

# CSI PROJECT

Conveyance System Improvements

Summer 2001

KING COUNTY • WASTEWATER TREATMENT DIVISION

## What is the Conveyance System Improvements Project?

King County is responsible for conveying and treating wastewater collected by 34 local sewer agencies in the King County region. The County is engaged in a multi-year, multi-disciplinary effort called the Conveyance System Improvements (CSI) project. This project is focused on upgrading and

improving the existing regional conveyance system and planning for future conveyance extensions. The County's regional conveyance system consists of interceptor sewers, pump stations, forcemains, regulators, and tunnels that transport wastewater from local sewers to the County's

two regional secondary treatment plants. The CSI project is integrated with other King County programs including the Infiltration/Inflow (I/I) Control Program, the Brightwater Treatment Plant, the Combined Sewer Overflow (CSO) Program, and the Regional Wastewater

Services Plan – Design and Construction (RWSP D&C) Program.



The CSI Project integrates with other related project efforts.



### CSI INTEGRATES WITH...

## Wastewater Basin Planning Update: South Green River Basin\*

The South Green River Subregional Planning Area encompasses the King County wastewater service area south of the Kent-Cross Valley Interceptor (see Figure 1 on page two). This area includes all or part of Kent, Auburn, Algona, Black Diamond, Pacific, Covington, and Maple Valley. Local sewer providers include the cities of Kent, Auburn, Algona, Pacific, and the Soos Creek Water and Sewer District.

The CSI team divided the Green River Basin (as designated in the 1958 Seattle Metropolitan Sewerage and Drainage Survey) into the North and South Green River Subregional Planning Areas. The South Green River planning area is referred to as the Mill Creek/Green River Subregional Planning Area in planning reports. CSI planning for this area is complete and illustrates how the CSI planning principles (see text box) have been followed.

The South Green River planning area was subdivided into three smaller planning areas: Kent, Auburn (including the City of Pacific),

and the southern part of the Soos Creek Water and Sewer District (including Black Diamond). (See Figure 1 on page two.) An important CSI principle in this effort was to coordinate King County planning with local service provider planning. The CSI team examined the local systems and defined “flow projection areas” based on how the local

Continued on page 2

### CSI PLANNING PRINCIPLES

- Maximize area to be served by *gravity*
- Provide regional *flexibility* to respond to changing growth and development patterns
- Provide regional and local *benefits*
- Provide *certainty* for local service providers
- Maximize *long term facility use*
- Provide optimized capital and operating *costs*

\*also known as the Mill Creek/Green River Basin

Continued from front page

systems had developed. Population and employment forecasts were then examined and flow projections were made for each area.

CSI planners then created a model that compared projected flows with existing capacities to the year 2050 for each section of the County's regional conveyance system. This model revealed that several substantial sections of the County's conveyance system would be at capacity before 2010. Figure 1 shows the locations of interceptors and the decades in which their capacity is exceeded.

While flow attenuation and surcharging in the regional conveyance system can generally accommodate existing peak flows, this color map reveals the urgency of increasing capacity in specific areas of the system. The colors of the pipe segments correspond to the decade that the capacity of that segment is exceeded by unattenuated flows.

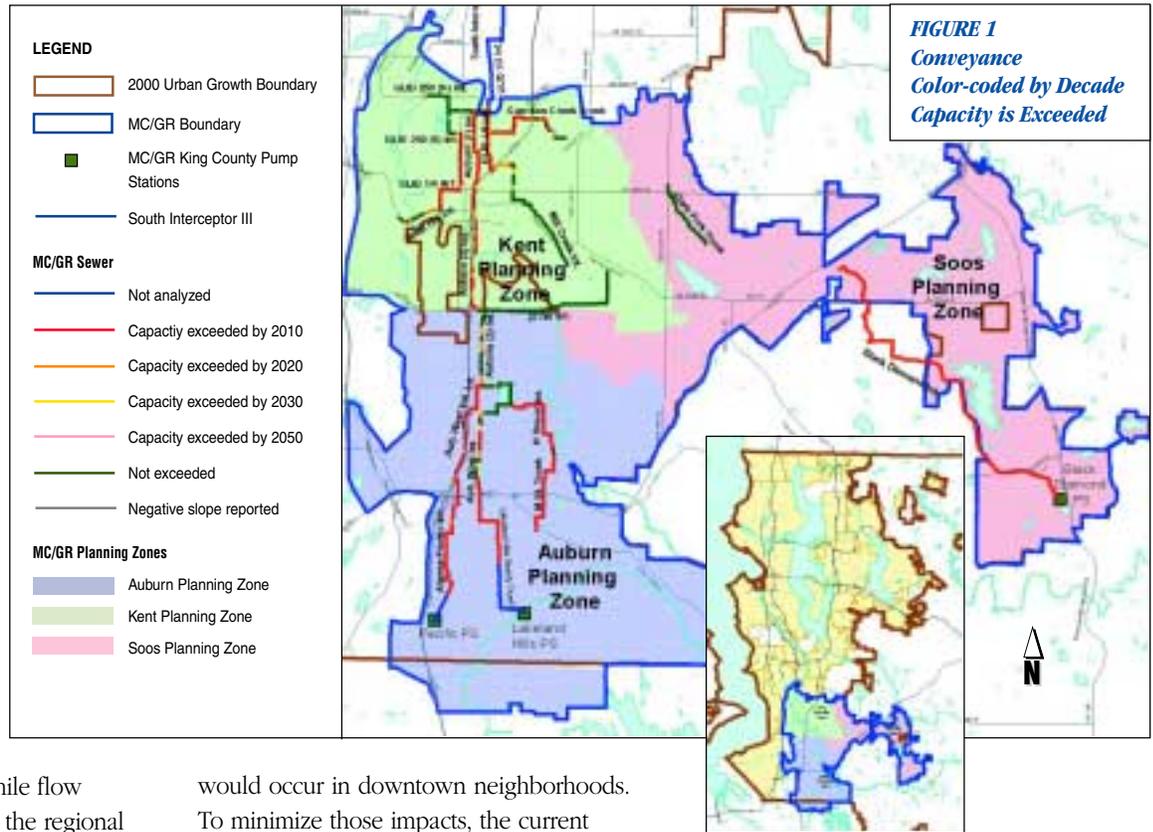
For the Kent and Auburn planning areas, the early planning level alternative would provide the needed additional capacity through construction of parallel gravity sewers. However, this alternative may be more disruptive to local residents and commercial areas, as most construction

would occur in downtown neighborhoods. To minimize those impacts, the current "working alternative" is to build a separate new interceptor near the West Valley Highway corridor (see Figure 2). This new pipeline – the Southwest Interceptor – would divert flow from south Auburn around the Auburn Interceptor, thus relieving capacity problems in the existing Auburn Interceptor. A number of trunk lines connecting existing conveyance to the Southwest Interceptor are also part of this working alternative.

In the Soos Creek planning area, flow projection results revealed that the capacity of many existing local sewers and pump

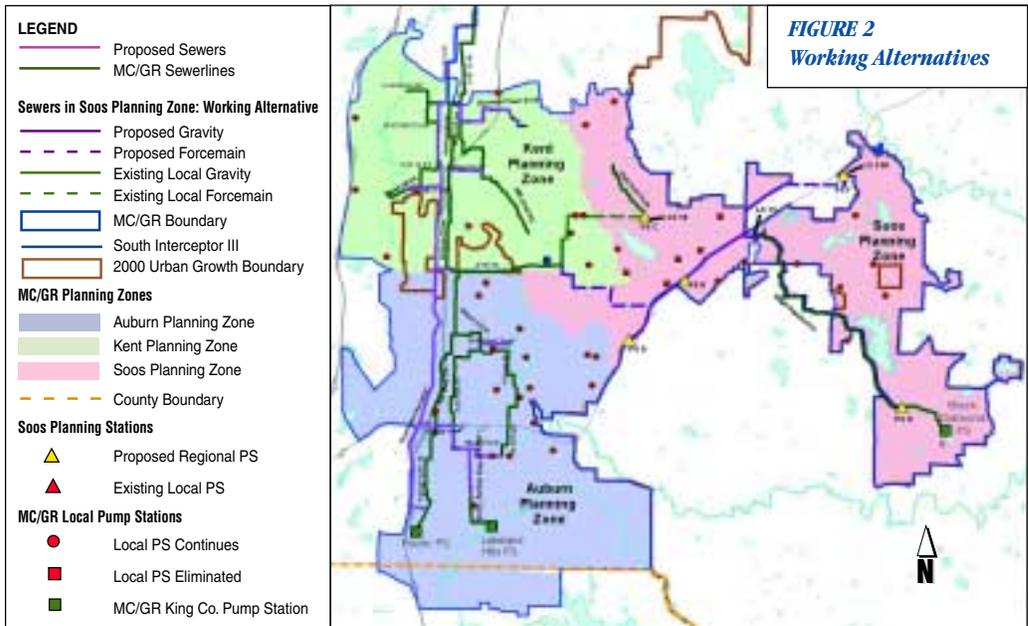
stations would be inadequate by 2010. One early alternative was to extend the County system to achieve optimal service levels and to pump the flows from Black Diamond and the Soos Creek Water and Sewer District west to connect to the regional system in Kent. The CSI team determined that alternative would continue to rely on numerous pump stations to transport flow from south to north, against the natural grade. As such, this approach would not provide the flexibility to respond to changing growth and development patterns in the southern part of the planning area.

The CSI team developed other alternatives that would maximize the use of gravity



## Conveyance System Improvements (CSI) Project Major Milestones

2001				2002				
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
South Green River planning completed (Kent and Auburn planning areas)	South Green River planning completed (Soos Creek planning area)	North Lake Sammamish planning completed South Green River projects to predesign South Lake Sammamish planning completed	North Lake Washington planning completed South Lake Sammamish projects to predesign	North Lake Washington projects to predesign North Lake Sammamish projects to predesign	North Green River planning completed	North Green River projects to predesign	South Lake Washington planning completed NW Lake Washington planning completed	SE Lake Washington planning complete South Lake Washington projects to predesign NW Lake Washington projects to predesign



**FIGURE 2**  
**Working Alternatives**

Planning is beginning in the North Lake Sammamish Planning Area, which was rescheduled to coordinate flow management planning with the siting of the new Brightwater Treatment Plant. Planning is also underway in the North Green River and North Lake Washington Planning Areas. By mid-to-late summer, projects will be ready for predesign.

**Project-Specific Planning** Within the North Lake Washington Planning Area, project-specific planning is underway for the North Lake Interceptor. Design of the North Creek Storage Facility is nearly complete, and a contractor has been selected to construct the facility.

Project planning has been completed for the Hidden Lake, Kirkland, Juanita Bay, Bellevue and Pacific Pump Stations. These projects are moving rapidly into predesign.

**Next Steps** The CSI project schedule and milestones are shown at the bottom of this page. This schedule outlines projected dates of completion of the basin plans. After the plans are completed, the design and construction teams will implement the projects. The CSI project schedule is subject to change, as the CSI team addresses the many issues associated with flow management. The most current schedule may be found on the CSI website (see page four for details).

sewers, provide regional and local benefits by eliminating local pump stations, and maintain flexibility to respond to future needs. These new alternatives involve routing flows by gravity along State Route 18 toward Auburn. New regional facilities in this area would provide the flexibility to accommodate future growth in the southern part of the planning area and maximize long-term facility use. The CSI team is continuing to work with the local sewer agencies to optimize a working alternative for the RWSP Design and Construction teams.

Planning in the South Green River area will be completed by mid-to-late summer of 2001. The projects from these planning efforts will then proceed to predesign, design, and construction phases, ultimately implementing the working alternative in conjunction with the regional I/I control program. These projects should be ready to

go out for bid for construction six to eight months later.

King County is also looking at alternative delivery systems for the design and construction of CSI projects. The term “alternative delivery” refers to the means of packaging projects for procurement and/or construction. For example, projects may be bundled and advertised as a large single project or as individual smaller projects. Projects may be built through conventional design-bid-build or design-build options. Procurements may also be phased to better integrate with other regional and local projects.

**CSI Progress to Date**

**Wastewater Basin Planning** Development of alternatives will soon be completed in the South Lake Sammamish Planning Area. Current working alternatives are being reviewed by King County’s Operations and Maintenance, and by local sewer agencies.

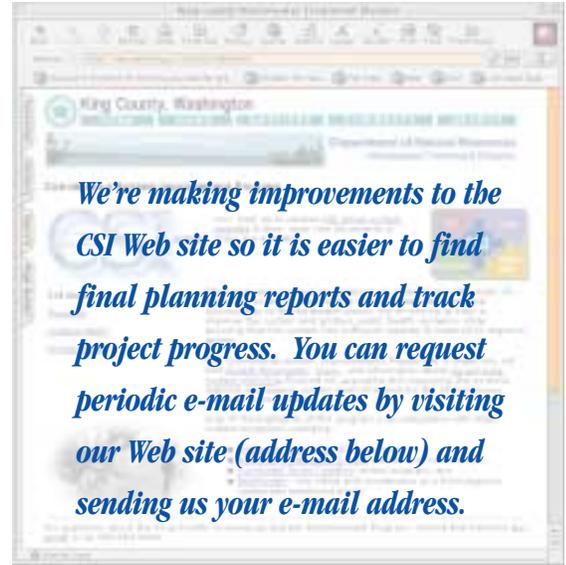
Wastewater basin planning is nearing completion in the South Green River Planning Area. Working alternatives are described in the lead article of this newsletter. Planning should be completed by mid-to late summer, at which time projects will enter the predesign phase.

2003		
Q2	Q3	Q4
SE Lake Washington projects to predesign	Final summary reports	CSI contract completed

*As directed by the King County Council in late 1999, Part 1 of a seismic vulnerability study specific to the Kenmore Interceptor lake line was completed in May. This is now available on the CSI website. Part 2 of the seismic study, covering the underwater conveyance lines, is now moving forward. The Wastewater Treatment Division is analyzing alternatives to increase protection of the County’s system, particularly in light of the recent Nisqually earthquake.*

## Local Sewer Agency Involvement is Key

Local sewer agencies are an important part of the CSI project. This project provides an opportunity for the County and local sewer agencies to work together to address common conveyance issues, leverage available resources, and minimize customer disruption. The County appreciates and encourages local sewer agency involvement as planning in the wastewater service area moves forward.



**VISIT OUR WEBSITE AT <http://dnr.metrokc.gov/wtd/csi>**

### Contacts for the County's Other Wastewater Treatment Division Programs

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**This information is available in accessible formats on request at (206) 684-1280.**

  
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