

**Medium-Term: (18 – 36 months)**

Phase 2 Buy-out Program, Protect VCSU and Downtown Business District:

**VISION**

- Conduct Phase 2 of home buy-outs
- Protect property through a series of flood walls and permanent clay levees along College Street and 5th Ave SW, including VCSU
- Protect downtown business district with permanent levees along 4th St SW and 4th St SE and a flood wall along Main Street
- Address erosion concerns along Main Street and College Street and other priority areas

**COST: \$19,850,000**

**SCOPE**

<b>Protect</b>	<b>University District</b>	<b>Downtown District</b>
Phase 2 buy-outs	\$1,350,000	---
Permanent clay levees	\$3,500,000	\$3,000,000
VCSU flood wall	\$5,000,000	---
Main Street flood wall	---	\$4,000,000
Storm sewer modifications	\$2,000,000	\$1,000,000
<b>Total</b>	<b>\$11,850,000</b>	<b>\$8,000,000</b>

**Long-Term: (36+ months)**

Permanent Flood Protection as Envisioned by Corps and ND State Water Commission

**VISION**

- Continue with buy-outs as necessary to support permanent flood protection not already covered in Phase 2 above
- Construct clay levees where determined feasible by Corps and/or ND State Water Commission
- Implement necessary improvements to storm sewer system

**COST: \$20,000,000 - \$30,000,000**

**SCOPE:** Scope would include the necessary measures as identified in the Corps Feasibility Study and ND State Water Commission analysis. The phase requires more analysis and engineering to add clarity to the specific costs.

**Key Asks of the State of North Dakota****Immediate Needs (2011 – 2012)**

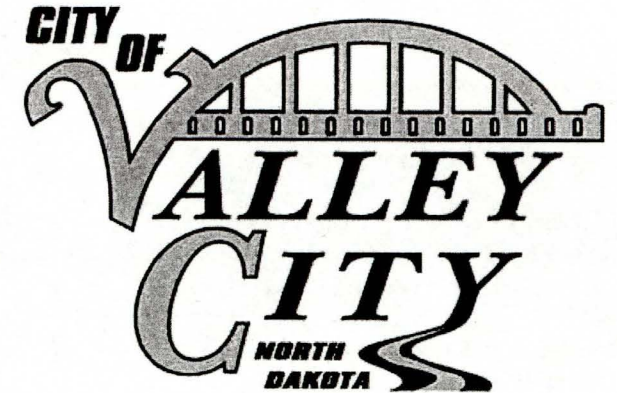
1. **\$3,600,000** for Phase 1 buy-outs necessary to mitigate and prepare for future flooding exacerbated by Devils Lake and prolonged wet cycle. Several property owners want to be bought-out now to avoid a 2012 spring flood. All of the 32 Phase 1 buy-out candidates agree to be bought-out in 2012 assuming a fair offer currently based on 110 percent of city assessed value prior to 2009 flood damage.
2. **\$325,000 – \$550,000** to cover 100 percent funding of Valley City's 50 percent local cost-share with the Corps on a pending Feasibility Phase. The final cost estimate of the Corps Feasibility Study is expected to be available in December 2011.
3. ND State Water Commission to complete analysis of placing permanent flood protection where Phase 1 buy-outs occur.
4. Strong state support to fast-track upstream retention on the Sheyenne River's main stem near Cooperstown as identified by Moore Engineering. We would request the ND State Water Commission fund the engineering for the feasibility phase.

**Upcoming Needs (2012 – 2014)**

1. **\$8,850,000** to protect the VCSU district of Valley City inclusive of Phase 2 buy-outs, permanent clay levees along 5th Ave, SW and parts of College Street, flood walls along College Street and necessary storm sewer modifications. The ND State Water Commission is studying this much-needed investment currently except the storm sewer modifications.
2. **\$8,000,000** to protect the downtown business district through a series of clay levees along 4th Street, a flood wall and erosion protection along Main Street and necessary storm sewer modifications.
3. Begin construction of Sheyenne River upstream retention project if state-funded feasibility study determines it to be a viable project.

**Future Needs (2014 and beyond)**

1. **\$20,000,000–\$30,000,000** to implement additional measures as identified by the ND State Water Commission analysis and Corps Feasibility Study. Early engineering estimates determined an extensive permanent flood protection solution for Valley City would cost \$40,000,000 to \$50,000,000 with approximately \$20,000,000 of it being consumed in Phases 1 and 2 as detailed above. The estimates do not include investments in upstream retention.



Legislative Hearing  
Water Topics Committee  
Senator Tom Fischer, Chairman  
October 10, 2011



2009 Flood Executive Summary

Costs to Protect Valley City

Emergency Dike Construction and Flood Preparation	\$ 6,250,000
Removal of Dikes, Sandbags and Debris	\$ 7,000,000
Repairs to Streets and Sanitary Sewer	\$ 8,250,000
Total	\$ 21,500,000

Other Costs Incurred as a Result of the 2009 Flood

Valley City State University (VCSU)	\$ 823,000
Mandatory closing of non-essential businesses	\$6,000,000
Valley City Parks and Recreation damage	\$ 200,000
Mercy Hospital	\$ 361,000
Total	\$ 7,384,000

4/14/09: Voluntary evacuation of several hundred people including elderly and residents living behind contingency dikes.

4/17/09: Sanitary sewer failed requiring residents to use portable toilets for several weeks. 450 ND National Guard personnel protecting Valley City supported by US Coast Guard and ND Game & Fish.

2011 Flood Executive Summary

Costs to Protect Valley City

Emergency Dike Construction and Flood Preparation	\$5,170,000
Flood Clean-up and Debris Removal	\$1,800,000
Permanent Street Repairs	\$1,750,000
Building and Utilities	\$ 80,000
Total	\$8,800,000

Both the 2009 and 2011 spring floods mirrored the 500-year flood event modeling of approximately 21 feet. At 21 feet, the below table illustrates real estate subjected to extensive loss if an emergency levee were to fail.

	Floodway	100 Year Floodplain	500 Year Floodplain	Total
Residential	11,065,800	38,111,200	17,932,900	67,109,900
Commercial	8,932,100	14,419,800	16,878,500	40,230,400
Exempt (estimated)*	30,249,586	54,995,997	24,682,435	109,928,018
Total	\$50,247,486	\$107,526,997	\$59,493,835	\$217,268,318

- Notable Exempt properties include nine VCSU buildings (\$40,549,618), Mercy Hospital (\$35,000,000), Valley City Auditorium and Recreation Center (\$9,000,000), Post Office (\$3,000,000), Washington Elementary School (\$6,000,000) and the City Hall/Police/Fire Station Complex (\$5,500,000)

The above table summarizes why permanent flood protection is a priority one investment in Valley City to diminish the risk of catastrophic loss caused by inferior emergency levees, Hesco containers and sandbags. Valley City can't continue to bet our future on the durability of inadequate, temporary flood protection.

- The ever-increasing risk of Devils Lake requires significant investment of mitigation funds in Valley City to protect our community and ensure public safety.
- Less than 900,000 acre-feet of storage remain before natural overflow of 1,458 through Stump Lake. The spring inflows of 2009 and 2011 were approximately 600,000 acre-feet each. Prior to spring 2009, the average inflows into Devils Lake were 250,000 acre-feet annually. As result, the remaining storage equates to:
  - Natural overflow in spring 2013 (one average year of inflows and one spring equivalent to 2009 or 2011)
  - Natural overflow in spring 2015 (four average years of inflows)
- Increased outlet capacity via expansion of west-end outlet, new pump-based east-end outlet and planned gravity-based outlet through Stump Lake will dramatically increase the risk of flood damages both during spring melt and summer rain events.

Research and Analysis

- The Valley City Commission formed a Permanent Flood Protection Task Force (Task Force) in 2010 comprised of community and business leaders chaired by Commissioner Matt Pedersen.
- The Task Force has partnered with the US Army Corps of Engineers (Corps) on a Reconnaissance Study to determine federal interest in a project in Valley City. The recon report concluded Valley City has a significant and growing need for flood protection given the risks of Devils Lake.
- The Task Force has been working closely with the ND State Water Commission on more short-term solutions such as building clay levees where Phase 1 and Phase 2 buy-outs would occur starting in 2012. The ND State Water Commission is analyzing the feasibility of permanent flood protection where Phase 1 and Phase 2 buy-outs are scheduled to occur as well as more long-term solutions like straightening the river channel in two key locations and reducing the impacts of all the bridges.
- The Task Force has been working with a leading flood wall company that designed and manufactured the flood walls used in East Grand Forks, MN. They have identified several areas in Valley City where their solution would work perfectly. Primarily, we are considering their product on the VCSU campus and along Main Street to protect downtown.

Short-Term (12-18 months)

Phase 1 Buy-out Program

VISION

- Increase public safety
- Dramatically reduce the dependency on sandbags and Hesco containers
- Lower risk of flood damage to neighborhoods and key community assets like VCSU and downtown business district
- Increase efficiency of emergency levee construction
- Reduce disruption associated with contingency dikes
- Enable permanent flood protection long-term

The Phase 1 properties were selected due to their proximity to the river's edge and the inferior levees that are built behind them posing extra risk to public safety, neighborhoods and key assets like the downtown business district and VCSU.

By conducting our Phase 1 buy-out program, Valley City's dependence on sandbags and Hesco containers would be almost eliminated. Sandbag Central is an excessive drain on our community, especially Valley City High School and VCSU students.

The buy-out program represents the first step we can take to protect the greater community and enable permanent flood protection.

The ND State Water Commission is analyzing placing permanent flood protection in the buy-out areas and this report should be available in the February 2012 time frame.

Buy-outs will provide an efficient path for emergency clay levee operations until permanent flood protection is constructed with assistance of state and/or Corps funding.

COST: \$3,600,000

SCOPE: 32 structures along the river's edge including 27 single-family homes, four apartment buildings and one commercial building.