Introduction.

The proposed MINOS physics analysis organizational structure involves a number of physics analysis groups (numu disappearance, nue appearance, NC and NC/CC studies, Near Detector physics, Far Detector non-oscillation physics, non-accelerator oscillation physics and beam studies and systematics) with three conveners each and three coordinating efforts for more technical, across the experiment, activities (software, reconstruction, and calibration) led by one or two coordinators. Ideally, we feel that the three conveners for physics groups should bring a variety of levels of experience and skills to this task and our suggestions for conveners reflect this thought. This note attempts first to define in rather general terms the division of responsibilities between these "structures". Subsequently, we enumerate some of the more specific tasks that fall into the province of each group.

General structure and division of responsibilities.

One can define general ground rules that are applicable to all but the last physics group: the NuMI beam studies group. The latter can be viewed as having a nature that somewhat straddles the physics and technical issues.

The primary general tasks of the physics groups are to define the most important physics goals, organize the structure to accomplish them, and coordinate the ensuing relevant activities. The primary general tasks of the coordinators are to coordinate the technical activities in their area, which
generally will be of relevance to most of the physics groups. The definition of the scope of those activities can probably be optimally done by the coordinator(s) with extensive input from the convenors of the physics groups.

For the success of this organizational structure, it is important that most of the people involved in technical activities are also actively involved in work within the framework of the physics groups. Thus a number of tasks in a given technical area will be defined ab initio by the requirements of the physics groups. The main tasks of the coordinator(s) will be to assure that these tasks are pursued in as efficient a way as possible without unnecessary duplication, that sufficient effort is being devoted to all the high priority tasks and that the results are not only correct but represent adequate and full exploration of a given issue. The coordinators should also "look ahead" and identify issues in their area which will become of importance in the future.

The beam group, as mentioned above, is a special case. Some of its topics , eg performance of the optics or understanding of the yields are of physics or technology interest in themselves. Other beam information, ie precise

composition of the beam at different locations, intensities at any given time, determination of deviations from the norm at different times, are examples of technical information more important as input to physics analyses rather than of interest in its own right. It is envisaged that the Beam group will be the coordinating means for all the potentially relevant information in this area, eg data from beam instrumentation, data from hadron and muon monitors, Near Detector data, data from external experiments, etc.

The dividing line between calibration and reconstruction can probably be best summarized by saying that calibration deals mainly with energy response issues whereas reconstruction with geometry issues. Thus issues such as alignment and timing fall more naturally into reconstruction area. Understanding the response of our detectors to "jets" of different energies and composition would be in the purview of the calibration. Undoubtedly there will be some overlap between these two activities which will have to be resolved as specific issues arise.

Regarding division of responsibilities between technical and physics conveners/coordinators, the general guideline is that technical activities that span most of the spectrum of physics activities are led and directed by the technical coordinators. The physics conveners will be responsible for identifying technical issues relevant to their topic that are not being pursued, applying the results to their analysis, and identifying any possible shortcomings (for their analyses) that need to be corrected.

Specific responsibilities
Next we want to enumerate more specific tasks for conveners and/or coordinators and their groups as we see them today:

For conveners and coordinators:
a) Provide leadership in organizing and carrying out the required work
b) Recruit (if necessary) the people to work on all the relevant issues
c) Define and organize the required Monte Carlo simulations (in close coordination with the software group)
d) Organize and lead periodic meetings on all the topics in their area
e) Arrange for periodic reports to the Collaboration about the status of the work and any important problems that require collaboration-wide attention

For Physics Groups only:
a) Define specific subtopics within their general area which should be guided by potential physics publications
b) Formulate a 5-year plan which would produce the optimum physics results in that area on that time scale. This plan

should also consider modest modifications to beam parameters and/or near detector.
c) Define optimum path to pursue these goals including the required strategies. The latter should include considerations of blind analysis and possible parallel analysis efforts.
d) Organize and oversee preparation of drafts of physics publications.
e) Appoint representative(s) to technical groups and maintain appropriate interaction with them.
f) Identify and develop additional software (beyond reconstruction and Monte Carlo software) required for their specific analyses. This should be done in coordination with the Software and Reconstruction groups to assure consistency and compatibility with the MINOS general software system as well as user-friendliness.

We finally enumerate some tasks that are specific to each group. This list is probably not exhaustive and will need to be augmented as the work evolves.

CC Group
1. Responsible for analyses of numu CC channel and comparison of rate and energy distribution between the near and far detectors.
2. Responsible for the oscillation analyses of the numu CC channel.

NC Group
1. Responsible for analyses of NC channel and comparison of rate and energy distributions between the near and far detectors.
2. Responsible for study of the NC/CC ratio in the near and far detectors.
3. Responsible for the oscillation analyses based on the above.

nue Group

1. Responsible for study of the nu_e channel in the near and far detectors and the oscillation analysis thereof.

Near Detector Group
1. Responsible for physics measurements using the Near Detector, including best possible understanding of the total and differential CC and NC cross sections and specific final states with a special emphasis on the lower energy domain.
2. Responsible for providing the above information to the other physics groups for the oscillation analyses.
3. Responsible for detailed understanding of Near Detector response to be available for all analysis groups.

Atmospheric nu group

1. Responsible for all analyses of atmospheric neutrinos as identified in the Far Detector.

Far Detector non-oscillation group
1. Responsible for all physics analyses of the Far Detector data except for neutrino oscillations.

Beam Group
1. Responsible for the analyses of the information from all beam measuring devices, the Near Detector, and other experiments with the goal of understanding the composition and flux of the neutrino beam and variation in time thereof.
2. Responsible for the assessment of the performance of the NuMI neutrino beam line
3. Responsible for providing all physics groups with the above information.

Software Group
1. Responsible for providing and supporting the general analysis, Monte Carlo, graphic display and database frameworks for both offline and online environments.
2. Responsible for providing and supporting a central analysis processing capability and means for data distribution to collaborators.
3. Responsible for providing documentation for all the above
4. Responsible for facilitating the use of MINOS software by all MINOS collaborators

Reconstruction Group
1. Responsible for providing generally useful and well tested reconstruction software for use of all physics groups and MINOS collaborators at-large.
2. Responsible for providing adequate documentation for the reconstruction software
3. Responsible for maintaining uniformity of reconstruction software, where sensible, between the various physics analysis groups.
4. Responsible for vetting new software which may be developed by specific physics groups, but which may be generally useful for other groups and assuring that software is made available with proper testing and documentation.

Calibration Group
1. Responsible for detailed understanding of the relative energy response of the near and far detectors to electromagnetic and hadronic showers.
2. Responsible for determination of the absolute energy scale
3. Responsible for the appropriate integration of the CalDet data into the above studies
4. Responsible for analysis of the LED calibration data
5. Responsible for providing all the above information for use of physics analysis groups.

Time scale

The time is of essence here and we would like to encourage the conveners and coordinators to start the process as soon as possible. Specifically, we suggest two milestones:

1. March Collaboration Meeting. The organization of the groups is at a state such that the work plan, rough schedule, and assignment of responsibilities can be described to the Collaboration. Each group should plan on short presentation at that time.
2. June Collaboration Meeting. Each physics group should have a preliminary 5-year plan available for general discussion. The sensitivities may not be necessarily final at that time but should rely on the best calculations available at that time. We anticipate to have an extensive discussion of our overall 5-year plan at that time.