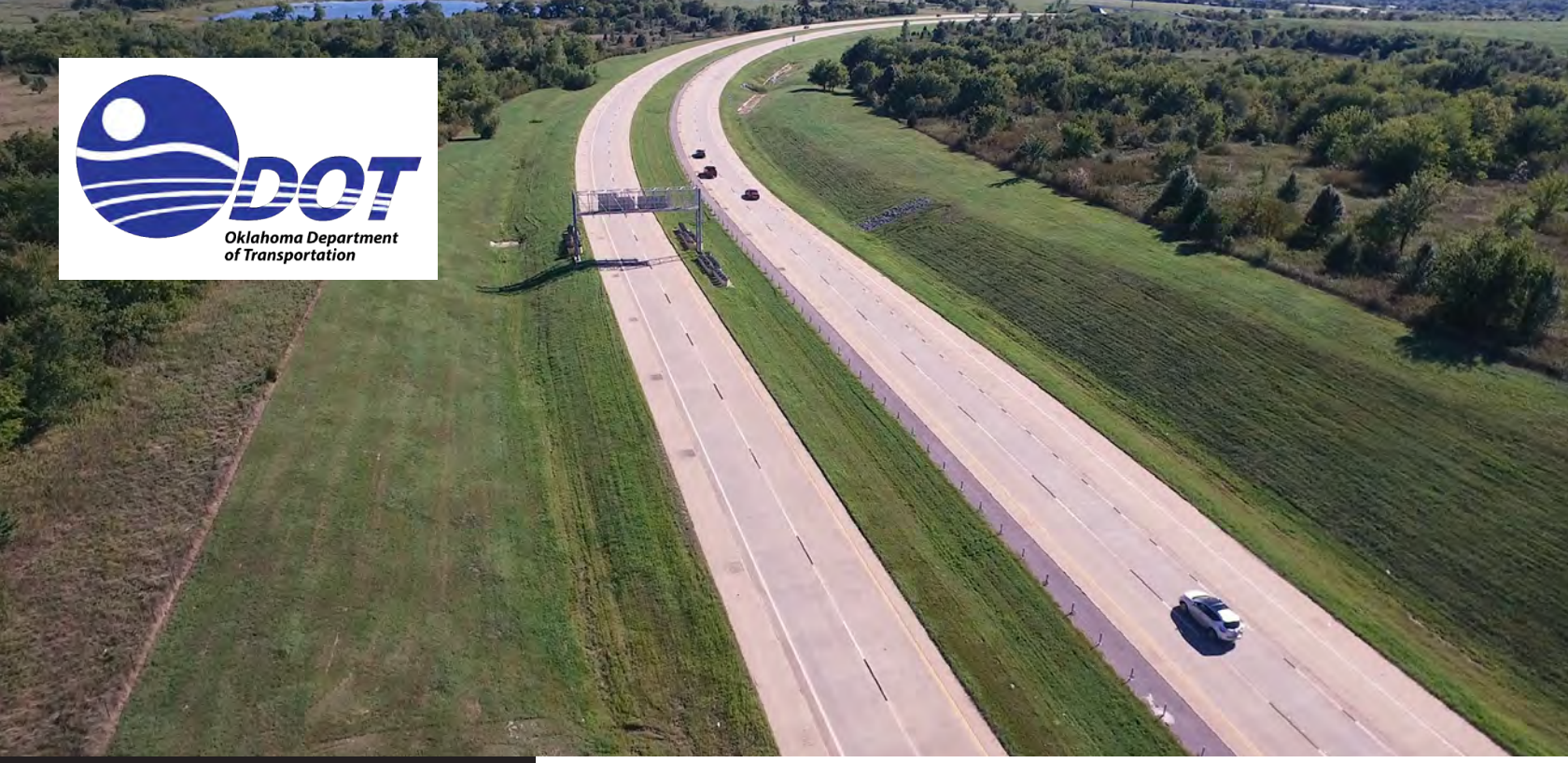

Industry:
Government

Type:
Transportation

Organization Size:
2,500

Location:
Oklahoma City, Oklahoma

State Total Area:
Almost 70,000 square miles

Miles of Roadway:
31,000

Total Document Images Processed:
15,000,000 as of 2018

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OKLAHOMA DEPARTMENT OF TRANSPORTATION

Preserving the Priceless Past, Enabling a Wiser Future

The Oklahoma Department of Highways was formed in 1906 to build and maintain the state's roads and bridges. Later re-named the Oklahoma Department of Transportation (ODOT), the agency now oversees public infrastructure including rail lines, state seaports, state airports, nearly 7,000 bridges and 31,000 lane miles of roadway.

ODOT headquarters are located near the Capitol in Oklahoma City, with eight field division offices scattered around the state.

Mission Statement:
Provide a safe, economical and effective transportation network for the people, commerce and communities of Oklahoma.

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A More Suited Solution for a Large-Scale Project

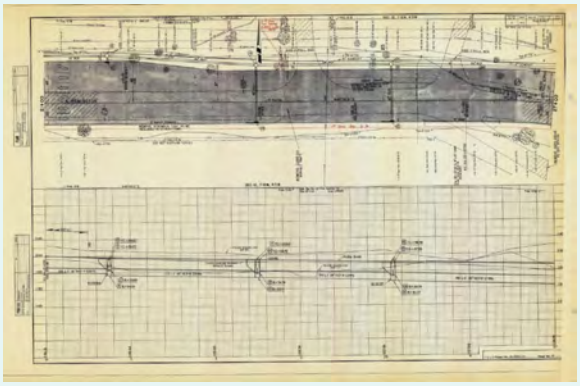
Imagine that your organization has paperwork spread across almost 70,000 square miles with thousands of employees needing access to these unique documents. You need a viable, cost-effective way to consolidate, preserve, classify and retrieve the information contained on these documents in order to operate.

That was the situation facing ODOT in 2015. Over 100 years, it had amassed over 15 million records that were being stored by well-intentioned people on floors, in ceilings, or in any available spot in one of the agency's eight field offices across the state. With document sizes ranging up to 24x36 and needing to be scanned at various ODOT locations across the state, a project was launched to find the best solution.

Along with other potential vendors, ODOT met with Business Imaging Systems (BIS) to discuss their conversion needs and view their award-winning software, Grooper.

BIS created Grooper based on client feedback and over 30 years of document conversion experience. BIS had experience with the world's best data capture software, having sold it to clients and used it in their in-house Data Migration Center (DMC). However, BIS found even the world's best software to have very limited capabilities and set out to create a better solution.

Once ODOT leadership saw a demonstration of Grooper's capabilities and learned how the DMC could quickly image their documents, they chose BIS to help them with their project.

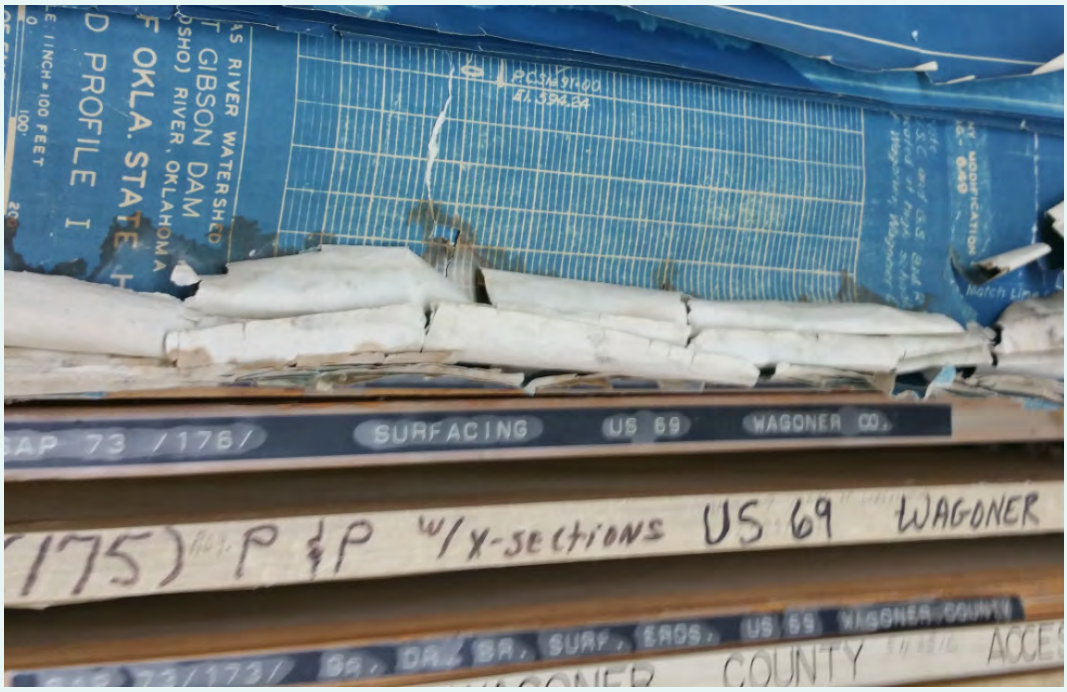


Completed Months Ahead of Schedule

The DMC quickly scanned, digitized, and indexed ODOT's 15 million documents. In fact, the data migration worked so quickly that they completed the conversion project in two-thirds of the time estimated, finishing four full months ahead of schedule.

There were several reasons this large project was finished in a short time frame.

- Over 30 years of scanning and industry experience, equipping the DMC's data scientists with the knowledge of the ins and outs of document capture
- Powered by Grooper, time-consuming tasks involved with image cleanup, as well as locating and manually indexing values, were automated
- Grooper's parallel processing uses all available computing power to quickly process massive amounts of document data



Saving and Restoring Valuable Information

Certain ODOT records were considered “at-risk” because they were the only copies of what the agency defined as mission-critical documents. The loss or destruction of any of these documents would mean the permanent loss of vital information crucial to ODOT and its mission. As these documents were still used daily, losing this information could translate into millions of wasted dollars and manpower the next time ODOT needed them.

One set of documents in danger of decay were ODOT’s As-Built Plans that contain notations about changes made to plans during the construction phase of a project, including vital structural footnotes. These documents contain notes that aren’t found anywhere else and are critical in designing and building future projects undertaken by the department.

Using Grooper to scan the documents and mine the data eliminates many manual processes and is so efficient. My belief is that in the long term it doesn't really cost us anything because it's going to pay us dividends over and over again. I would be surprised if anybody has a system that's any better than this. It has really helped us and will continue to help us in the future.

- Gary Ridley, former Oklahoma Secretary of Transportation, former Director of ODOT, former Director of OTA, former President of WASHTO, former Board Member of AASHTO

Other at-risk documents in need of conversion were ODOT's Field Survey books and historic Right of Way records. Many of the documents ODOT had were on the verge of being unusable due the environmental conditions where they were being housed. Several records had mold or water damage while others had tattered and frayed edges.

All of ODOT's at-risk documents had digital versions created, capturing them forever in a safe, secure environment. To restore the As-Built Plans to perfect condition, Grooper's Photoshop-like image processing tools were able to darken, lighten, or perform other fixes. The result was easy-to-read, digital versions of the As-Built Plans, many of which were in better condition than the original document.

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Remote Data Now Available Immediately

Logistics played a huge factor in ODOT needing their documents digitized. Documents were housed in various locations based either on which ODOT Division created the plan or the location nearest where the project actually occurred. Housing documents in this manner was hugely inefficient. Anyone needing access to specific documents had to travel to the location where they were stored, possibly requiring a four-hour one-way drive from ODOT headquarters in Oklahoma City.

Many of ODOT's plan sets were 24x36 and the Field Divisions had no way to copy these large-format plans, making mail or travel the only option if someone needed access. As a result, the state was incurring additional expenses due to travel and time delays.

The DMC used large-format scanners to capture the documents. They then classified the new digital copies of ODOT's documents and construction plans to provide the department with anytime, anywhere access to them. This has greatly reduced the amount of time it takes to retrieve documents, saving the department time and money.

Ensuring Complex Data is Accurately Captured and Searchable

Indexing is just as important as image quality in the quality control process. If an image's data is incorrectly indexed, it is essentially lost forever. ODOT uses more than 200 fields when they begin transportation projects, leaving lots of room for human error or misfiled documents.

A key challenge for ODOT to ensure the highest quality indexing was to find software with the ability to recognize intricate and complicated strings of data. In particular, ODOT needed two data strings to be recognized: Job-Piece numbers and Funding Codes.

Job-Piece Numbers

These are sequential numbers tied to a database of information detailing the project's financial information, project type or contractor. Job-Piece numbers consisted of five digits followed by two additional digits in parenthesis.

ODOT did not always complete the entire "five plus two" template when notating Job-Piece numbers. For example, a Job-Piece number that should read 00123(04) could appear as 123(4) or 123 (04). Also, a Job-Piece number that should read 12345(06) could appear as 12345(6). Grooper was able to recognize these discrepancies and correct them in the digital file.

Prior to 1976, ODOT projects did not have a Job-Piece number. For these jobs, ODOT required that several other index values be captured. These were the project number, county name, highway number, project description, control section number and date submitted. The location and order of these fields varied greatly across the document collection.

> ***There's infinitely more information in documents that we can draw from to make better business decisions in the future. If we can do things safer, better, faster, and cheaper because of the information we have, from our previous mistakes and successes, then we ought to take advantage of it.***
> ***- Gary Ridley, former Oklahoma Secretary of Transportation, former Director of ODOT, former Director of OTA, former President of WASHTO, former Board Member of AASHTO***

Funding Codes

These were based on funding categories, location, type of project, and number of projects in a specified area. A typical ODOT Funding Code might read F-123(14) or even as 123(14). These data strings were strikingly similar to the Job-Piece number and added a level of complexity to properly indexing the documents. The only way to differentiate between a Job-Piece number and Funding Code is by taking the location of the number into consideration and the information adjacent to it on the document.

When the project began, Grooper accurately identified the various ODOT document types and extracted identifying data elements like Job-Piece numbers and Funding Codes for high-quality indexing. Grooper's combination of artificial intelligence, computer vision, and natural language processing made this part of the project an uncomplicated process.

When the work was completed, all data elements were properly indexed, including the tricky Job-Piece numbers and Funding Codes. These documents can now be searched using these types of queries and many others, making information retrieval easy.

Advanced Decision-Making Abilities

In addition to protecting the documents, ODOT leadership knew that capturing their information could increase department efficiency. If they could make their data more accessible, they would have a tool to help the agency in many different ways.

Once ODOT documents were converted and data captured, ODOT leadership had far greater access to their data than ever before. They have found that no bit of information is too small or detailed to locate and analyze, which is enabling better and wiser decisions.

“For example, we can find out all of the parcels of land that are Excess Right of Way of an acre and a half or more in Cotton County that were purchased in 1907. We can ask the system anything, and it can provide us the information that’s within those documents,” said Ridley.

Information for Legislature

In particular, Ridley said Grooper has been a valuable resource when working with state legislators on transportation issues.

“All of the information is in some file somewhere and is very hard to retrieve. We ought to be able to get it with the click of a button, and now we can. So, when legislators ask us for information, it’s nice to be able to immediately show them why some things work and why some don’t, and what took place at the time that it did,” said Ridley.

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> *Dynamic business analysis workshops have been able to uncover that multiple departments are needing some of the same information. The deeper we go, we are enabling better communication between the divisions and capturing the data on one form versus having multiple forms that are required to be processed.*
> *- Courtney Cress, Business Manager – Office Services Division, ODOT*

Streamlining the Entire Organization

In addition, as government agencies have limited budgets and are often stressed, BIS professional services delivered a set of business and financial benefits to ODOT. Professional services carefully scoped the project and took the time to understand the complex issues facing their organization and this conversion project.

Grooper software is also being implemented throughout ODOT headquarters to provide an answer for new documents going forward. A complete data management system using an Enterprise Content Management repository is being implemented, and a thorough business analysis of every ODOT division and their document processes is being conducted.