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## PORTLAND BES ADVANCES IN SEWER MAINTENANCE AND REPAIRS BY OPERATING MULTIPLE CIPP CREWS.

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**ABSTRACT:** This paper will discuss how the City of Portland has successfully attained a wealth of experience and knowledge through years of training and technology transfer which allows the city's crews to perform sewer repairs in a matter of hours that in some cases would normally consume weeks of heavy construction with serious disruption to the public at extreme cost.

The City of Portland, Bureau of Environmental Services (BES) has been installing cured in-place pipe (CIPP) with in-house crews since 1997 and today, operates three lining crews and funding is currently underway to add additional lining crews. These crews have made repairs 50' deep and 40' long, in as little as one work day.

The city's lining operations consists of mobile units. The largest unit is housed in a 38' 3-axle 5<sup>th</sup> wheel trailer which is temperature controlled; outfitted with three phase AC generator, screw air compressors, vacuum pumps, lighting, safety equipment, wet-out table and storage

The crews are stocked with bulk lining tubes, bulk inversion bladder tubes and thermo-set resin. This "bulk lining" system allows the city crews to make repairs immediately when pipe conditions are critical. The City of Portland partnered with LMK Enterprises, Inc. in 1997 for lining materials, equipment and technology transfer. The lining units are custom built by LMK Fabrication, Inc. while LMK Enterprises, Inc. supplies BES with sectional and lateral lining systems. The main objective is to fix defective sanitary and storm piping as quickly as possible while minimizing disruption to the public, reducing environmental impact and maximizing cost saving to the department of BES.