Tri-Basin NRD

• Responsible for protecting soil and water resources of Gosper, Phelps and Kearney counties
• Governed by a 13-member board of directors
• District includes portions of Platte, Republican and Little Blue river basins
Tri-Basin Natural Resources District

Basin Boundaries
Groundwater-level Changes in Nebraska - Predevelopment to Spring 2014

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U.S. Geological Survey
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U.S. Bureau of Reclamation
Kansas-Nebraska Area Office

Nebraska Natural Resources Districts

Central Nebraska Public Power and Irrigation District

December 2014
TBNRD regulatory actions to protect groundwater quantity

• No increase in certified irrigated acres.
• New groundwater transfers (pumping GW onto other parcels) require NRD permits.
• Supplemental wells for surface water-irrigated fields permitted only if landowner agrees to retain surface water contract for life of well.
• Flowmeters required on all wells irrigating more than 14 acres (Rep. Basin only), new and conditional replacement wells district-wide.
TBNRD regulatory actions (continued)

- Groundwater levels are protected from declines below 1981-85 average levels.
- TBNRD has designated Elk Creek township Phase 2 and Union Township Phase 3 for groundwater quantity management.
- TBNRD has limited pumping in Union Township in Gosper County to 27” per acre over three years.
Integrated water resources management

- Managing groundwater to protect streamflows.
- Required by state law (LB 962-2004)
- Also required to help Nebraska meet requirements of interstate agreements (e.g., Republican River Compact)
Integrated water resources management (continued)

- Regulation is based on meeting requirements of joint integrated management plans (IMPs) in Platte and Republican basins.
Turkey Creek
West Branch
TBNRD regulatory actions to protect streamflows

- All groundwater-irrigated acres must be certified.
- Transfers of certified irrigated acres are regulated.
- Transfers of certified irrigated acres are pro-rated if the destination field has higher rate of stream depletion than originating field.
- Increases in water use for large commercial and industrial uses are also regulated and must be offset.
- TBNRD agrees to offset depletions to streamflows resulting from groundwater pumping as part of our IMPs.
TBNRD Platte Basin IMP requirements

• TBNRD includes both overappropriated and fully appropriated portions of Platte basin.
• TBNRD IMP streamflow depletion reduction requirements to return to 1997 levels of depletions:
  ▪ **OA Basin** (W of US Hwy. 183) **1775 a-f/Yr.** by 2020
  ▪ **FA Basin** (E of US Hwy. 183) **1760 a-f/Yr.** by 2020
  ▪ **Total** offset requirement= **3535 a-f/Yr.** by 2020
TBNRD Republican Basin
IMP Requirements

• TBNRD needs to maintain positive balance between imported water and depletions to streamflows

• TBNRD maintains this balance in three ways:
  ▪ Maintain GW levels at or above 1981-85 levels
  ▪ Regulate irrigated crop production
  ▪ Augment streamflows
Tri-Basin NRD Streamflow Depletions and Imported Water (Mound) Accretions at Tri-Basin NRD Southern Boundary

*2014-2021 extrapolated using trendlines*
Tri-Basin depletion offset projects
Streamflow augmentation vs. Regulation

- Augmentation can be accomplished directly or indirectly.
- Direct augmentation = pumping water into a stream or releasing water from a reservoir.
- Indirect augmentation = diverting water into canals and reservoirs and allowing it to seep into the ground.
What are alternatives to augmentation?

• Pay farmers not to irrigate
  ▪ Needed reductions can be achieved by acquiring easements
  ▪ Easements can be acquired from willing sellers or by eminent domain (using condemnation enables targeting areas of greatest benefit)
  ▪ NRD would need to retire irrigation on at least 50,000 acres in Platte basin and 10,000 acres in Rep. Basin
  ▪ Cost=at least $4000/ acre, $24 million total
Elwood Reservoir
CNPPID High Flow Diversions

• TBNRD works with CNPPID to divert high Platte flows into canals, Elwood reservoir.
• Over 46,000 acre-feet diverted since first diversions in 2008.
• Over 36,000 creditable a-f at NRD cost of $8-$24 per a-f (DNR pays half cost).
• Diversions into Elwood Reservoir and E-65 Canal benefit both Platte and Republican Basins.
J-2 Reservoirs
J-2 Reservoirs

- Partner in J-2 reservoirs project.
- NRD cost = $1,571,661 over three years.
- 2000 creditable a-f per year.
- 50 year agreement.
- Cost = $15 per creditable acre-foot.
North Dry Creek Streamflow Augmentation Project
North Dry Creek Streamflow Augmentation Project

• TBNRD developed first streamflow augmentation well project in Nebraska.
• Located on North Dry Creek (Platte Trib. Near Kearney).
• First well completed in 2011, second well in 2014.
• DNR paid 50% of cost.
• Anticipate $11-12 per creditable a-f cost.

• Current plan is to drill two pumping wells which will be located along Turkey Creek in Gosper County.

• Each well will be accompanied by at least one observation well.

• First observation well will be drilled this spring

• First production well will be drilled next winter (2015-16).
• A second production well is planned for 2019.
• Expected pumping rate is 1200 gpm per well.
• Expected output is 1000 acre-feet per well per year.
• Pumped water will be replaced by recharge into Elwood reservoir and E-65 canal.
• Most pumping will occur during spring and fall.
• NRD will assist with maintaining Turkey Creek in immediate vicinity of wells.
EQIP Special Initiative
USDA-EQIP Special Initiative

- Worked with USDA-NRCS on EQIP Special initiative to convert center pivot corners to grass, habitat (5-year contracts) starting in 2008.
- Total of 28 contracts (364 acres) enrolled.
- Created good upland game habitat.
- Not very effective as offset project (45 creditable a-f per year) because most corners enrolled were in low-depletion areas.