

## Chapter 9. 600-MeV and 8-GeV Beam Transport Lines

The synchrotron based PD2 study includes three new beam transport lines.

- 1) A 400 MeV line connecting the existing linac and the new linac extension. This line is about 90-m long and includes a vertical drop from the existing linac level (near the surface) to the new linac level (13.5 ft. deep).
- 2) A 600 MeV line connecting the new linac and the Proton Driver. It is about 254-m long and also includes a vertical drop from the new linac level to the Proton Driver level (27 ft. deep).
- 3) An 8 GeV line connecting the Proton Driver and the Main Injector. It has a total length of about 900-m and consists of two sections. The upstream section, about 420-m long, connects the synchrotron to the present MI-8 enclosure. It is followed by a 480-m section in the MI-8 enclosure. This beam line uses permanent combined function magnets, the same as the present MI-8 line.

The design of 1) is presented in Chapter 8. However, due to limited resources, the design of 2) and 3) has not been completed at the time of writing this report. This work will continue and will be included when this report is finalized to include the 8 GeV linac option.