Document Outline

1. Executive Summary
   a. Distance probes can solve dark energy problem!
   b. Killer Plots (Kyle D. will identify people to provide probe uncertainties to make these plots for several eras: today, MS-DESI LSST, post)
      i. Distinguishing power of fiducial models in a(t)
      ii. w0-wa (analog of Caldwell-Linder freezing-thawing plot)
      iii. Other views in parameter space?
   c. Different probes combine to get distances
      i. Complementarity & Systematics
   d. Reaffirm Rocky III - LSST, MS-DESI
   e. Amplify Rocky III recommendations not yet made into projects
   f. Things not mentioned in Rocky III: Post-MS-DESI and LSST era, projects and R&D
2. Discussion of each probe (mirrors format of executive summary), SN, BAO, Clusters, Strong lensing, Gravitational Wave Sirens, miscellany
   a. Executive summary - Take home message
   b. Strengths of probe, e.g. Stage IV, low-risk, etc
   c. Very brief review of probe status
   d. Things needed to make LSST, MS-DESI work
      i. Pixel-level simulation

  ii. Cross-talk between LSST and MS-DESI

e. Amplify Rocky III recommendations not made into project yet

  i. SN examples

    1. Low-z SNe

    2. Fundamental flux calibration

  ii. BAO

    1. Mission optimization theoretical questions, e.g. volume vs number density

    2. How to analyze the data?

    3. Simulation

f. Things not mentioned in Rocky III but consideration is required

  i. SNe

    1. Fundamental flux calibration

    2. Spectroscopy of LSST SNe

  ii. BAO

    1. BOSS - MS-DESI bridge experiment

    2. 21 cm

g. Post-LSST plan

  i. What capabilities are needed? e.g. spectroscopic time series, restframe UV-NIR to z=2.

h. Science projections (figure of merit)

i. Rocky IV wish list, R&D, projects

  i. Getting rid of the atmosphere:

OH-suppression, AO
      ii. New detectors, e.g. impact of MKIDs, SiPM
3. Common Themes
   a. Facilities
      i. Pan-chromatic view requires new observatories
         1. Antarctica, good seeing, low IR background
         2. Space: WFIRST, X-ray, GRB - Coordination of physics experiments on NASA missions
      ii. Computing - Simulations, analysis, can push capabilities of HPC