e-Construction at VTrans

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The e-Construction Initiative in the Construction Section

E-Construction is the collection, review, approval and distribution of highway construction contract documents in a paperless environment. While this is a very broad topic that could include many initiatives in many sections of VTrans, the Construction Section is taking the lead by introducing some innovative solutions into their normal procedures. The two main areas of focus are providing a document management system for construction submittals and using tablets for construction field inspection documentation.

STIC funds were utilized to purchase software that would allow testing and possible future implementation to move these initiatives forward.

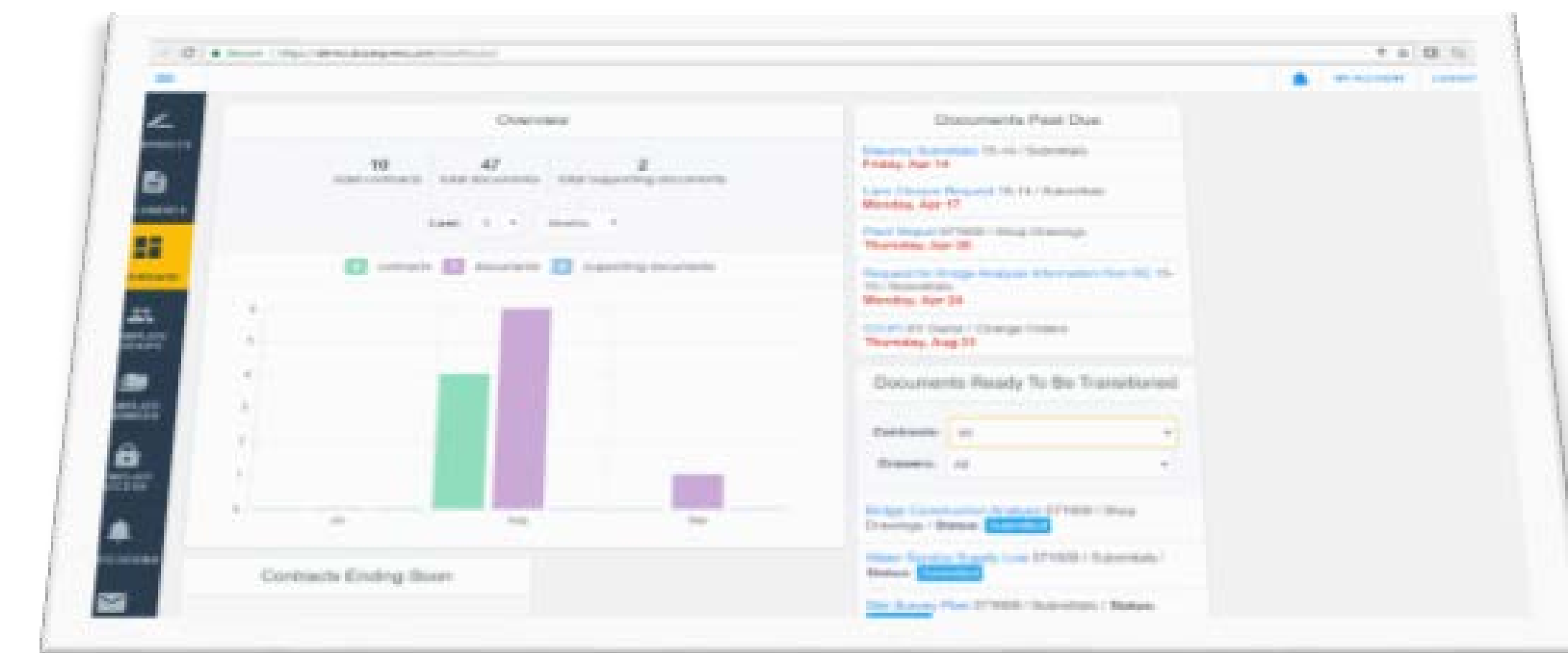## Construction Inspection using Tablets

In April 2017 we began a pilot project with a mobile inspection software called Headlight from Pavia Systems. We selected two contracts for the pilot project with one contract a Design-Build and the other being a Design-Bid-Build. Field inspectors on these contracts use iPads to capture field observations which are available to anyone with the software to see the projects in "real-time". The software allows the inspectors to make observations that include pictures, videos, current weather conditions and many other types. Annotations can be added to the pictures to provide helpful information to other users. All observations can be included in a daily report that summarizes the day's activities.

Using mobile devices for field inspection saves time when compared to taking field notes in a field book then having to go to the office to transfer these notes into electronic format. Headlight is also very helpful to Resident and Regional Engineers who have multiple projects since it allows them to track progress without visiting the site.

Document Management for Construction Submittals

VTrans purchased Doc Express from Info Tech to manage construction submittals. Doc Express is web-based so documents can be accessed on any web-enabled device including iPhones, iPads and laptop computers. Documents are stored in the "cloud" so there is no software to purchase and no additional hardware requirements. Documents are submitted into Drawers and each Drawer has a pre-defined workflow to standardize the review/approval process. Contractors have the ability to submit and track all documents and receive notifications when the status of any submittal changes. A Dashboard allows all parties to quickly get the latest status of all in-progress submittals and see if any due dates have not been met.

What we have learned and where we are going

The VTrans construction section has just scratched the surface of the e-Construction initiative but the future is very promising. The current initiatives are paperless so are sustainable solutions. Headlight can save fuel by eliminating driving to a project to check the status. Doc Express can expedite the review and approval process by using a pre-defined workflow that is transparent to all stakeholders. As a result of the implementation of Doc Express, we have clarified our Roles and Responsibilities making for a much more efficient process.

The use of tablets by field inspectors has proved to be very beneficial and we hope to provide all inspectors with tablets by the 2019 construction season.