

SBN Program PAC Proposal – Outline
Version 0.6
9/27/14

Part 1: Physics Proposal (SBN Task Force, SBN WG 1&2)

1. Introduction/Overview
 - a. Context of BNB
 - b. The detector systems: uBooNE, LAr1-ND, T600 existing
2. Motivation
 - a. Physics of sterile neutrinos
3. Experimental Approach to Oscillation Searches
 - a. Analysis Method
 - b. Flux systematics
 - c. Cross Section Systematics
 - d. Other Systematics
 - e. Cosmic Backgrounds
 - f. Beam “Dirt” Events
 - g. Event Reconstruction and Identification Efficiencies
 - h. $\nu_{\mu} \rightarrow \nu_e$ Appearance Sensitivity
 - i. ν_{μ} Disappearance Sensitivity
4. Requirements for Detector Performance
 - a. Requirements for TPC systems
 - b. Requirements for cryo systems
 - c. Requirements for light collection systems
 - d. Requirements for cosmic tagger systems
5. Requirements for Neutrino Beam

Part 2: Near Detector Conceptual Design (LAr1-ND Collaboration)

1. Near Detector Physics (e.g. MiniBooNE excess, Neutrino Cross Sections)
2. Requirements for Detector Performance
3. TPC Design
4. Light Collection System
5. Electronics, DAQ and Trigger
6. Active Veto System
7. Requirements for Cryostat, LAr Purification and Cryogenic system
8. Detector Requirements for Building and Conventional Facilities
9. Detector R&D Objectives
10. Cost and Schedule

Part 3: Far Detector Conceptual Design (ICARUS Collaboration)

1. Far Detector Physics (e.g. Off-axis NUMI beam events)
2. Requirements for Detector Performance
3. Modifications to TPC
4. Updated Light Collection System

5. Updated Electronics, DAQ and Trigger
6. Active Veto System
7. Requirements for Cryostat, LAr Purification and Cryogenic system
8. Detector Requirements for Building and Conventional Facilities
9. Cost and schedule

Part 4: Infrastructure and Civil Construction (SBN WG 3&4)

1. Near Detector Cryostat
2. Far Detector Cryostat
3. Cryogenic systems
4. Cryostat and Cryogenics Requirements for Building and Conventional Facilities
5. Near detector siting and construction
6. Far detector siting and construction
7. Cost and Schedule

Part 5: Booster Neutrino Beam (BNB WG – to be created)

1. Existing BN beamline
2. Re-optimized horn configuration design
3. Cost and Schedule

Part 6: Program Coordination and Planning (SBN Task Force)

1. Program Organizational Structure
2. Oversight structure
3. Program Funding
4. Cost and Schedule

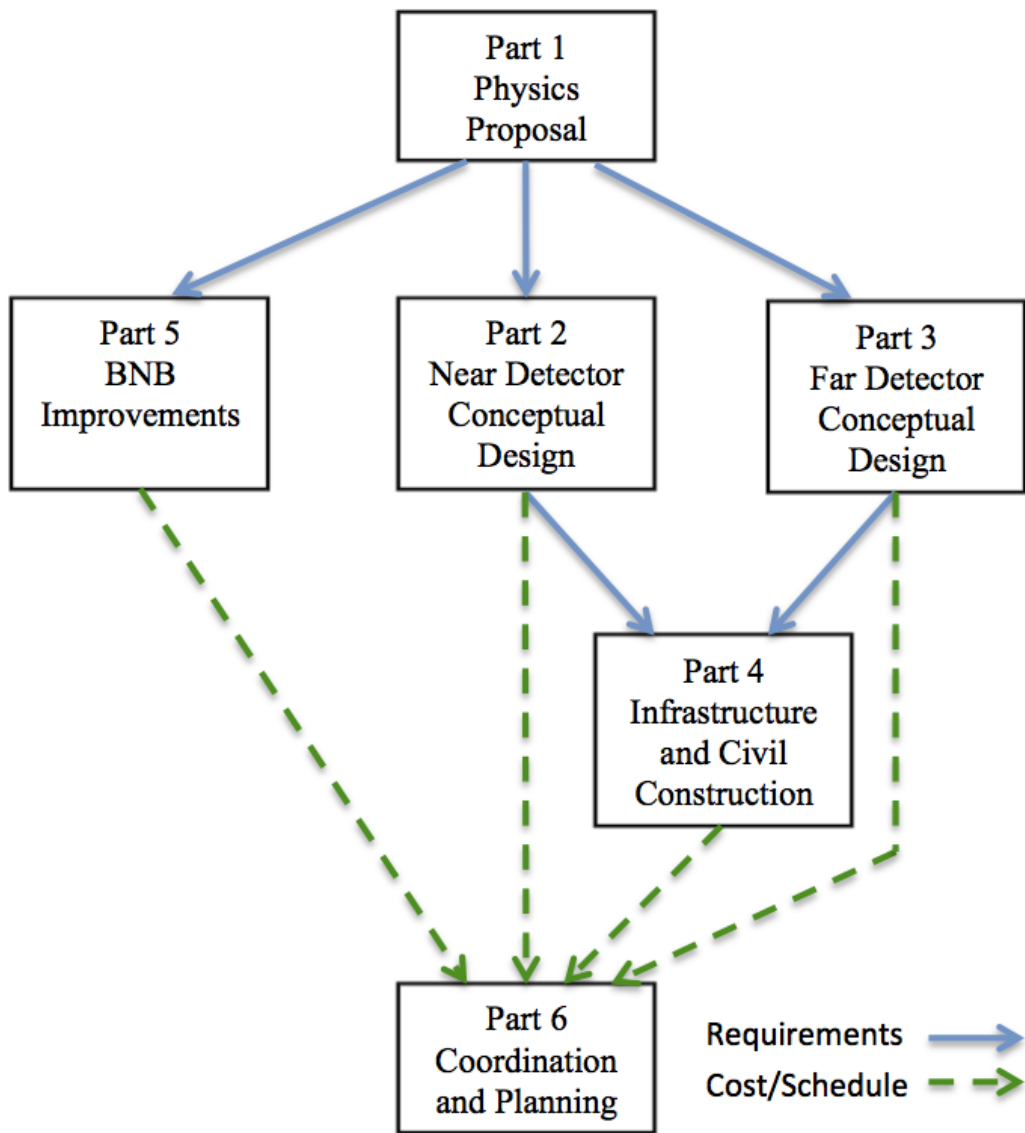


Diagram of Requirements Flow