Locally advanced cervix cancer is usually treated with a combination of brachytherapy (BRT) and conventional external beam radiotherapy (CXRT). The dose-limiting organs are rectum and bladder. To improve dose conformity for target and reduce the toxicity to these organs, intensity-modulated radiotherapy (IMRT) is applied to replace the CXRT. BRT typically involves a standard tandem & ovoid implant of Cs-137 sources. CXRT consists of a 4-field box treatment to targets including tumor and regional nodes. In most cases, additional boost treatments are directed toward areas outside the volume which received a high dose via BRT. In IMRT planning, the identical 4-field arrangement is used as in the initial CXRT field setup. The objective of the IMRT plan is to deliver as low a dose as possible to rectum and bladder while maintaining the same target coverage. The IMRT optimization program, developed by us, is implemented on the Pinnacle^3 treatment planning system. We utilized a dose based objective function for the present work. All the planning of BRT, CXRT and IMRT is performed on the same system. Comparison of dose distributions and dose volume histograms will be presented for plans of BRT+CXRT and BRT+IMRT. For the same target coverage, , we found considerable improvement in the sparing of rectum and bladder in IMRT plan. With point A receiving ≥85 Gy, rectal volume receiving ≥60 Gy is reduced from 52% to 15%. Similar improvement were found for the bladder. Also, dose to the normal tissue just outside the target is greatly reduced.