



Good Life. Great Water.

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**DEPT. OF NATURAL RESOURCES**

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# Lean Six Sigma Approach to Streamlined Processes

**Association of Western State Engineers  
Oklahoma City Workshop**

**26 June 2018**



# What is Process Improvement?

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- Process improvement is a formalized effort used to examine work processes and procedures in order to make them more streamlined.
- Process improvement gives employees the tools they need to tackle the problems they face in their everyday work.
- Process improvement is a staff effort: staff members serve as subject matter experts on a process; do the work of exploring the process and making changes; and execute the plan for an improved process.

# Why are we doing Process Improvement?

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Process improvement is vital to the State of Nebraska because if we have streamlined, durable processes, then we have a more durable government.

## 1. Governor's Priorities

- A More Efficient and Effective State Government
- A Customer-Focused State Government
- Grow Nebraska
- Improve Public Safety
- Reduce Regulation/Complexity

## 2. Retirements

- 54% of employees are eligible to retire in 2020.
- 67% of employees are eligible to retire by 2025.
- Historically, 75% retire between ages 60-69.
- Today, 2,817 employees are within the 60-69 age group.
- We lose critical knowledge every time an employee leaves because processes are not documented.

## 3. Continuity of Operations (COOP)

- Mission-critical processes need clear documentation so that, if a disaster occurs, operations can continue. An outcome of every process improvement project is a Standard Operating Procedure (SOP) document that records the improved process.

# Who is doing Process Improvement?

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- In Nebraska, process improvement is spearheaded by the Center of Operational Excellence (COE). The COE's goal is to help reduce waste and improve efficiencies.
- The COE cannot do process improvement alone and uses agency-based Process Improvement Coordinators (PICs) to carry out day to day process improvement work.
- The coordinators work with individual business units who usually initiate the procedure

# How are we doing Process Improvement?

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- The Center of Operational Excellence (COE) uses Lean Six Sigma to help reduce waste and improve efficiencies. The COE's mission is to pursue operational excellence at every level to deliver value by:
  - Driving improvement through effective practices of daily management and problem solving.
  - Equipping employees with proper process improvement training.
  - Minimizing non-value added activities (e.g., re-work, handoffs, layers of approvals) through the use of projects and events.
  - Promoting agency awareness and opportunities for continuous process improvement.

# The DMAIC Methodology

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## Define

Define the problem you are working on.

## Measure

Measure current performance and define how project success is determined.

## Analyze

Identify the root cause of problems and non-value added activity.

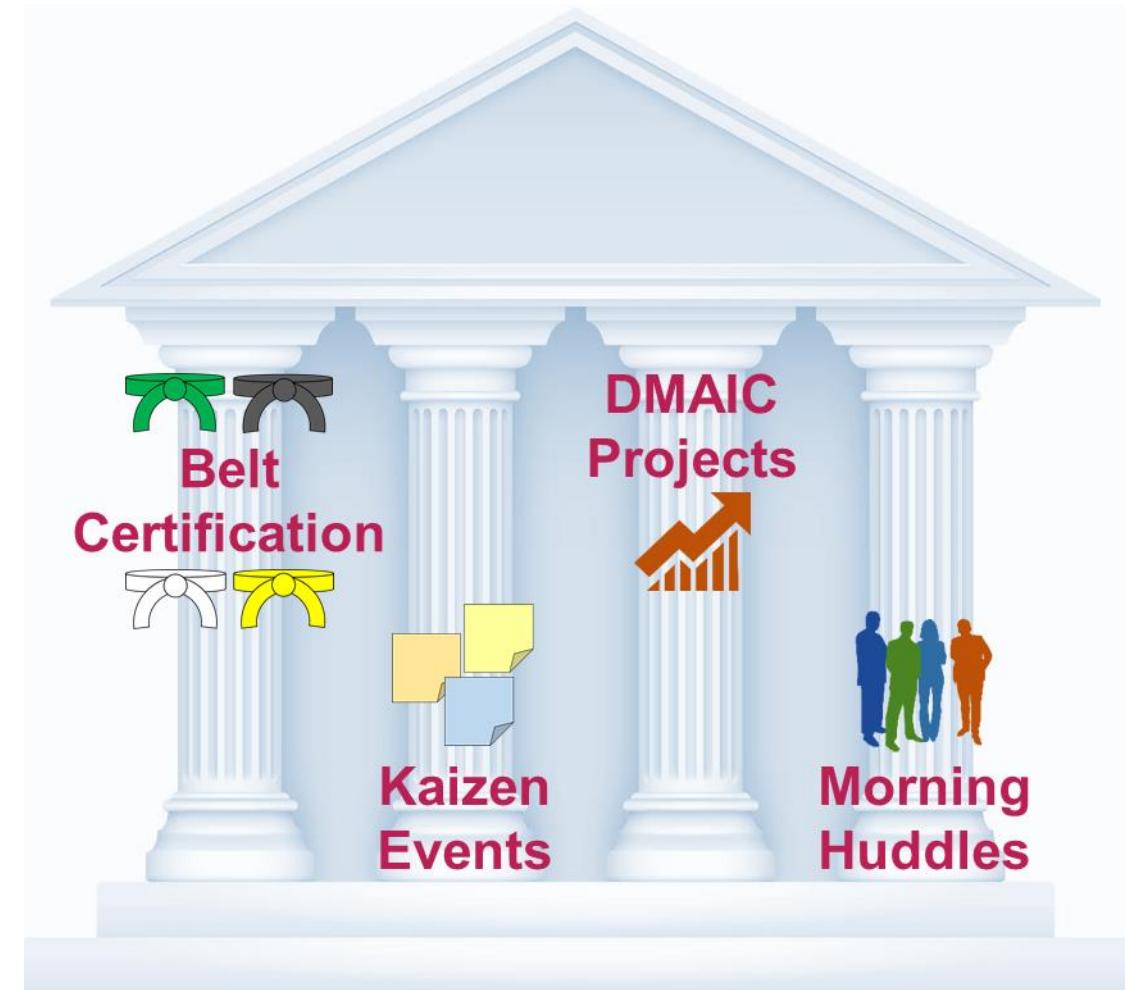
## Improve

Improve the process by eliminating waste or defects.

## Control

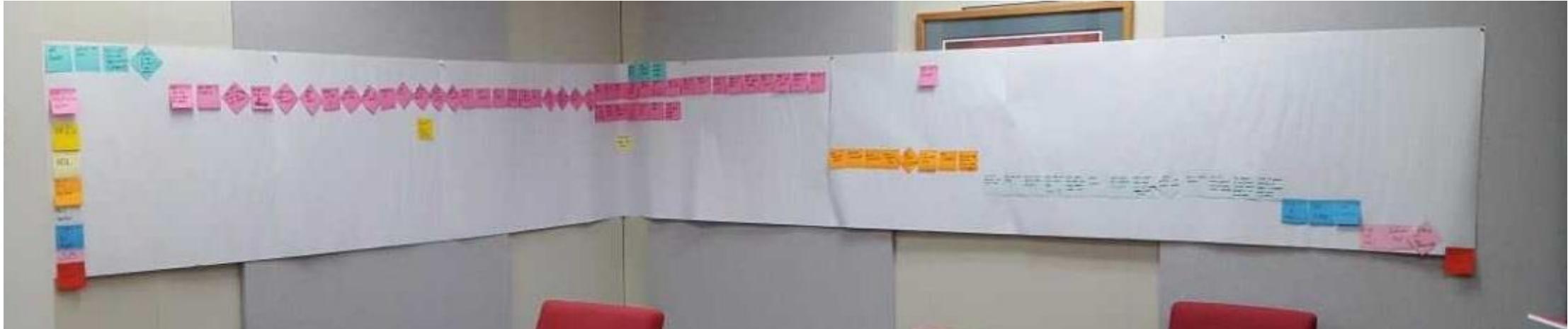
Put a plan in place to maintain the gains.

# Four Pillars of the COE



# Groundwater Well Registration Current State Map

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Lead Time: 2-4 days depending on geographical location of customer

Processing Time: 45 min

Steps: 84

Value Added Steps: 2

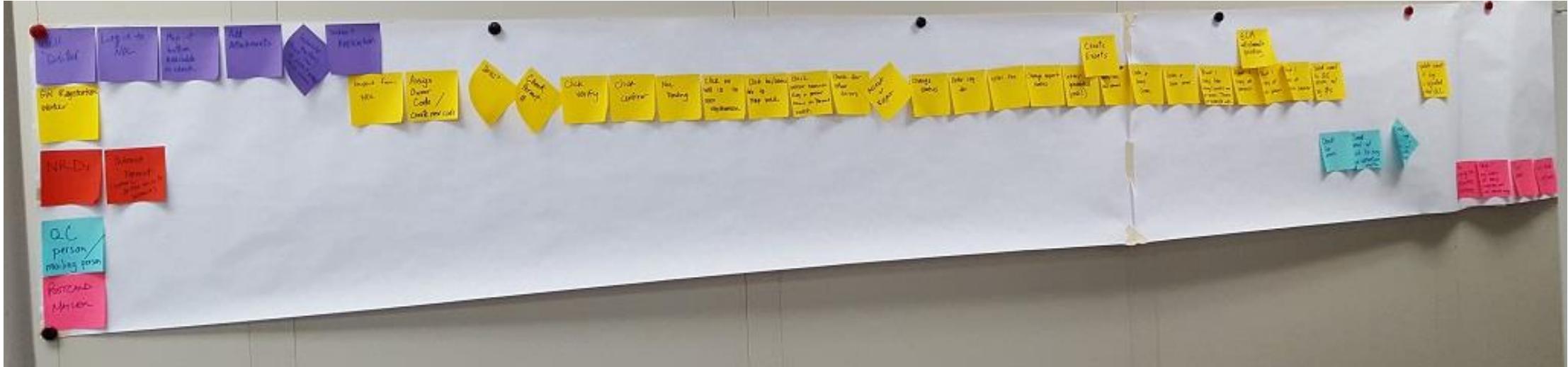
Reworks: 3

Handoffs: 6

Delays/Waits: 2

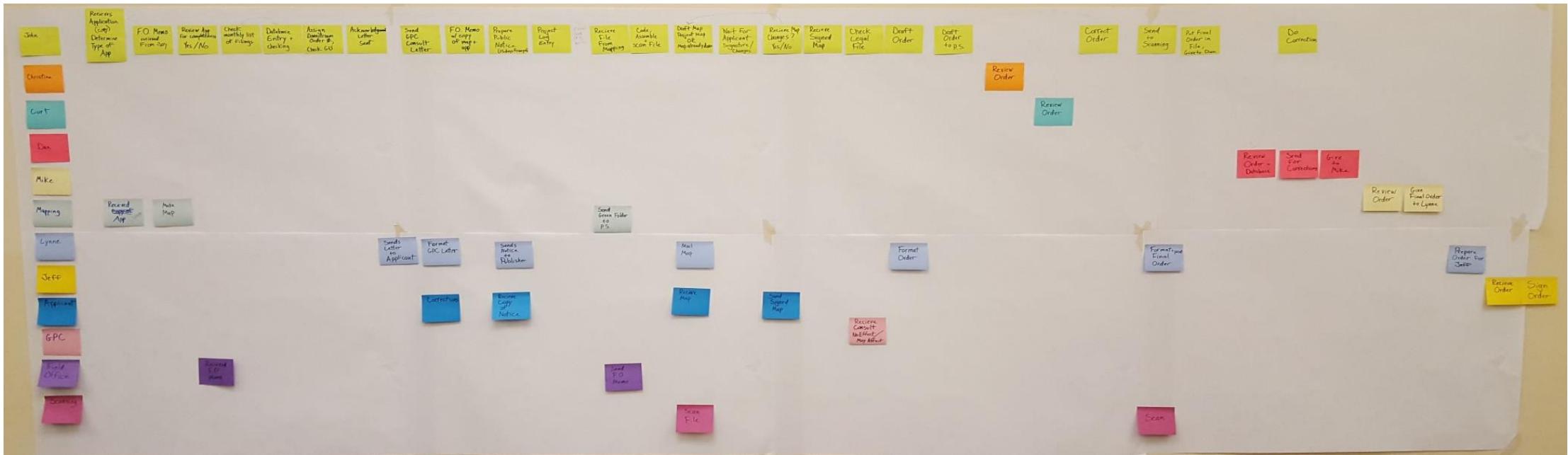
Total Quality Checks: 1

# Groundwater Registration Future State Map



Steps: 43  
Value Added Steps: 2  
Reworks: 3  
Handoffs: 3  
Delays/Waits: 2  
Total Quality Checks: 1

# Surface Water Permitting Current State Map



Lead Time: 18 weeks

Processing Time: 905 minutes

Steps: 50

Value Added Steps: 13

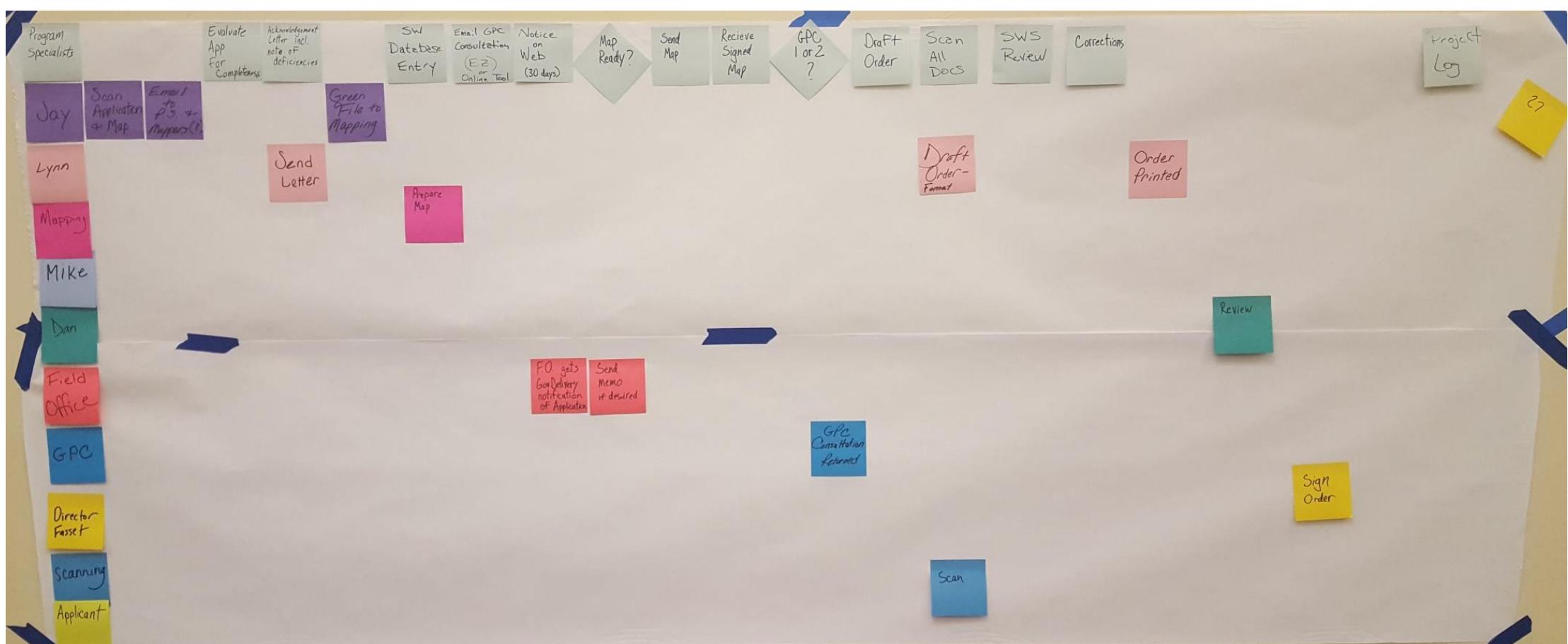
Reworks: 5

Hand-Offs: 7

Delays/ Waits: 6

Total Quality Checks: 6

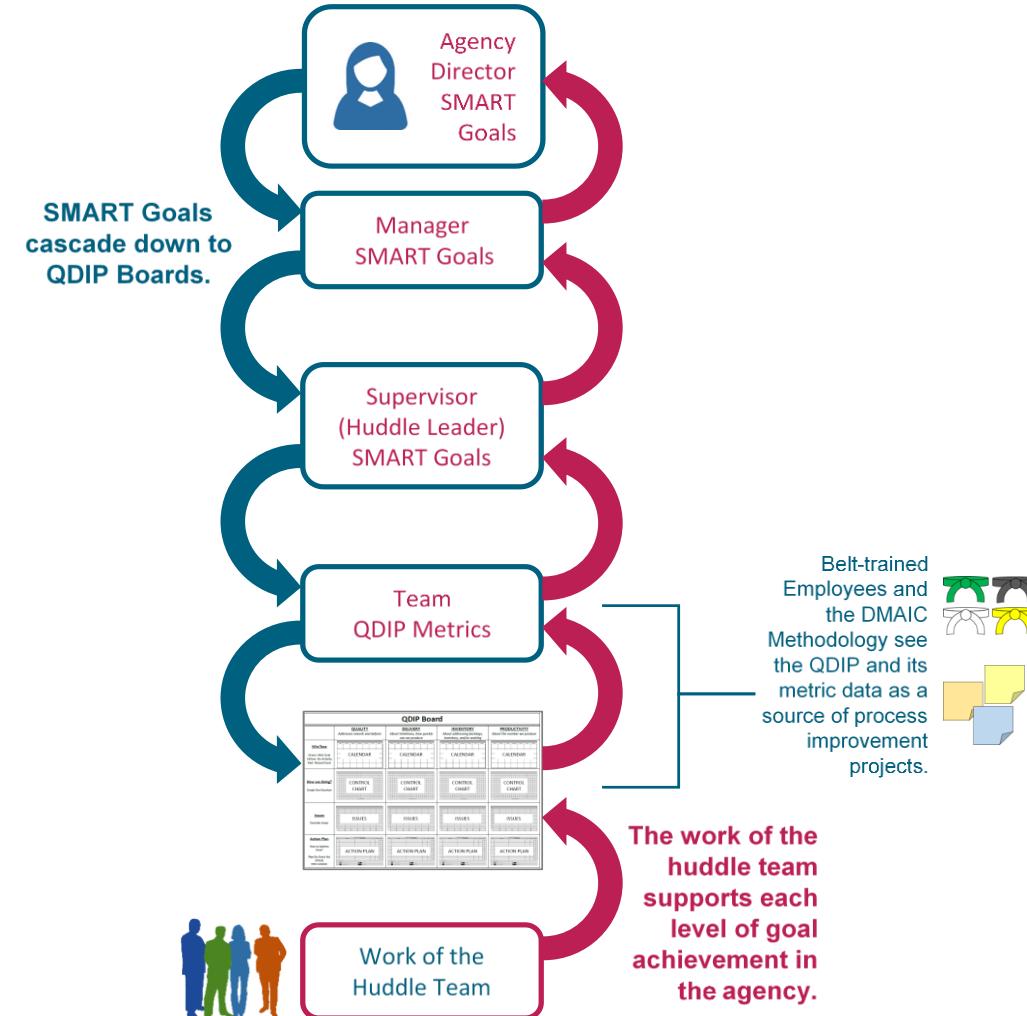
# Surface Water Permitting Future State Map



Lead Time: As little as 5 weeks; averaging below new goal of 15 weeks  
27 Steps

# QDIP Metrics

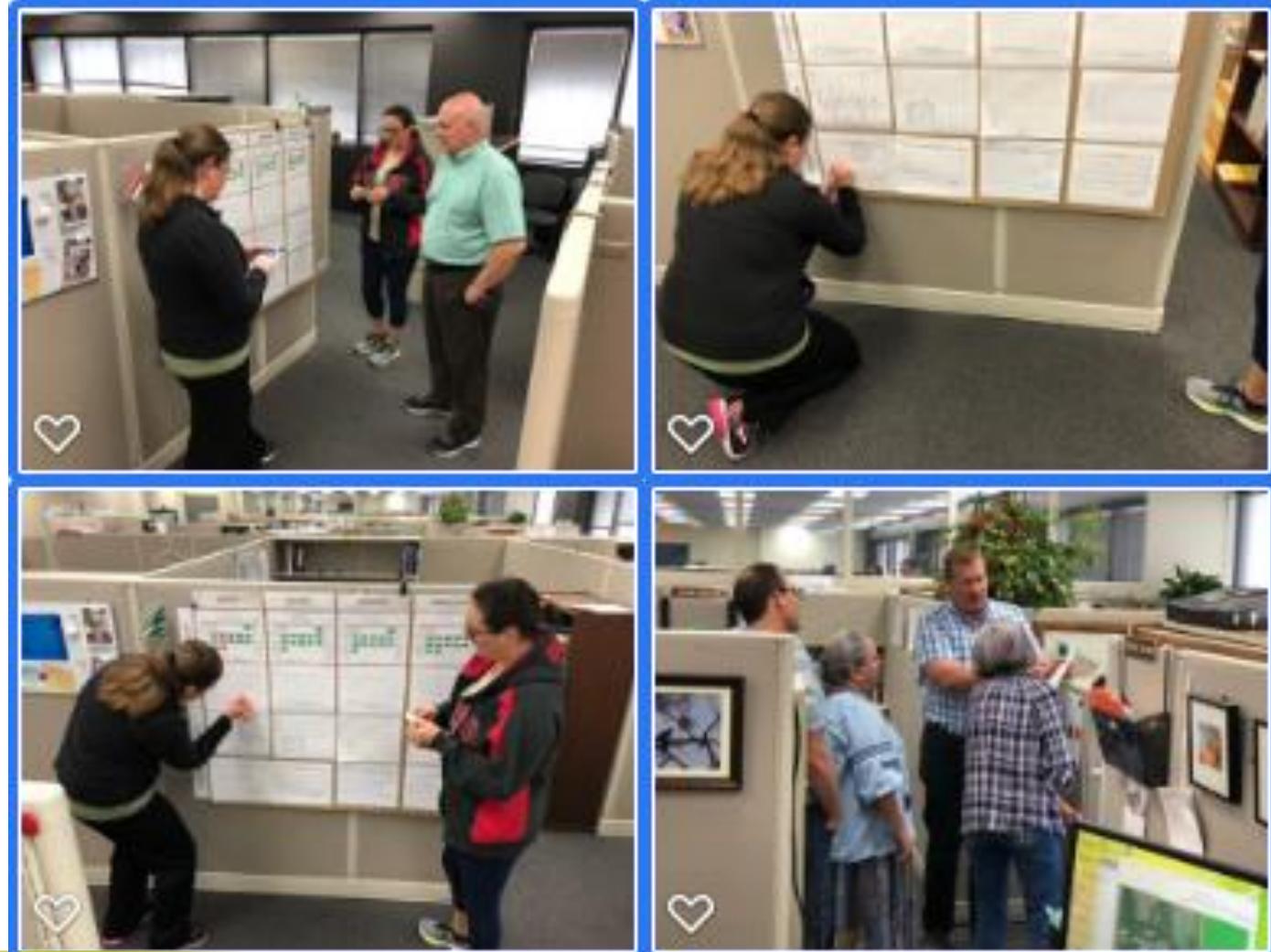
- QDIP metrics should be in alignment with supervisor and manager SMART goals
- When Green Belts visit QDIP areas, the following are common feedback points:
  - Acknowledging a recent improvement in a metrics trend.
  - Ensuring that red days are documented in the Pareto section and action plans created as needed.
  - Feedback to the supervisor on length of meeting and tone of team.
  - Identification of an inaccurate metric.
  - Setting up a meeting with Yellow Belt to analyze data trends.
  - Use and training of the 5 Whys and the Fishbone diagram.
  - Helping the team understand what ownership of the QDIP board looks like.



# Morning Huddle

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- Record the previous day's metric data
- Graph common themes
- Analyze causes for red flags
- Record solutions to be implemented



# QDIP Board for Groundwater Section

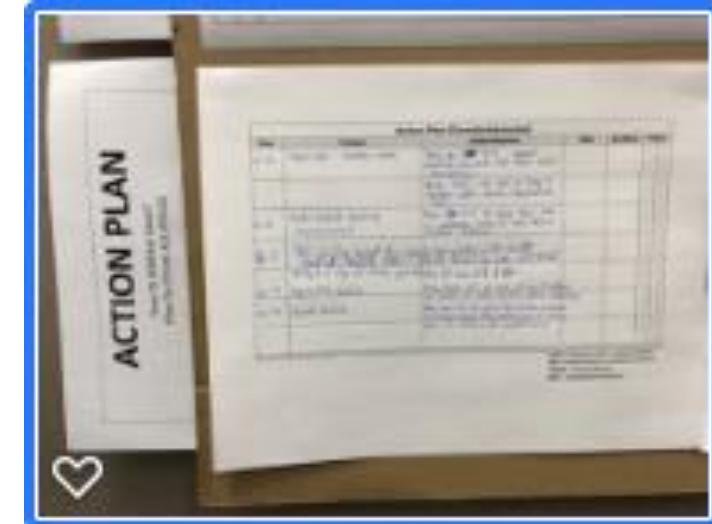
- Quality – fewer than 10% rejected
- Delivery – forms started but not finished
- Inventory – forms processed same day
- Productivity – number of forms processed



# QDIP Board Analysis

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- Top issue this month is incomplete ownership forms
- Action 1 – Webinar & meeting were conducted to explore implementation of online forms for ownership updates
- Next most common issue is coordinate mismatch.
- Action 2 – Will work with IT to implement a “MapIt” button for use within the online well registration website



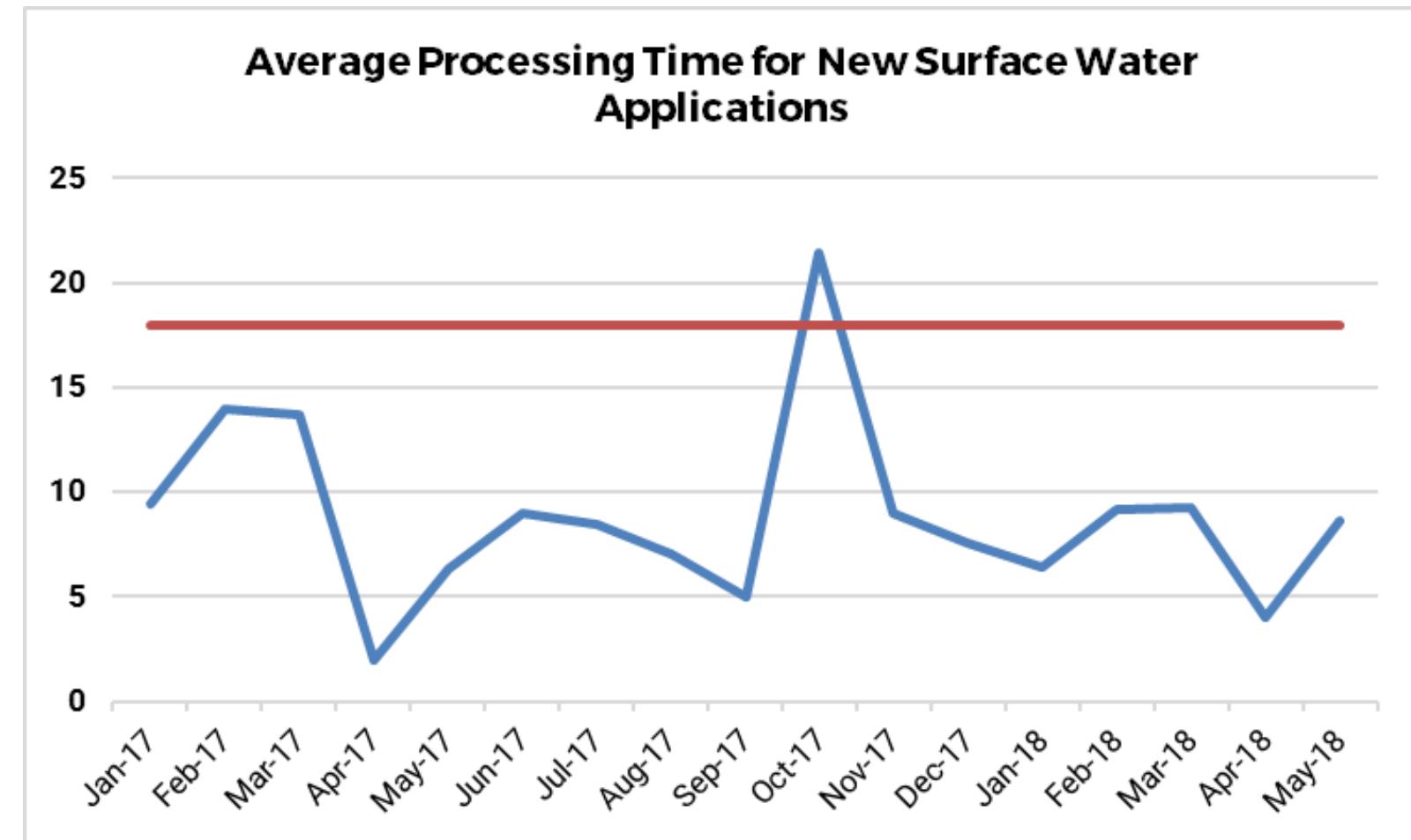
# S.W. Permitting Improvements

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- Simplified and condensed language used in approval Orders to reduce time in composing and improve ease of understanding for customers.
- Streamlined document processing by producing electronic versions of correspondence thereby reducing the amount of paper documents produced and nearly eliminating the need to scan the physical document.
- Streamlined process for placing electronic documents into our Integrated Water Information Project (IWIP) by developing a method where staff can import documents directly rather than relying on staff from other divisions.
- Working with applicants earlier in process to reduce errors in filings which also reduces time needed for staff to process applications.
- Created and implemented a data structure which allows internal and external users to easily identify the surface water permits associated with specific irrigation districts across the state.

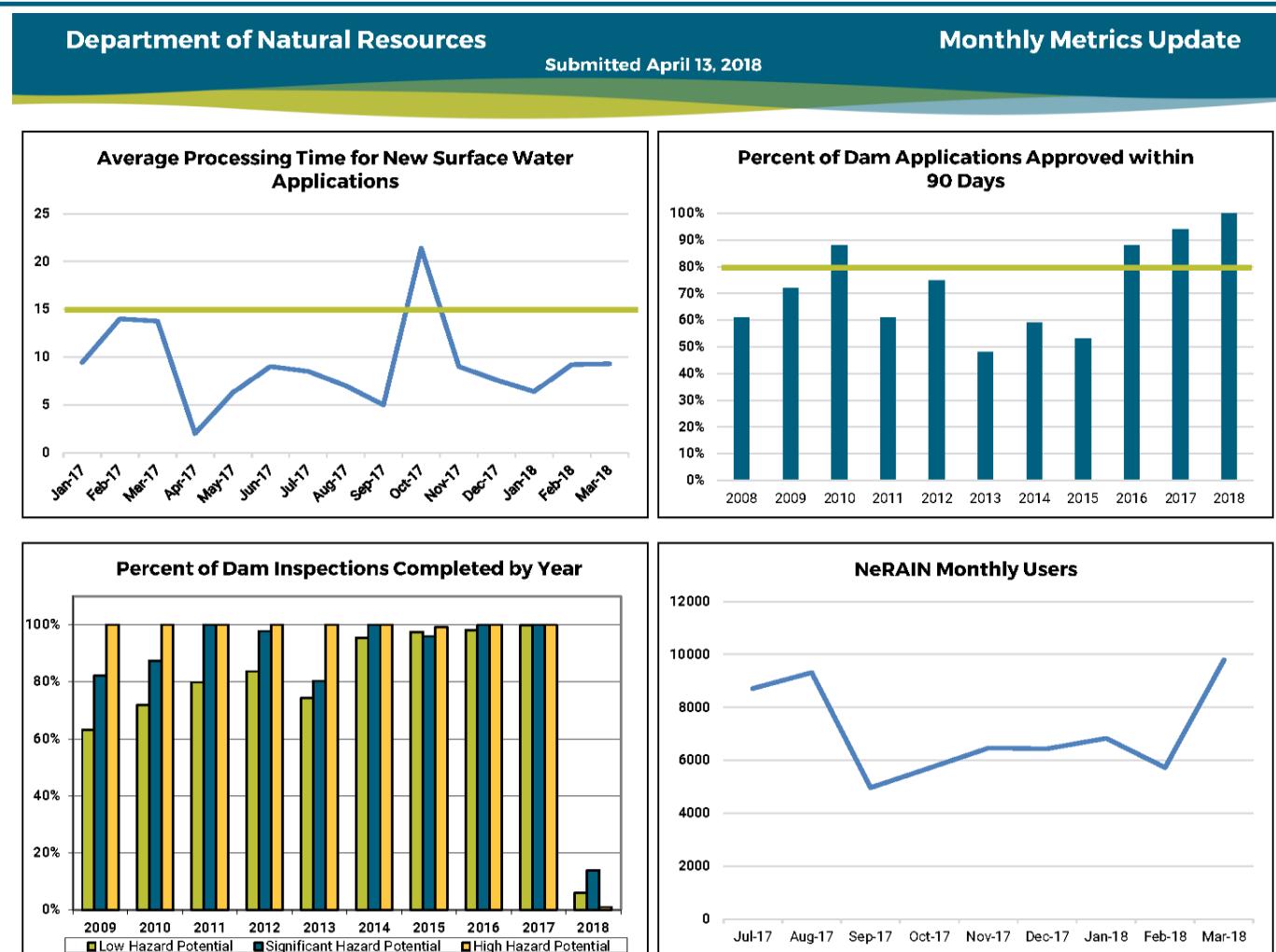
# Surface Water Permitting Success

Red line is 18 weeks which was the prior ten years AVERAGE processing time. That average was set as the upper limit for first metrics increment beginning in July 2015.



# Monthly Metrics Report to Governor

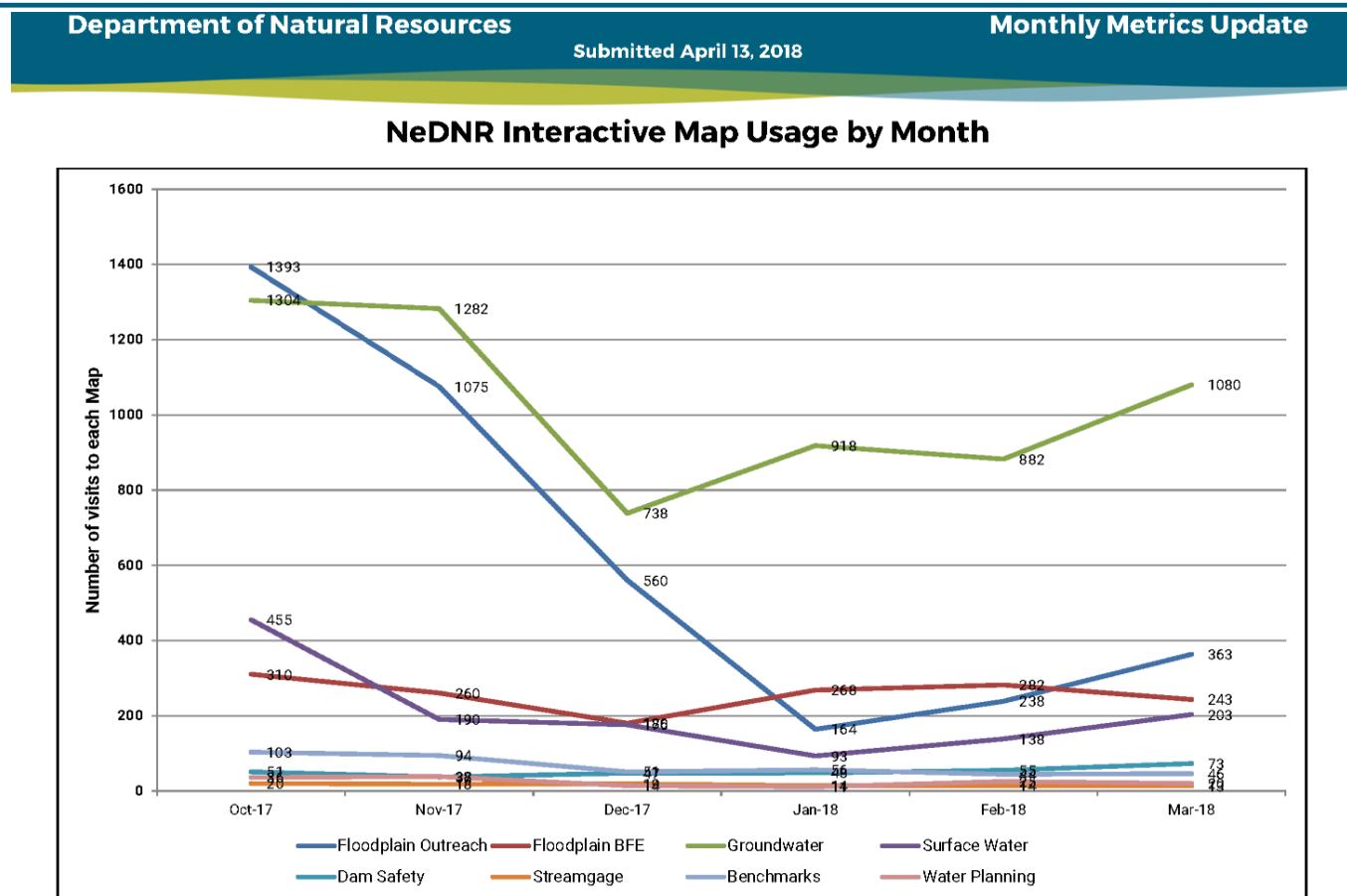
Inspections and Permitting performance metrics and a public raingage program are displayed on first page.



# Monthly Metrics Report to Governor

Web statistics on page 2.

Groundwater well data, surface water rights and floodplain data are always at the top of the charts.



The Interactive maps provide another means for users to locate, view and retrieve data on wells, water rights, floodplain areas, streamgages and more. The map allows users to zoom to the area they are interested in, locate the item of interest, view associated data and print out maps.

# Monthly Metrics Report to Governor

Emerging issues and accomplishments on pages 3 & 4.

This month the P&R Division reduced steps, time and handoffs to get documents scanned & coded.

Department of Natural Resources	Submitted April 13, 2018	Monthly Metrics Update
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## Emerging Issues & Accomplishments

### Permits and Registrations

The Permits and Registrations Division has reduced the steps involved in getting documents scanned into our document management system in IWIP. The new methods will also reduce the likelihood of coding errors caused by multiple handoffs. Additionally, benefits and details of this project will be captured in the Department's monthly COE report.

On April 4, 2018 the Central Nebraska Public Power and Irrigation District (CNPPID) and the Platte Republican Diversion Interlocal Agreement Partners (PRDIAP) jointly filed application A-19594. PRDIAP is a partnership formed by the Lower Republican Natural Resources District and the Tri-Basin Natural Resources District for purpose of developing an interbasin surface water transfer project from the Platte River Basin to Republican River Basin. The purpose stated on the application is "Interstate Compact Compliance." If approved, the water would be transported through CNPPID's canal and reservoir system to a point of discharge into Turkey Creek, which is a tributary stream to the Republican River. The Department is reviewing the application for completeness and any omissions or errors will be related to the applicants and they will be given 90 days to correct identified deficiencies. Once the Department determines the application is complete it will prepare and release a public notice. Significant interest has been expressed by multiple entities on the status of this application.

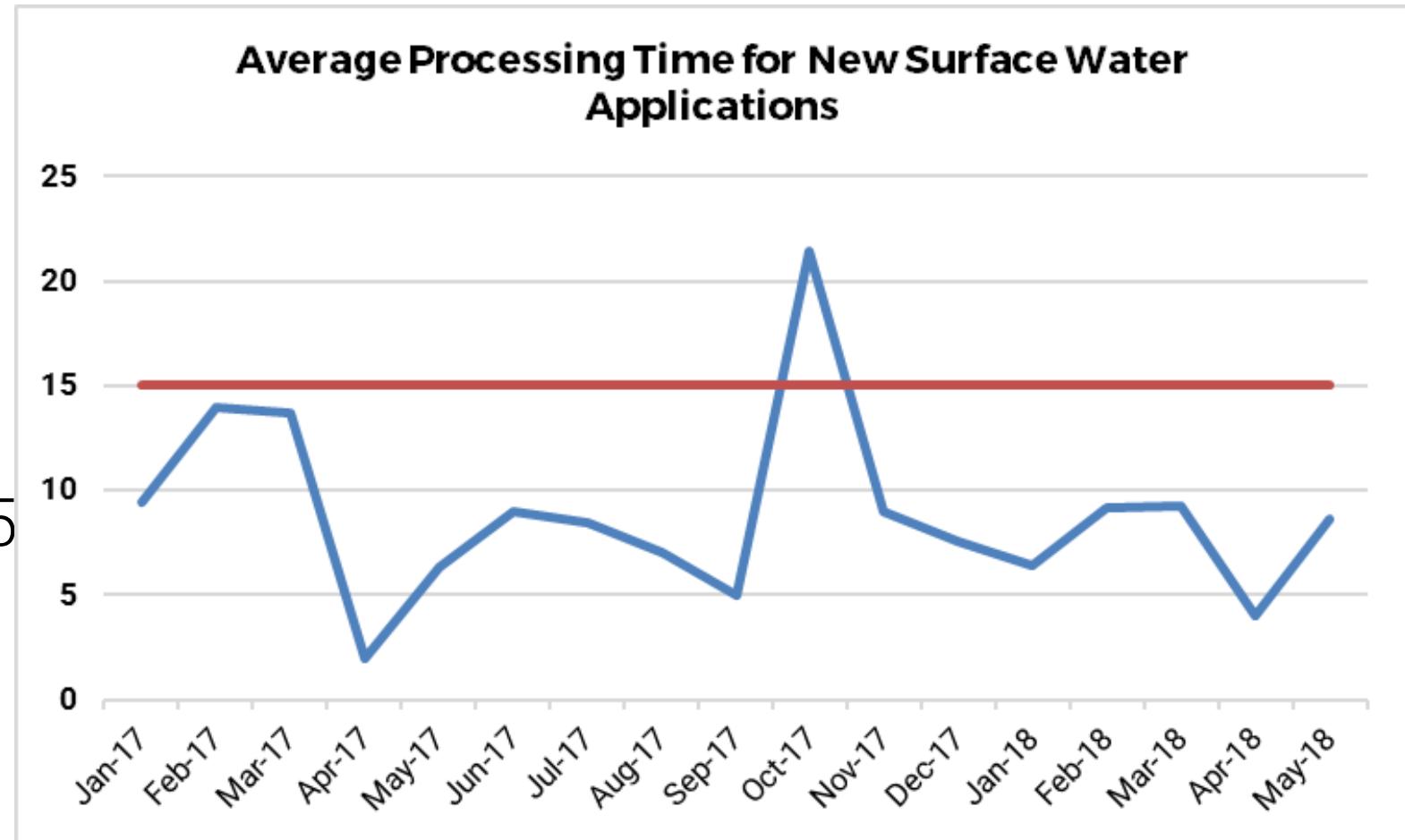
### Water Planning

The Republican River Basin and Platte River Basin will be completing statutorily required basin water management plans in the six to twelve months. The basin wide plans provide the broad goals and objectives that will drive NeDNR/NRD individual integrated management planning actions for the next five to ten years. These plans require agreement between NeDNR and the collective group of NRDs participating in each basin. Extensive open and transparent stakeholder processes have been in place for the past few years in each basin but full consensus amongst all of the various stakeholders interest may not be achieved. The lack of consensus may create friction between stakeholders groups and/or NRDs and NeDNR. While no specific points of disagreement have been identified at this time, disenfranchised stakeholders may begin to reach out to the governors office or local senators. We will continue to provide updates on this topic until the basin-wide and integrated management plans are formally adopted, which will likely occur in 2019.

The Platte River Recovery and Implementation Program extension continues to proceed. The NEPA process is currently moving forward with public meetings and draft legislation is being reviewed amongst the various GC principles.

# Surface Water Permitting New Goal

With a few exceptions, new surface water permit applications have been processed well under the goal of 15 weeks for the last several months.





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