

**KING COUNTY CONVEYANCE SYSTEM
IMPROVEMENT PROJECT**

**MILL CREEK / GREEN RIVER SUBREGIONAL
PLANNING AREA**

TASK 210 REPORT

PLANNING RECORD SUMMARY

February 2000



KING COUNTY
Department of Natural Resources

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INTRODUCTION

This report describes the identification and evaluation of specific King County regional wastewater conveyance system issues related to capacity limitations and the system improvements or additions required to eliminate those limitations. Consideration has been extended to local service issues and projected growth.

In October 1998, the Soos Creek Water and Sewer District (WSD) requested that King County consider funding improvements that would increase conveyance capacity in the Soos Creek WSD Kent–Cascade Interceptor and assume ownership of that interceptor. The district also requested King County commitment to construct a regional pump station to replace its Lift Station 10. This latter commitment would begin with King County purchase of a specific property acquired by the Soos Creek WSD for the purpose of constructing the pump station.

The pattern of growth and development within the Soos Creek WSD has resulted in construction of a wastewater collection and conveyance system that relies on numerous pump stations. The system has substantially deviated from the conveyance system that was presented in the *1958 Metropolitan Seattle Sewerage and Drainage Survey* (the 1958 Plan) and resulted in overloading of the Mill Creek Interceptor. The Mill Creek relief sewer was planned for service to specific areas consistent with the current geography of conveyance, with the goal of reducing the overload on the Mill Creek Interceptor. There remains some question whether King County's southern Soos basin should also be served by future pump stations or by an eventual gravity system as envisioned in the 1958 Plan. It should be noted that the 1958 Plan included a pump station to be built on the east side of the Green River, to pump all the flow collected by gravity from the east portion of the Green River Sewerage Area north to a point on the Auburn Interceptor between the Mill Creek Interceptor and the Mill Creek Relief Interceptor.

More recent growth and planning decisions have also altered the regional service area by extending service to the Maple Valley and Black Diamond communities. Farther south, the pressures of growth have led to extension of wastewater service into Pierce County. Growth in the cities of Auburn, Algona, and Pacific will lead to increased flows into the regional conveyance facilities, whose capacity is predicted to be exceeded under storm conditions within the next few years.

Figure 210-1 shows the south King County sewer service area and facilities, including the M Street Trunk, N Sewer Interceptor, Algona–Pacific Interceptor, West Valley Interceptor, Auburn West Valley Gravity Sewer, Auburn West Interceptor, Auburn Interceptor Sections 1, 2, and 3, West Hill Trunk, ULID No. 1 Contract No. 4 Kent Interceptor, ULID 250 Kent Interceptor, Kent Cross Valley Interceptor, Mill Creek Trunk, and the South 277th Street Trunk now in construction. The figure highlights storm-affected facilities and shows the Soos Creek WSD Kent–Cascade Interceptor. Regional Wastewater Services Plan (RWSP) King County basins as delineated in the *1994 RWSP—Wastewater 2020 Plus, Existing Conditions* are also shown.

The urban growth area (UGA) boundary, adopted by King County in response to the state Growth Management Act (GMA), has excluded some areas included in the 1958 service area.

These changes and future growth projections have spurred development of local sewerage systems within the Subregional Planning Area and will be the source of future demands upon the regional conveyance system.

In view of the specific but complex issues and facilities considered in this study, a Subregional Planning Area has been defined for purposes of fully evaluating service alternatives. The planning area, called the Mill Creek / Green River Subregional Planning Area, is shown in Figure 210-2. All areas within the 1998 urban growth area that are tributary to the Kent Cross Valley Interceptor are included in this planning area.

The sections below describe the Mill Creek / Green River Subregional Planning Area (MC/GR) in relation to existing regional and local wastewater service areas. The Mill Creek / Green River Subregional Planning Area includes all sewer basins tributary to the Kent Cross Valley Interceptor and ULID 1/2 manhole #52 located in Kent. The description includes growth management impacts and local sewer service area boundaries, size, location, and population. Service area boundary changes and impacts are discussed. The 1958 Plan and amendments are compared to current planning in the Mill Creek / Green River Subregional Planning Area. There are no RWSP plan coordination issues in this planning area.

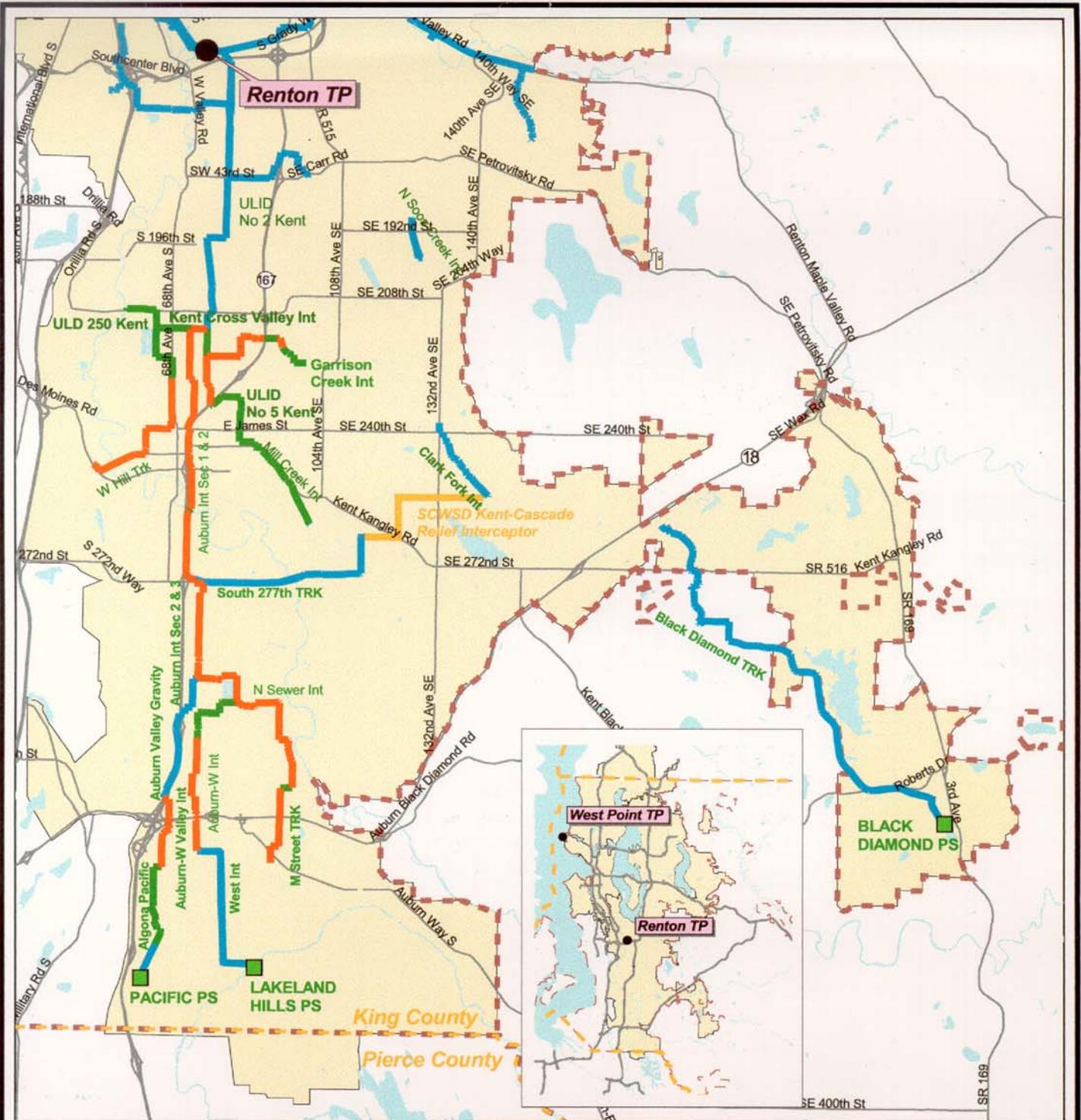
In a subsequent section, a brief summary of pertinent planning documents is presented to provide a historical reference for the Mill Creek / Green River Subregional Planning Area. Factors that have contributed to long-term service planning for this area are discussed. Potential inconsistencies between these planning documents and the King County RWSP are noted.

Maps presented throughout this study show significant changes between the original and current service areas.

REGIONAL WASTEWATER SERVICE AREA

King County and seven other planning authorities, including six cities and one water and sewer district, have planning jurisdiction within the Mill Creek / Green River Subregional Planning Area. Within the planning area, local service agencies provide local wastewater collection and convey flow to King County regional facilities. The urban growth area, as identified in the *King County Comprehensive Plan*, defines the eastern boundary of the planning area. The urban growth area includes incorporated cities, developing suburbs, and most of the county's population and economic base. Most of King County's past growth has occurred in its cities and in unincorporated urban areas. Because future growth is encouraged in these areas, sewer service is limited to the urban growth area.

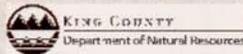
The Mill Creek / Green River Subregional Planning Area includes all or part of the incorporated municipalities of Kent, Auburn, Algona, Black Diamond, Pacific, Covington, and Maple Valley. Figure 210-3 shows the city boundaries within the Mill Creek / Green River Subregional Planning Area and the 1998 urban growth area.



South KC Sewer Service Area & Facilities with
 1995 VISION 1 Storm Impacted Facilities
 & SCWSD Kent-Cascade Relief Interceptor
 Figure 210 - 1

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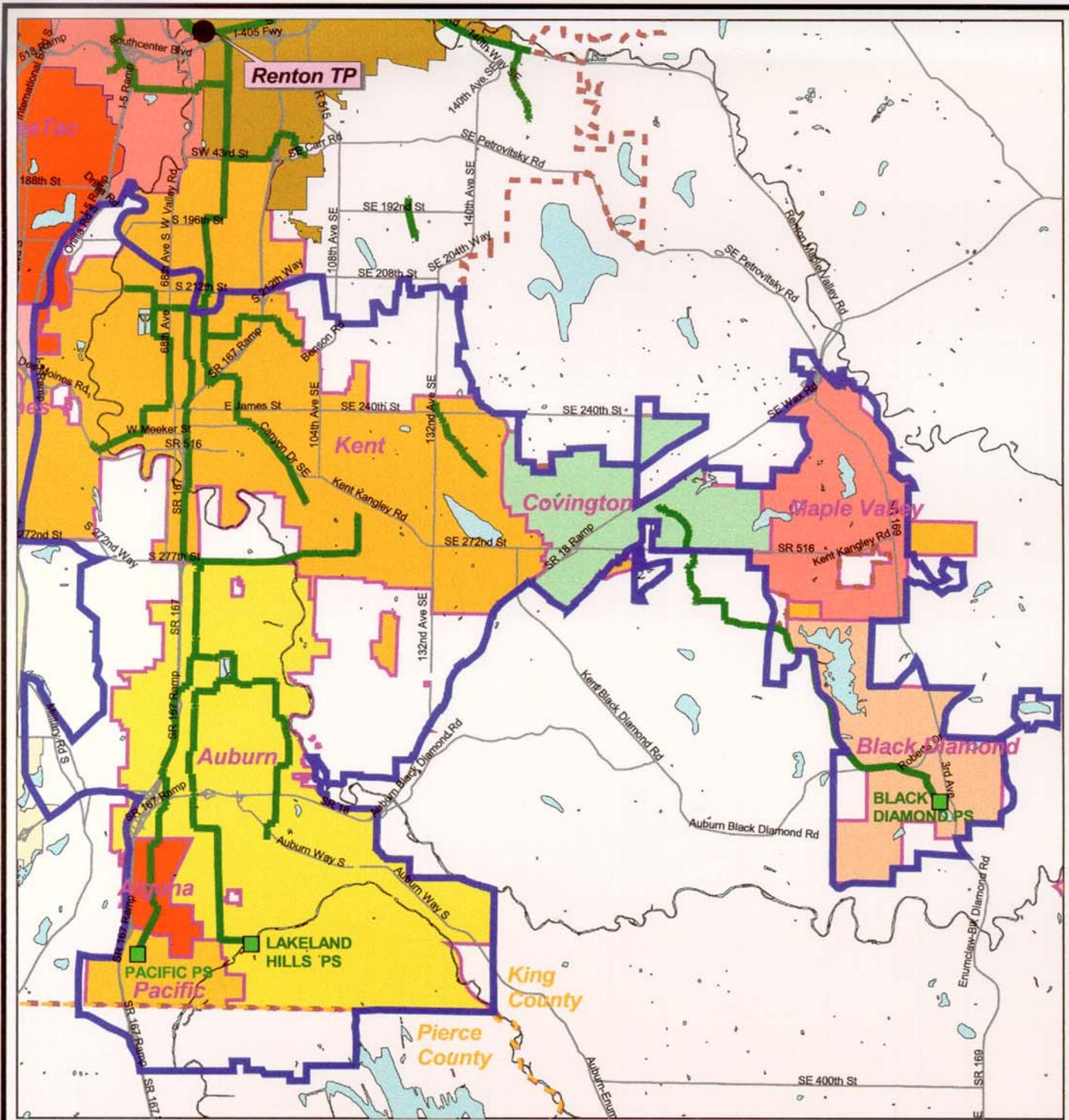


1 0 1 2 Miles

November 23, 1999

Legend

- KC Pump Stations
- ▬ Storm Impacted Conveyance Lines
- ▬ Not Analyzed for Storm Impacts
- ▬ KC Conveyance Lines
- County Boundary
- 98 UGA Boundary
- KC Service Area



Cities in the MC/GR

Figure 210 - 3

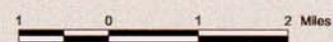
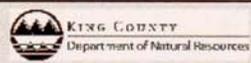
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Legend

- KC Pump Stations
- MC/ GR Boundary
- County Boundary
- KC Conveyance Lines
- 98 UGA Boundary

Color areas represent incorporated cities

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Local sewer service providers include the cities of Kent, Auburn, Algona, and Pacific, as well as the Soos Creek Water and Sewer District, which serves portions of unincorporated King County, Covington, and Maple Valley. Sewer service agency and district boundaries are generally different from city limit boundaries and actual areas served. Figure 210-4 shows the sewer service agency boundaries of each local sewer service provider within the Mill Creek / Green River Subregional Planning Area, including Algona, Auburn, Black Diamond, Kent, Pacific, and Soos Creek Water and Sewer District. Comprehensive plans of local sewer service agencies and districts generally include service areas larger than the areas within their boundaries. Local service agencies serve areas inside the boundaries of other service agencies under interlocal agreements.

1958 PLAN

The *1958 Metropolitan Seattle Sewerage and Drainage Survey* set forth a comprehensive plan to provide gravity sewer service supported by a minimal number of pump stations to a large portion of the Mill Creek / Green River Subregional Planning Area. The 1958 Plan was amended in 1973 by the *Comprehensive Sewage Disposal Plan, Green River Sewerage Area and Portion of White River Watershed* to include additional area within the Mill Creek / Green River Subregional Planning Area. Figure 210-5 shows the 72 local service areas and the major sewer lines proposed by the plan within the Green River Sewerage Area as defined in the 1958 Plan. The 1998 urban growth area boundary is also shown. Excluding the Lake Youngs watershed, approximately 71,580 acres is included in the 1958 Green River Sewerage Area. The service area includes parts of the cities of Algona, Auburn, Kent, Renton, and Tukwila. The eastern portion drains toward Big Soos Creek, a principal tributary of the Green River.

CURRENT KING COUNTY SERVICE BASINS

Figure 210-6 shows the RWSP King County sewer basins as delineated in the *1994 Regional Wastewater Services Plan—Wastewater 2020 Plus, Existing Conditions* report, major facilities, and existing county sewer lines. All or part of several RWSP King County service basins in the south King County service area are within the planning area, including 250N, 250S, ALGONA, AUB2, AUB3, COVINGTON, FWAUB3, FWNE, GARR, JENKINS, KENTXVAL, LAKELAND HILLS, MILL, MSTTRK, PACIFIC, SEGREEN, SOOSE, SOOSMILL, SOUTHERN SOOS, ULID C5E, ULID4, WHILL, WHITERIVER, and WINT.

Figure 210-7 shows the King County major facilities as well as the 1958 Plan Green River Sewerage Area and facilities. There are several major changes as a result of planning since 1958. The 1998 urban growth area precluded sewer service to much of the eastern portion of the 1958 Sewerage Area and added some area in southeast Auburn, all of Black Diamond, half of Pacific, and some area of Maple Valley. The 1958 Plan routed an interceptor along the eastern side of the Green River in Auburn, but (by amendment) the M Street Trunk was built on the western side. The 1958 Plan routed all flow from Soos Creek WSD south through Auburn, with a pump station located near the Green River. Existing facilities pump flow from the Soos Creek WSD and Black Diamond west to regional conveyance facilities.

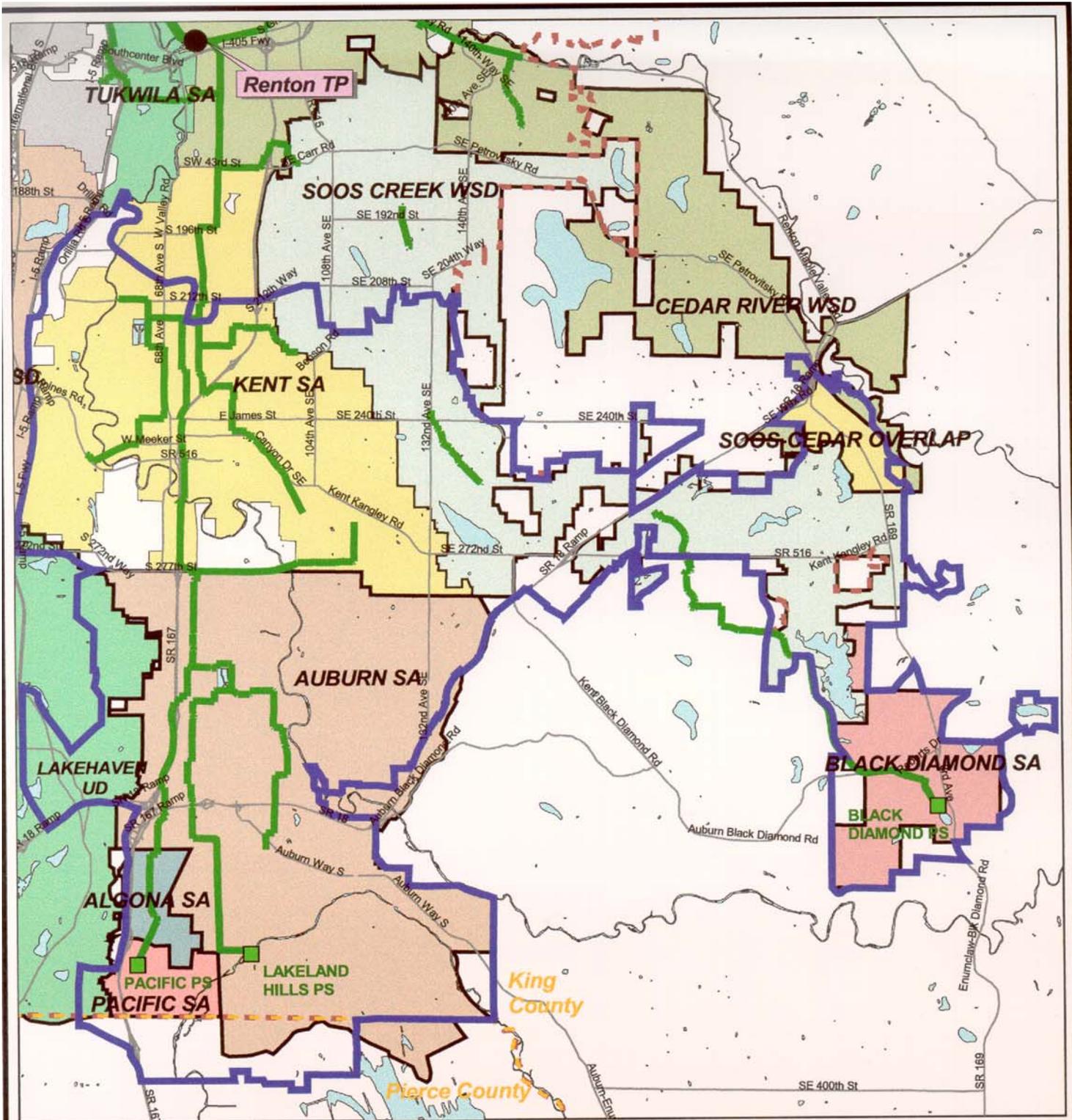
Figure 210-8 compares sewer agency and city boundaries.

UNINCORPORATED KING COUNTY

A few areas of unincorporated King County within the urban growth area are located in the Mill Creek / Green River Subregional Planning Area. Those areas are shown on Figure 210-8. Two unincorporated King County areas east of the city of Auburn are served by Auburn. The following unincorporated King County areas have no designated sewer service provider: two areas south of Kent, one area east of Auburn and one west of Auburn, and four areas southwest and north of Black Diamond.

URBAN GROWTH AREA

In response to the state Growth Management Act, the *King County Comprehensive Plan* defined an urban growth area, which generally reduced the 1958 planning area. The urban growth area boundary eliminates much of the eastern and southeastern portion of the 1958 planning area but adds some new areas in east Auburn, Black Diamond, and Maple Valley. The Mill Creek / Green River Subregional Planning Area has been defined entirely within the urban growth area. Figure 210-5 shows the 1958 Plan Green River Sewerage Area and the 1998 urban growth area boundary.



Sewer Agencies in the MC/GR

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Figure 210 - 4

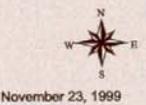
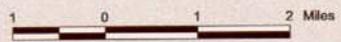
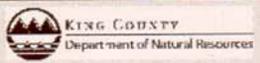
Legend

- KC Pump Stations
- MC/GR Boundary
- KC Conveyance Lines
- County Boundary
- 98 UGA Boundary

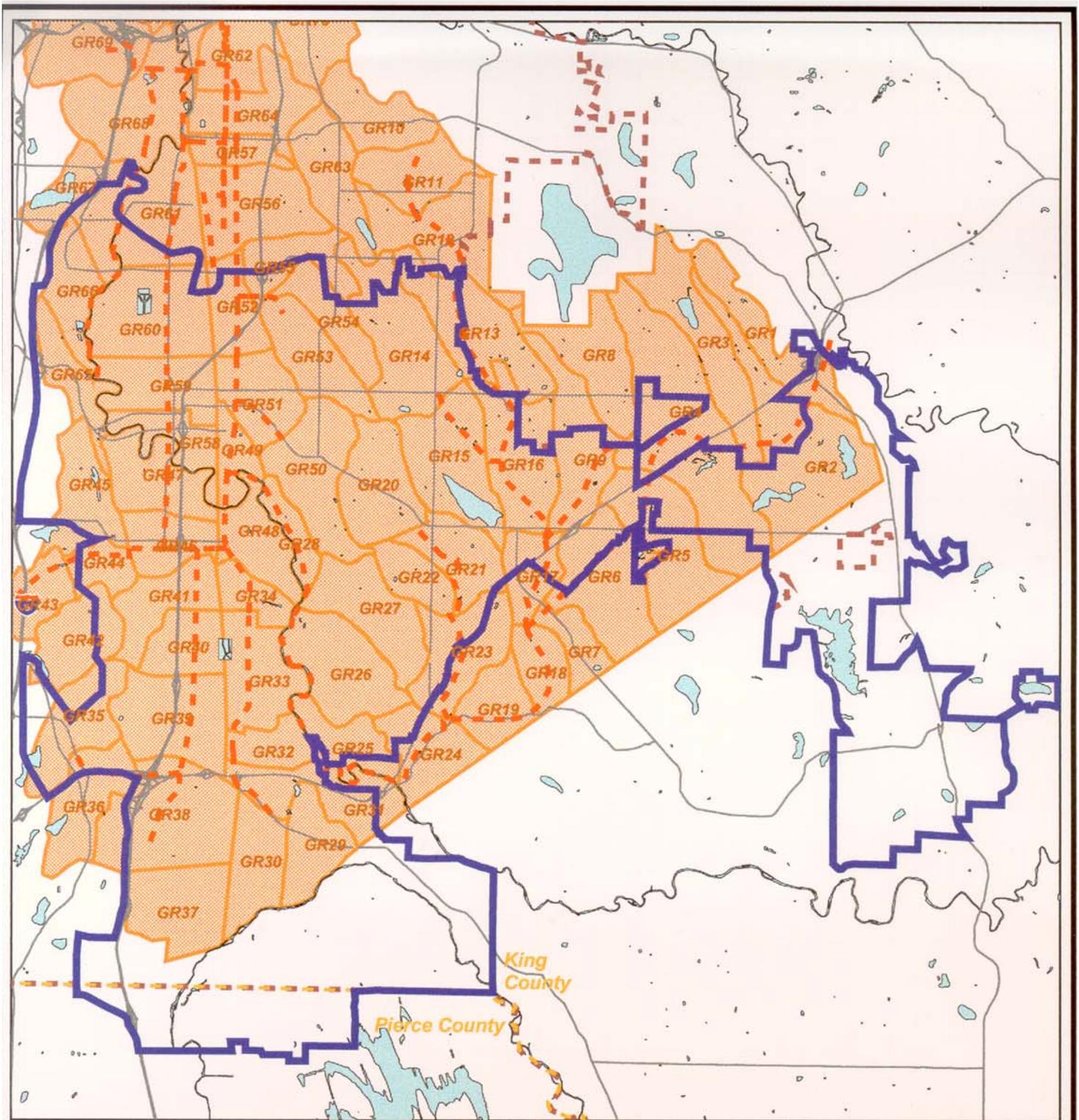
Color areas represent sewer agencies

SA: Sewer Agency
 WSD: Water & Sewer District
 UD: Utility District

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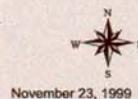
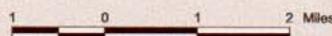
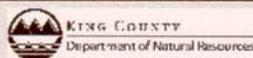
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1958 Plan: Green River Sewerage Area, Local Service Areas, and Service Sewers

Figure 210 - 5

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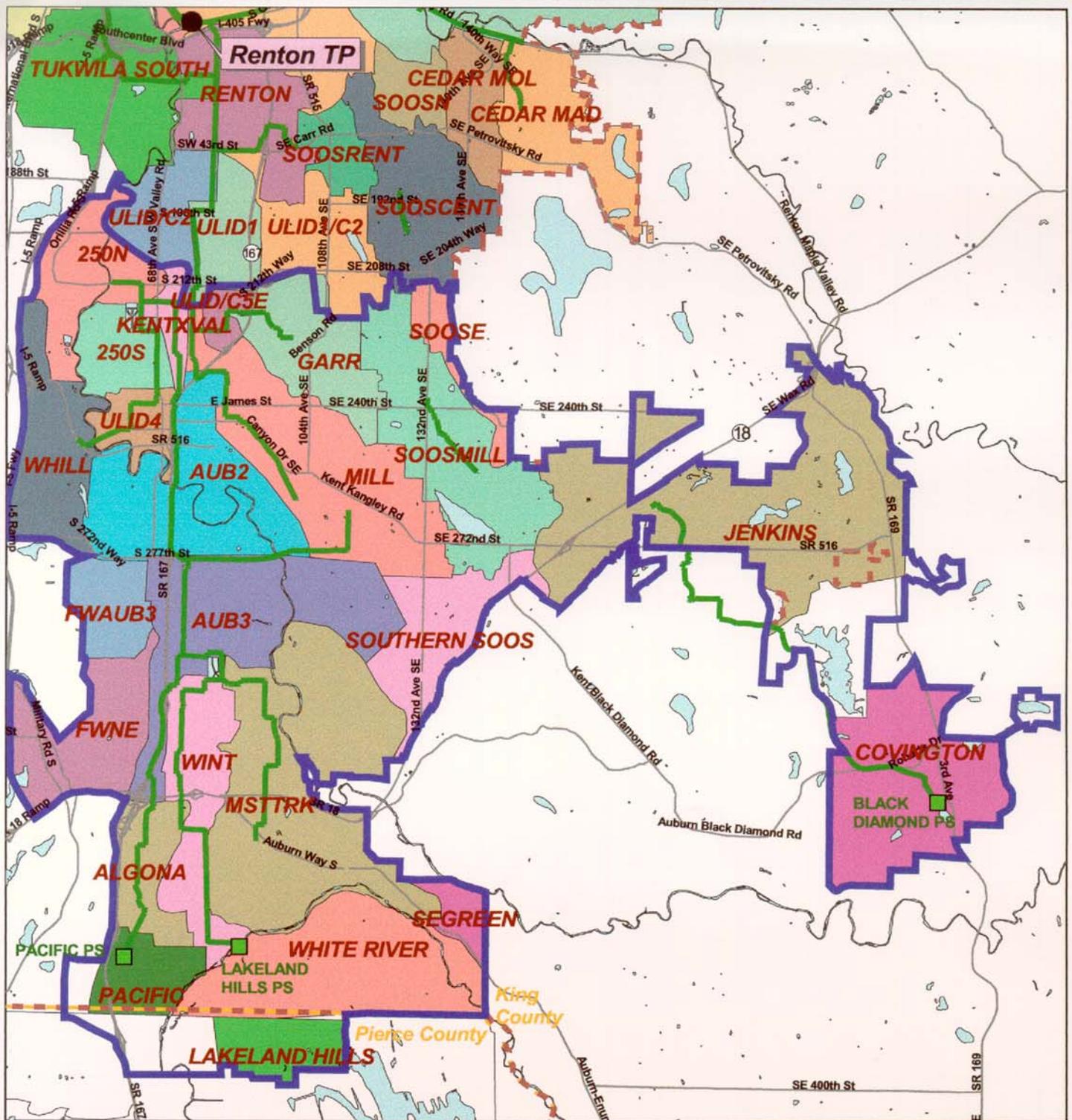
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Legend

- MC/GR Boundary
- County Boundary
- 1958 Service Sewers
- 98 UGA Boundary
- 1958 Local Service Areas

Color area represents the Green River Sewerage Area

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KC RWSP Sewer Basins & Interceptors in the MC/GR

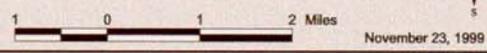
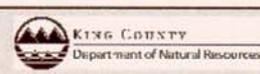
Figure 210 - 6

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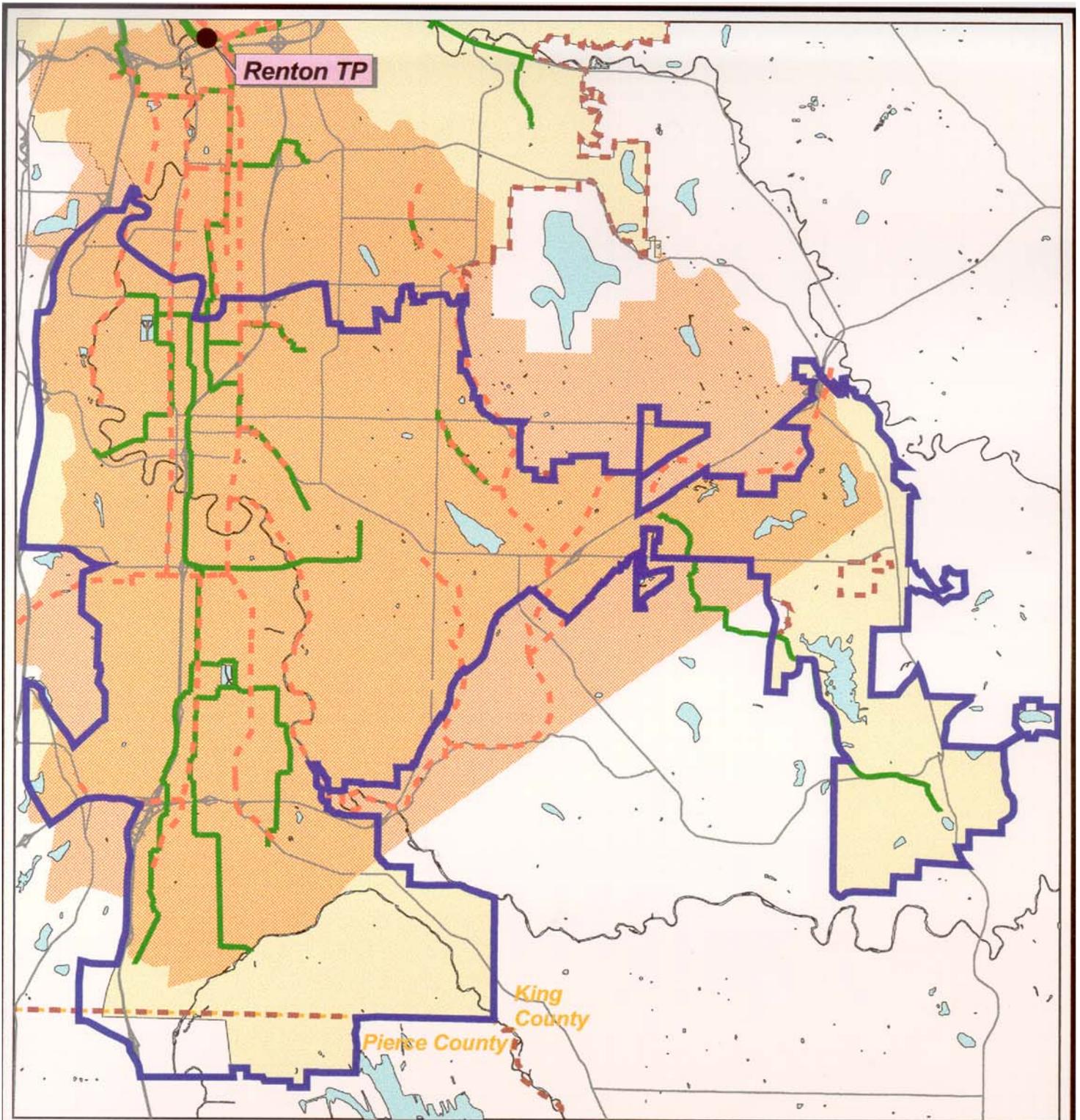
- MC/GR Boundary
- KC Pump Stations
- KC Conveyance Lines
- 98 UGA Boundary
- County Boundary

Color areas represent KC RWSP sewer basins

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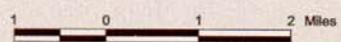
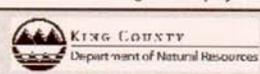


Comparison of 1958 Plan Green River Sewerage Area and Service Sewers with Current KC Service Area and Interceptors
 Figure 210 - 7

Legend

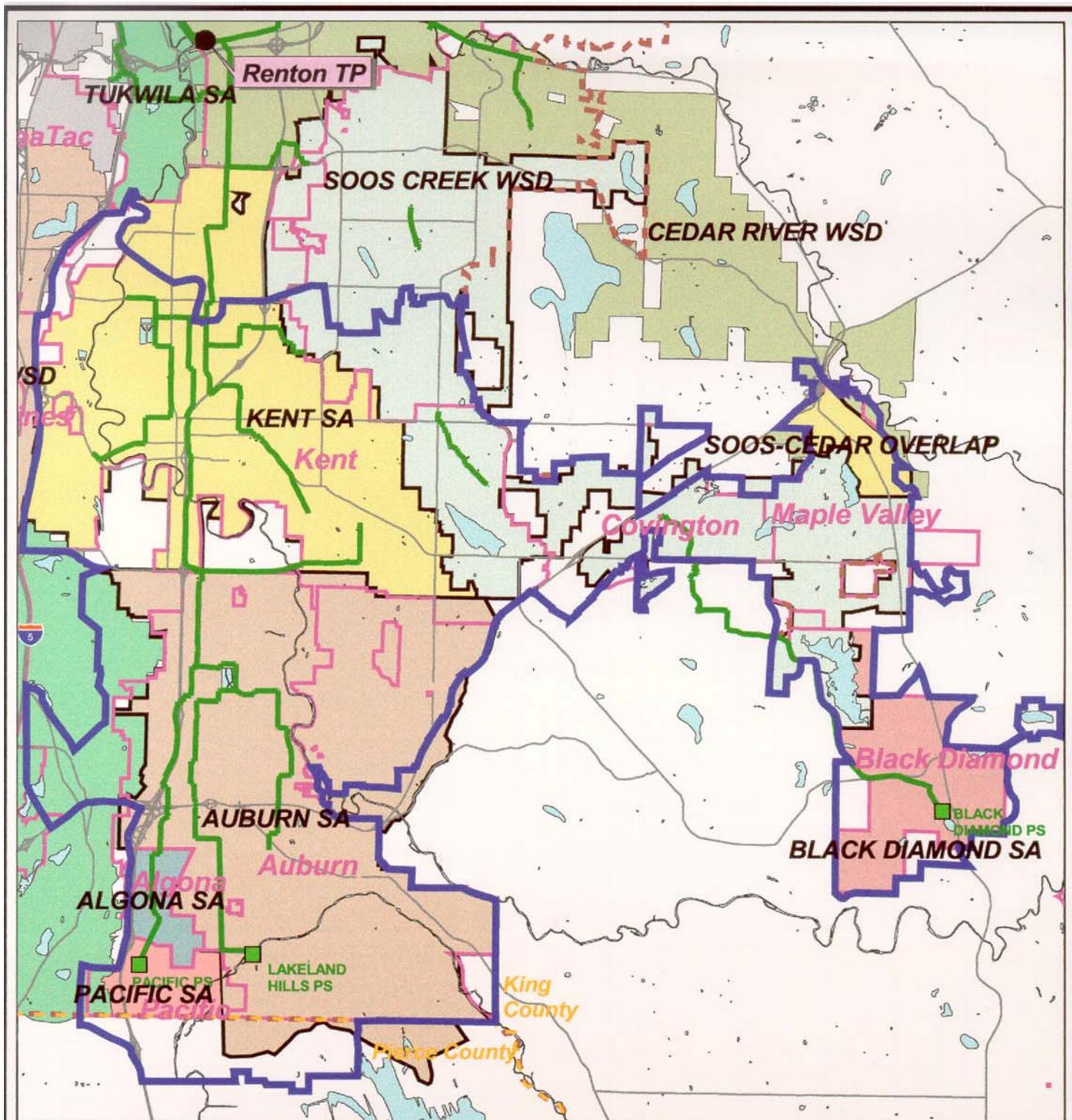
- MC/GR Boundary
- 1958 Service Sewers
- KC Conveyance Lines
- 98 UGA Boundary
- County Boundary
- 1958 Local Service Areas
- KC Service Area

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Comparison of Sewer Agency and City Boundaries

Figure 210 - 8

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1 0 1 2 Miles

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Legend

- KC Pump Stations
- MC/GR Boundary
- County Boundary
- KC Conveyance Lines
- 98 UGA Boundary
- City Boundaries

Color area represents sewer agencies

LOCAL WASTEWATER SERVICE AREAS

ALGONA

The following information was provided by King County from its geographic information system (GIS) database.

SERVICE AREA

The city of Algona is located in the southwestern portion of the Mill Creek / Green River Subregional Planning Area, west of Auburn and north of Pacific. Figure 210-9 shows the Algona service area and sewers. The Algona service area is approximately 860 acres.

BASINS

The King County service basin of Algona coincides approximately with the Algona local sewer service provider boundary.

AUBURN

The following information is from the *Comprehensive Sewerage Plan for the Sewage Collection System, City of Auburn, Washington, 1979*, dated March 1982 (prepared by URS Company), and the King County GIS database.

SERVICE AREA

The city of Auburn is located in the southwestern portion of the Mill Creek / Green River Subregional Planning Area, east of Algona and Pacific. Figure 210-9 shows the Auburn service area, pump stations, and sewers. The service area includes large areas east of the Auburn city limits, parts of which lie within the city of Kent. The service area does not include a few small areas in north and west Auburn. In 1982, the Auburn service area was approximately 12,480 acres and served about 25,725 people.

BASINS

City of Auburn sewer service basins, as defined by the last Auburn sewer comprehensive plan, are generally subbasins within larger King County service basins. ALGONA, AUB3, FWNE,

MSTTRK, SE GREEN, SOUTHERN SOOS, WHITE RIVER, and WINT are the King County basins that coincide, at least partially, with the Auburn subbasins. Direction of flow from local basins is the same as for King County basins, except that the *King County Mill Creek Relief Sewer Planning Study* proposed to route part of SOUTHERN SOOS basin north through the Mill Creek Relief Interceptor corridor.

The King County GIS coverage shows a slightly different service area for Auburn than is shown in the city's comprehensive plan. According to the sewer comprehensive plan, the south service area extends into Pierce County, part of southeast Auburn is not in the service area, and areas on the east and north are not in the service area.

In terms of study area, the Auburn sewer comprehensive plan includes the entire King County defined service area plus Algona, Pacific, parts of Federal Way, and areas outside the urban growth area boundary.

BLACK DIAMOND

The following information is from the *Enumclaw-Black Diamond Regional Sewerage Study* dated June 1970 (prepared by Metropolitan Engineers); *Facility Plan for Wastewater Treatment System*, June 1988; *Comprehensive Sewerage Plan*, October 1988 (prepared by Brown and Caldwell); as well as information provided by King County.

SERVICE AREA

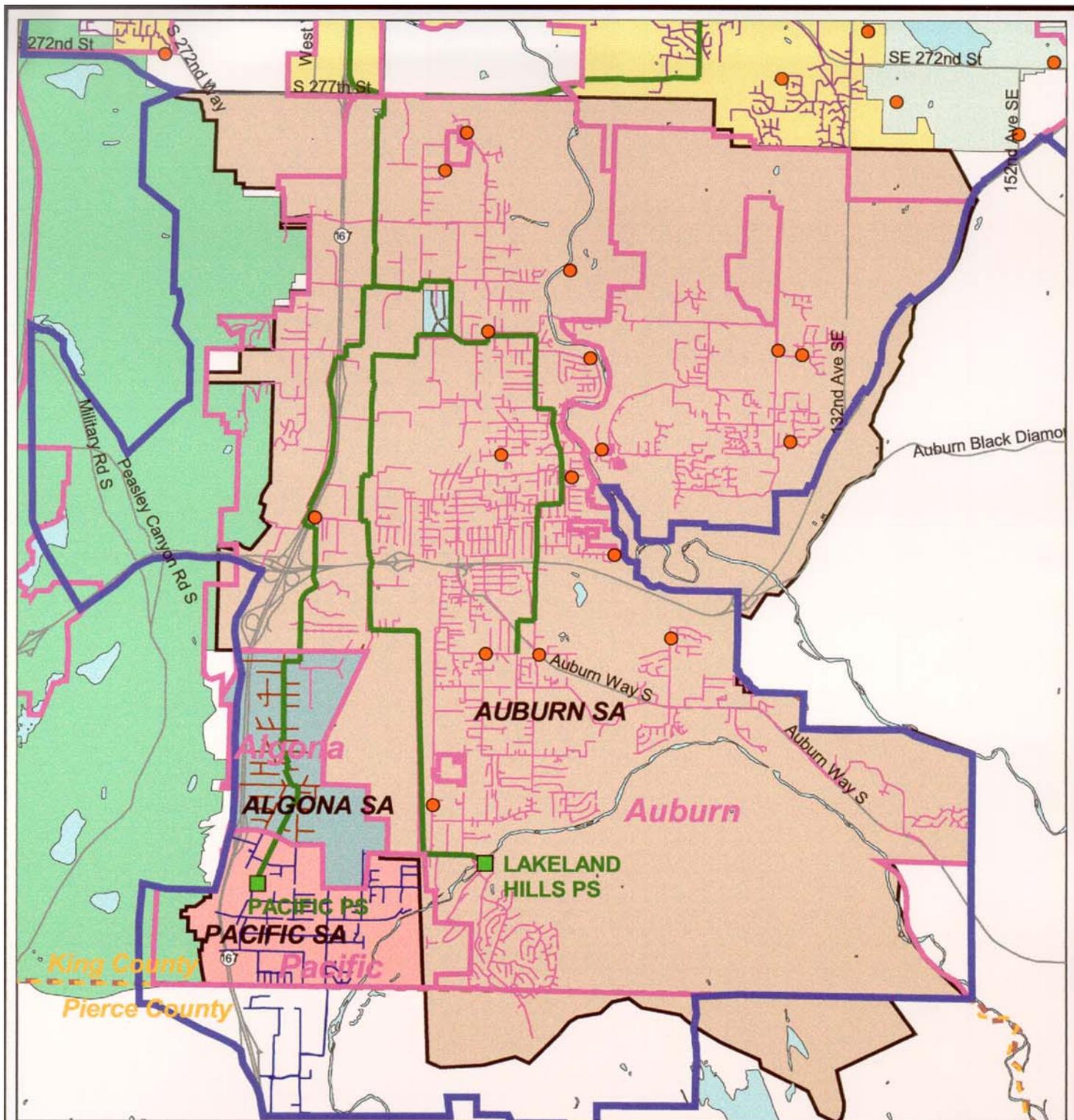
The city of Black Diamond is located in the extreme southwestern portion of the Mill Creek / Green River Subregional Planning Area, south of Maple Valley and within the urban growth area boundary. Figure 210-10 shows the Black Diamond service area. GIS sewer coverage was not available. Black Diamond service area was approximately 2,300 acres and served about 1,265 people.

BASINS

Black Diamond is located within King County's COVINGTON service basin.

KENT

The following information is from the *City of Kent Comprehensive Sewerage Plan* dated December 1980 (prepared by URS Company) and the King County GIS database.



Sewer Agencies and City Boundaries: Auburn, Algona and Pacific

Figure 210 - 9

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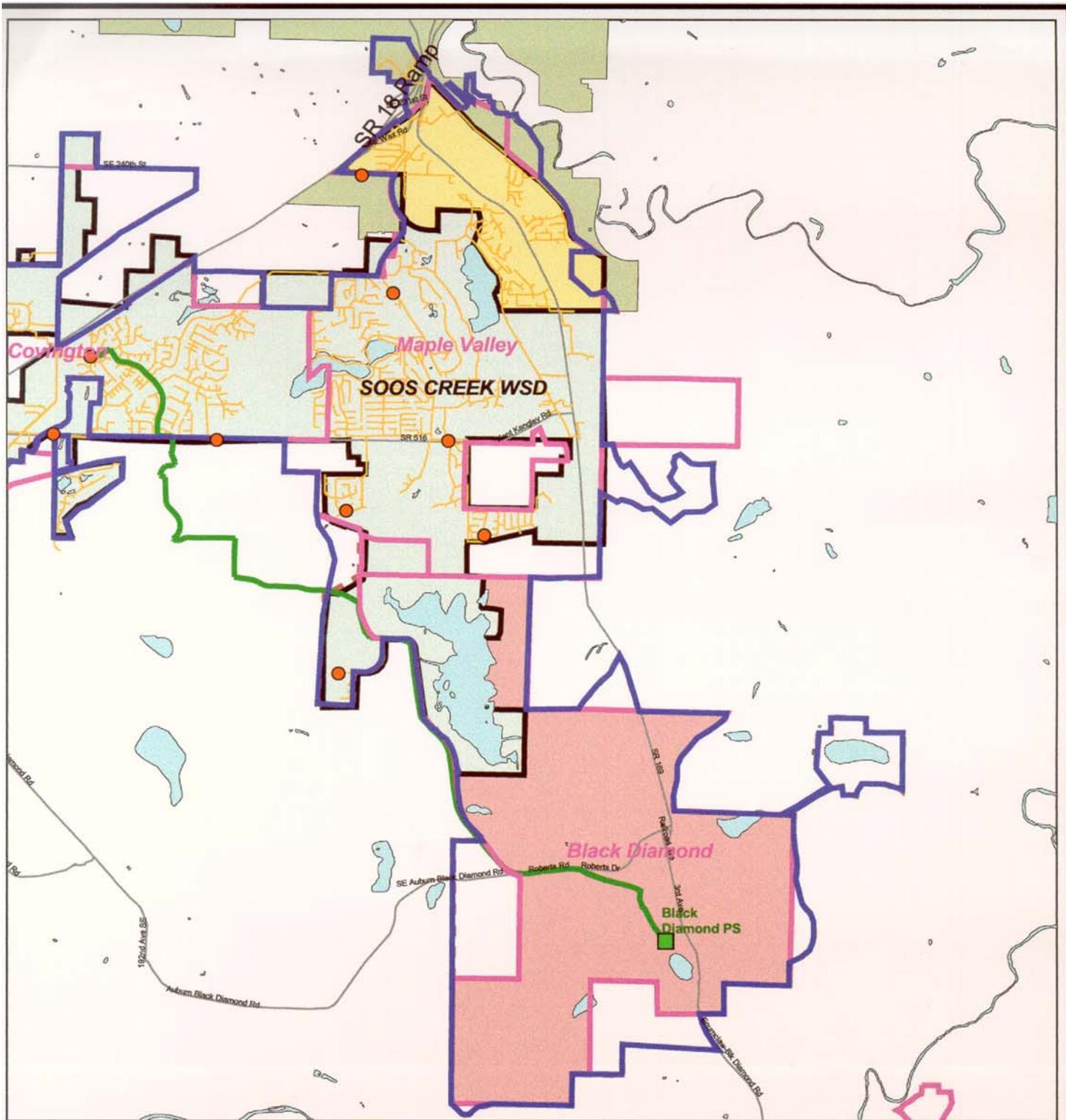
1 0 1 Miles

November 23, 1999

Legend

- Local Agency Pump Stations
- KC Pump Stations
- MC/GR Boundary
- City Boundaries
- KC Conveyance Lines
- Algona Conveyance Lines
- Pacific Conveyance Lines
- Auburn Conveyance Lines
- County Boundary
- 98 UGA Boundary

Color area represents sewer agencies



**Sewer Agencies and City Boundaries:
Black Diamond, Maple Valley, and
Soos Creek Water and Sewer District**
Figure 210 - 10

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Legend

- Local Agency Pump Stations
- KC Pump Stations
- MC/GR Boundary
- City Boundaries
- KC Conveyance Lines
- Soos Creek Conveyance Lines
- 98 UGA Boundary

Color area represents sewer agencies

WSD: Water & Sewer District

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SERVICE AREA

The city of Kent is located in the northwestern portion of the Mill Creek / Green River Subregional Planning Area, north of Auburn and west of Soos Creek Water and Sewer District. Figure 210-11 shows the Kent service area, pump stations, and sewers. The city of Kent is the designated sewer service provider for a portion of the area within the city boundaries. Areas not served by the city are served by others or have no designated wastewater collection service provider. Soos Creek WSD serves areas in the eastern part of Kent. Another small, isolated area of Kent is served by Auburn. An area in Kent west and south of Soos Creek WSD has no designated wastewater collection service provider. There is another large area in the northwestern part of Kent that has no designated wastewater collection service provider. In 1980, the Black Diamond service area was approximately 9,700 acres and served about 39,294 people.

BASINS

City of Kent sewer service basins are generally subbasins within larger King County service basins. AUB2, GARR, KENTXVAL, MILL, ULID1, TUKWILA SOUTH, ULID/C2, ULID 1/C2, ULID4, ULID/C5E, WHILL, 250N, and 250S are the King County basins that coincide, at least partially, with the Kent subbasins. Direction of flow from local basins is the same as for King County basins.

The King County GIS coverage shows a slightly different service area for Kent than is shown in the city sewer comprehensive plan. According to the sewer comprehensive plan, existing Kent sewers extend to the Green River on the west. There are existing sewers south in a strip east of state route (SR) 167, but not the strip west of SR 167 as shown by King County. The sewer comprehensive plan also shows a few other small areas as having existing Kent sewers.

In terms of study area, the Kent sewer comprehensive plan includes all of the service area as defined by King County plus additional areas on the south, northwest, and east.

PACIFIC

The following information is from the *City of Pacific Sanitary Sewer System Plan* dated March 1991 (prepared by Gardner Consultants, Inc.) and the King County GIS database.

SERVICE AREA

The city of Pacific is located in the southwestern portion of the Mill Creek / Green River Subregional Planning Area, west of Auburn and south of Algona. Figure 210-9 shows the

Pacific service area and sewers. The service area extends beyond the city limits on the west. In 1991, the Pacific service area was approximately 1,245 acres and served about 5,186 people.

BASINS

City of Pacific sewer service basins are generally subbasins within the larger King County service basin of PACIFIC. MSTTRK, WHITE RIVER, and WINT are other King County service basins that also coincide partially with the city of Pacific basins. Direction of flow from small local basins is dictated by pump stations but overall is the same as for PACIFIC and WHITE RIVER basins. The service area southeast of the White River is part of WHITE RIVER basin and is routed through Auburn.

The King County GIS coverage shows a slightly different service area for Pacific than is shown in the city sewer comprehensive plan. According to the sewer comprehensive plan, the southeastern corner of Pacific and two areas within Algona are included in the service area.

In terms of study area, the Pacific sewer comprehensive plan includes all of the service area as described above, plus a potential annexation area in Pierce County.

SOOS CREEK WATER AND SEWER DISTRICT

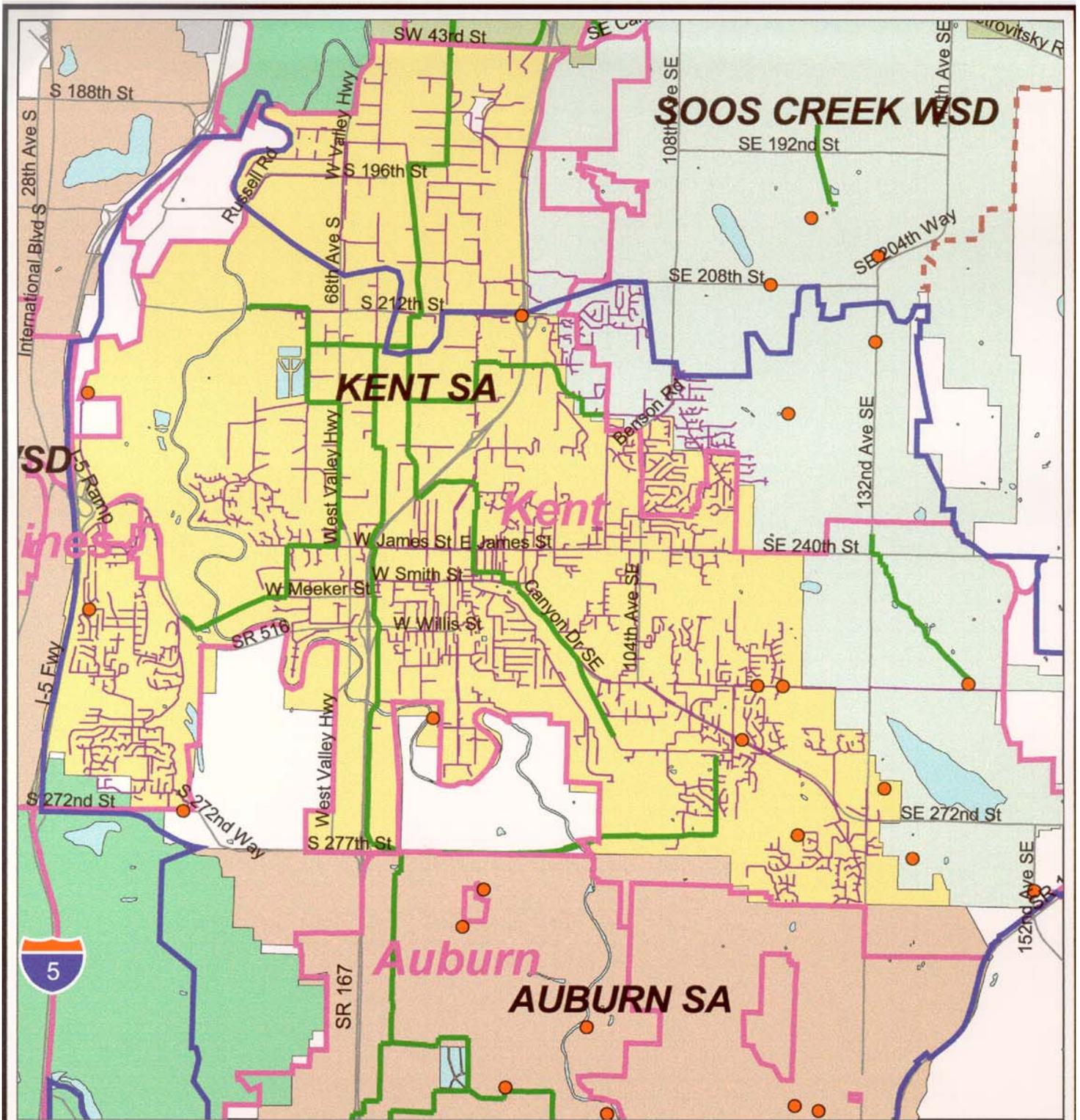
The following information is from the *1996 Soos Creek Water and Sewer Plan* dated January 1997 (prepared by Hedges & Roth Engineering, Inc). and the King County GIS database.

SERVICE AREA

The Soos Creek WSD is located in the northeastern portion of the Mill Creek / Green River Subregional Planning Area, east of Kent. Figure 210-12 shows the district service area, pump stations, and sewers. An area of Maple Valley has overlapping service from both the Soos Creek WSD and the Cedar River WSD. The Soos Creek WSD provides sewer service for Maple Valley, Covington, and portions of Kent, and also provides a specific capacity in its south end conveyance system to allow flow from Black Diamond to pass through the district to King County facilities. In 1996, the Soos Creek WSD service area was approximately 68,000 acres and served about 18,818 people.

Covington

The city of Covington is a newly incorporated municipality located in the eastern portion of the Mill Creek / Green River Subregional Planning Area, east of Kent and west of Maple Valley. Covington sewer service is provided by Soos Creek WSD. There is an area in the southwestern part of Covington that is not included in the Soos Creek WSD sewer comprehensive plan.



Sewer Agencies and City Boundaries: Kent

Figure 210 - 11

SA: Sewer Area
WSD: Water & Sewer District

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KING COUNTY
Department of Natural Resources



1 0 1 Miles

November 23, 1999

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Legend

- Local Agency Pump Stations
- KC Pump Stations
- ▭ MC/GR Boundary
- ▭ City Boundaries
- ▭ KC Conveyance Lines
- ▭ Kent Conveyance Lines
- ▭ 98 UGA Boundary
- Color area represents sewer agencies

Maple Valley

The city of Maple Valley is a newly incorporated municipality located in the most easterly portion of the Mill Creek / Green River Subregional Planning Area, east of Covington. Maple Valley sewer service is provided by the Soos Creek WSD. There is an area in the southern part of Maple Valley that has no designated service provider.

BASINS

Soos Creek WSD sewer service basins, as defined by the last Soos Creek WSD comprehensive plan, are generally subbasins within larger King County service basins. AUB3, CEDAR MOL, CEDAR MAD, COVINGTON, JENKINS, MILL, SOOS CENT, SOOSE, SOOSRENT, SOOSN, SOOS MILL, SOUTHERN SOOS, and ULID 1/C2 are the King County service basins that coincide, at least partially, with the Soos Creek WSD subbasins. Direction of flow from local basins is the same as for King County basins, except that the *King County Mill Creek Relief Sewer Planning Study* proposed to route SOUTHERN SOOS basin north through the Mill Creek Relief Interceptor.

The King County GIS coverage shows a slightly different service area for Soos Creek WSD than is shown in the Soos Creek WSD sewer comprehensive plan. The Soos Creek WSD sewer comprehensive plan shows the district boundary on the west not extending into Kent, and the boundary on the east not extending beyond the urban growth area boundary. A few other scattered small areas are also excluded from the service area as defined by King County. The Soos Creek WSD sewer comprehensive plan includes in the district the area around Lake Sawyer, a small area north of Covington, and a small area east of Lake Meridian, which are not shown in the district by the King County GIS coverage. The district sewer comprehensive plan includes in the district the area shown by King County as having overlapping service with Cedar River Water and Sewer District.

In terms of study area, the Soos Creek WSD sewer comprehensive plan includes all of the service area as defined by King County plus areas between Lake Meridian and Kent, large areas east of Lake Meridian, an area east of Lake Sawyer, and a few other scattered small areas, including areas outside the urban growth area boundary.

PLANNING RECORD

The following planning documents provide a historical reference for the Mill Creek / Green River Subregional Planning Area. This section describes factors that have contributed to long-term service planning for this area. Figures throughout this study show significant changes between the original and current service areas. Potential inconsistencies between these planning documents and the King County RWSP are noted.

1958 METROPOLITAN SEATTLE SEWAGE AND DRAINAGE SURVEY

(March 1958, prepared by Brown & Caldwell)

The *1958 Metropolitan Seattle Sewage and Drainage Survey* (referred to here as the 1958 Plan) was developed for the city of Seattle, King County, and the Washington State Pollution Control Commission between 1956 and 1958 to provide a long-range plan for the collection, treatment, and disposal of wastewater from the metropolitan Seattle area. The need for a long-range wastewater management plan was based on the rapid population expansion in King County and the increasing pollution of Lake Washington and other local surface waters. The planning horizon for the 1958 Plan was 2030, which corresponded with the longest economic life of any of the facilities likely to be constructed, and the population forecasts on which the plan was based were developed through that year.

The 1958 Plan divided the metropolitan Seattle area into 12 distinct Sewerage Areas. The divisions were based primarily on geography and economics but also included factors such as political boundaries, population distribution, land use, and location and condition of existing facilities.

The report concluded that the most economic and efficient solution to sewerage problems in the metropolitan Seattle area would be to convey sewage from large areas to a single point or relatively few points for treatment and disposal. The local service areas would be sewered with 6-inch to 24-inch service sewers. The service criteria then (and now) required service to be financially justifiable and required each local service area to contain no less than 1,000 acres.

The service sewers were planned to contribute to large feeder sewers, trunks, and interceptors within the Sewerage Area. The feeder sewers from the individual Sewerage Areas would convey the sewage to a treatment plant that would receive flow from many Sewerage Areas. Treated sewage would be pumped from the plant to an outfall for disposal in a designated body of water.

Construction timing in the 1958 Plan was based on urgency of the required facilities (including sewer mains) as a result of population growth or the need for pollution mitigation. Population forecasts and distribution were used to estimate construction timing and treatment plan loadings. Construction was planned to occur in three stages. Stage I, scheduled for the period from 1960 to 1970, included facilities required to alleviate serious pollution and flow-loading problems. Stage II, planned for 1970 to 1980, included extension of the collection and conveyance system

to serve additional areas where the most rapid population growth was expected to occur. Stage III, scheduled for the period after 1980, included all remaining facilities required to serve further population growth. The original schedule of work was subsequently amended to four phases.

Under the revised first stage of treatment system improvements (1960 to 1970), 28 small treatment plants were closed, and 46 primary treatment discharge points into Lake Washington and Lake Sammamish were eliminated. Three new primary treatment plants began operations, ranging from 3.2 million gallons per day (mgd) (Richmond Beach and Carkeek Park) to 125 mgd (West Point). Secondary treatment facilities were constructed at the East Section Reclamation Plant at Renton, and more than 90 miles of large-diameter sewers, tunnels, and underwater pipelines were constructed.

The second stage of the plan (projects completed 1960 to 1990) was modified twice, in 1970 and in 1982. The second-stage plan included the following elements:

- East Section Reclamation Plant, West Point, and Alki treatment plant improvements
- Eastgate trunk sewer and Issaquah interceptor construction
- Auburn, West Valley, and Lake Sammamish interceptor construction
- Two major combined sewer overflow (CSO) control projects
- Kenmore pump station construction
- North interceptor rehabilitation
- Juanita pump station modification.

The third-stage project facilities, completed in 1991, included three major efforts:

- West Point and East Section Reclamation Plant upgrade projects
- Kenmore interceptor and Matthews Park pump station improvements
- Extension of North Creek and northeastern Lake Sammamish interceptors.

Subsequently, a fourth stage of wastewater projects was added, consisting of more than a dozen projects scheduled through 1997. Elements of the fourth-stage plan continued King County's move away from a decentralized system of several smaller treatment plants to a centralized system characterized by secondary treatment and only two large plants, at Renton (the East Section Reclamation Plant) and West Point. The Richmond Beach plant was replaced with a pump station, and Alki and Carkeek facilities were converted to stormwater facilities with transfer of base sanitary flows to the West Point plant. Other fourth-stage projects include pump stations, regulators, tunnels, and conveyance and separation facilities.

COMPREHENSIVE SEWAGE DISPOSAL PLAN, GREEN RIVER SEWERAGE AREA AND PORTION OF WHITE RIVER WATERSHED

(November 1973, prepared by Metropolitan Engineers, Consulting Engineers)

Resolution No. 2025 adopted this amendment to the *King County Comprehensive Plan*. It extended the comprehensive plan study area to include a portion of the White River watershed, added new King County facilities in the expanded area, and revised some sewer basins and alignments in the Mill Creek / Green River Subregional Planning Area.

WASHINGTON GROWTH MANAGEMENT ACT

As part of its planning process, King County must meet the requirements of the 1990 state Growth Management Act. This law directs affected counties, including King County, to develop comprehensive growth management plans to define urban growth boundaries and to ensure that facilities and services needed to sustain growth are in place when required. Implementation of the sewer comprehensive plans includes making capital investments, regulating land uses, and identifying and protecting environmentally sensitive areas and resource lands. The Growth Management Act directs counties and cities to adopt jointly prepared “county-wide planning policies.” These regional policies are frameworks around which counties and cities develop sewer comprehensive plans.

King County’s vision of the future, embodied in its *County-Wide Planning Policies*, was developed by the King County Growth Management Planning Council (GMPC), which consists of the King County executive, five members of the Metropolitan King County Council, three representatives of the city of Seattle, six representatives from the suburban cities, and one ex-officio member representing the Port of Seattle. The *County-Wide Planning Policies* address issues such as siting of facilities, as well as timing and phasing of land development in concert with facilities and services. The King County Council adopted the *County-Wide Planning Policies* by Ordinance No. 10450 on July 6, 1992.

One of the major goals of the Growth Management Act is concurrency. Concurrency is defined to mean that, to the extent possible, specific infrastructure systems are in place at the same time development occurs. The concurrency goal is intended to make sure that development (population and employment growth) occurs initially in areas that have urban services available. If the infrastructure will not be in place to accommodate a minimum of 20 years of projected growth, the Growth Management Act requires that either land use, financing mechanisms, or levels of service be reassessed. This reassessment ideally results in a balance of capital facilities, land use planning, and financing, and hence a concurrent accommodation of growth. Strict concurrence is required only for transportation elements but is a goal for all other infrastructure elements as well.

Concurrency for King County wastewater facility planning means that if sewer conveyance and treatment system infrastructure is not in place when needed, then levels of service (such as numbers of combined sewer overflows, discharge limits, or infiltration and inflow accommodation) should be reassessed.

KING COUNTY COMPREHENSIVE PLAN, EXECUTIVE PROPOSED PLAN

(June 1994, prepared by King County Parks, Planning and Resources Department)

The Metropolitan King County Council established an urban growth area in the 1994 *King County Comprehensive Plan* (KCCP) and the 1995 amendment. Future growth and development should be confined to the urban growth area, as defined by the urban growth boundary, to limit urban sprawl, enhance open space, protect rural areas, and provide for more efficient use of human services, transportation, and utilities. The *King County Comprehensive Plan* includes capital facilities and utilities elements that contain a review and approval process for sewer plans within the county. King County's regional wastewater conveyance and treatment system and facilities are specifically included in the adopted comprehensive plan (provided in Volume One of the Technical Appendices).

The *King County Comprehensive Plan* indicates that within the urban growth area, construction of public sewers is encouraged, to allow the maximum density to be achieved. Public sewers should be provided to replace onsite treatment systems. The *County-Wide Planning Policies* restrict public sewer expansions in rural areas and on natural resource lands unless they are tightlined (no service laterals permitted) and a finding is made that no reasonable alternative technologies are feasible.

Ultimately, the *King County Comprehensive Plan* would confine concentrated development to the urban growth area, where services are already provided, or would require service to be provided concurrently with development. This can be accomplished by changing development patterns and zoning and by offering incentives to direct growth within the urban growth area.

KING COUNTY REGIONAL WASTEWATER SERVICES PLAN

(January 1996, prepared by King County Wastewater Treatment Division)

The *Regional Wastewater Services Plan* (RWSP) is the King County long-range planning road map defining the strategy for providing regional wastewater services in the Seattle metropolitan area. The RWSP scope is comprehensive in nature, addressing wastewater treatment and conveyance needs, the combined sewer overflow control program, the biosolids management program, and opportunities for water reuse. The policies guiding the provision of wastewater services, as well as the programmatic initiatives and facilities needed to address those services, comprise the plan. The RWSP does not specifically examine the Subregional Planning Area drainage.

KING COUNTY RWSP—WASTEWATER 2020 PLUS, EXISTING CONDITIONS

(August 1994, prepared by HDR Engineering, Inc.)

As part of a planning project to assess the long-term wastewater conveyance and treatment needs of King County, the *Wastewater 2020 Plus, Existing Conditions* report described capacity and limitations of existing wastewater conveyance and treatment facilities through 1996. The report determined the impacts of infiltration and inflow and provided alternatives for management of infiltration and inflow. The study developed wastewater flow projections and forecast conveyance and treatment facility needs based on population forecasts reflecting 1990 census data, economic conditions, and growth management visions. Wastewater conveyance and treatment needs were examined in a broad regional context to assess mutually beneficial opportunities for service arrangements with other counties. The study provided planning level analysis of system conveyance and treatment facility needs.

KING COUNTY RWSP—WASTEWATER 2020 PLUS, SOUTH INTERCEPTOR PARALLEL VALIDATION STUDY

(March 1993, prepared by HDR Engineering, Inc.)

The *South Interceptor Parallel Validation Study* established a planning area called the Metro South Interceptor Basin. All flow that enters the King County treatment plant at Renton from the south originates within this basin. Planning areas for two urban growth boundaries were evaluated. One urban growth area was defined by the 1985 *King County Comprehensive Plan*, and the other was defined by the Growth Management Policy committee as adopted by the King County Council on July /6, 1992. For that planning area, the study describes population and flow characteristics and projects flow to 2030 and at saturation for the hydrologic basins. The study used 1990 census and Puget Sound Regional Council (PSRC) data for population, employment, and land use.

KING COUNTY DEPARTMENT OF NATURAL RESOURCES, WASTEWATER TREATMENT DIVISION, FINAL REPORT—MILL CREEK RELIEF SEWER PLANNING STUDY

(March 1998, prepared by Garry Struthers Associates, Inc., HDR Engineering Inc., PacRim Geotechnical, Inc., and Caribe Engineers, Inc.)

The *Mill Creek Relief Sewer Planning Study* evaluated possible pipeline routes for the Mill Creek Relief Interceptor project. King County's existing Mill Creek Interceptor, which serves Soos Creek Water and Sewer District, the city of Black Diamond, and the city of Kent, is under capacity and as a result can overflow during large storm events. Review of Soos Creek WSD flow data resulted in a significant reduction in King County infiltration and inflow estimates for the area served by Soos Creek WSD. Twenty-year peak flow at saturation was estimated at 36–39 mgd east of the Green River and 51–54 mgd west of the river.

The study recommended construction of a 40-mgd Mill Creek Relief Interceptor, a 15-mgd parallel interceptor west of the Green River, and a pump station. The proposed 40-mgd capacity

Mill Creek Relief Interceptor is routed east from the Auburn Interceptor along South 277th Street to 114th Avenue, then north to the Soos Creek WSD Kent–Cascade Relief Interceptor. The proposed 15-mgd capacity parallel interceptor is routed east from the Auburn Interceptor to the west bank of the Green River. The proposed pump station would be constructed in Southern Soos basin and would pump to the 150-mgd parallel interceptor at the Green River.

COMPREHENSIVE SEWERAGE PLAN FOR THE SEWAGE COLLECTION SYSTEM, CITY OF AUBURN, WASHINGTON, 1979

(March 1982, prepared by URS Company)

The Auburn *Comprehensive Sewerage Plan for the Sewage Collection System* established a planning area and discussed and evaluated existing conditions. The plan also identified system requirements, recommended improvements, and proposed a plan for implementation of improvements.

CITY OF KENT COMPREHENSIVE SEWERAGE PLAN

(December 1980, prepared by URS Company)

The *City of Kent Comprehensive Sewerage Plan* established a planning area and discussed and evaluated existing conditions. The plan also identified system requirements, recommended improvements, and proposed a plan for implementation of improvements.

CITY OF PACIFIC SANITARY SEWER SYSTEM PLAN

(March 1991, prepared by Gardner Consultants, Inc.)

The *City of Pacific Sanitary Sewer System Plan* established a planning area that included a proposed expansion of service into Pierce County. The plan discussed and evaluated existing conditions, identified system requirements, recommended improvements, and proposed a plan for implementation of improvements.

1996 SOOS CREEK WATER AND SEWER DISTRICT COMPREHENSIVE SEWER PLAN

(January 1997, prepared by Hedges & Roth Engineering, Inc.)

The *Soos Creek Water and Sewer District Comprehensive Sewer Plan* established a planning area, discussed and evaluated existing conditions, and discussed operations and maintenance. The plan also identified system requirements, recommended improvements, and proposed a plan for implementation of improvements.

ENUMCLAW–BLACK DIAMOND REGIONAL SEWERAGE STUDY

(June 1970, prepared by Metropolitan Engineers)

The *Enumclaw–Black Diamond Regional Sewerage Study* established a planning area and discussed and evaluated existing conditions. The study also identified system requirements, recommended improvements, and proposed a plan for implementation of improvements.

CODIFICATION OF METRO’S COMPREHENSIVE SEWERAGE PLAN

(November 1989, prepared by Brown & Caldwell)

This is a summary document of the 1958 Plan and amending resolutions from 1961 through 1989. These amendments implemented the original plan and made some changes to it. Resolution No. 928, adopted in June 1967, revised sewer alignments in Kent. Resolution No. 1330, adopted in December 1969, modified the *Comprehensive Sewerage Plan* to better reflect development in the Green River Sewerage Area. Resolution No. 2025, adopted in February 1974, extended the study area to include a portion of the White River watershed, added facilities in that area, and modified previously planned facilities. Resolution No. 2795, adopted in December 1996, addressed the "West Valley, Ellingson, and Lakeland Service Area," which includes portions of FWNE, WHITE RIVER, PACIFIC, ALGONA, and WINT service basins.

BLACK DIAMOND FACILITY PLAN FOR WASTEWATER TREATMENT SYSTEM

(June 1988, prepared by Brown & Caldwell)

This plan developed and evaluated alternative projects for transferring wastewater to the King County system for treatment and disposal. The selected project was developed in detail and implementation requirements were identified. The transfer project replaced a failed treatment facility constructed under the EPA Innovative and Alternative (I&A) Treatment Program.

CITY OF BLACK DIAMOND COMPREHENSIVE SEWERAGE PLAN

(October 1989, prepared by Brown & Caldwell)

This study identified wastewater management needs and evaluated several alternatives for improving or eliminating the city's wastewater discharge to Rock Creek, a tributary to Lake Sawyer. Treatment facility improvements, land application of effluent, and transfer of wastewater flow to King County for treatment were evaluated, and the flow transfer alternative was selected. Several alternative pipeline alignments were identified and evaluated. The selected transfer option conveyed flow into the Soos Creek WSD, with the discharge into the Soos Creek WSD Covington Pump Station (Lift Station 11).

