# Air Quality Impact Analysis Plan

1) Photochemical Modeling Studies

   a) Base system
      i) CMAQ model, SMOKE emissions inventories, MM5 meteorology
      ii) Nested grids
         (1) "ALGA 12" for initial and boundary conditions
         (2) "VISTAS 4" for emissions, meteorology, modeling, and analysis
      iii) Scenarios
         (1) 2002 annual
         (2) Detailed episodes for May 25 – June 25 and Nov. 19 – Dec. 19, 2002. If detail is only available by month, for the months of June and November, 2002.
         (3) Annual and episodic projections to 2009.
         (4) If warranted, will later do another historic year (2005) and/or 2012, 2018.

   b) Sensitivity Analysis
      i) Evaluate category impacts of:
         (1) Yard Locomotives
         (2) Shortline Locomotives
         (3) Line-haul Class I Locomotives
         Considering percent reduction possible from use of anti-idling equipment or the use of Gen-Sets (as appropriate).
      ii) Using the above results, estimate potential impacts of specific emissions reduction plans.
         (1) Switch Yard Anti-idling Measures
         (2) Specific Shortline emissions reductions.
         (3) Account for implementation of proposed Locomotive/Marine Engine Regulations and reduced fuel sulfur.

2) Dispersion Modeling Studies

   a) Rail yards around the Fire Station #8 monitor (Inman, Tilford, and Howells).
   b) Lines/through tracks by Fire Station #8 monitor.
   c) Other local sources.
   d) Possibly evaluate other monitor site(s).

3) Refined Inventory Analysis

   a) Compare photochemical model performance (ozone and PM2.5) using current inventory (2002 baseG actual from VISTAS) with refined inventory.
   b) Compare dispersion model performance with monitored values (FS#8).
   c) Compare with estimates in other states with similar railroad activity and/or that have tried to improve railroad emissions estimates.

4) Other

a) Compare other sector emissions with railroads (i.e. powerplants, industrial sources, onroad mobile, etc.)
b) Detail impacted areas
    i) Schools
    ii) Residential neighborhoods
    iii) Sensitive environments
c) Update 2005 CERR