LOW INTENSITY EPB EXPERIMENTAL AREAS

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It would be highly desirable to have one or more low intensity external beam experimental areas. Such areas have the immediate advantage of costing far less than the proposed heavily developed backstop areas. The major savings in construction are concerned with shielding costs. During operation beam handling would be much simpler than for the high intensity areas. Such an area could be established several hundred feet or more ahead of any EPB backstop area. With an intermediate focus the degradation in beam emittance would always be negligible. For targets of thickness $\lesssim 10^{-2}$ r. l. a well focused beam would not necessarily be required at the low intensity target.

Use of such an experimental area would respond to two distinct experimental needs.

1. A totally "parasitic" area in which access time would be limited only to scheduled down-time of the associated major backstop area. The object would be to bring out a large number (>4) of $\pm$ 30-150 BeV/c levels of secondary beams of relatively low intensity ($\lesssim 10^6$ pps) for simultaneous use with a minimum of individual control.
2. An area for low intensity but possibly sophisticated experiments requiring access to both sides of the beam or variable production angles over a wide range. Examples are p-p scattering coincidence experiments and the production yield spectra.

Such areas would supply many of the functions of internal areas in present accelerators. In fact, the size of the area would be similar to the proposed internal area. The EPB tunnel should be widened to 15-20 ft. for a distance of 150 to permit addition of septum and quadrupole magnets on both sides. A small crane would be helpful for handling the large multiplicity of beams anticipated. Generally, dirt shielding would cover the entire area and pipes about one foot in diameter would be drilled to carry beams through the shielding to the detector area which would be entirely unshielded. It might be desirable to replace the dirt shielding with poured concrete for a small distance where the pipe enters the experimental area. Access to the area could conceivably be handled through the EPB transport tunnel by way of the backstop area; but an additional penetration at right angles to the beam line would be very useful.