Taxation Committee Testimony
November 5, 2013

Chairman Cook, committee members, my name is Shawn Kessel and I am the city administrator in Dickinson, ND. My role here today is do discuss the effects of inflation and escalation on municipal budgets. I hope to do that today, primarily, about talking about the city of Dickinson's experience with a waste water reclamation facility.

In March of 2010 the city of Dickinson completed a Facility Plan for the Waste Water Treatment facility (WWTF). The purpose was three fold:

- Determine existing conditions and capacity
  - In 2009 the WWTF is at 78% flow capacity, 99% BOD (Biological Oxygen Demand) loading capacity, and 250% Ammonia (NH_3-N) loading capacity
- Analyze future conditions at the plant
  - Projected service population of 26,180, strict BOD and ammonia limits on discharges to the Heart River
- Develop a schedule for improvements to increase capacity when needed and replace items that have reached their useful life.
  - Recommends Rapid Infiltration Basins

- October 2010: City of Dickinson completes a Preliminary Engineering Report
  - Document major design concepts
  - Present equipment alternatives
  - Projected service population of 26,180

- Dickinson was experiencing slow, steady and - maybe most important, predictable population growth in 2008 & 2009. In 2010 things really started to change and that steady, predictable growth changed to rapid and unpredictable. In 2011 we were the 4th fastest growing small town in the nation; 2012 the 3rd fastest.
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- In this new paradigm of explosive population growth we knew the facility we had planned to build would no longer meet our mid and long term needs, so we had to go back to the drawing board.
- July 2011: City of Dickinson completes a Facility Plan Amendment to assess accelerated population growth.
  - In 2011 the WWTF is at 96% flow capacity, 117% BOD (Biological Oxygen Demand) loading capacity, and 293% Ammonia (NH_3-N) loading capacity
    - *Remember, in March 2010 we were at 78% flow capacity and in July of 2011 we are at 96%*
  - Recommends an expandable mechanical treatment facility with population thresholds triggering future improvements.
    - Initial service population to 28,000
  - An alternative analysis was conducted to determine the treatment process that best meets the expandability needs and expected strict effluent discharge requirements
  - Site visits were conducted at similar treatment facilities

- November 2011: City of Dickinson completes a Preliminary Engineering Report (PER) for a new treatment facility
  - Document major design concepts
    - Initial service population to 31,000
  - Present equipment alternatives
  - Develop water reuse concepts
  - 30% plans and costs

- May 2012: Final Design
    - Service Populations
        - Phase I: 34,000 (Buildings Constructed to 65,000 service population)
        - Phase II: 45,000
        - Phase III: 65,000
    - Provisions for future Phosphorus limits
    - Provisions for future effluent filtration

- July 2012: Construction begins on the new treatment facility (Water Reclamation Facility)

- October 2012: Collection system planning completed as part of the Dickinson Comprehensive Plan. Influent Pump Station sizing and location defined.

- March 2012: Influent Pump Station Final Design.

- August 2013: Construction begins on the Influent Pump Station which will pump all City wastewater to the new Water Reclamation Facility

- November 1st 2013: The Water Reclamation Facility is 60% Complete. The Influent Pump Station is 15% Complete

- May 2014: Expected substantial completion of the Water Reclamation Facility and Influent Pump Station.

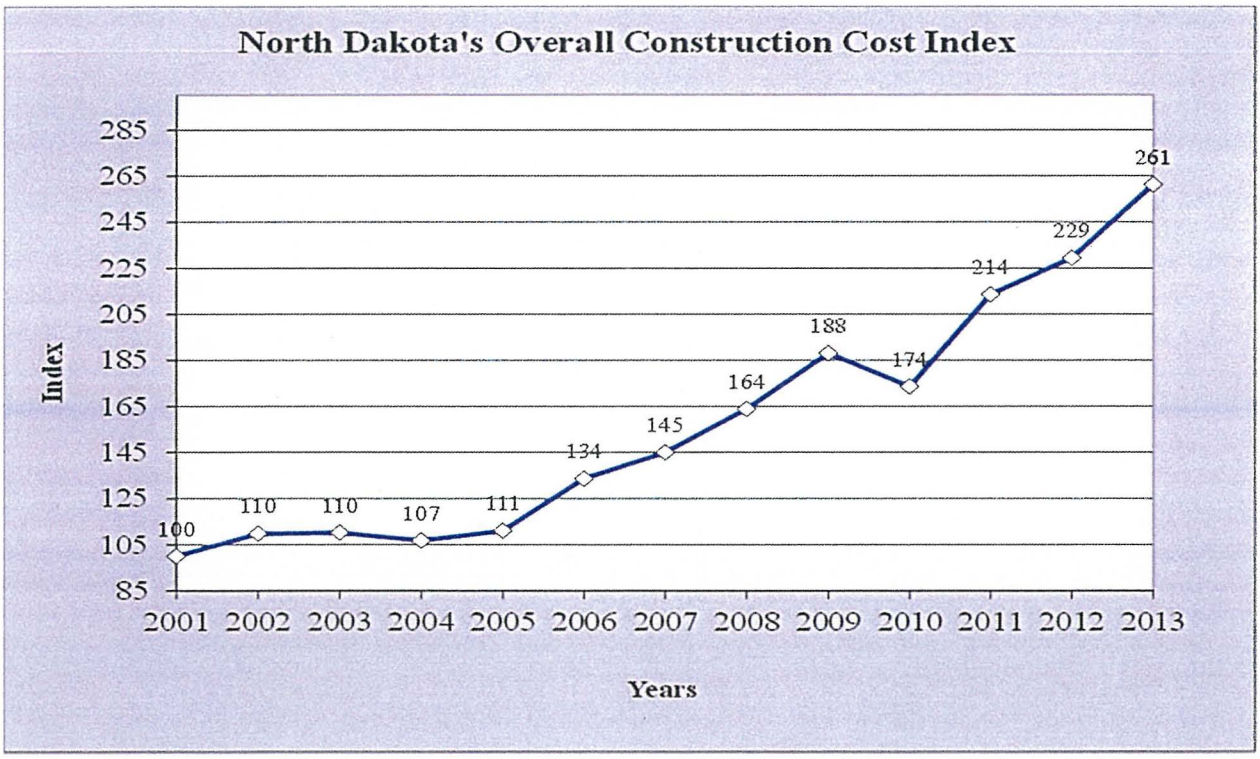
- October 2014: Expected that the new Water Reclamation Facility will be fully operational. When fully operational we will be providing both reuse water (treated effluent) and primary treatment to the Dakota Prairie Refinery and the City of South Heart.

- In an environment where you cannot predict the size of pipe, size of pumps, number of lanes on a street, how many gallons of water storage you need the tendency is to upsize to be safe. I don't think you can make any other call in this environment. So not only do you have to deal with 20% inflation due to high labor and materials costs but you also have to deal with the high cost of escalation.

We strive to make the best decisions we can with the available information. Our goal is to leave a legacy that our grandchildren can be proud of. This results of this approach did get the city of Dickinson named the Best Small Town of 2013 by Livability.com.

Document	Completed	Population Served	Recommendation	Cost Estimate
Master Plan	March, 2010	26,180	Master Lift Station Upgrades	$1,950,000
			Aeration System Upgrades	$3,200,000
			Rapid Infiltration Basin	$2,800,000
			Emergency Power	$570,000
			External Stairway at Master Lift Station	$120,000
			Control Structure Replacement	$210,000
			River Monitoring Station	$50,000
			Pump for French Drain	$15,000
			Flow Meters	$65,000
			Total	**$8,980,000**
Preliminary Engineering Report 2010	October, 2010	26,180	Master Lift Station Improvements	$2,306,000
			Aeration Pond Improvements	$3,397,000
			Rapid Infiltration Basins	$3,967,000
			French Drain Pump station	$91,000
			Pretreatment and Siphon Improvements	$245,000
			Total	**$10,006,000**
Facility Plan Amendment	July, 2011	28,000	Mechanical Treatment Facility	$25,872,000
			Collection System Improvements – Pump Station & Forcemain	$3,822,000
			Engineering/Admin Costs	$4,626,000
			Total	**$34,320,000**
Preliminary Engineering Report	November, 2011	31,000	Treatment Facility	$28,972,000
			Collection System Improvements – Pump Station & Forcemain	$3,935,000
			Engineering/Admin Costs	$4,066,000
			Total	**$36,973,000**
Final Design	May, 2012	34,000 (buildings to 65,000)	Treatment Facility	$30,000,000
			Pump Station & Forcemain (move site and include future growth)	$10,000,000
			Engineering/Admin Costs	$7,000,000
			Total	**$47,000,000**

Overall Construction Cost Index				
Construction Year	Total Amount	Adjusted to Base Yr	Index	Yr By Yr % Change
2001		$0.00	100	0.00%
2002		$77,645,225.21	110	9.75%
2003		$77,953,405.60	110	0.40%
2004		$75,503,274.94	107	-3.14%
2005		$78,535,120.58	111	4.02%
2006		$94,521,332.90	134	20.36%
2007		$102,581,102.74	145	8.53%
2008		$115,891,707.30	164	12.98%
2009		$133,064,329.56	188	14.82%
2010		$122,788,914.70	174	-7.72%
2011		$151,097,367.69	214	23.05%
2012		$162,297,310.05	229	7.41%
2013		$184,864,886.70	261	13.91%



Source: ND DOT

Construction costs 2003-2013 increased 137%