

Fargo-Moorhead Metropolitan Feasibility Study

Presentation for the FMM Work Group

Feb. 04, 2010



US Army Corps of Engineers
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Local Decisions:

- ✓ What level of risk is tolerable?
- ✓ What locally preferred options need to be retained?
- ✓ Develop consensus on locally preferred plan (LPP)
- ✓ Provide written request for LPP by April 15, 2010
- ✓ Identify sponsors for construction and ongoing O&M
- ✓ Define non-federal cost sharing arrangements
- ✓ How important is authorization in 2010?



Local Decisions:

- ✓ Key Considerations
 - ✓ Downstream impacts
 - ✓ Environmental impacts
 - ✓ Cost uncertainties and risk
 - ✓ Benefit-Cost Ratio could fall below 1.0
 - ✓ Federal cost capped at 65% of NED plan
 - ✓ Non-federal sponsor pays all costs in excess of NED plan
 - ✓ Schedule impacts (Additional time needed to address risks)
 - ✓ Approval of LPP by USACE and ASA(CW) not guaranteed
 - ✓ NED plan appears to be a Minnesota plan (20,000 cfs or smaller)

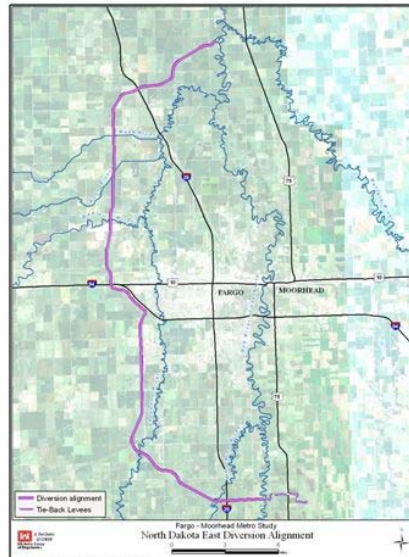


Red River of the North



North Dakota alignment:

- ✓ 30K and 35K cfs
- ✓ 36 mile-long channel
- ✓ 3.3 miles of tie back levee
- ✓ 8.5 years construction
- ✓ Structures needed
 - ✓ 2 Control structures
 - ✓ 2 River aqueducts
 - ✓ 2 Tributary drop structures
 - ✓ 3 Drop structures
 - ✓ 18 Highway bridges
 - ✓ 4 Railroad bridges



Minnesota alignment:

- ✓ 20, 25, 30 and 35K cfs
- ✓ 25 mile-long channel
- ✓ 9.9 miles of tie back levee
- ✓ 6.5 years construction
- ✓ Structures needed
 - ✓ 1 Control structure
 - ✓ 1 Drop structure
 - ✓ 0 River crossings
 - ✓ 20 Highway bridges
 - ✓ 4 Railroad bridges



Cost and schedule risk assessment:

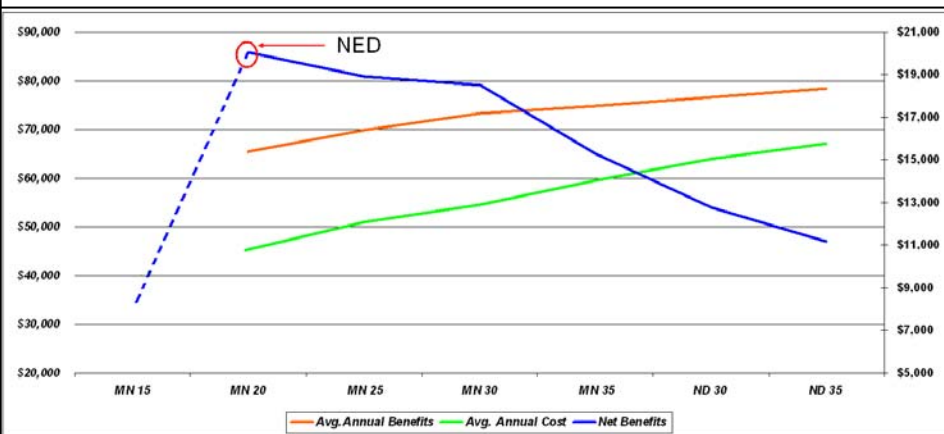
- ✓ Risks with both alignments:
 1. Project schedule
 2. Time to plan (Feasibility)
 3. Number of construction contracts
 4. Uncertainty with geotechnical conditions
 5. Variation in estimated quantities
 6. Environmental mitigation
 7. Potential fluctuation in labor costs
 8. Uncertainty with funding stream – federal and local

Cost and schedule risk assessment:

- ✓ Minnesota alignment:
 - ✓ Concerns with Dilworth rail yard

- ✓ North Dakota alignment:
 - ✓ Unplanned work – additional project features
 - ✓ Control and diversion of water during construction
 - ✓ Natural resources issues

NED determination:





Preliminary results with cost & schedule risk:

Screened Alternatives Ranked by Net Benefits with Cost and Schedule Risk Assessment

| Alternative | Cost ¹ | Avg Annual Net Benefits ¹ | Residual Damages ¹ | B/C Ratio | Local Share ^{1, 2} |
|-------------------------------------|-------------------|--------------------------------------|-------------------------------|-----------|-----------------------------|
| MN Short Diversion 20K | \$871 | \$20.0 | \$22.7 | 1.44 | \$305 |
| MN Short Diversion 25K | \$980 | \$18.9 | \$18.1 | 1.37 | \$414 |
| MN Short Diversion 30K | \$1,050 | \$18.5 | \$14.8 | 1.34 | \$484 |
| MN Short Diversion 35K | \$1,143 | \$15.3 | \$13.3 | 1.26 | \$577 |
| MN Short Diversion 35K ³ | \$1,143 | \$15.3 | \$13.3 | 1.26 | \$400 ³ |
| ND East Diversion 30K | \$1,231 | \$12.8 | \$11.4 | 1.20 | \$665 |
| ND East Diversion 35K | \$1,295 | \$11.2 | \$9.7 | 1.17 | \$729 |

- 1. In millions of dollars
 - 2. Calculations based on assumption that NED plan is MN 20K
 - 3. Based on Corps Recommendation - if approved
- Expected average annual damages without a project are \$77.1 million.



Effectiveness of Diversions:

| | Stage at Fargo Gage (ft) | | |
|--------------------|--------------------------|-----------------------|-------------------------|
| | 2% Chance (50-year) | 1% Chance (100- year) | 0.2% Chance (500- year) |
| Existing Condition | 37.8 | 39.5 | 43.9 |
| MN Alignment | | | |
| 20K | 30.8 | 32.8 | 40.6 |
| 25K | 29.8 | 31.4 | 38.9 |
| 30K | 29.8 | 31.1 | 36.9 |
| 35K | 29.8 | 30.3 | 34.9 |
| ND Alignment | | | |
| 30K | 29.3 | 29.4 | 37.0 |
| 35K | 28.8 | 29.3 | 34.9 |

| Stage | Impacts |
|-------|------------------------------------|
| 27 | Fargo Elm Street closed |
| 30 | Fargo 2nd Street Dike installed |
| 31 | Moorhead 1st Ave. North closed |
| 32 | First homes in Moorhead threatened |
| 35 | First homes in Fargo threatened |
| 40.8 | 2009 Flood Record Stage |

Downstream Effects:

Based on 35K diversions and 100-year event

| Location | Downstream Stage Increase (Inches) |
|---------------------------------------|------------------------------------|
| Minnesota Short 35K - 100 Year | |
| Halstad Gage | 3.7 - 4.6 |
| Near Hendrum | 6.8 - 9.4 |
| Perley | 4.2 - 6.0 |
| Georgetown | 5.3 - 7.7 |
| North Dakota 35K - 100 Year | |
| Halstad Gage | 4.4 - 5.3 |
| Near Hendrum | 7.9 - 10.4 |
| Perley | 3.6 - 5.4 |
| Georgetown | 5.2 - 7.6 |

Recommended Path Forward:

- ✓ Develop Additional Plans:
 - ✓ Minnesota 15,000 and 10,000 cfs
 - ✓ To determine NED plan
 - ✓ NED sets baseline for LPP cost share
 - ✓ Optimize Minnesota 35K plan and NED plan
 - ✓ Assess downstream impacts
 - ✓ Develop Recreation Plans



Red River of the North

Recommended Path Forward:

Corps perspective pending agency and technical reviews:

- ✓ Seek approval to recommend:
 - ✓ Minnesota 35,000 cfs diversion at full cost share (65/35)
 - ✓ Federal Share \$743M, Local share \$400M
 - ✓ Approvals necessary – not guaranteed
 - ✓ Corps Headquarters
 - ✓ Assistant Secretary of the Army (Civil Works)
 - ✓ Based on technical information only
 - ✓ Corps has no preference on decision made by the local sponsors

- ✓ Local sponsors can select any option
 - ✓ Many local concerns to consider
 - ✓ Develop local consensus

Recommended Path Forward:

Upcoming Tasks

- ✓ Continue working with Natural Resources Agencies
 - ✓ Meeting Feb. 3
 - ✓ Address Areas of Risk for both MN and ND diversions
- ✓ Identify Final Alignments
 - ✓ Meetings with local communities
 - ✓ Landowner Meetings in May/June
 - ✓ Public Meetings in May/June
- ✓ Continue to analyze downstream impacts
 - ✓ Meetings with downstream communities

F-M Metro Study Timeline:

- ✓ **12-Feb-10** Draft feasibility report/ EIS to Agency
Technical Review (ATR)
- ✓ **26-Mar-10** Complete ATR (comments and responses)
and submit draft documents to Corps Vertical Team and
for Independent External Peer Review (IEPR).
- ✓ **15-Apr-10 Letter of support for Locally Preferred
Plan from sponsors**
- ✓ **30-Apr-10** Complete Alternative Formulation Briefing
with Vertical Team
- ✓ **15-May-10 USACE and ASA(CW) approval of LPP**
- ✓ **21-May-10** Release draft report and EIS for concurrent
Public/MVD/HQ review

F-M Metro Study Timeline:

- ✓ **26-May-10** Second IEPR
- ✓ June 2010 Public meetings
- ✓ 2-Jul-10 Public review period complete
- ✓ **15-Jul-10 Sponsors letter of support and financial
self certification**
- ✓ **16-Jul-10** IEPR complete
- ✓ **15-Aug-10** Complete draft report and Division
Engineer's transmittal to HQ for
- ✓ **9-Sep-10 Civil Works Review Board briefing in
Washington, DC – Sponsors Attend**

F-M Metro Study Timeline:

- ✓ **27-Sep-10** Complete Draft Chief's Report and begin NEPA State and Agency review
- ✓ 15-Oct-10 Public meetings on Final Plan.
- ✓ **6-Dec-10** Sign Chief's Report and ROD and submit to ASA(CW) – Project Authorized, pending Congressional Action

Schedule and Budget Considerations:

- ✓ **Authorization**
 - ✓ Water Resources Development Act (WRDA) possible
 - ✓ May not be possible again for many years, (7-years between previous WRDAs)
 - ✓ Need to be in WRDA 2010.

- ✓ **Bottom Line**
 - ✓ Authorization in 2010 is critical
 - ✓ MN plan has better chance of making this deadline

Schedule and Budget Considerations:

✓ **Funding**

- ✓ Need strongest B/C ratio to compete for funds nationally
- ✓ Need to be policy compliant to be in the President's budget and to compete nationally
- ✓ In presidents budget (\$15,000,000) for next year
- ✓ Funding could stop without authorization

✓ **Bottom Line**

- ✓ MN plan has better chance of receiving federal funds in the future

Local Decisions:

- ✓ Is there a Locally Preferred Plan?
 - ✓ Location: North Dakota or Minnesota?
 - ✓ Capacity: 35,000 cfs?
- ✓ Process is driven by local sponsors
- ✓ Work on Locally Preferred Plan will continue at request of sponsors
- ✓ Decision will affect ability to meet schedule



Main Street Bridge



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