In this session ideas will be shared for designing and implementing professional development for P-12 Mathematics Teachers. These professional development opportunities are designed to deepen the understanding of mathematical concepts related to the core content areas in the Principles and Standards for School Mathematics. The presenters will share case studies where they have worked with school systems to develop sustained professional development. The components of these programs include workshops, followup visits, and a graduate course to extend and explore mathematical ideas connected to the P-12 curriculum. (Received September 15, 2000)