

Electronic Plan Submittal for e-Construction

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Overview



- e-Construction (e-CN)
- Initiatives & Progress
- e-Plans

What is e-CN?

Defined as:

- Paperless construction administration delivery process
- Includes electronic submission of all construction docs
- By all stakeholders, electronic document routing/approvals (e-signature), and digital management
- In a secure environment allowing distribution to all project stakeholders through mobile devices

What is e-CN?

- Creation
- Review
- Approval
- Distribution
- Storage

...of highway construction documents

e-CN Documents

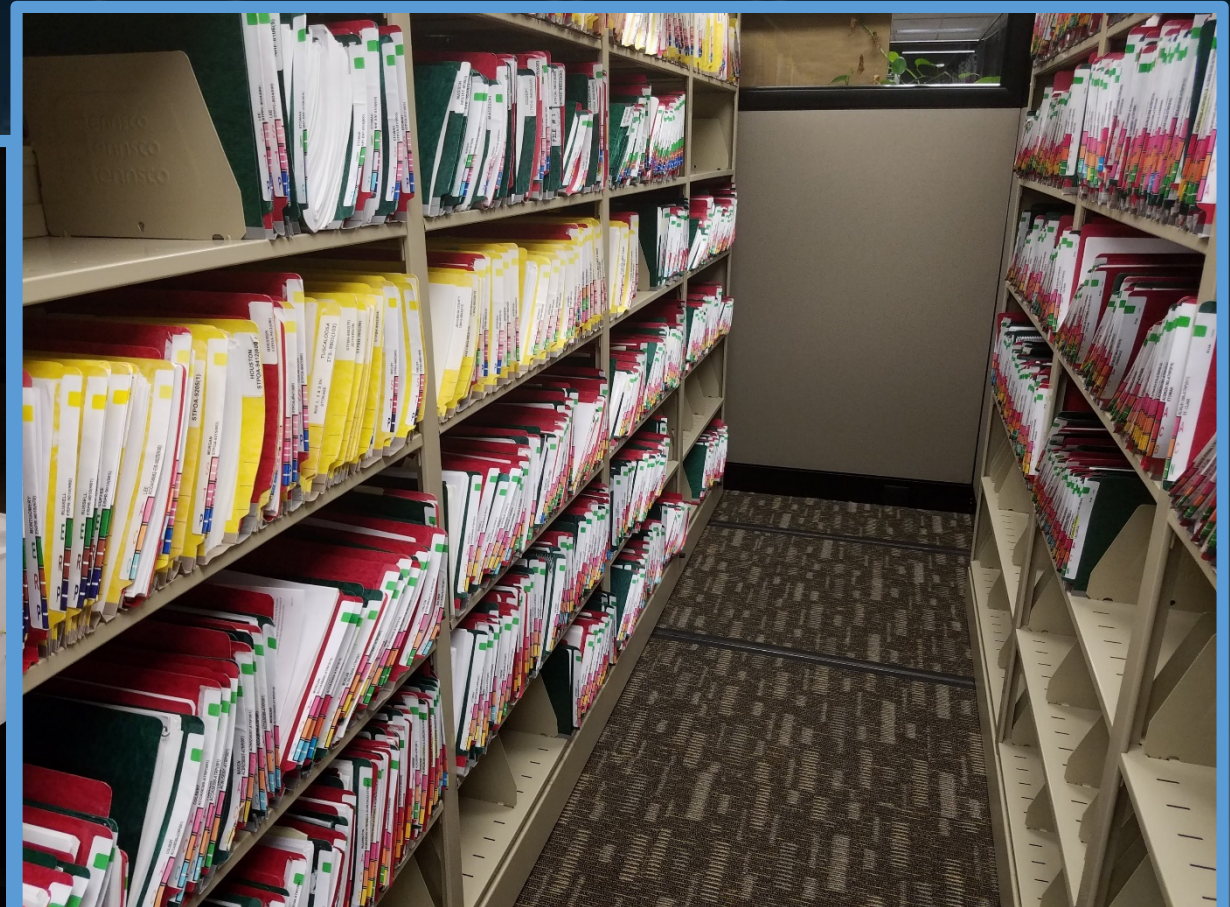
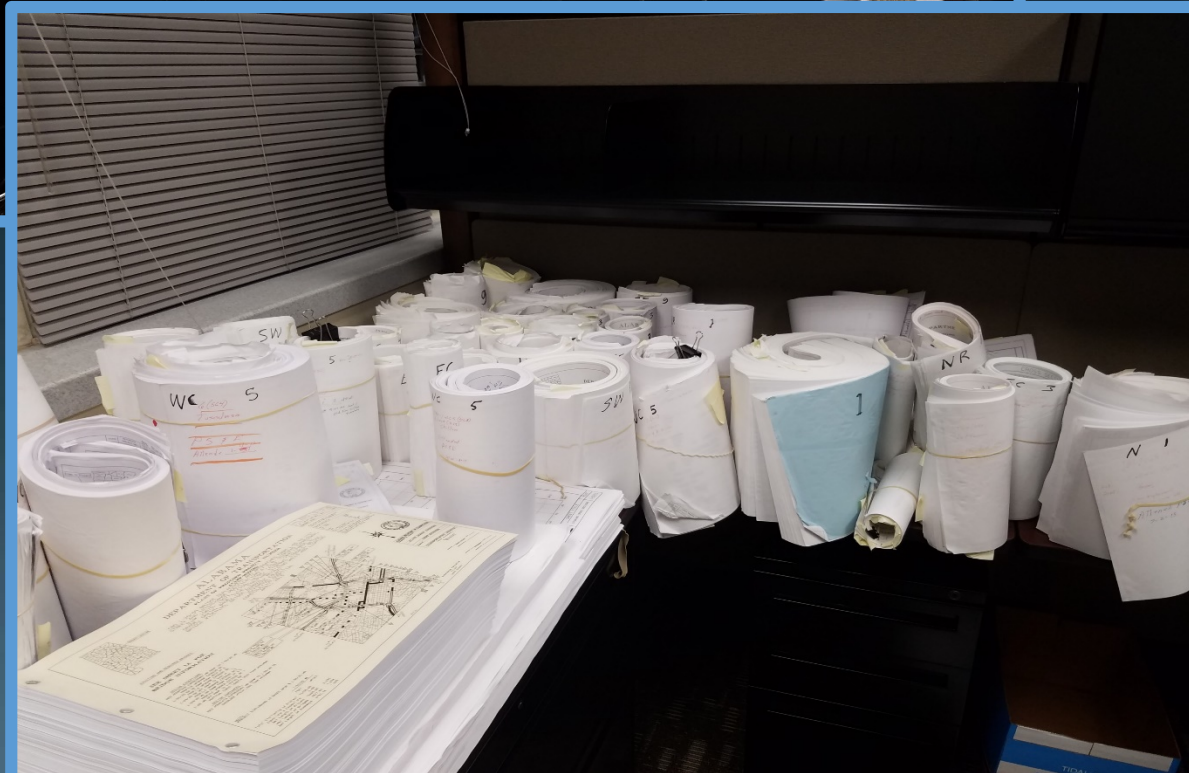
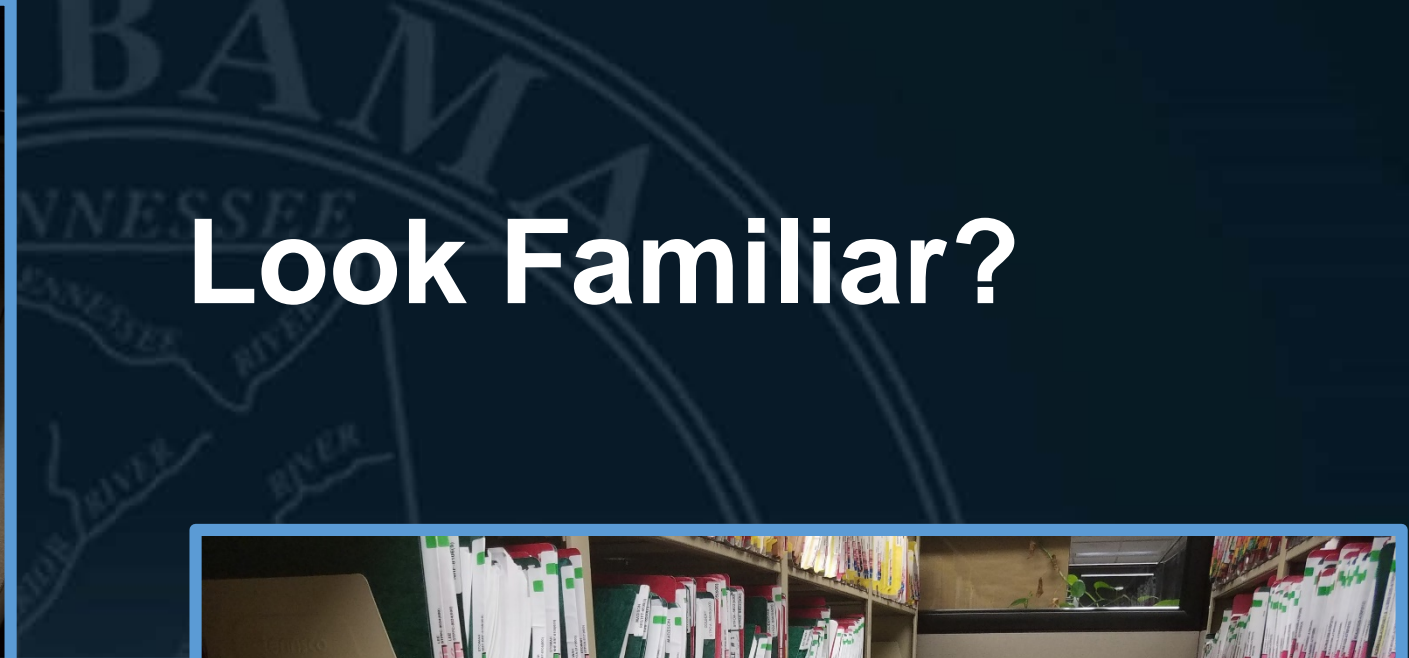
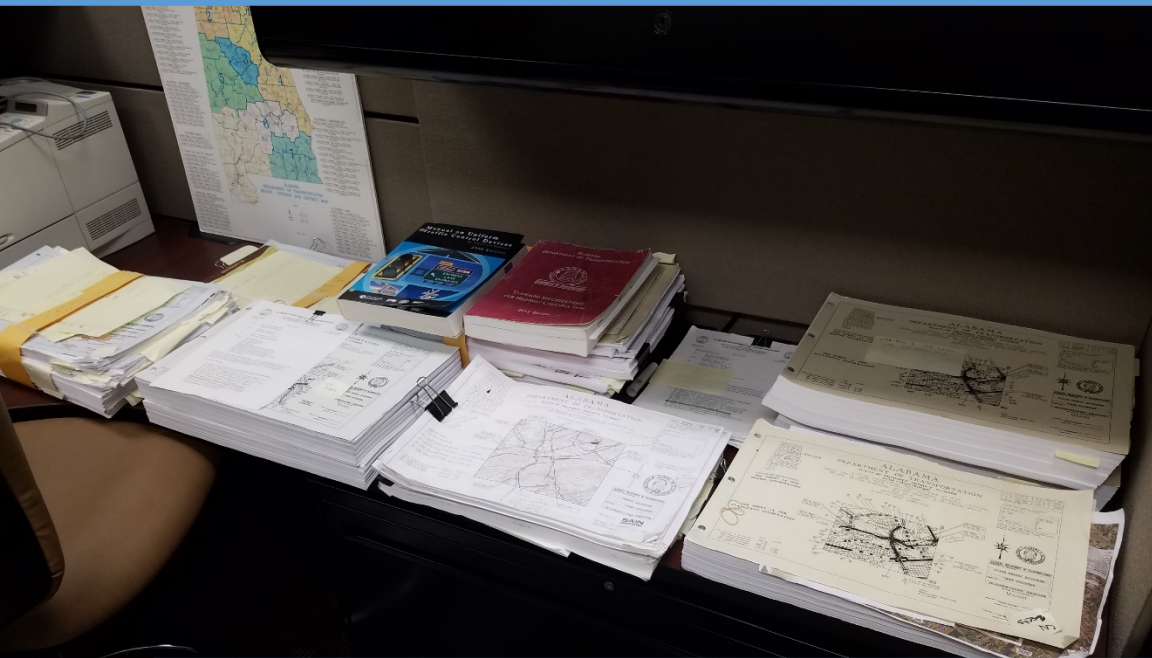
- Plans
- Specifications
- Contracts
- Submittals
- Correspondence
- Field Books
- Calculation sheets
- Inspector Reports (DWRs)
- Diaries
- Construction forms
- Handwritten notes
- Reference material
- Tickets

The background of the slide features a large, faint watermark of the Alabama state seal. The seal is circular and contains a map of Alabama with major rivers labeled: Tennessee River, Warrior River, Black River, Cahaba River, and Coosa River. The word 'ALABAMA' is arched across the top, and 'TENNESSEE' is written below it. The word 'MISSISSIPPI' is written vertically on the left, and 'GEORGIA' is written vertically on the right. There are three stars on the right side of the seal.

Why e-CN?

- Save money
- Save time
- Minimize Duplication
- Integrity of data
- Availability of data
- Improved inspection process

Efficiency



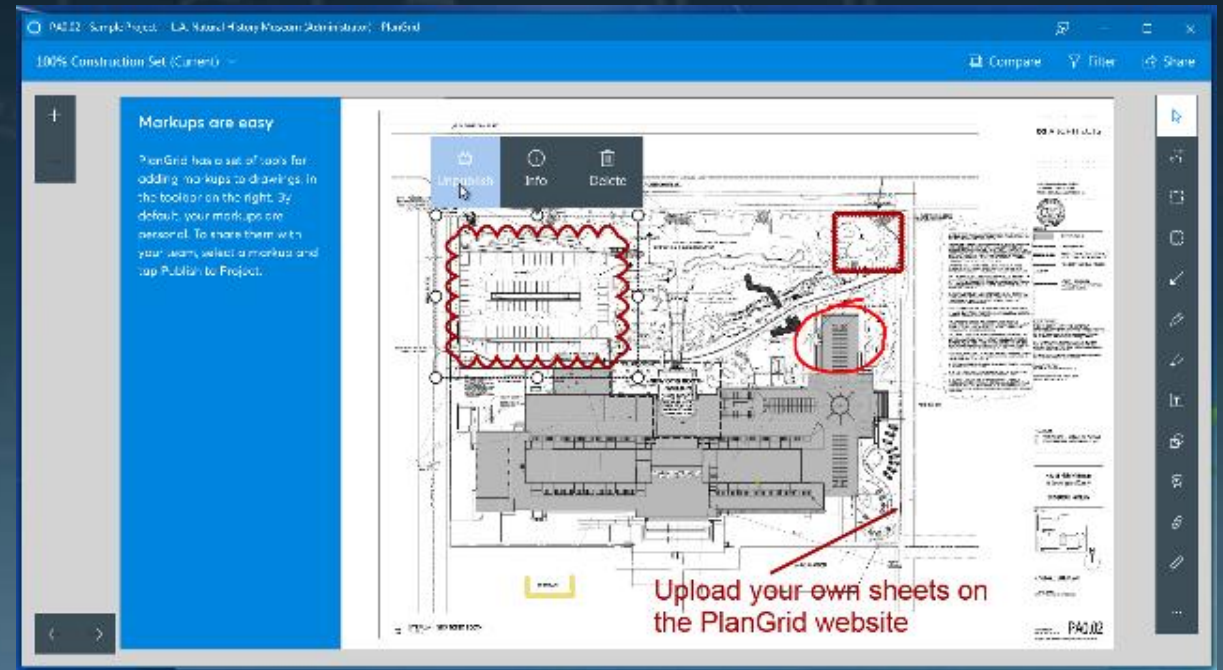
The Future of e-CN



Apple iPad



Windows Surface



Initiatives

- Tablets
- e-Plans
- e-documents/forms
- Standard Specifications and Special Provisions
- Construction Manual
- Integrating Contractors
- Digital or e-Signatures
- Document Management (e-submittals)
- Document Retention
- e-Tickets
- System Coordination
- Bar Codes/RFID
- 3D Modeling
- UAV for inspections/surveys

Progress

Tablets

- Major accomplishment in 2017 was iPads
- Procured 254 for ALDOT personnel
- Approx. 64% of inspection staff
- Directed consultants to provide for theirs

Progress

Tablets

- Inspectors record work in CAMMS as it happens
- Minimizes travel back to trailer at end of day
- Saves on OT (\$\$\$) to do paperwork
- Gives inspectors back their personal time 😊

Progress

Tablets

- Access to CAMMS
 - Functions on mobile devices
 - Real time data entry of project records
 - Offline “app” in development
- Access to plans, forms, weather, email, calendar, manuals, submittal management, and more
- Reduces office time

Progress

Standard Specifications

- 2018 Spec Book is online and link in CAMMS
- Some Special Provisions being loaded
- Working to provide all them through interface with OE

Progress

Document Management

- Electronic submittal and handling of files
- Advantages:
 - Reduced printing costs
 - Reduced mailing/shipping costs
 - Minimizes review time
 - Availability of data

Progress

Document Management

- 4 Current pilot projects
- Using third party software
- 10,000 documents submitted
- 600,000 pages saved from printing
- Savings of over \$100k on printing/shipping
- Submittal time is instant
- Review time is slashed

Progress

Document Management

- Exploring options long-range
 - In-house developed part of CAMMS
 - Sharepoint based
 - Third party software

Progress

e-Tickets

- 2 pilot projects ongoing
- *Fleetwatcher* software by *Earthwave*
- Interested contractors
- Utilized IowaDot spec and added by change order
- All paper ticket data on web
- Still using paper tickets

Progress

e-Tickets

- Provides additional info that has proven useful to inspectors
- Monitors truck location
- Can minimize need for inspector
- Also removes inspector from hazard of collecting ticket in between equipment and traffic

Progress

- Many other initiatives
 - Such as UAVs (J.D. yesterday)
 - Peer exchange with another DOT coming soon
- Trying to make progress on all
- These few show impact of e-CN
- Need for e-Plans

e-Plans

- Currently, copy As-let plans
- Scanned files in Hummingbird
- Loaded in CAMMS
- Available to all inspectors
- Is helping them so far

e-Plans

- BUT...
 - File size is 3.5x larger
 - Memory and system drain
 - Image quality is fair
 - No search (OCR – Optical Character Recognition)
 - Can't do As-built mark-ups

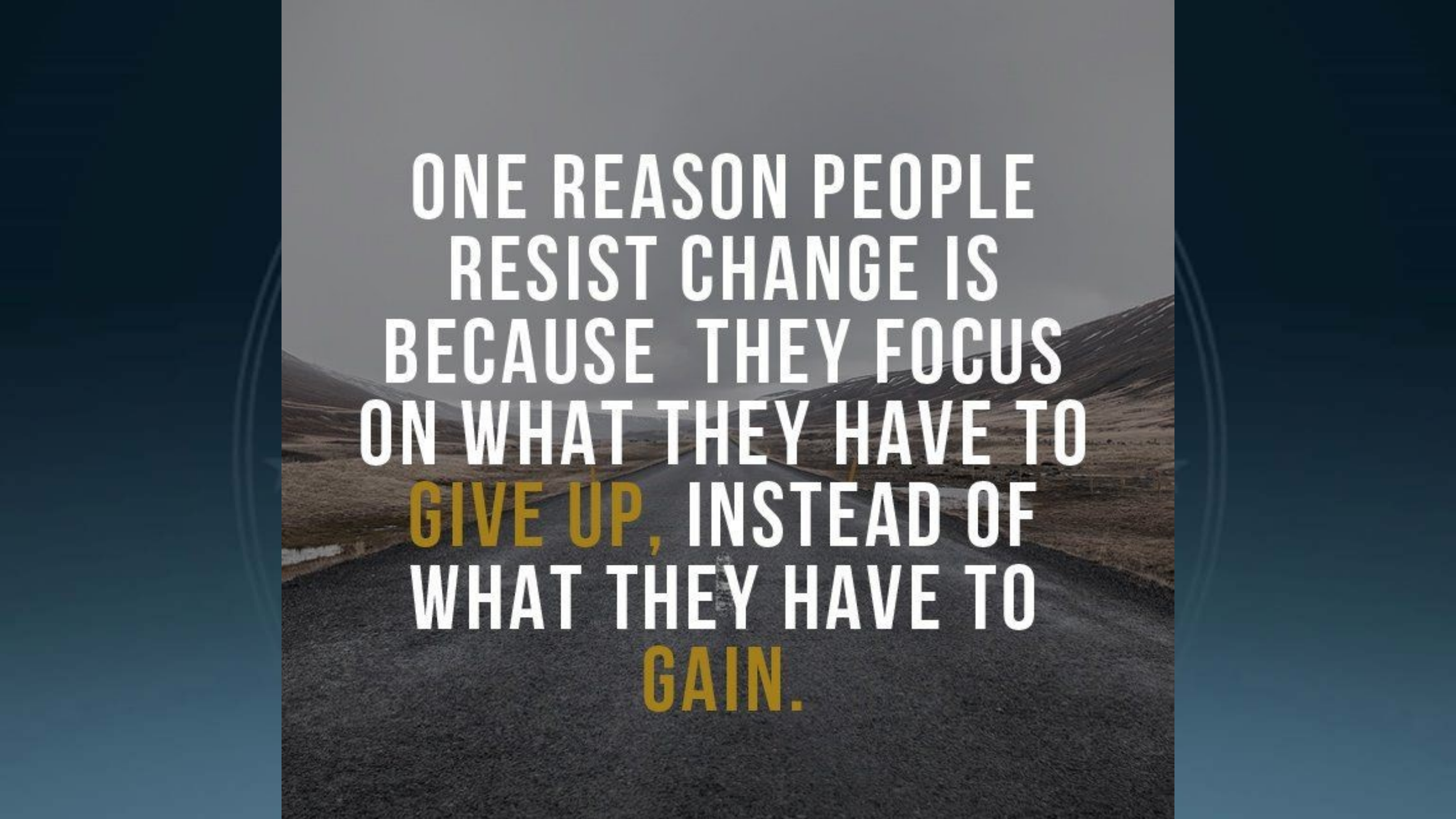
e-Plans

- *GFO 3-77 (Draft) - As-let Plans for e-CN*
- Coordinated effort:
 - Construction, Design, Bridge, ROW/Utility, OE, Local Transportation, etc.
- Transition from printed plans
- Lead designer saves as “printing to PDF”
- Lance is about to explain more

e-Plans

- Benefits:
 - Paper savings
 - Find info faster
 - Reduced file size
 - Image quality
 - Searchable
 - Markups and As-built plans

THE FUTURE!!!

A gravel road winds through a hilly landscape under a cloudy sky. The text is overlaid on the image.

ONE REASON PEOPLE
RESIST CHANGE IS
BECAUSE THEY FOCUS
ON WHAT THEY HAVE TO
GIVE UP, INSTEAD OF
WHAT THEY HAVE TO
GAIN.