2013 Traffic Design Manual

2013 Annual DOTS Winter Workshop

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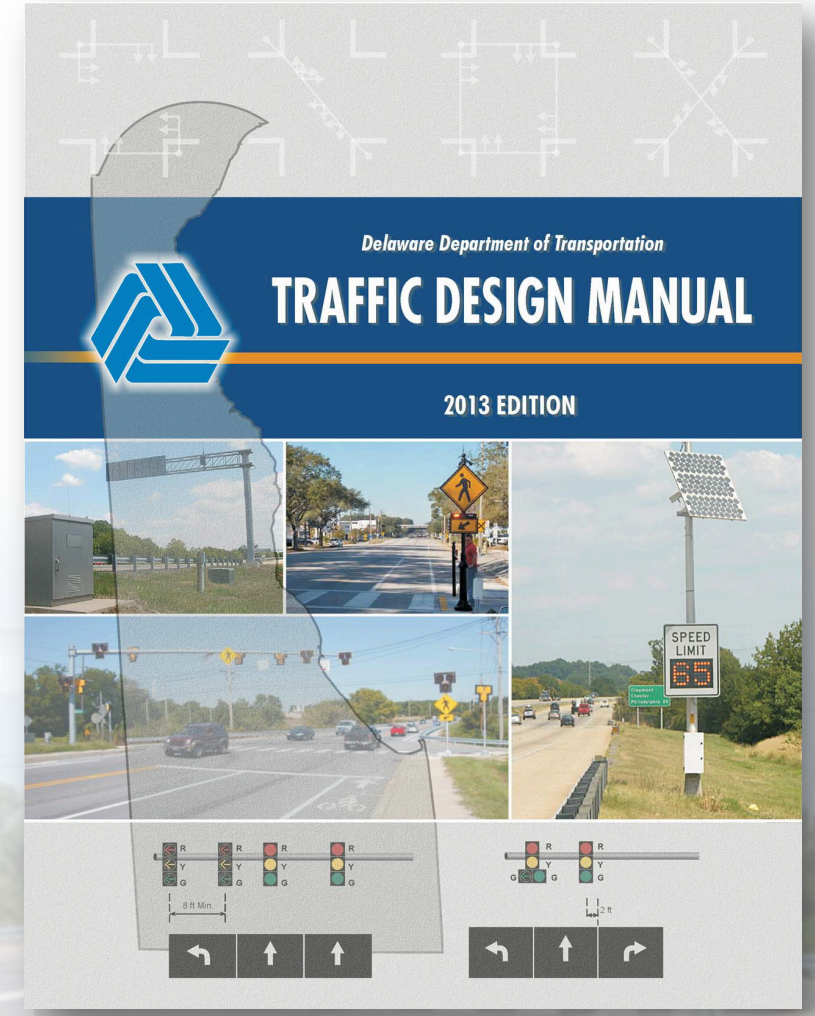
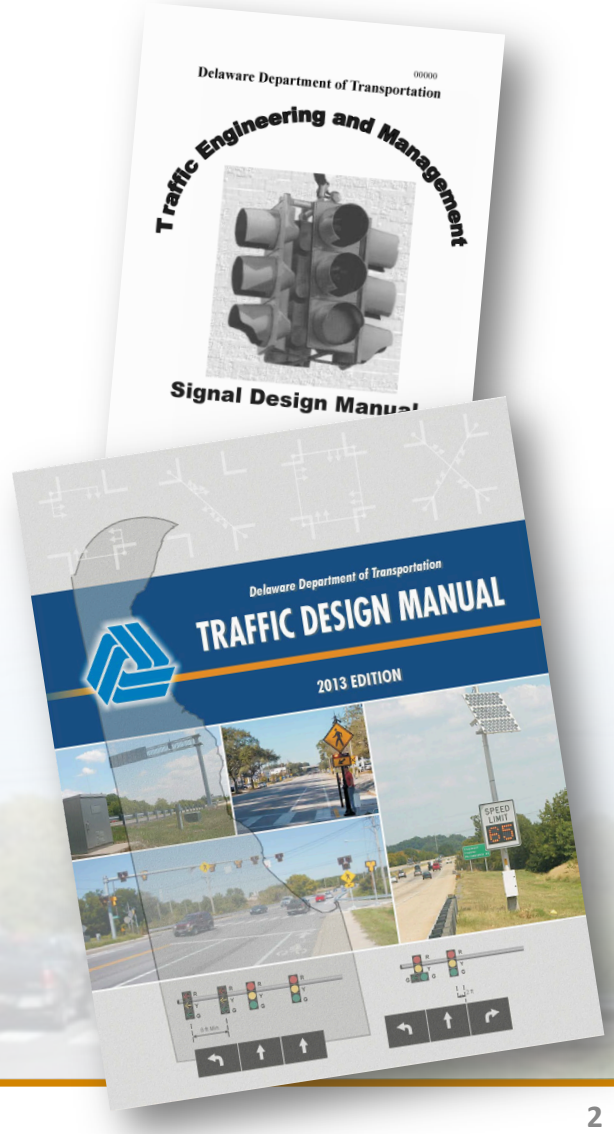
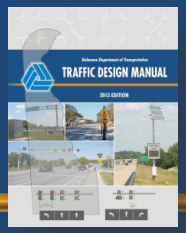


2013 Traffic Design Manual

- **Originally Started Simply as an Update to the DelDOT Signal Design Manual**
- **That Would Have Been Too Easy!…**
- **Evolved into Entirely New Manual:**
  - Completely Reorganized
  - Now Addresses All Types of Traffic Devices (Signals, ITS Devices, etc)
  - Lots of New Information
  - Lots of Outdated and Redundant Information Removed
  - Still a Significant Focus on Signal Design
  - Consistent with 2012 DE MUTCD

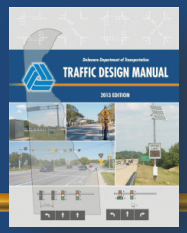




Schedule

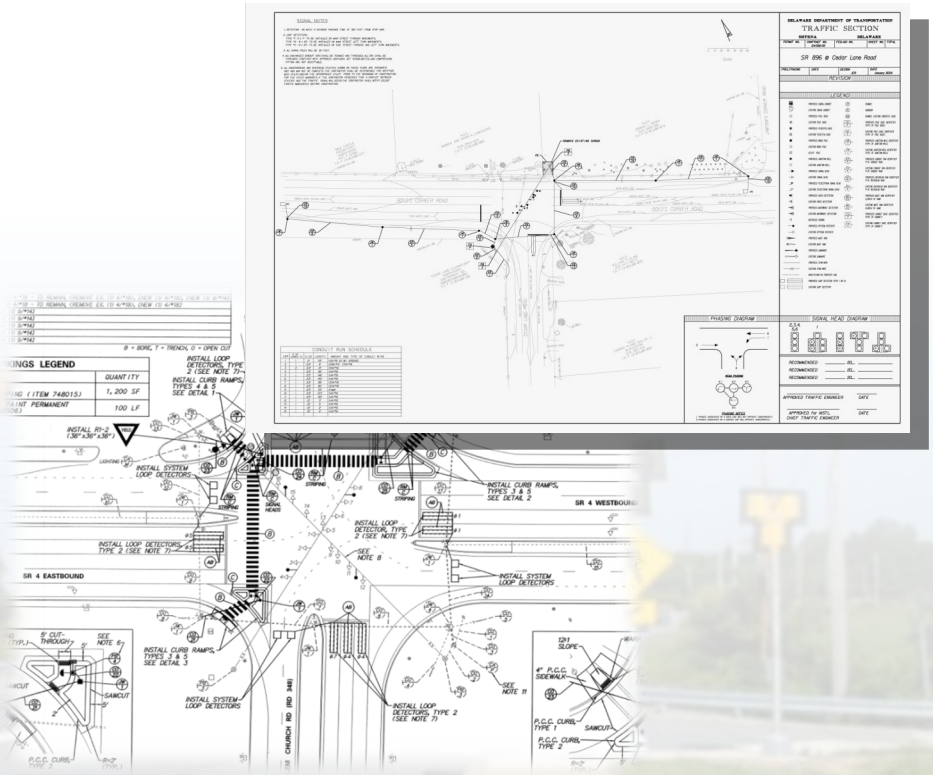
- Work Started in 2007
- Put on Hold in 2009 (MUTCD Priorities)
- Restarted in Spring 2012
- Draft Manual Currently Being Circulated Internally (DelDOT)

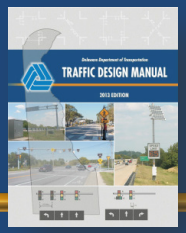
Publication: Expected in Summer 2013



Key Features

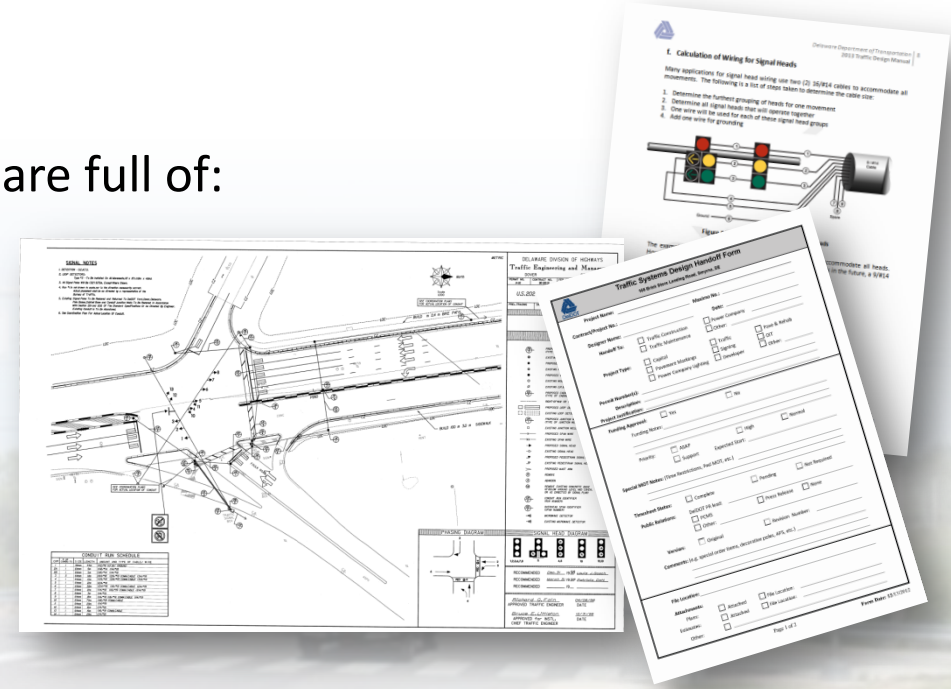
- **Purpose:**
  - To Provide Standard Design Practices For the Design of All New or Modified Traffic System Devices Installed or Maintained by DelDOT:
    - Plans
    - Special Provisions
    - Standards
    - Specifications
  - Also Applies to All Projects Where DelDOT Has Oversight Role, *Regardless of Ultimate Ownership*

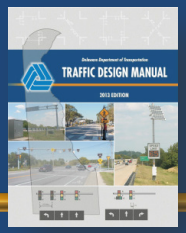




Key Features

- **New Manual DOES NOT:**
  - Address design of signs or pavement markings (See DE MUTCD)
  - Address Lighting Design (See DelDOT's Lighting Design Guidelines) (*Revised October 2012*)
- **New Manual DOES:**
  - Contain lots of Appendices that are full of:
    - Sample Plans
    - Sample Studies
    - Helpful Forms
    - Important Design Memoranda



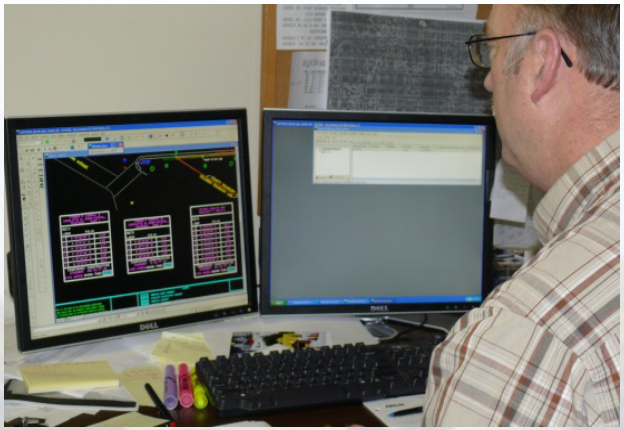


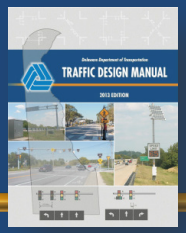
Key Features

- **Project Types are Clearly Defined:**

1. Capital Projects
2. Pave and Rehab
3. Traffic Section
4. Developer/Subdivision

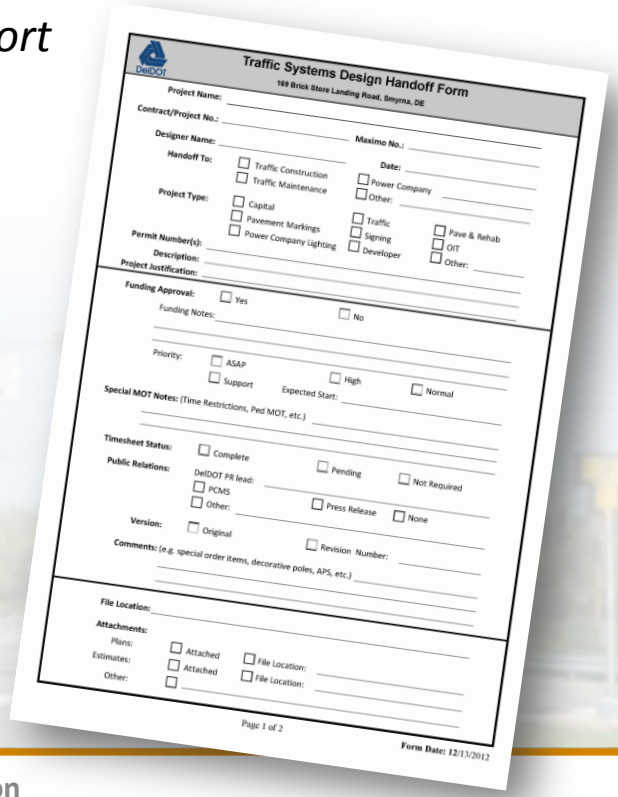
Note: This becomes important later in the Design Process *(See Next Slide)*

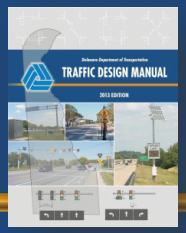




Key Features

- **New Section Addressing Traffic Design Process**
  - Process Can Differ Depending on the Project Type (1-4); *(See Previous Slide)*
  - Need Must be Established by DelDOT Traffic Section For <u>All</u> New Signals
    - *Usually requires a study and justification report*
    - *Even if one of more warrants met, signal may not be approved*
  - New Design Process Checklist
  - New Handoff Form (currently in use)➔ ➔


Traffic Systems Design Handoff Form
169 Brick Store Landing Road, Smyrna, DE
Project Name:
Contract/Project No.:
Designer Name:
Maximo No.:
Handoff To:
Traffic Construction
Traffic Maintenance
Date:
Power Company
Other:
Project Type:
Capital
Pavement Markings
Power Company Lighting
Traffic
Signing
Developer
Pave & Rehab
O/T
Other:
Permit Number(s):
Description:
Project Justification:
Funding Approval:
Yes
No
Funding Notes:
Priority:
ASAP
Support
High
Normal
Expected Start:
Special MOT Notes: (Time Restrictions, Ped MOT, etc.)
Timesheet Status:
Complete
Pending
Not Required
Public Relations:
DelDOT PR lead:
PCMS
Other:
Press Release
None
Version:
Original
Revision Number:
Comments: (e.g. special order items, decorative poles, APS, etc.)
File Location:
Attachments:
Plans:
Estimates:
Other:
Attached
File Location:
Page 1 of 2
Form Date: 12/13/2012

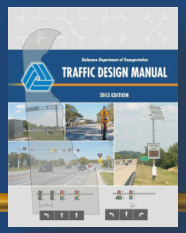


Key Features

- **New Section Addressing Traffic Design Process (continued)**

** Project Process Meets*

Guidelines, Responsibilities, and Basic Design Details Provided For Each Step

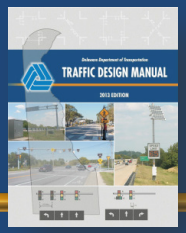


Key Features

- **New Chapter on Plan Preparation:**
  - General Steps Required for <u>All</u> Types of Traffic Design Projects
  - Required Contract Documents
  - Details on All Design Elements Needed for Each Stage of the Design Plans:
    - *Preliminary*
    - *Semi-Final*
    - *Final (PS&E)*

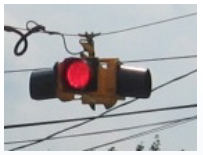
Table III-1
Requirements for Plans, Specifications and Engineer's Estimate

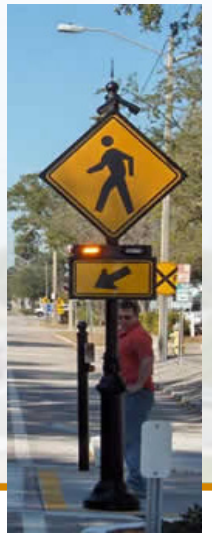
Contract Documents Required	Traffic-Only Signal Projects	Traffic-Only System Improvement Projects	Capital Projects	Developer / Subdivision Projects
Title Sheet	No	Yes	Yes	Yes
Signal Plan / ITS Device Plan	Yes	Yes	Yes	Yes
Signing, Striping, and Conduit (SSC) Plan	No	No	Yes	Yes
Specifications	No	No	Yes	Yes
Traffic Statement / Cost Estimate	Yes	Yes	Yes	Yes

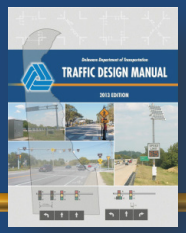


Key Features

- **Traffic Signals**
  - Signal Justification Section Re-written
  - Discussion of Alternative Intersection Treatments Added
  - New Sections on Capacity Analysis and Documentation Added
  - New section defining nine (9) most common types of traffic signals
    - *Traffic Control Signal*
    - *Hazard Identification Beacon (HIB)*
    - *Emergency-Vehicle Signals and Hybrid Beacons*
    - *Intersection Control Beacon (ICB)*
    - *Railroad Crossing*
    - *Movable Bridges*
    - *Temporary Signal*
    - *Rectangular Rapid Flash Beacons (RRFB)*
    - *Pedestrian Hybrid Beacon*







Key Features

- **Traffic Signals (Continued)**
  - Defines Mast Arm Box Designs as Preferred Configuration
  - Lots of New Figures (with Dimensions) Showing Most Common Signal Head Arrangements

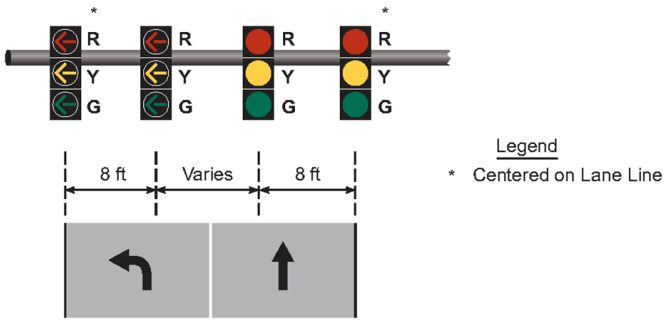
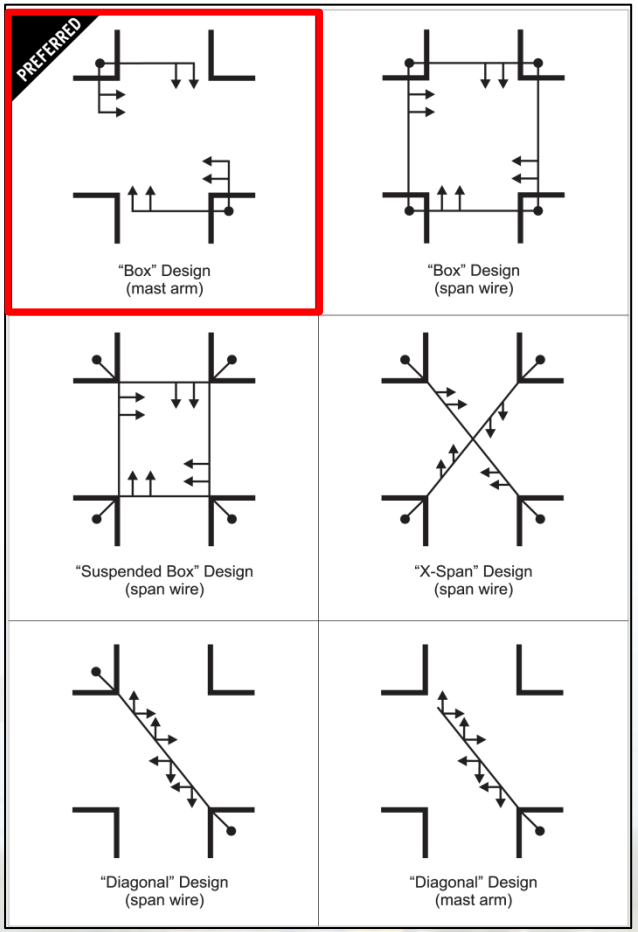
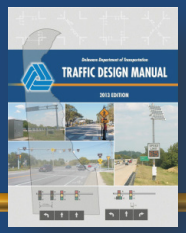


Figure IV-5b. One Through Lane with One Left-Turn Lane (Protected-Only Left-Turn Phasing)



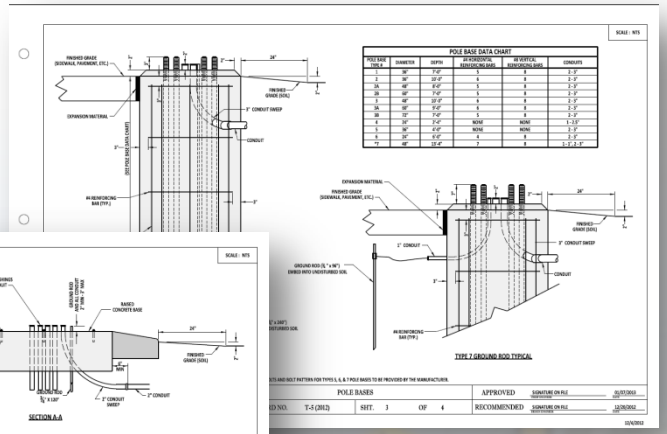


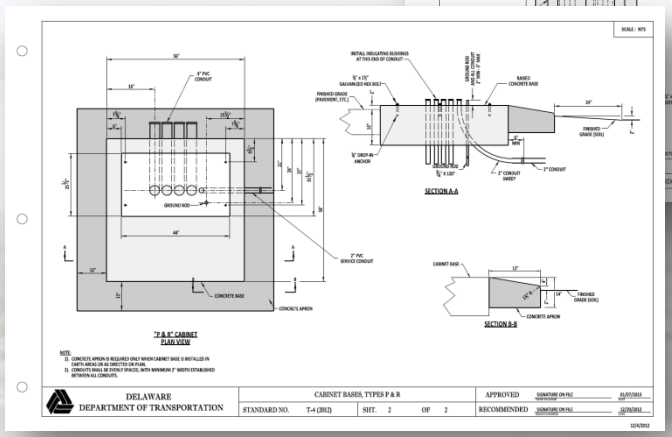
Key Features

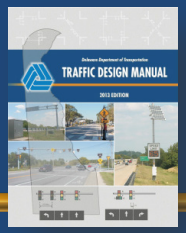
- **Traffic Signals (Continued)**
  - New Signal Design Practices Incorporated
    - Conduit
      - Trench or Open Cut Installation: 4” Schedule 80 PVC
      - Bore: 4” Schedule 80 HDPE
      - All Electric Service: 2” (or larger) Galvanized Steel
      - All Loop Detector Lead-in: 1” flexible metallic liquid-tight conduit

Key Features

- **Traffic Signals (Continued)**
  - New Signal Design Practices Incorporated
    - Pole Bases & Cabinet Bases
      - New Standard Drawings Providing Additional Conduit Capacity

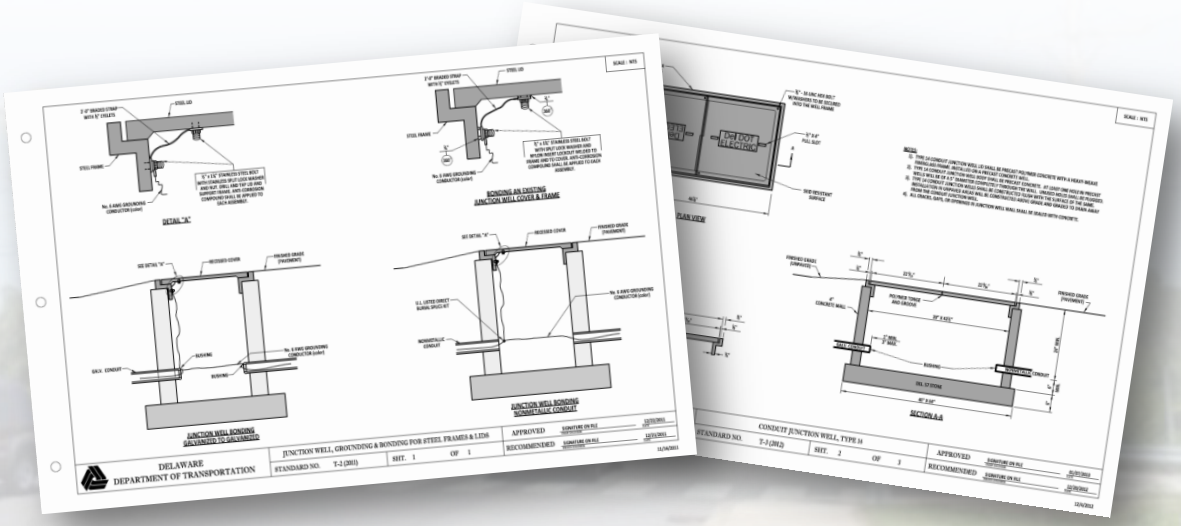






Key Features

- **Traffic Signals (Continued)**
  - New Signal Design Practices Incorporated
    - Junction Wells
      - All new wells should have composite frames and lids
      - Steel frames and lids may still be used based on field conditions (ex: vehicle tracking)
      - Existing wells should be retrofitted with composite frames and lids or bonded/grounded



Questions?

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