on-site systems which it owns and operates, subject to the conditions contained in this Agreement. The establishment of the Health Department fees is the responsibility of the COUNTY. Nothing in this Agreement shall be interpreted as prohibiting the
CITIES and the COUNTY from cooperating in the formation of an Aquifer Protection Area or other funding mechanisms.

b. Rates and charges as defined in paragraph 4.a., above, shall not act as a penalty for service outside the incorporated boundary of the city. Any rates and charges which are above the rates and charges of city rate payers, shall be based on actual or projected differences in costs of provision of service. Fees for Health Department or county permits and inspections shall be established by the Board of Health or the County Commission.

c. The COUNTY shall have the authority if it chooses to review the rates and charges methodology, for unincorporated areas and to offer recommendations to assure consistency with paragraph 4.b., above. The CITY and the COUNTY shall work cooperatively to maximize efficiency of any review process.

d. The CITY shall have the authority to review projects which propose the use of sewer systems or subsurface sewage disposal systems for conformance with adopted sewerage plans within its service area as established by the SCP. The CITY shall have the authority to charge necessary fees to cover the expenses of such review.

e. The collection of rates and charges, including those mentioned in paragraph 4.a., above, and revenue to cover the costs of the operational permit fees, shall be the responsibility of the CITY. Operational permit fees shall be transmitted to the Health Department account of the County on a quarterly or more frequent basis.

5. REGULATORY ISSUES. The CITY shall be the holder of the permit for the community systems for which it has accepted ownership or operational responsibility under this Agreement. The Thurston County health officer, under the supervision of the Thurston County Board of Health, shall issue the permit unless the Department of Ecology has jurisdiction of the subject community system. When the Department of Ecology has jurisdiction of the sewage disposal system in question, this Agreement shall remain in force insofar as it covers issues not in conflict with laws administered by the State of Washington. All systems under the jurisdiction of the Health Department shall be reviewed and approved in conformance with Article IV of the Thurston County Sanitary Code. The CITY shall have the authority to set system design and construction standards to assure compatibility with its sewerage plans and sewerage system.
The CITY shall have the authority to review and approve the
sewerage system proposal to assure such compatibility, prior
to Health Department permit issuance.

6. **CASE HANDLING.**

a. When the COUNTY receives applications for projects as
described in section IV.C.1.a.(1) of the SGP, it shall
notify the CITY of the pending application. The COUNTY
shall send a copy of the application to the CITY for
design review and determination of compliance with City
requirements. Additional administrative processes
shall be established to make project review information
adequate and project review efficient.

b. The COUNTY and the CITY shall work cooperatively, using
preapplication and preliminary site plan review
meetings with the applicant in the establishment of the
design and identification of the strategy for connection
to sewer lines. The priority of sewerage service
shall be that contained in section IV.C. of the SGP.

c. The CITY will handle the specific elements of the
technical plan review as they are related to the CITY'S
sewerage facilities. The COUNTY shall conduct case
review in accordance with the SGP and Article IV of the
Sanitary Code and other applicable law. The CITY and
COUNTY shall consult with each other to establish
efficient project review methods and to avoid
unnecessary duplication of project review services.

7. **THE ROLES OF THE ENTITIES AND ANNEXATION.**

a. The operational permit issued by the health officer for
the operation and use of on-site sewage disposal
systems shall continue to be administered by the health
officer and governed by the rules and regulations of
the Thurston County Board of Health.

b. The CITY shall have the authority and the responsibility
to conduct inspections of individual service
connections to the community sewerage disposal systems
under its ownership and control. The CITY and COUNTY
may further agree to transfer additional inspection and
permitting authority to the CITY when it is in their
mutual interest to do so.

c. The CITY shall have all proprietary authority over the
systems it owns and operates. The CITY shall also have
the authority and responsibility to enforce payment of
any legally adopted rates and charges.
d. As a condition of receiving permission to connect to the LOTT sanitary sewer system, the CITY shall require the property owner to sign a power of attorney in favor of the City to support annexation to the CITY.

e. The CITY shall require the owners of property served by community systems which will be owned and operated by the CITY, to sign a power of attorney in favor of the CITY to support annexation to the CITY.

f. If the power of attorney is required as a condition of providing sewer service to existing development to solve health or water quality problems, the power of attorney may be exercised only to support annexation of areas contiguous to the CITY which create logical municipal boundaries. A logical boundary is one which avoids dividing neighborhoods and logical service areas and does not create irregular shapes such as long narrow extensions.

g. In all other cases the power of attorney may be exercised only to support annexation of areas contiguous to the CITY.

h. The power of attorney shall run with the land to which it applies and shall be recorded by the CITY with the County Auditor.

8. SEWER INTERCEPTOR CONSTRUCTION.

a. Sewer interceptor construction shall generally be that which is contained in Map 1 of Appendix A of the SGP, and shall conform to Section IV.D.2.c. of the SGP. The timing and phasing of such interceptor construction may be modified by applying the following criteria:

i. Prevention or correction of ground water degradation;

ii. Infilling of development within the urban area from the core cities outward;

iii. New development as planned in adopted land-use plans and zoning;

iv. Flexibility in responding to new information, particularly new water quality protection data; and

v. The ability to meet interceptor plan objectives through developer financing or other mechanisms.
b. The CITY shall transmit to the COUNTY, in a timely way, a draft of or information regarding its annual Sewer Capital Improvement Plan. The COUNTY will review and comment on the CITY's annual Sewer Capital Improvement Plan to further the goal of health hazard mitigation and water quality protection. The COUNTY will transmit to the CITY, prior to the CITY's adoption of its annual Sewer Capital Improvement Plan, information that the CITY shall consider regarding the timing or phasing of sewer construction.

c. If the Board of Health adopts findings in accordance with Article IV, Section 6 of the Thurston County Sanitary Code, that determine the need for sewer construction, the CITY and COUNTY shall develop and implement a joint plan, in a timely manner, to address the problem(s) identified in the findings, considering consistency with the CITY'S capital facilities plans and budgetary allocations.

9. **APPEALS.** Administrative decisions made by the CITY in the implementation of the SGP shall be subject to appeal according to the CITY’S standard administrative appeal process. Administrative decisions made by the health officer shall be subject to appeal, in conformance with the provisions of Article I of the Thurston County Sanitary Code.

10. **AMENDMENTS.** This Agreement may be modified by mutual consent of the parties.

11. **TERMINATION.** This Agreement may be terminated by any of the CITIES with respect to itself upon 12 months advance written notification to the other parties. This Agreement may be terminated by the COUNTY with respect to any or all of the CITIES upon 12 months advance written notification to the other parties. Ownership and operational responsibilities that have been assumed under this Agreement shall continue and may be transferred as allowed by the laws of the State of Washington.

12. **ADMINISTRATION.** The appropriate city administrator or manager, the county chief administrative officer, and the health officer, under direction of the City Council, the Board of County Commissioners, and the Board of Health respectively, shall administer and implement this Agreement. Each party to this Agreement shall have the authority to establish administrative procedures to assure that the SGP is properly implemented. Each party is also authorized to make reasonable interpretation of plan documents in order to implement the adopted plans and the intent of this Agreement.
IN WITNESS WHEREOF, the parties have caused this Agreement to be executed as of the date first written above.

ATTEST:

Chairman

Chief Clerk of the Board

APPROVED AS TO FORM:

PATRICK D. SUTHERLAND

PROSECUTING ATTORNEY

By: Thomas R. Bjorjen
Senior Deputy
Prosecuting Attorney

Commissioner

Linda D. Helcalf

APPROVED AS TO FORM:

By: City Attorney

APPROVED AS TO FORM:

By: City Attorney

APPROVED AS TO FORM:

By: City Attorney

CITY OF LACEY:

By: (Signature)
MAYOR

CITY OF OLYMPIA:

By: (Signature)
MAYOR

CITY OF TUMWATER:

By: (Signature)
MAYOR

AGREEMENT - 8

(Date: October 19, 1992)