



MAP FY11 Budget Status

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Challenge



- **MICE magnets already very late**
 - directly delaying operation of experiment
- **Main issues are thermal**
 - originally estimated ~3 W at 4 K
 - now find ~6 W at 4 K
 - an issue due to use of cryocoolers rather than refrigerator
 - had lead burn-out that required opening cold mass
- **Plan and cost estimate to repair magnets being developed**
 - **must** get spectrometer solenoids fixed in FY11
 - must also continue on RFCC modules to avoid subsequent delays for MICE
 - need MICE review committee buy-in on plan
- **Cost-to-complete well beyond original estimate**
 - coupling coils share many of the same potential issues



FY11 Plan



- Collected requests from all MAP groups via L1 leaders
 - based on guidance of flat-flat budget for FY11
 - this already slows us down considerably from what was proposed for Y2 of MAP proposal
 - initial discussion held at Technical Board meeting (November 1)
- Budget that provides what is needed in this minimalist scenario **already exceeds what is available**
 - items that would need to be eliminated or drastically curtailed include:
 - post-docs for simulation work and for MICE
 - expanded RF test program
 - reserve for any new groups
 - contingency for MICE magnet work
 - based on recent history, this *will* be needed
 - in past years, contingency was time
 - ♦ for MICE, this is no longer an option



Budget (1)



- Flat-flat scenario implies \$2450K of "M&S" costs in FY11
 - present request is \$3130K (next slide)
 - includes temporary staff as well as purchases and fabrications
 - does not include Fermilab travel and MICE operations expenses
 - need \$100K for this beyond what is shown in spreadsheet



Budget (2)



DRAFT-R0

MAP
FY11 M+S Budget

| | Total (\$K) | BNL | FNAL | LBL | ANL | ORNL | Jlab | Princeton | UCB | UCLA | U-Max | IT | UC-R |
|---|-------------|------------|------------|------------|------------|-----------|-----------|-----------|----------|-----------|-----------|------------|------------|
| Cooling | 355 | | | | | | | | | | | | |
| MTA operation | 110 | | 110 | | | | | | | | | | |
| 201- and 805-MHz cavity R&D | 200 | | 150 | | 50 | | | | | | | | |
| Engineering | 45 | | | 45 | | | | | | | | | |
| Coupling coil preparations | 0 | | | | | | | | | | | | |
| MTA beam line | 0 | | | | | | | | | | | | |
| LH absorber test | 0 | | | | | | | | | | | | |
| Instrumentation | 0 | | | | | | | | | | | | |
| Targetry | 250 | | | | | | | | | | | | |
| MERIT analysis | 0 | | | | | | | | | | | | |
| Target development | 50 | | 50 | | | | | | | | | | |
| MERIT decommissioning | 0 | | | | | | | | | | | | |
| Facility design (IDS-NF) | 50 | | | | | 40 | | 10 | | | | | |
| Targetry simulations | 150 | 150 | | | | | | | | | | | |
| Magnets | 345 | | | | | | | | | | | | |
| High-Field Solenoid | 100 | | 100 | | | | | | | | | | |
| Helical Cooling Channel | 70 | | 70 | | | | | | | | | | |
| Collider | 0 | | | | | | | | | | | | |
| Rapid Cycling Synchrotron | 75 | | 75 | | | | | | | | | | |
| Target and Capture | 100 | | 100 | | | | | | | | | | |
| 10-15 T solenoids | 0 | | | | | | | | | | | | |
| Cost models | 0 | | | | | | | | | | | | |
| Diagnostics | 190 | | | | | | | | | | | | |
| Norms | 190 | | | | 190 | | | | | | | | |
| Hardware | 0 | | | | | | | | | | | | |
| Beam Simulations | 257 | | | | | | | | | | | | |
| Cooling/Theory [1] | 257 | 115 | 40 | | | | | | 2 | | | 100 | |
| Acceleration | 25 | | | | | | | | | | | | |
| RLA/TFAG/RCS studies | 25 | | | | | | 10 | | | | 15 | | |
| Collider | 259 | | | | | | | | | | | | |
| SRF R&D | 0 | | | | | | | | | | | | |
| MDI | 0 | | | | | | | | | | | | |
| Longitudinal cooling | 259 | | 109 | | | | | | | 70 | | | |
| MICE | 1289 | | | | | | | | | | | | |
| Common fund | 80 | | | 80 | | | | | | | | | |
| Data-taking and analysis | 212 | | | | | | | | | | | 100 | 112 |
| Absorber windows | 0 | | | | | | | | | | | | |
| RFCC module [2] | 175 | | 45 | 120 | | | | | | | 10 | | |
| Spectrometer solenoids | 882 | | 56 | 826 | | | | | | | | | |
| Coupling coils [3] | 120 | | | 120 | | | | | | | | | |
| Total Expended (\$K) | 2950 | 315 | 935 | 991 | 240 | 40 | 10 | 10 | 2 | 70 | 25 | 200 | 112 |
| Operating (\$K) | 2004 | 315 | 935 | 125 | 240 | 40 | 10 | 10 | 2 | 70 | 25 | 200 | 112 |
| Equipment (\$K) | 896 | | | 866 | | | | | | | | | |
| GPP (\$K) | 0 | | | | | | | | | | | | |
| Previously Allocated Funds (\$K) | 0 | | | | | | | | | | | | |
| Remaining Planned Expenditures (\$K) | 0 | | | | | | | | | | | | |
| Management Reserve [4] | 100 | | | | | | | | | | | | |
| TOTAL BUDGET (\$K) | 3130 | | | | | | | | | | | | |

Exceeds available funding in flat-flat budget case!

NOTES:

- [1] FNAL portion for Tom Roberts.
- [2] FNAL portion for Dan Kaplan buyout.
- [3] Assumes availability of \$511K carryover at LBNL.
- [4] Anticipated contingency for MICE spectrometer Solenoid fabrication and commissioning.

Items in shaded cells could not be funded under flat-flat scenario.



Summary



- Provision of MICE spectrometer magnets is highest priority for MAP
 - funding for this is available even in flat-flat funding scenario
 - contingency would have to come from delaying expenditures on RFCC module at LBNL
 - must continue to fully support coupling coils to avoid more delays
- Remainder of the MAP program **will be impacted**
 - lack of post-docs
 - ⇒ inability to support MICE data-taking and analysis
 - ⇒ inability to make good use of university groups
 - ⇒ inability to pull our weight in IDS-NF