Supplemental Water Supply Needs for a Growing City

City of Grand Forks

Garrison Diversion Water Conference – October 1, 2015

Overview

- **Grand Forks Historical Water Challenges**
- **Drought Management and Our Water Supply**
- **Importance of Adequate Clean Water Supply**
- **Addressing our Water Challenges**
- **Need for Local-State Partnerships**

Drought and the Red River Valley

Too Dry

- Significant RRV droughts have and will continue to occur
- 1930s-type drought would bring significant impacts
- RRV 1930s-type drought impact = $20B+ over 10 years
- Need to ensure a reliable and affordable water supply

Drought Monitoring and Management Plan

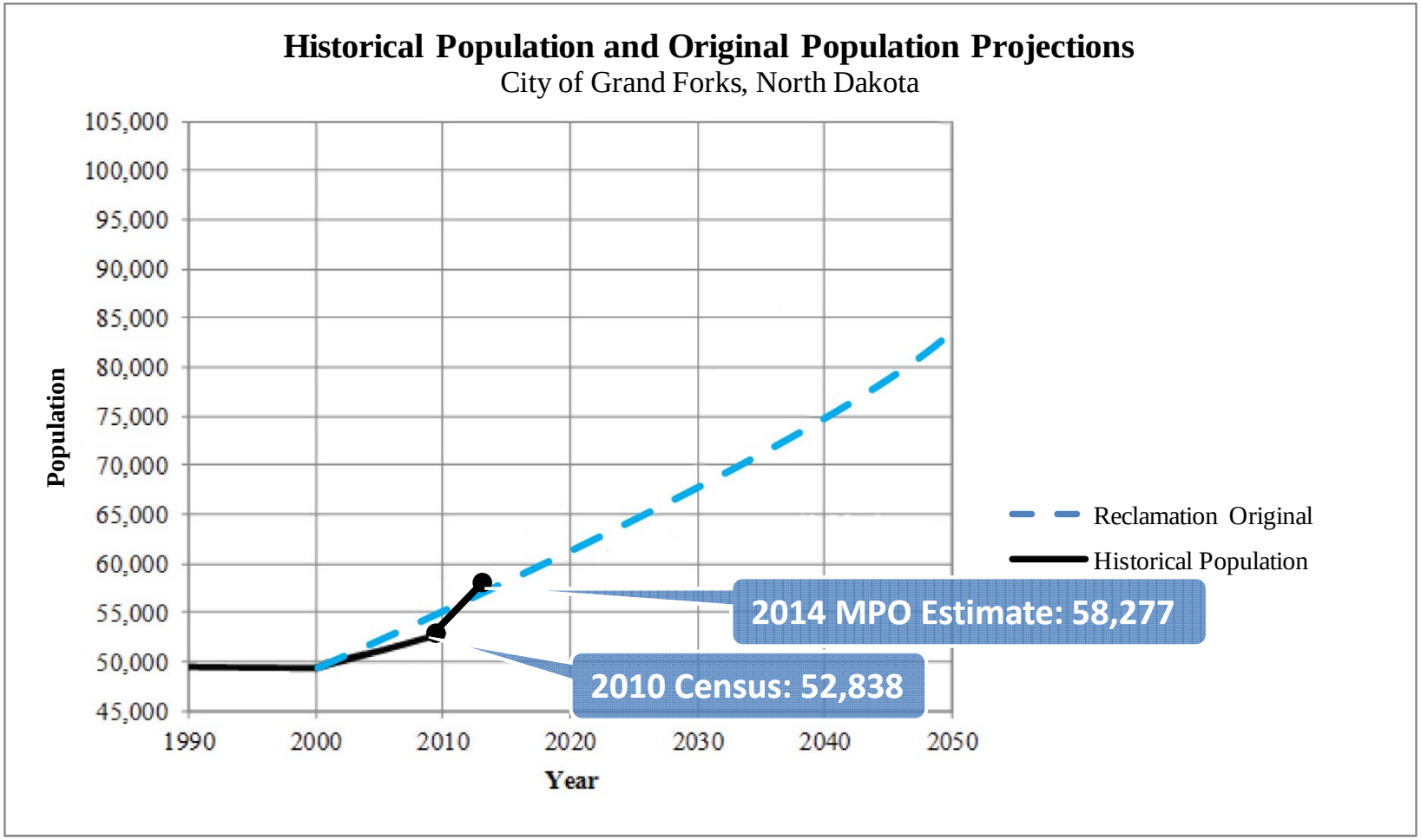
The Goal:
City's plan achieves consistency with other systems in the Valley considering a basin-wide approach

The Plan:
- Defines monitoring parameters used to activate City's water use reduction triggers
- Outlines how user groups (i.e., residential, commercial, industrial, etc.) will work with the City on usage reduction

5 Monitoring Action Levels are Defined:

Grand Forks – A Growing City

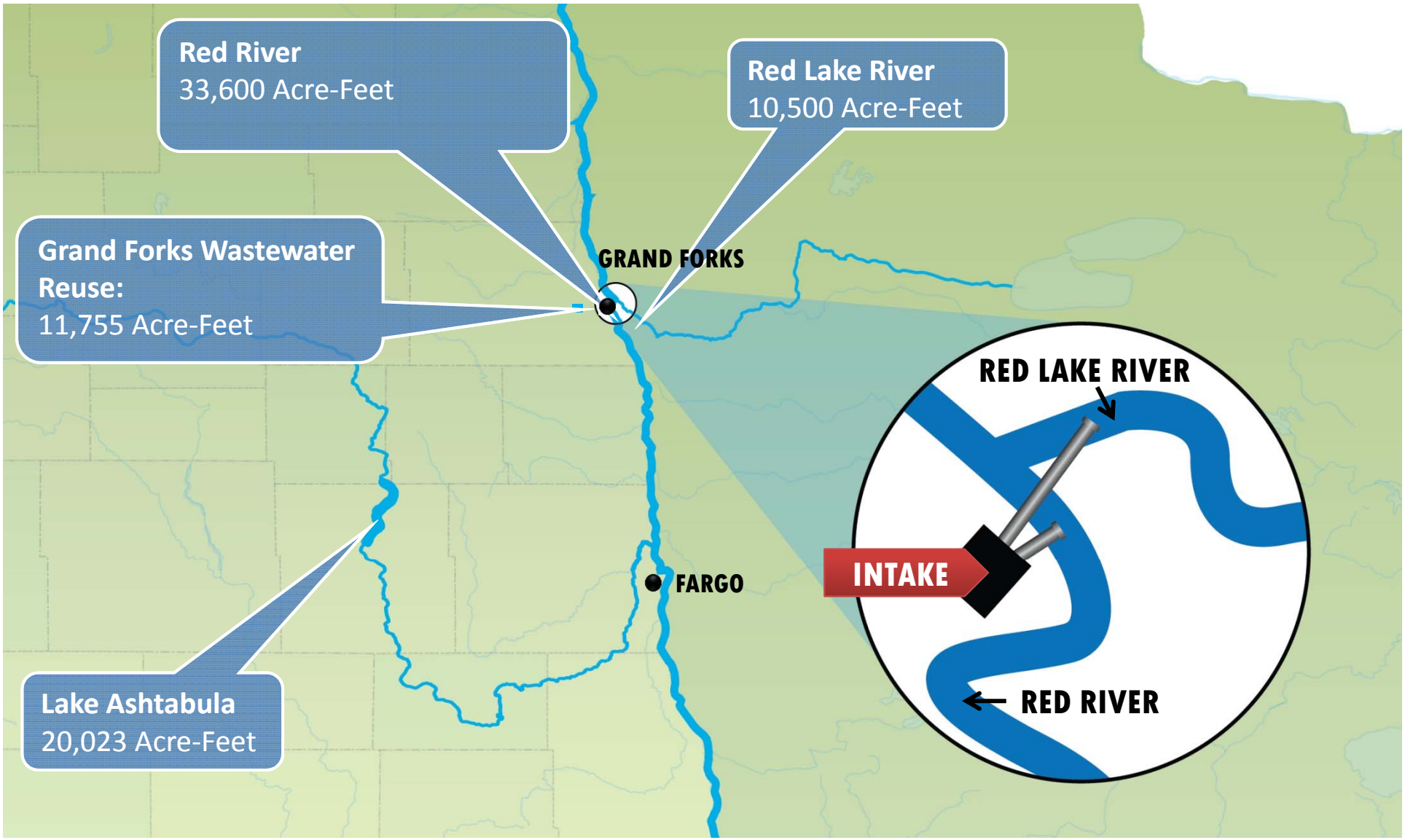
Growth Compared to BoR Water Supply Planning



Grand Forks Water Supply FEIS Assumptions

- **2050 Demand Assumptions**
  - 2050 Population: 83,800 (Reclamation)
  - Average Water Demand: 137.6 gpcd
  - Peak Day Water Demand: 265.1 gpcd
  - Additional Industrial Water Demands: 14.0 cfs
- **Supply Utilization in FEIS Planning**
  - Did not Model Red Lake River
  - Assumed Red Lake River Appropriation to be used to Extinction
  - Model turned to Red River only once extinction reached
  - Model predicted minor shortage by 2050

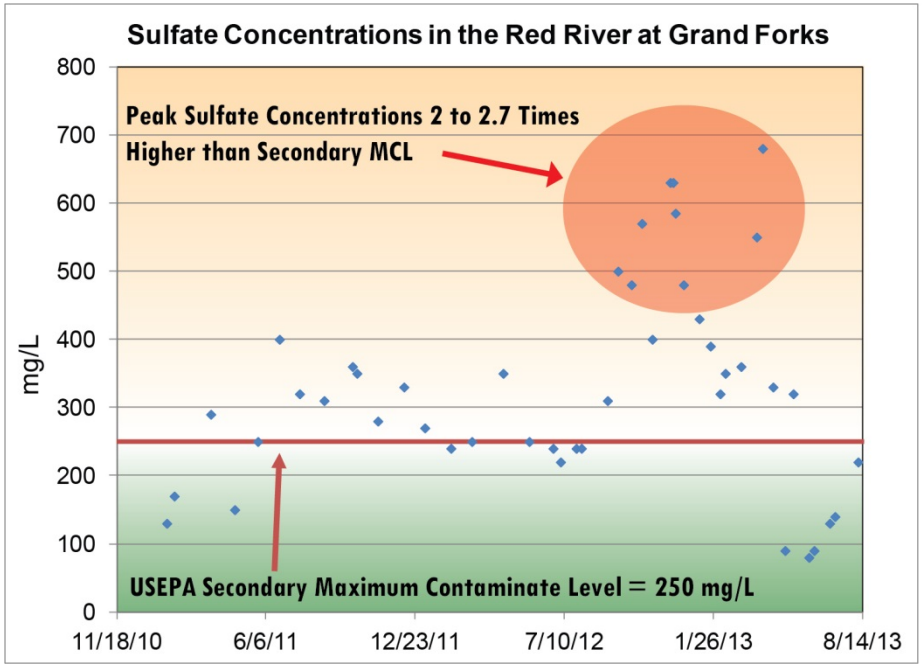
Water Supply – Where do we get our water?

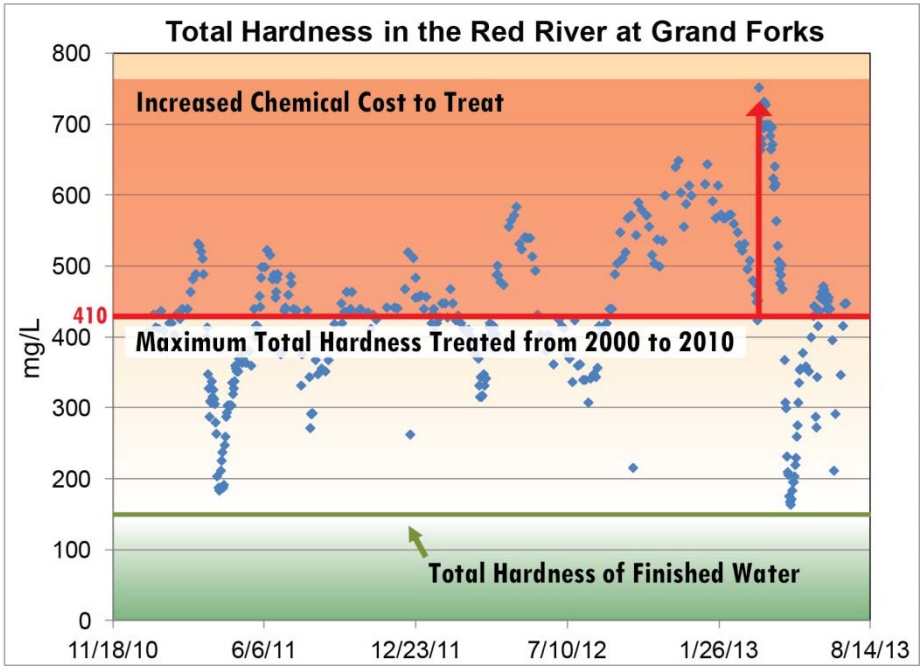


Increasing Source Water Challenges

- **Quality of Red River due to Devils Lake Impacts**
- **Water Quality Driven Operational Changes**
- **Red Lake River Only Utilization Not a Fail Safe**

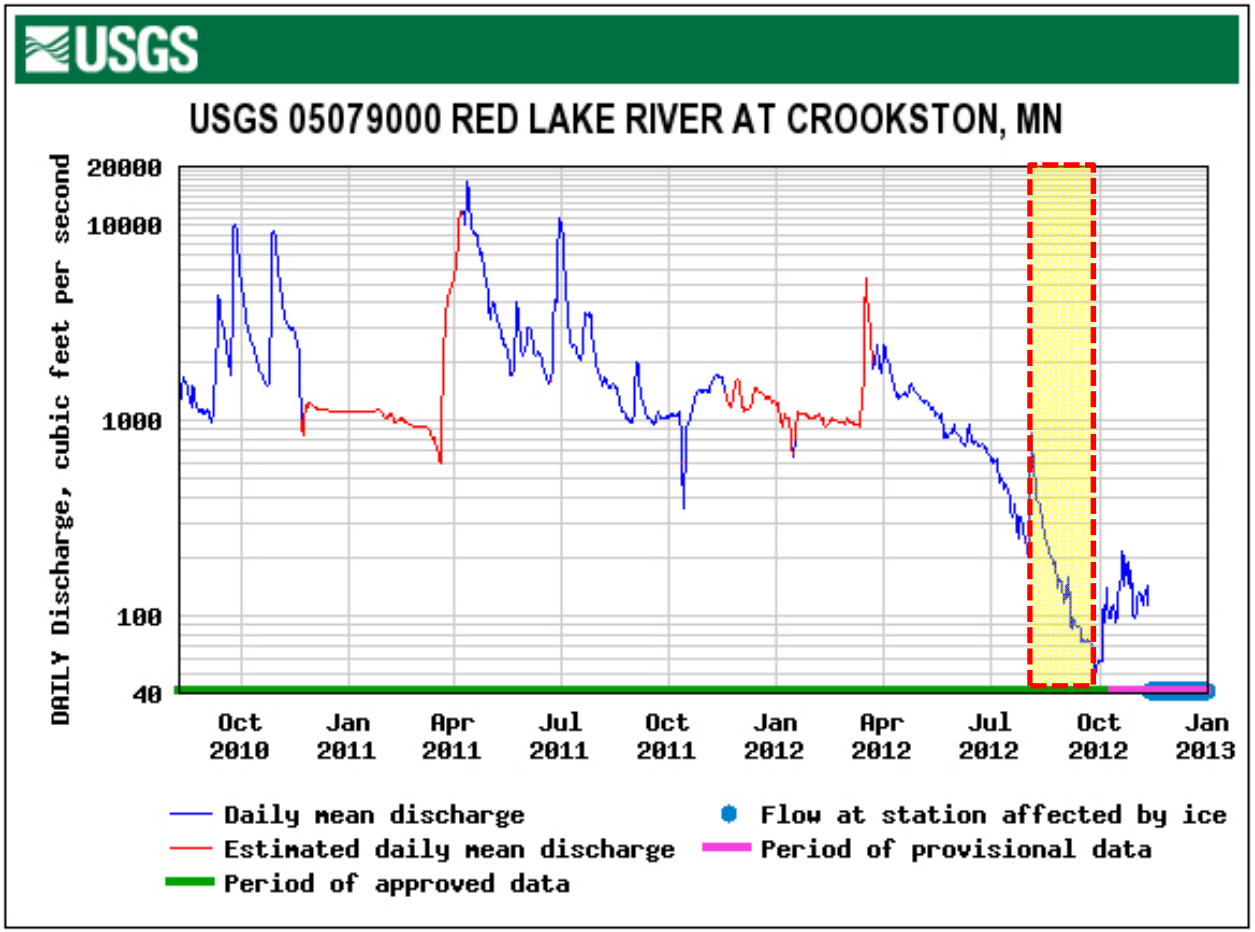
Devils Lake WQ Impacts





- **Experiencing increased sulfate levels**
- **The City currently does not have the treatment technology to reduce to acceptable levels**
- **Experiencing increased hardness levels**
- **Each incremental increase requires increased chemical cost to treat**

Rapid Drought Conditions

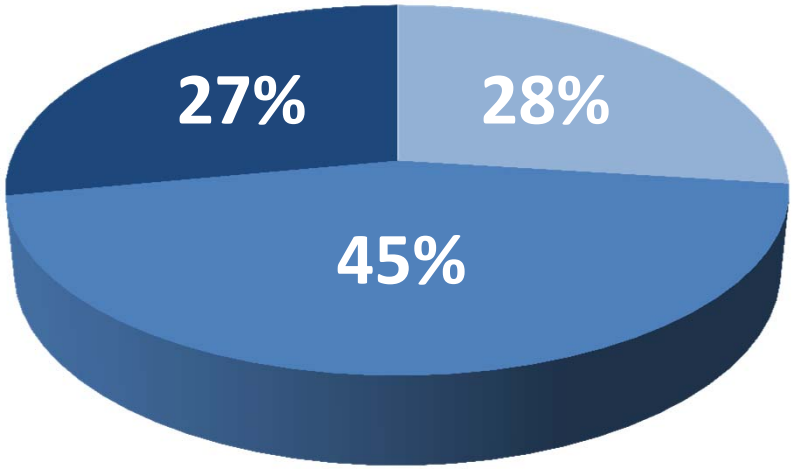


- **Very rapid drought conditions were realized in the fall of 2012**
- **Red Lake River flows decreased 99% in only 2 months**
- **City nearly required to utilize 100% Red River Supply**

Role of Water in Grand Forks

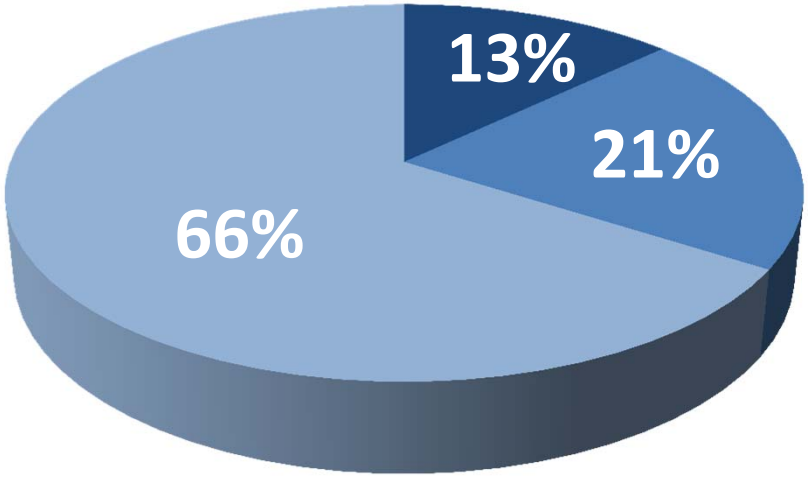
Why is a reliable and affordable water supply so important to our residents, business, and industry?

CURRENT breakdown of City's residential, commercial, and industrial water use



- Residential
- Commercial/Institutional
- Wet Industry (Agricultural Processing, etc.)

ANTICIPATED (I.E., INCLUDING NPN) breakdown of City's residential, commercial, and industrial water use



- Residential
- Commercial/Institutional
- Wet Industry (Agricultural Processing, etc.)

Grand Forks Water Supply Breakdown

- **Reliable water supply is critical for our major wet industry.**
- **Who are the major players?**
  - J.R. Simplot Company
  - Northern Plains Nitrogen*
  - North Dakota Mill and Elevator
  - University of North Dakota
  - Grand Forks Air Force Base and Grand Sky Enhanced Use Lease
- **Two of these entities (NPN and J.R. Simplot) comprise 66% of the City's planned water use on a daily basis.**

* Northern Plains Nitrogen has secured land and is nearly complete with permitting/planning a new $2-3B Fertilizer facility in the northwest part of the City.

Reliability and Economic Growth

- In the absence of infrastructure investment in reliable water supply, **Grand Forks business and industry are at risk.**
- Addressing this problem is a wise investment not only for the residents, business, and industry in our region, but for the entire State.
- **Redundant water supply secures economic vitality for decades to come.**
- Both **Quantity and Quality** are key to reliability.

Past Infrastructure Investments

What has the City done to secure our future?

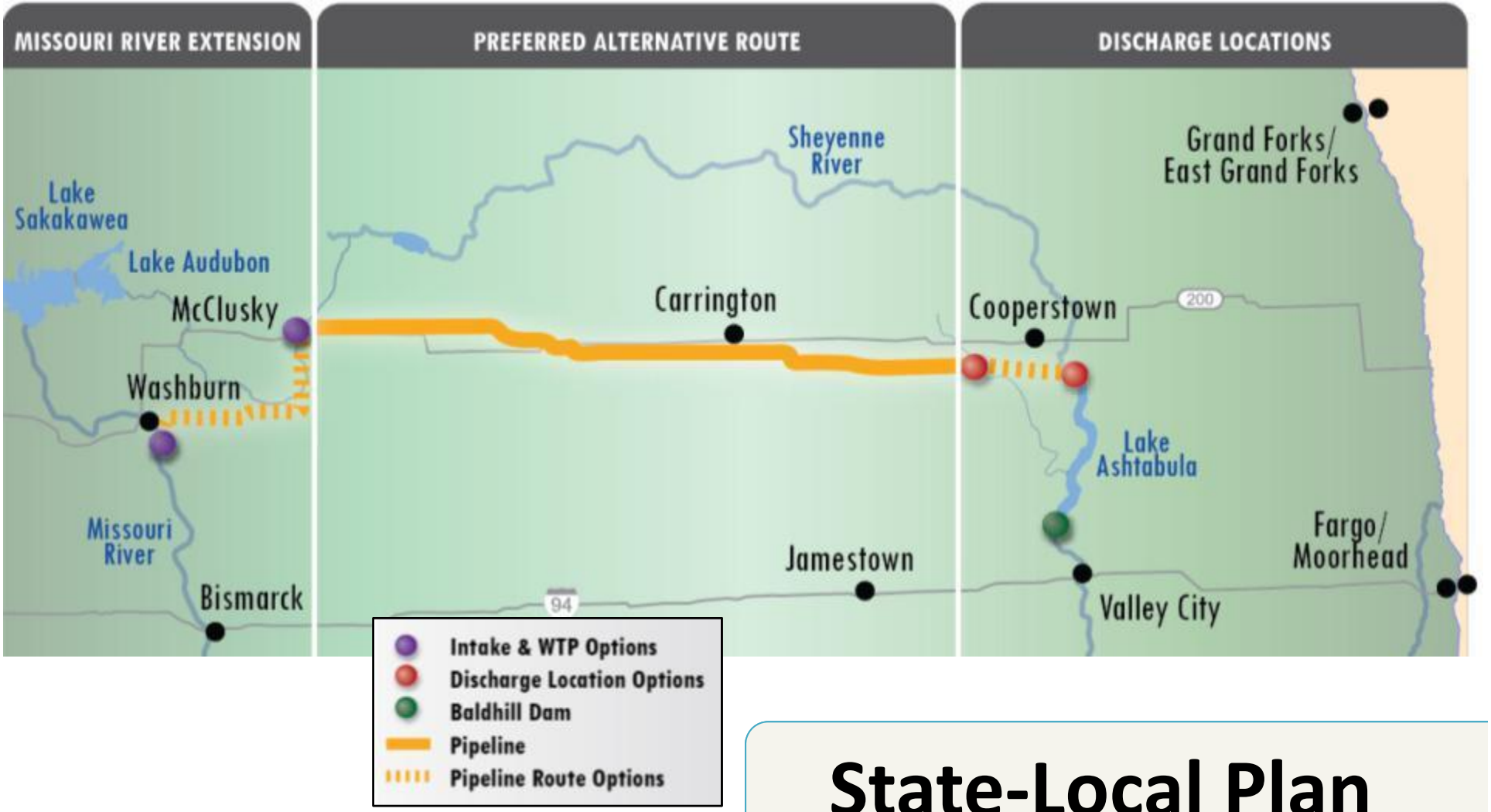
- **Invested ~$70M in trunk water infrastructure from 2001-2015.**
- **Upgrades with an eye to the future:**
  - **New Raw Water Intake**
  - **Water Distribution, Extension, and Storage**
  - **Finished Water Storage and Pumping**
  - **Cross-Town Transmission Mains**
  - **New Regional WTP Design (50/50 Cost-Share)**

Future Water Infrastructure Investment

Key Projects Addressing Quantity and Quality:

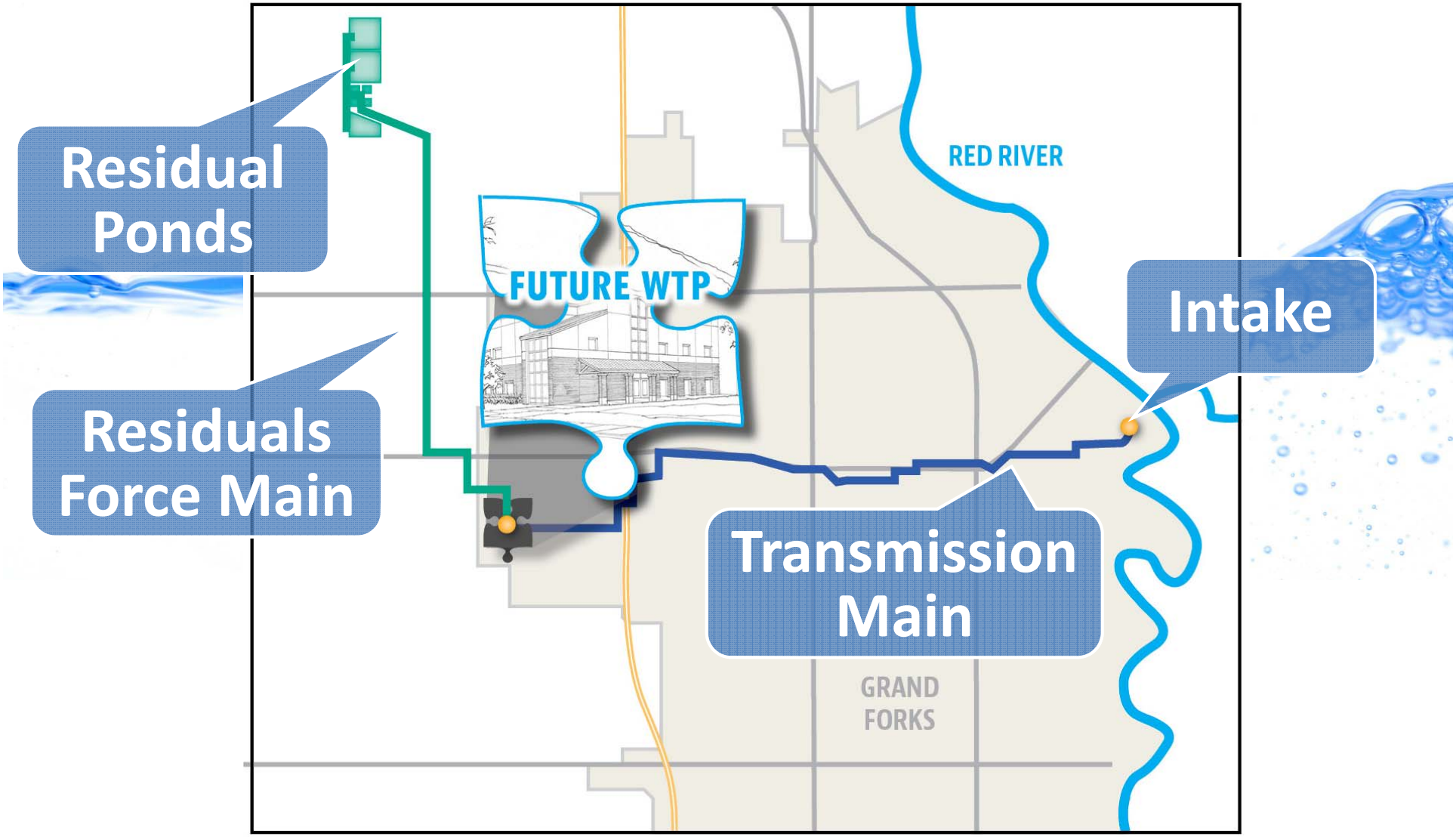
- **Red River Valley Water Supply Project**
  - Ensuring Adequate Supply in the Red River
- **New Regional Water Treatment Plant**
  - Upgrading and Expanding Treatment and Supply Capabilities to Address Numerous Issues

Red River Valley Water Supply Project

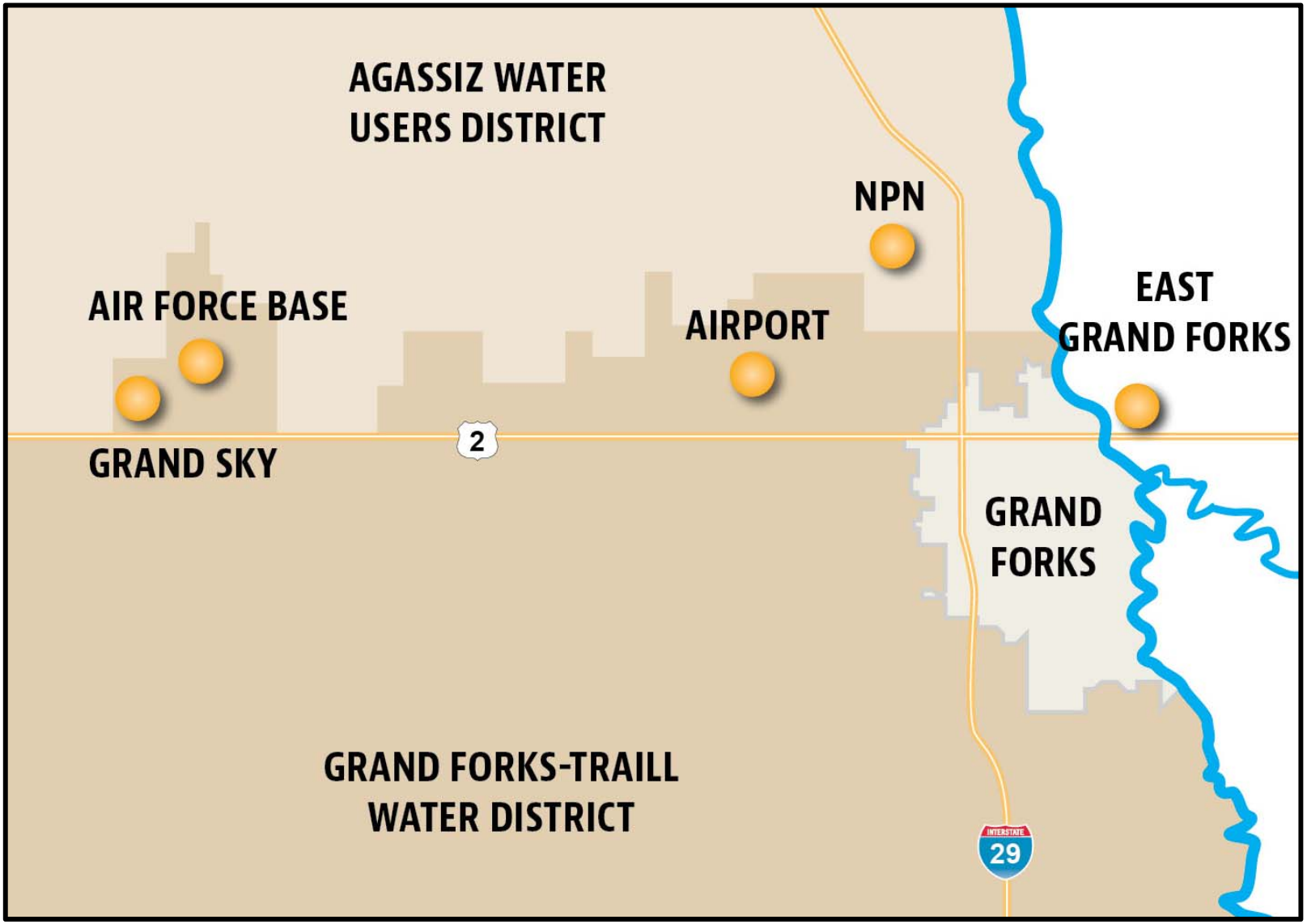


State-Local Plan

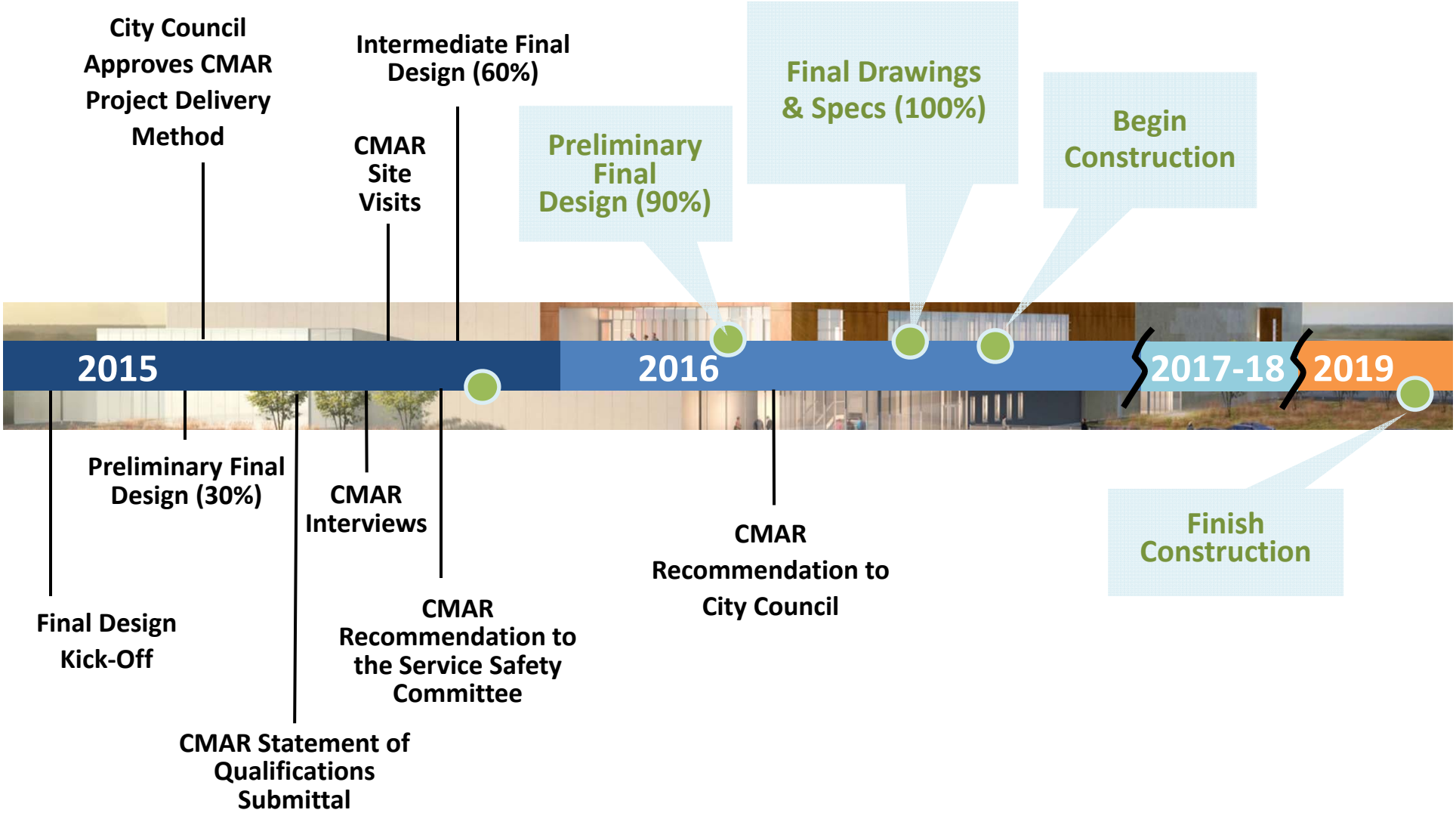
Key Puzzle Piece:
New Regional Water Treatment Plant



Current Regional Service



Water Treatment Plant Timeline

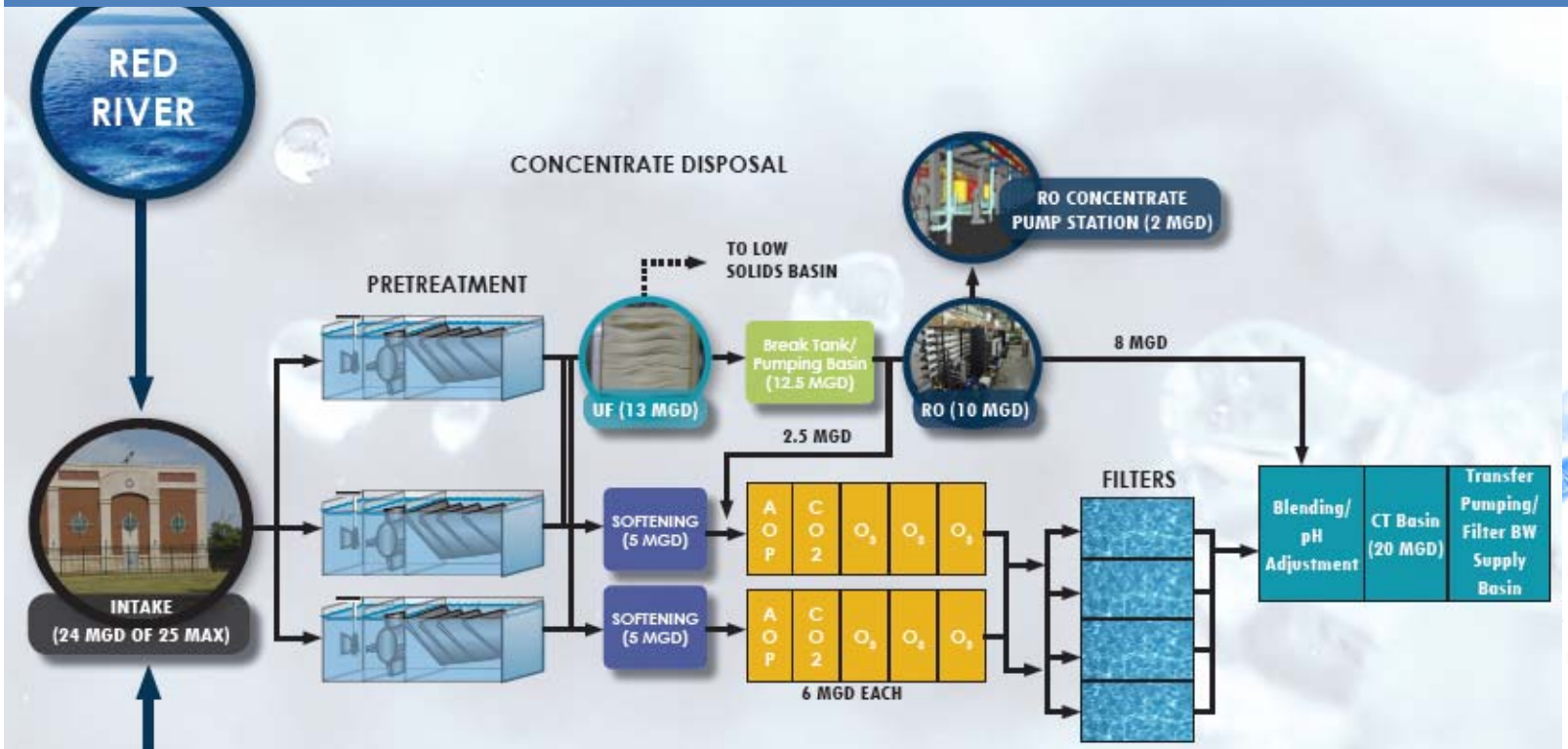


New Regional Water Treatment Plant

QUANTITY AND QUALITY DRIVEN:

- Devils Lake Impacts
- Regulatory Compliance
- Additional Municipal Capacity Demands
  - Residential Growth
  - Commercial and Industrial Needs
- Regional Domestic and Industrial Needs
- Aging Infrastructure

Planned Treatment Technologies



- **The City is planning to construct a plant comprised of a "hybrid" of treatment technologies (membranes, ozone, and BAC)**
- **These technologies will allow the City to address both historical WQ challenges (i.e., high hardness and organics) and new WQ challenges (i.e., Devils Lake impacts)**

Summary

- **Significant Water Supply Challenges**
- **Through collaboration with the State, we have developed a plan to address them**
- **Continued collaboration is paramount to fulfilling this plan and supporting continued economic development and maintaining quality of life throughout the Region**

Thank You