

Other Social Effects

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Fargo-Moorhead Study

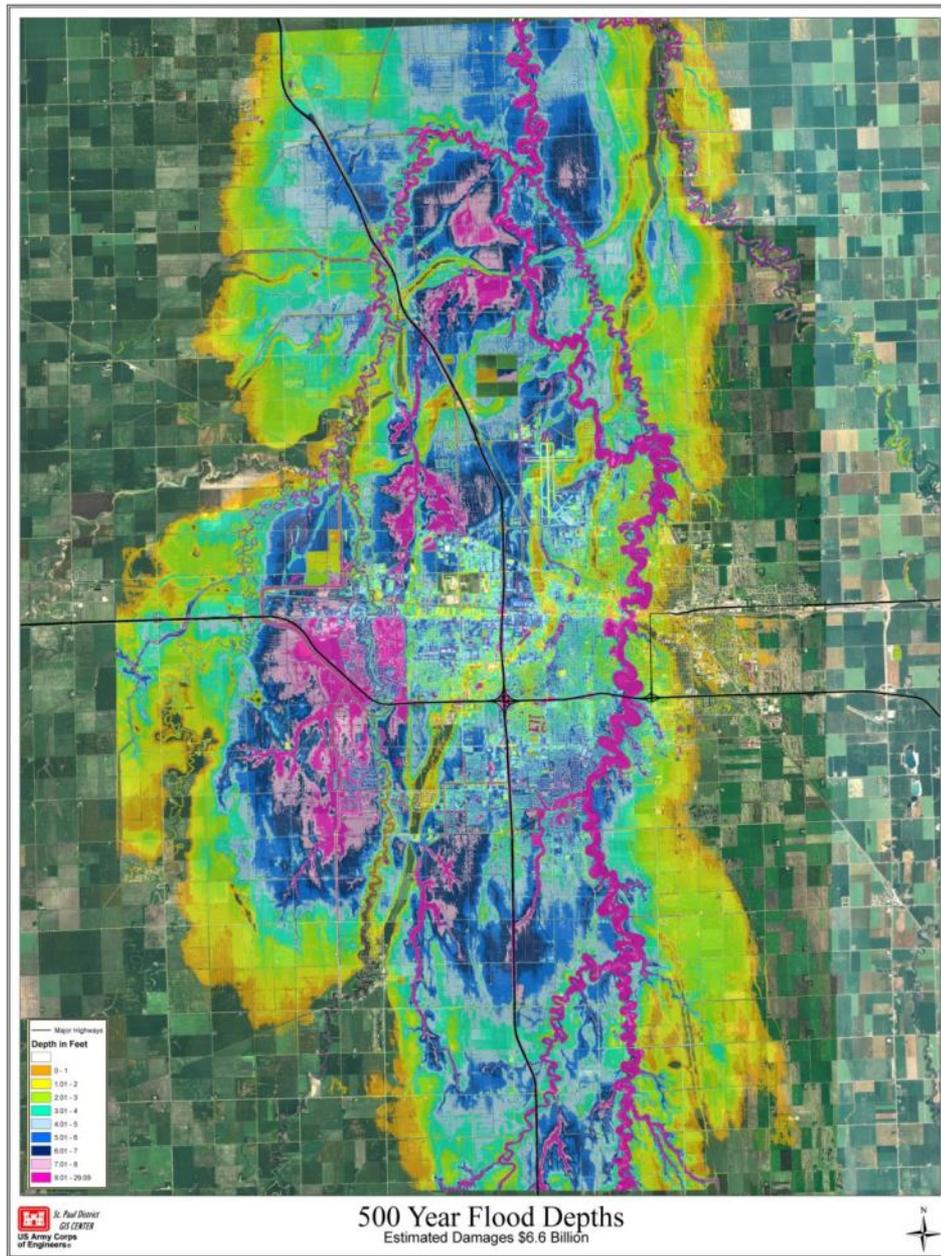
- History of flooding from Red River of the North
 - exceeded the National Weather Service flood stage of 18 feet in 51 of the last 108 years
 - Exceeded every year from 1993 through 2010
- Previous flood fights have all been successful
- Considering two alternatives to divert floodwaters around Fargo-Moorhead
 - Minnesota Side (**16 miles** long, NED Plan)
 - North Dakota Side (**22 miles** long, Locally Preferred Plan)

Project Overview

- **Fargo-Moorhead area has significant flood risk.**
- **Phase II of the Federal Feasibility Study is ongoing.**
- **Public participation and support for the project is critical.**



Fargo-Moorhead Flood 2009



Potential Depths of Inundation

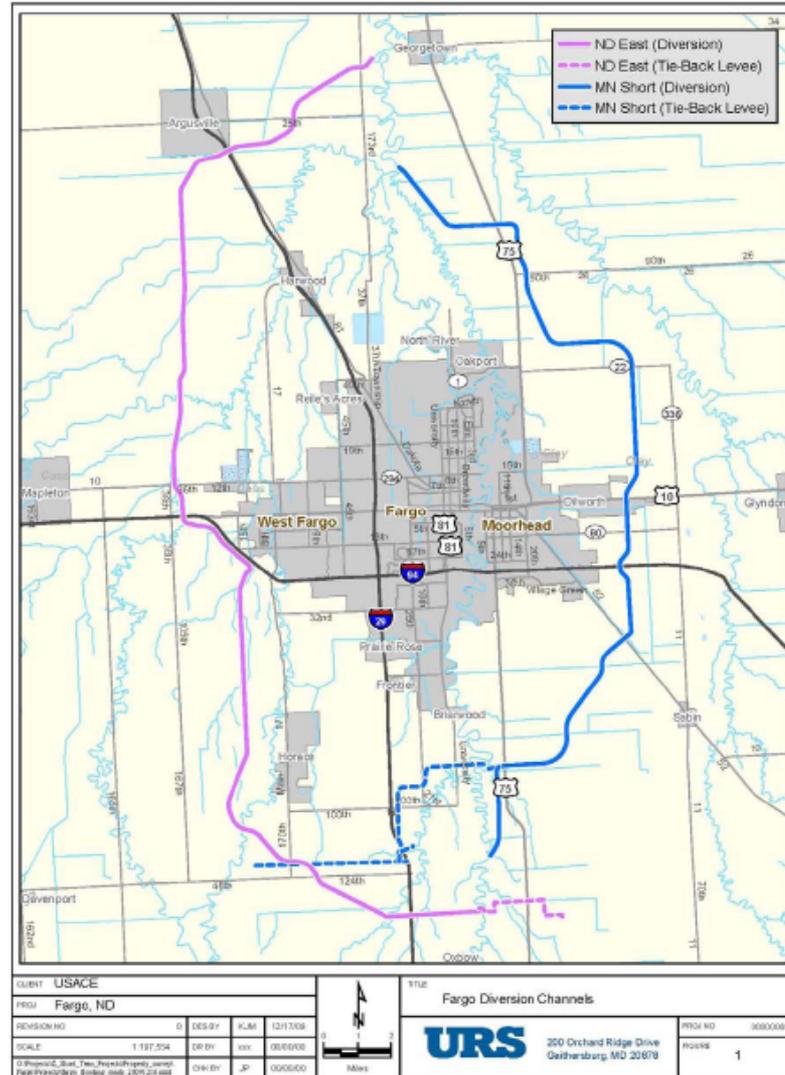
ALTERNATIVES

- Continue Emergency Measures
- Non-Structural Flood Proofing
- Flood Barriers
 - Levees/Floodwalls
 - Gate Closures
 - Pump Stations
- Increase Conveyance
 - Diversion Channels
 - Cutoff Channels
 - Replacing Bridges
- Flood Storage



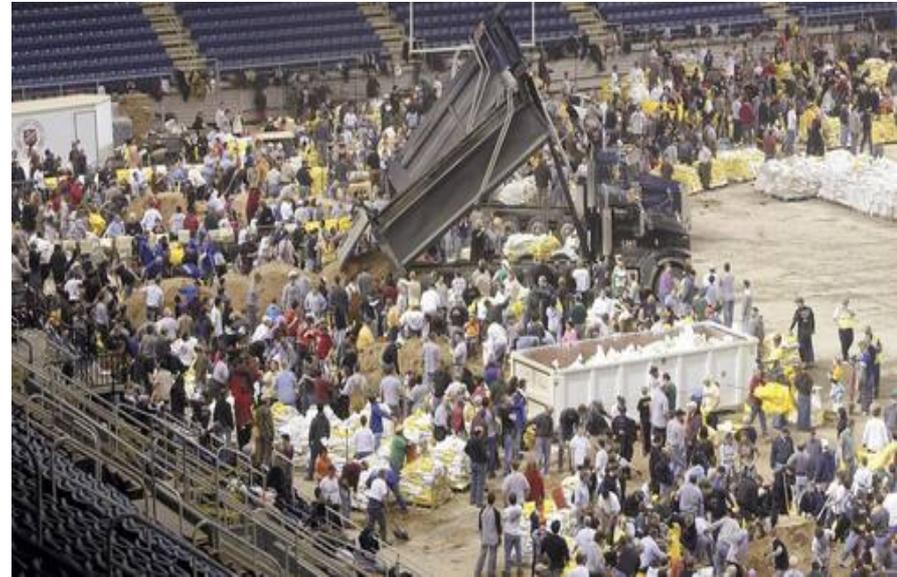
Floodwall at Grand Forks

Fargo-Moorhead Study - Diversions



Factors Evaluated

- Socioeconomics and Demographics
 - Population Size and Composition
 - Race and Ethnic Diversity
 - Industrial and Occupational
 - Household Structure
 - Education
 - Housing
- Urban and Community Impacts
 - Land Use
 - Life, Health, and Safety Factors
 - Property Displacements
- Environmental Justice
- Social Impacts of Flooding



Socioeconomics and Demographics

- Provides basic composition of the study area to assess the impacts of the alternatives
- Utilized Data from
 - U.S. Census Bureau 2000 Census
 - U.S. Census Bureau American Community Survey (ACS) 2006-2008
 - Appraisal service data



Socioeconomics and Demographics

- Fargo-Moorhead MSA added approximately 17,600 persons between 2000 and 2008
- Fargo metropolitan area is the retail, manufacturing, healthcare, and education hub for western ND and eastern MN
- Home sales remained stable during the economic downturn of 2009

Socioeconomics and Demographics

- In 2009, the median price of single-family homes remained unchanged from the 2008 price, at approximately \$144,900

(Source: AA Appraisals, Fargo)

- Growing student population is increasing rental demand in the area

Urban and Community Impacts Land Use

- Presents socioeconomic impacts associated with the proposed alternatives
- Utilized Data from
 - County land use plans
 - County and City parcel data
 - Tax assessor databases
 - Engineering designs on project dimensions



Urban and Community Impacts

- Preliminary land use impacts evaluated using GIS and aerial photography
- Tax impacts utilized
 - Estimated for required Right-of-way (ROW)
 - Tax data for impacted parcels
 - does not include existing ROW for utilities, railroad, municipal, or other nonfarm uses
 - Property taxes on acquired residential properties were not accounted for because it was assumed that displaced persons would relocate to another area within the county



GIS and parcel data used to identify impacted properties

Urban and Community Impacts

- Tax Losses due to ROW acquisition
 - Preliminary analysis indicates that 18-20 structures would need to be acquired for the North Dakota diversion and 24-26 structures would need to be acquired for the Minnesota diversion
 - Acquisition of agricultural land due to North Dakota Diversion would result in an estimated annual loss of between \$64,000 and \$80,000 in property taxes in Cass County, ND and approximately \$4,300 in Clay County, MN
 - Acquisition of agricultural land due to the Minnesota Diversion would result in an estimated annual loss of between \$500,000 and \$520,000 in property taxes in Clay County, MN and approximately \$250 in Cass County, ND
- Life, Health and Safety
 - Air Quality and Noise Impacts – Construction related and short-term
 - Impacts would be mitigated

Urban and Community Impacts

- Life, Health and Safety
 - Reduced chance for loss of life with project
 - Air Quality and Noise Impacts – Construction related and short-term
 - Construction impacts would be mitigated
 - Limit noise impacts to daylight hours
 - Watering of all active portions of the construction site
 - Covering or watering material transported off site
 - Periodic review and inspection of construction practices

Environmental Justice

- Purpose of environmental justice review is to determine if a disproportionate share of the proposed project's adverse socioeconomic and other environmental impacts are borne by low-income and minority communities
- Executive Order 12898 requires federal agencies to conduct EJ analysis

Environmental Justice

- Identification of populations of concern based on Census data
 - Race characteristics at census block level
 - Income characteristics at census block group level
- Demographic characteristics of Clay County, MN and Cass County, ND used as base reference point

Environmental Justice

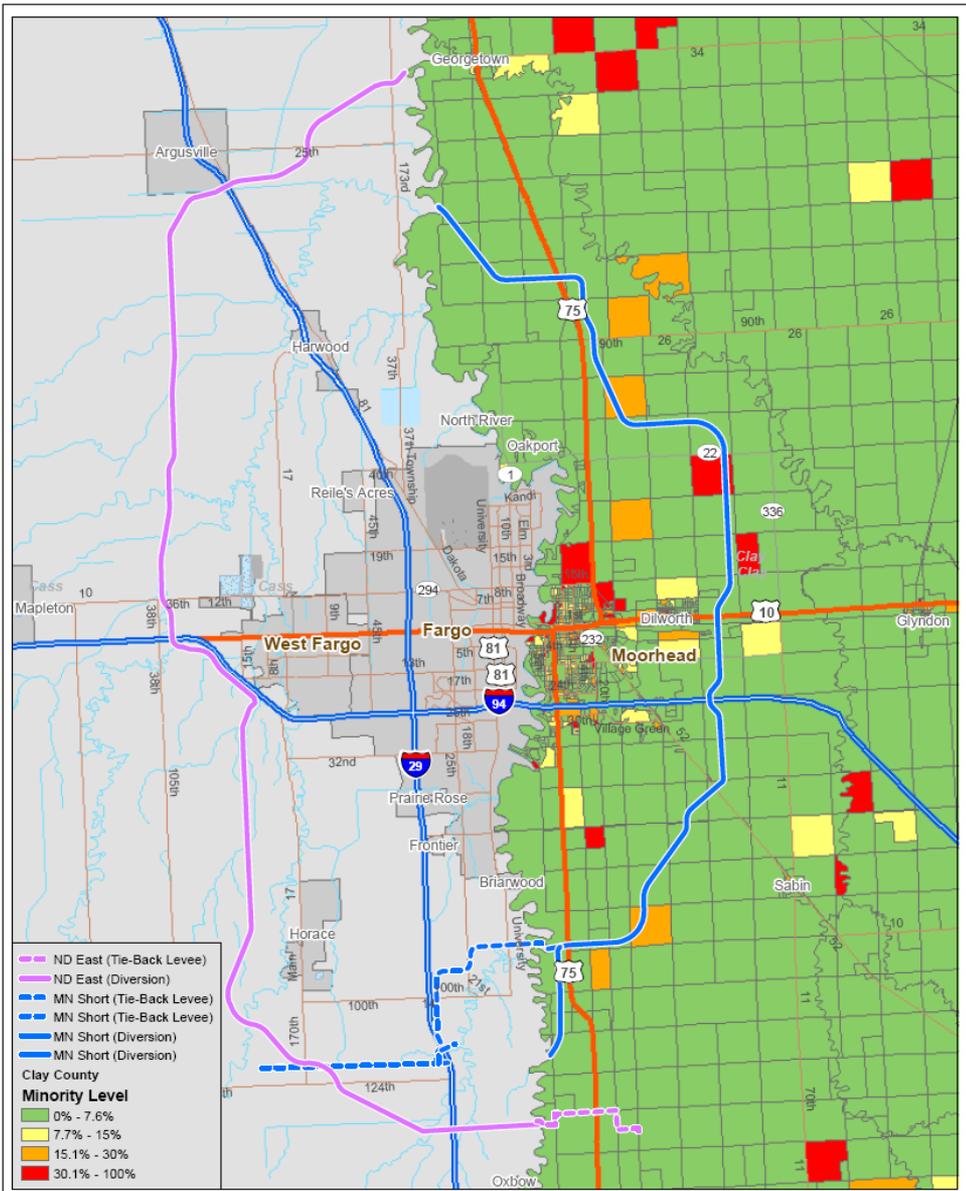
Populations of concern identified as those greater than the county average

Clay County, MN

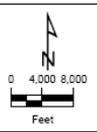
- 7.6% minority population
- 13.2% below poverty level

Cass County, ND

- 5.6% minority population
- 10.1% below poverty level



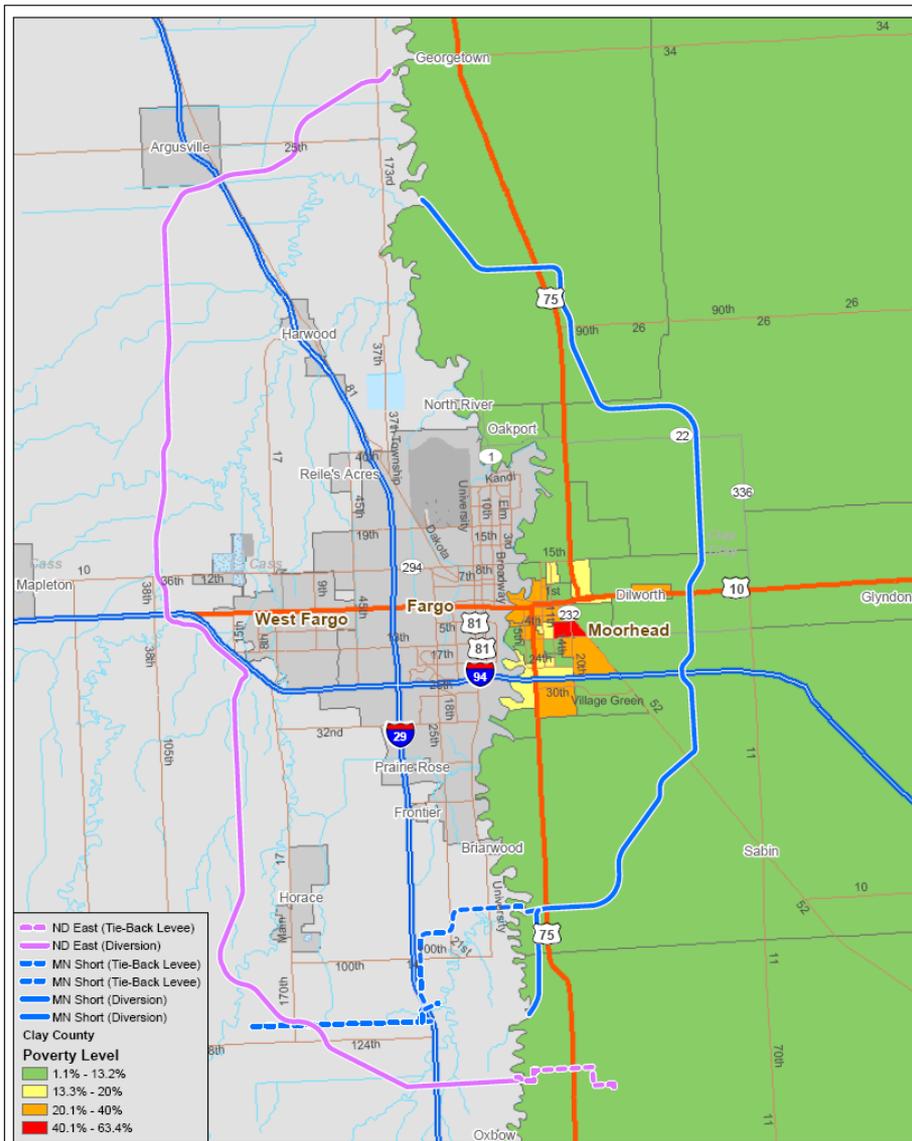
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PRJ Fargo, ND			
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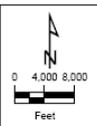
TITLE
Clay County, MN, Minority Levels

200 Orchard Ridge Drive
Gaithersburg, MD 20878

PROJ NO	00000000
FIGURE	1



CLIENT	USACE			
PROJ	Fargo, ND			
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SCALE	1:197.093	DR BY	xxx	00/00/00
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TITLE	Clay County, MN, Poverty Levels	
URS	200 Orchard Ridge Drive Gaithersburg, MD 20878	

PROJ NO	00000000
FIGURE	3

Environmental Justice

The following impacts were also evaluated:

- Previous Environmental Degradation
- Disproportionate Impacts Related to the Proposed Project
 - Residential and business displacement due to ROW acquisition
 - Changes in accessibility and mobility afforded by the proposed project
 - Noise

Environmental Justice

- Consulted local planning staff to identify other major projects
- Emphasis placed on projects that required environmental reviews under the National Environmental Policy Act
- Major private projects were not considered unless they involved significant environmental effects

Environmental Justice

- Although the diversion channel does pass through some low income and high minority areas, the impacts of the alignment are not considered disproportionate
- All farmers along the alignments would be impacted irrespective of race and/or income

Social Impacts of Flooding

- Information collected via interviews
- Evacuation of special needs populations conducted by emergency managers
 - Not performed during 1997 event
- Volunteers greatly assisted evacuation
- Pet shelters also provided
- Social media key in communication – Facebook, Twitter used widely

Social Impacts of Flooding

- City had evacuation plan, but not tested previously
- Stress from flooding taking a toll on residents; stress of fighting flood (acute stressor) and ongoing threat of flooding (chronic stressor)
- Disruption of daily life also creates stress
- Stress could lead to deteriorating physical and mental health and affect productivity of workers

Social Impacts of Flooding

- Research from Hurricane Katrina documents the persistent effects of flood-related stress, extending at least 18 months past an event
- Qualitative evidence also suggests residents are unprepared to “lose” a flood fight and deal with a catastrophic event

Social Impacts of Flooding

- Businesses not fully prepared in the area; data show could see high rates of business failures from a catastrophic flood
- Clear need for businesses to increase their preparedness, to mitigate effects of a flood
- Business disaster plans need to be developed that include offsite data back, evacuation, and contingency operation plans

Lessons Learned

- Capture public opinion from a diverse range of groups
- Conduct the social analysis in two phases
 - Initial phase to capture basic data, inform design of second phase
 - Second phase should assess social implications of specific alternatives



Lessons Learned

- Ensure that all impacts are revealed (e.g., induced flooding) and evaluated
- Combine quantitative and qualitative data
- Allow adequate time for social impact studies, to permit systematic sampling of populations (quantitative measures /survey designs) to supplement qualitative study

