



TRANSPORTATION RESEARCH SYNTHESIS

Minnesota Department of Transportation
Office of Policy Analysis, Research & Innovation
Research Services Section
(651) 366-3780
www.research.dot.state.mn.us

March 2010
TRS 1005

State DOT Experiences with Primavera P6 Project Management Software

Introduction

Minnesota DOT is considering various project management software applications for use in a range of highway construction activities. One of the applications under consideration is Primavera P6 Enterprise Project Portfolio Management software. The product is now available through Oracle, which acquired Primavera Software Inc. in October 2008. We were asked to survey several state DOTs currently using this application to gather preliminary information about its potential applicability to Mn/DOT.

CTC approached Oracle to identify states using Primavera P6. The Oracle representative we spoke with thought that the following 13 states were using P6: Connecticut, Florida, Illinois, Massachusetts, New Jersey, New Mexico, New York, Puerto Rico, South Carolina, South Dakota, Texas, Virginia and Washington. We queried DOT research directors for the names of Primavera managers we could interview and were able to identify appropriate individuals in the following state DOTs: Connecticut, Florida, New York, South Carolina, South Dakota, Texas and Washington. We also identified and interviewed the Primavera manager for the Port Authority of New York & New Jersey. Below are the questions we posed, based on input from the Mn/DOT team that is investigating the project management applications. Names and contact information for interviewees are included in the **Interview Responses** section that begins on page 4.

1. How long have you been using Primavera P6?
2. Were you previously using another Primavera product for construction management?
3. What were the primary drivers for moving to P6?
4. What type of training requirements and learning curve were involved in adopting the product?
5. Did you hire someone to help you implement P6?
6. What part of your organization has the lead responsibility for the software?
7. How many projects do you currently track with P6?
8. Do you use P6 in the preconstruction phase of the project?
9. Are contractors required to use P6 for scheduling or project management reporting purposes? If yes, what have been the challenges with implementing contractor participation?
10. In the preconstruction phase, do consultants have direct access to the project schedules to update the activities that have been outsourced to them?
11. Is there a limit on the number of fields that can be tracked for a single project, or a limit on the number of different projects?
12. On the human resources side of projects, how much detail is available on each project and activity; for example, by hour, by functional area, by job classification, etc.?

13. Do you store historical data for future analysis purposes?
14. Do you use P6 to manage or track maintenance on projects after they are completed?
15. What do you consider the strengths of the application?
16. What do you consider the weaknesses of the application?
17. What has been your overall experience in using P6?

Summary

The eight agencies we interviewed all reported general satisfaction with Primavera P6 as a project management tool within their organizations, although they noted that a significant commitment to training is required. Most states have not implemented the use of the system among contractors and consultants except at New York State DOT (which appears to be a leader in using P6), at Connecticut DOT (for projects over 20 million), and at the Port Authority of New York & New Jersey (but only for the largest of projects). All state representatives seemed very willing to share information with any state DOT considering implementing Primavera P6, whether through phone calls, webinars, or site visits. The Florida and Washington representatives suggested exploring the formation of a Primavera users' group among state DOTs.

Below we summarize the eight agencies' responses across major themes: **Adoption of Primavera P6; Training, Implementation and Organizational Responsibility; Operational Capabilities; Contractor and Consultant Use; and Strengths, Weaknesses and Overall Experience.**

Following the summary we include the state-by-state **Interview Responses** to each of the questions posed.

Adoption of Primavera P6 (Questions 1 to 3)

All but one of the agencies have been using P6 since its release in August 2007 (or shortly thereafter). Texas DOT began using P6 for preconstruction a year ago, but had used Primavera products on the construction side for many years. Six of the eight agencies upgraded from another Primavera product (P3ec or P5), while South Dakota and Washington State DOTs converted from non-Primavera systems.

The **primary driver** for moving to P6 was the desire to improve on existing applications. South Carolina DOT upgraded because department staff were told by Primavera that P6 would address some of the problems they were having with P5. Texas DOT had been using Primavera for construction management for years, and so decided to adopt Primavera P6 when the department moved into preconstruction management. The Port Authority of New York & New Jersey and Connecticut, Florida and New York State DOTs moved to P6 because they were existing Primavera users with maintenance agreements that included upgrades to the latest version of the product. Connecticut DOT also noted that the department was looking for something a bit more robust than its previous version of Primavera.

Of the two DOTs that were not previously using a Primavera product, South Dakota had a homegrown mainframe system and selected P6 because the department's existing processes could be worked into P6 relatively easily; Washington State DOT moved to Primavera on the recommendation of a department-initiated Statewide Project Management Group. Previously the department was using PS8 software that was part of a system called PDIS (Project Delivery and Information System).

Training, Implementation and Organizational Responsibility (Questions 4 to 6)

Of the eight agencies that we interviewed, Connecticut DOT, the Port Authority of New York & New Jersey, and South Carolina DOT (which had all upgraded from previous Primavera products) felt that little training was required to implement P6. The other five state DOTs all felt that fairly extensive training was a necessity.

South Dakota DOT, which had not previously used a Primavera product, thought the learning curve was steep and noted that it was addressed with "lots of trial and error." Texas DOT felt that the training provided by Primavera was not specific enough to the transportation industry, so the department developed its own training. After an initial round of training, the department realized there were needs for retraining or additional training, which was offered on an as-needed basis.

Florida DOT, which uses Primavera P6 in all seven of its districts, hired a Primavera consultant for each district to be a subject matter expert and trainer. New York State DOT initially required each staff member requesting a P6

user account to go through a modified two-day “Basic Course for Primavera Project Management Using the Client” delivered by an authorized Primavera trainer. Eventually this requirement was relaxed.

In terms of **implementation**, three of the agencies upgrading from P3ec or P5 (Florida, New York and South Carolina) handled the conversion to P6 in-house. The other two agencies upgrading from a previous Primavera product (Connecticut DOT and the Port Authority of New York & New Jersey) utilized outside consultants in addition to their in-house expertise. South Dakota DOT, which converted from a legacy system, hired a Primavera consulting firm to provide an introduction to the software, but did not rely on the firm to provide the overall roadmap; the majority of implementation was done in partnership with the IT department. Florida DOT hired database administrators, or DBAs, to write the software required to upload schedules to its mainframe system. Every scheduler has access to a DBA for this purpose, although some schedulers are also DBAs themselves.

All eight agencies responded that their agency’s business division had **primary responsibility** for managing P6, although New York State and Washington State DOTs noted that this responsibility is closely shared with their IT units. Florida DOT noted that the schedulers have responsibility for all aspects of the software.

Operational Capabilities (Questions 7, 8, 11, 12, 13 and 14)

The number of projects currently tracked in P6 ranges from 100 to 4,900. None of the departments had run into a limit on the number of fields that could be tracked and didn’t anticipate they would. All but Connecticut DOT use the software in the preconstruction phase. None of the departments use P6 for the human resources side of projects or for tracking maintenance after project completion. Seven of the eight departments store historical data for future analysis, with South Dakota DOT intending to do so in the future.

Contractor and Consultant Use (Questions 9 and 10)

Connecticut DOT requires **contractors** to use P6 if a project is larger than \$20 million. Both South Carolina and New York State DOTs require contractors to use P6. New York State DOT held a series of meetings with industry representatives over two years while implementing contractor use of P6. The department eventually got their buy-in, and the process has been working well. The strategy used was to promote the sharing of risk and making timely decisions. Risk was reduced and communication improved. Integrating contractors required a major rewrite of department specifications, which was key to the success of the process.

Of the eight agencies we spoke with, only New York State and Connecticut DOTs allow **consultants** to access the P6 system—using a Citrix interface.

Strengths, Weaknesses and Overall Experience (Questions 15, 16 and 17)

All state DOTs interviewed felt that their overall experience with P6 has been good.

Connecticut DOT feels that P6 gives the owner a better view of the contractor’s plan for finishing the job, and provides a tool for holding the contractor accountable to that plan. Additionally, ConnDOT feels that P6 is useful for ensuring that the contractor has sufficient resources to finish the job on time. The only weakness noted was that P6 has more “bells and whistles” than previous versions, and untrained schedulers are not easily able to figure out how to use those.

Florida DOT stated that P6’s strength lies in its ability to manage multiple projects with an unlimited number of tasks. Regarding weaknesses, Florida noted that reporting has been a little difficult, but that this has more to do with how districts need to interact with the department’s Central Office (uploading schedules to the department’s mainframe system).

New York State DOT reported that P6’s strengths lie in its contribution to improved communication, reduced disputes for time-related issues, and helping to keep goodwill between the state and contractors by making timely decisions. Weaknesses include the occasional software glitches and the learning curve associated with the nuances of the software.

The Port Authority of New York & New Jersey feels that P6 serves as a very useful tool for high-level management. No weaknesses for the application came to mind, but it was noted that there has been some resistance by consultants to inputting their schedules into an electronic format.

South Carolina DOT feels that P6's strength lies in staff's ability to be continually updated on the status of contracts. No weaknesses came to mind, although South Carolina noted that 1) not all contractors have fully embraced it; 2) there are still some issues getting the buy-in of the department's own staff on using P6; and 3) they are not using P6 to its full potential yet. SCDOT's overall experience has been good, and South Carolina has been pleased with both the product and the support received from Primavera.

South Dakota DOT feels that P6's strength lies in its being "an overall multi-project management application." Though no specific weaknesses came to mind, South Dakota did note that P6 is fairly complex, but that customization has simplified it considerably.

Texas DOT stated that P6 is a "very, very powerful system that takes scheduling to a whole new level." Weaknesses noted were 1) with multiple contractors, there is no easy way to bring external schedules in without data scrubbing; 2) there were some challenges with getting templates to work properly; and 3) the need to bring in IT staff for assistance, which was not necessary with P3ec. Despite these weaknesses, TxDOT's overall experience has been good.

Washington State DOT stated that P6 is the best project management tool on the market. Specifically, Washington noted that P6 is intuitive, even with a minimal amount of training; that it can be used at a high level or a more detailed level on a multitude of projects; and that it interfaces well with legacy systems. Washington also felt that support from Primavera has been good.

Interview Responses

Each agency's response to our interview questions is detailed below. For reference, we have included an abbreviated version of each question before the response; for the full question text, please see the Introduction on page 1 of this report.

Connecticut

Contact: Karl Heilmann, Senior Construction Engineer, Connecticut Department of Transportation, heilmann@pbworld.com, (860) 815-0281

1. **Length of time using P6:** Since its release.
2. **Previous Primavera product used, if any:** Department has been using Primavera products for approximately 15 years.
3. **Primary drivers for moving to P6:** Department wanted to stay with the latest version of Primavera. Additionally, the project managers needed something a bit more robust.
4. **Training requirements and learning curve:** ConnDOT for the most part does not require training on Primavera, although for larger projects, contractors are required to go through a training course.
5. **Was outside help retained for implementation?** A Primavera consultant was hired to help implement P6.
6. **Which part of the organization has lead responsibility for the software?** Office of Construction.
7. **Number of projects currently tracked with P6:** Not certain statewide, but in one district alone, there have been 10 projects so far ranging from \$5 million to \$417 million.
8. **Is P6 used in preconstruction?** No
9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** If a project is larger than \$20 million, contractors are required to use P6 and enter their schedules into ConnDOT's system. For projects over \$5 million and up to \$20 million, contractors are required to use Primavera Contractor.
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** n/a
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** No.
12. **How is the human resources functionality being used?** ConnDOT does not require resource loading, but is beginning to use it for bridge projects.
13. **Is historical data stored for future analysis purposes?** Yes.
14. **Is P6 used to manage or track maintenance on projects after they are completed?** No.
15. **Strengths of the application:** For the projects ConnDOT manages, P6 gives the owner a better view of the contractor's plan for finishing the job, and provides a tool for holding the contractor accountable to that plan. Additionally, P6 is useful for ensuring that the contractor has sufficient resources to finish the job on time.
16. **Weaknesses of the application:** P6 has a lot more bells and whistles than previous versions. If a scheduler hasn't had the training, they won't necessarily be able to easily figure out how to use those.
17. **Overall experience with P6:** Overall experience has been good.
18. **Additional comments:** A lot of the success in using P6 has to do with the level of expertise of the person brought on as a scheduler. Paying attention to this will certainly make things run more smoothly.

Florida

Contact: Carla Hodges, DBE scheduling sub-consultant in Production Management, Florida Department of Transportation, Carla.hodges@dot.state.fl.us, (850) 415-9257

1. **Length of time using P6:** Department has a maintenance agreement with Primavera and upgraded from P3ec immediately.
2. **Previous Primavera product used, if any:** Department has been using Primavera products for about 20 years.
3. **Primary drivers for moving to P6:** Wanted to stay with the latest version of Primavera.
4. **Training requirements and learning curve:** Each of the districts hires a Primavera consultant who does most of the training. Each district also has on average two schedulers who either are, or will become, Primavera experts. Other than that, training demands are not high since consultants do not input their information into schedules.
5. **Was outside help retained for implementation?** District hires database administrators (DBAs) to implement the APIs (this is required to upload to the legacy system, which is what Central Office uses to print off reports). Every scheduler has a DBA, although sometimes the scheduler hired will also be a DBA.

6. **Which part of the organization has lead responsibility for the software?** Schedulers are responsible for all aspects of the software.
7. **Number of projects currently tracked with P6:** 700 in District 3 alone, with 30,000+ activities.
8. **Is P6 used in preconstruction?** Yes. Districts only deal with preconstruction—from concept until the project is let. After letting, project is handed over to construction.
9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** (n/a as Florida districts only deal with preconstruction)
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** No, and none of the districts import data from design consultants. Instead, the department holds a monthly meeting with everyone who is involved with active projects where schedules on paper are handed out and updated. Information is then manually inputted into the schedules. Department budget will not accommodate purchasing a name license for each person. Primavera P6 Web Services would be a good compromise—half as much as a name license with the ability to integrate with Outlook. However, one district alone (out of seven) has 40 people updating tasks, so this would still be cost-prohibitive. Additionally, there is some concern about data integrity and viruses.
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** No.
12. **How is the human resources functionality being used?** None of the districts are tracking Human Resources information.
13. **Is historical data stored for future analysis purposes?** Yes.
14. **Is P6 used to manage or track maintenance on projects after they are completed?** No.
15. **Strengths of the application:** P6 has the ability to manage multiple projects with an unlimited number of tasks.
16. **Weaknesses of the application:** Reporting has been a little difficult, but that has more to do with how districts need to interact with Central Office.
17. **Overall experience with P6:** It is the best software available for what districts do.
18. **Additional comments:** We have a great partnership with IT. Central Office is the lead. They head up all upgrades, testing them first on a test platform, but each district has its own IT department that hosts the Oracle database.

New York

Contact: Mark White, Office of Construction, New York State Department of Transportation,
MWHITE@dot.state.ny.us, (518) 485-5990

1. **Length of time using P6:** Two and a half years (shortly after its release).
2. **Previous Primavera product used, if any:** P3ec, then P5.
3. **Primary drivers for moving to P6:** Originally, when using Field Track (a standalone product), there were lots of problems with specs. Contractor would try to send a schedule on disk and 9 out of 10 times not all of the files were included, so it wouldn't load. Additionally, trying to facilitate installs at 450 field offices was a nightmare. Department has a maintenance agreement with Primavera which includes upgrades, so department upgraded shortly after P6 was released (after it was comfortable that initial bugs had been resolved).
4. **Training requirements and learning curve:** With the implementation of Primavera in an enterprise environment, department originally required all NYSDOT staff who requested a Primavera account to have completed the Basic Course for Primavera Project Management using the Client. A Primavera-authorized trainer was hired to conduct this training course. Instructor used the Primavera course outline with modifications to shorten the duration from 3 days to 2 days by focusing on software functions geared primarily to the review and analysis of schedules, and only discussing briefly the functions used to develop a schedule. All examples in the training workbook used highway/bridge construction projects as opposed to IT or building projects. Department eventually relaxed the requirement on completing the course prior to issuance of Primavera accounts.

Training is primarily done in winter months when construction slows down. When training is scheduled across the state for NYSDOT Field Office staff, if there are available seats remaining then training is opened up to consultant staff that are assigned to a NYSDOT project. If seats still remain open, contractors' staff assigned to a NYSDOT project are invited. There are project benefits in having the consultants and contractors' staff and NYSDOT staff receive identical training.

Department has offered three types of Primavera P6 training:

- 1) Introductory Course to Primavera P6 Client
- 2) Advances P6 Client Course (time-related Disputes & Claims analysis)
- 3) Primavera P6 WebPM

All training courses are hands-on training with a computer for each class trainee. Each trainee receives a Course Workbook and is issued a Training Certificate that includes PDH credits. Each trainee is requested to complete a training evaluation form. Training is conducted on a separate Primavera database geared specifically for training. The database and training projects are refreshed after each training course is completed. The training database uses generic training accounts for both Citrix and Primavera. These accounts are disabled when training is not being conducted.

During summer months, if training is required we use NYSDOT staff to conduct training for a specific Field Office. We are still developing a separate training course for managers and executives that will be geared toward program management using P6 WebPM and the use of dashboards. We have trained over 250 construction staff to date, and have scheduled training for another 200+ staff this year.

5. **Was outside help retained for implementation?** No.
6. **Which part of the organization has lead responsibility for the software?** The business side has primary responsibility. The Office of Construction does work together with IT to implement Primavera (IT has the Oracle database under their control), but setting up P6 user accounts and such is handled on the business side.
7. **Number of projects currently tracked with P6:** 90 to 100. Department wants to eventually get all 450 field office projects onto P6.
8. **Is P6 used in preconstruction?** Yes, but not 100 percent. Designers create a preliminary construction schedule. Department gives them a Citrix account (created by IT) and then a P6 account is set up for them.
9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** Yes, department requires contractors to submit baselines, and to update their schedule once a week and submit once a month. Before implementing this, department scheduled a series of meetings with industry reps and met with them for two years while implementing contractor's use of P6. Department eventually got their buy-in, and it has been working well. The strategy used was to promote the sharing of risk and making timely decisions. Risk was reduced and communication improved. It required a major rewrite of department specs, and this was an important aspect of making it all work.
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** Yes. No schedules are passed back and forth. Everyone logs into the system.
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** No.
12. **How is the human resources functionality being used?** It's not. One of the biggest complaints from the industry was that resource loading isn't really necessary for all projects. Department rewrote the specs so that there was a tiered approach to resource loading depending on the complexity of the project.
13. **Is historical data stored for future analysis purposes?** Absolutely.
14. **Is P6 used to manage or track maintenance on projects after they are completed?** No.
15. **Strengths of the application:** Improving communication, reducing disputes for time-related issues, and keeping goodwill between the state and contractors by making timely decisions.
16. **Weaknesses of the application:** It has been a learning curve to learn the nuances of the software. Little software glitches have shown up here and there, but they are getting knocked out one by one.
17. **Overall experience with P6:** Overall very good.
18. **Additional comments:**
 - a) Anyone embarking on this needs to take a good look at what resources will be needed to implement P6. Examples include: IT Department involvement, Citrix server group, desktop support, help desk support, programming, Process Committee to guide the implementation, Implementation Team, setting up the enterprise, Training Group, Policy and Guidance Group for writing new specs.
 - b) Setting up security profiles and enterprise structure is critical. It took months to set up.
 - c) IT information security staff have a problem with people coming into their firewall. If the IT group is hesitant, there are options to have this hosted remotely. A third-party hosting company can actually get you up and running in a couple of weeks. We use this for Contract Manager.

Port Authority of New York & New Jersey

Contact: Paul Crist, Program Director, Port Authority of New York & New Jersey, pcrist@panynj.gov, (973) 792-4724

1. **Length of time using P6:** The Port Authority began using P6 shortly after its release.
2. **Previous Primavera product used, if any:** The Port Authority has been using Primavera products for over 10 years.
3. **Primary drivers for moving to P6:** Wanted to stay with the latest version of Primavera.
4. **Training requirements and learning curve:** Because of extensive Primavera history, this was not really an issue.
5. **Was outside help retained for implementation?** The Port Authority utilizes a combination of in-house expertise as well as outside consultants.
6. **Which part of the organization has lead responsibility for the software?** Project Management staff.
7. **Number of projects currently tracked with P6:** 1,000+ (all preconstruction)
8. **Is P6 used in preconstruction?** Yes, this is predominantly where it is used.
9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** Only contractors working on the largest of projects are required to turn in schedules, and these are done in Primavera P3.1.
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** No.
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** No.
12. **How is the human resources functionality being used?** It is not being used.
13. **Is historical data stored for future analysis purposes?** Yes.
14. **Is P6 used to manage or track maintenance on projects after they are completed?** No.
15. **Strengths of the application:** Serves as a very useful tool for high-level management.
16. **Weaknesses of the application:** None particularly of the application, but there has been some resistance by consultants to input their schedules into an electronic format.
17. **Overall experience with P6:** Overall it has been good.
18. **Additional comments:** None.

South Carolina

Contact: Patti Gambill, Construction Scheduling Engineer, South Carolina Department of Transportation, gambillps@scdot.org, (803) 737-2011

1. **Length of time using P6:** Since its release in August 2007.
2. **Previous Primavera product used, if any:** P3ec.
3. **Primary drivers for moving to P6:** Department was told by Primavera that P6 would fix some of their P5 problems.
4. **Training requirements and learning curve:** Migration was relatively transparent on the client side and didn't require any retraining to speak of.
5. **Was outside help retained for implementation?** Construction performed entire implementation in-house. Preconstruction hired someone to help them develop some of the training.
6. **Which part of the organization has lead responsibility for the software?** Business side. Todd Anderson, CADD Manager, is listed as primary contact.
7. **Number of projects currently tracked with P6:** 200
8. **Is P6 used in preconstruction?** Yes.
9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** Contractors are required to purchase and use P6. Initially, MS Project and other applications were allowed, but when schedules were imported into P6, conversions often were not quite right.
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** No.
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** Have not encountered a limit.
12. **How is the human resources functionality being used?** Department is not using P6 to track resources. Contractors are free to if they wish.
13. **Is historical data stored for future analysis purposes?** Yes.

14. **Is P6 used to manage or track maintenance on projects after they are completed?** No.
15. **Strengths of the application:** Greatest strength is in knowing what the statuses of the contracts are (earned value, projecting costs, and such).
16. **Weaknesses of the application:** None for the application. Personnel-wise, there has not been full buy-in and P6 is not being fully used yet. Additionally, not all contractors have fully embraced it.
17. **Overall experience with P6:** Pleased with the product and with support from Oracle.
18. **Additional comments:** Todd Anderson in IT would have useful information regarding server issues that were encountered and needed to be resolved. He can be reached at (803) 737-1383.

South Dakota

Contact: Tim Bjerneberg, Program Manager, South Dakota Department of Transportation, tim.bjerneberg@state.sd.us, (605) 773-3268

1. **Length of time using P6:** Department has been using P6 since its release (following an upgrade from a legacy mainframe system).
2. **Previous Primavera product used, if any:** None.
3. **Primary drivers for moving to P6:** Department was using a homegrown mainframe system, but had their business processes firmly in place since the 1970s and felt these would be relatively easy to work into P6.
4. **Training requirements and learning curve:** Lots of trial and error.
5. **Was outside help retained for implementation?** Department hired Catalyst, a distributor of Primavera, to touch on the basics. Majority of the work was done in conjunction with the IT staff.
6. **Which part of the organization has lead responsibility for the software?** Business side.
7. **Number of projects currently tracked with P6:** 1,000
8. **Is P6 used in preconstruction?** Yes.
9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** Department does not require contractor use of P6.
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** No.
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** Have not encountered a limit.
12. **How is the human resources functionality being used?** Department is not using P6 to track resources but may work it in at some point. Currently using a separate human resources tracking device that is charging time and costs to projects.
13. **Is historical data stored for future analysis purposes?** No, but department is looking at doing more analysis.
14. **Is P6 used to manage or track maintenance on projects after they are completed?** No, but department is looking into that.
15. **Strengths of the application:** P6 has the strength of an overall multi-project management application.
16. **Weaknesses of the application:** None come to mind. It's fairly complex, but customization has simplified it considerably. Still need to get everyone using it.
17. **Overall experience with P6:** Overall it has been good.
18. **Additional comments:** Taking the up-front time to really have processes in place will make things considerably easier.

Texas

Contact: Nabeel Khwaja, Research Associate, Texas Department of Transportation, khwaja@mail.utexas.edu, (214) 683-0444

1. **Length of time using P6:** One year.
2. **Previous Primavera product used, if any:** Not for preconstruction, but construction has been using Primavera products for years.
3. **Primary drivers for moving to P6:** Standardization.
4. **Training requirements and learning curve:** Department felt that Primavera training was not specific enough to transportation and so created its own training for executives, team members, PMs, and those who manage

design resources. First pass took about two months and one-on-one training was offered to PMs for an additional three months on an as-needed basis.

5. **Was outside help retained for implementation?** Department did hire a consulting firm.
6. **Which part of organization has lead responsibility for the software?** Business side.
7. **Number of projects currently tracked with P6:** 3,500 projects with 700 project managers.
8. **Is P6 used in preconstruction?** Yes
9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** Department does not allow contractors into their system. Before letting, an internal estimate is done which is often shared with the contractor. They are then responsible for building a schedule but department has a closed system at this point to ensure data integrity.
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** No.
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** Have not encountered a limit.
12. **How is the human resources functionality being used?** Department exposure in this area is limited to using P6 Timesheet.
13. **Is historical data stored for future analysis purposes?** Yes. All data is archived.
14. **Is P6 used to manage or track maintenance on projects after they are completed?** Not yet.
15. **Strengths of the application:** P6 is a very, very powerful system that takes scheduling to a whole new level.
16. **Weaknesses of the application:** With multiple contractors, there is no easy answer for bringing external schedules in without data scrubbing. Additionally, there were some challenges with getting templates to work properly. Lastly, with P3ec there was never a need for bringing in IT, but with P6 that is not the case. Fortunately, department has a very capable IT department.
17. **Overall experience with P6:** Overall it has been good.
18. **Additional comments:** Department has networked with other state DOTs such as Florida and North Dakota. Would be happy to set up a webinar with Mn/DOT to go over specific questions.

Washington

Contact: Ron Pate, Project Manager, Washington State Department of Transportation, PateRD@wsdot.wa.gov, (360) 705-7354

1. **Length of time using P6:** Since its release.
2. **Previous Primavera product used, if any:** Department had a few instances of P3 use throughout the region. They had also used PS8 software, part of a system called PDIS (Project Delivery and Information System).
3. **Primary drivers for moving to P6:** Agency had initiated a Statewide Project Management Group, consisting of consultants and such, the purpose of which was to develop best management practices. P6 was recommended as part of their findings.
4. **Training requirements and learning curve:** Department is still going through training. There was an initial pass across the state—basic and then advanced training. Currently doing cost management training. Department’s experience was that “if you don’t use it, you lose it,” so the department is going back through to do some spot training on those who had not yet had a chance to implement what they had learned. Training on an actual project was found to be the most effective method. Current approach is to target as highest priority for training those people who actually have a project need (referred to as “The Right Training at the Right Time”). Department is also engaging in “Train the Trainer” for the regions.
5. **Was outside help retained for implementation?** Initially, a consultant group was hired as part of a statewide project management effort. Implementation of P6 was part of that. As of last August, all of the implementation, refinements and operation functions were transitioned to WSDOT employees.
6. **Which part of the organization has lead responsibility for the software?** Currently combined—the business side alongside the Office of Information Technology. End goal is more than likely for the business side to have ultimate responsibility.
7. **Number of projects currently tracked with P6:** 320+ projects. Many projects were migrated over from the legacy system. Completed projects were not migrated over for logistical reasons.
8. **Is P6 used in preconstruction?** Yes

9. **Is P6 use required for contractors? If so, any challenges encountered in that area?** No. Department's Standard Specifications require that a progress schedule be submitted and updated. A special provision could be used to require a certain type of software like P6. The challenge is making sure the benefits outweigh the costs when adding any requirements to a contract. We have standing meetings with the AGC to get accurate feedback about the implementation of requirements like these.
10. **Do consultants have access to preconstruction project schedules for updating their tasks?** No. Consultants feed us electronic schedules as .xer files.
11. **Is there a limit on the number of fields for a single project, or a limit on the number of different projects?** Have not encountered a limit.
12. **How is the human resources functionality being used?** [No response.]
13. **Is historical data stored for future analysis purposes?** Yes.
14. **Is P6 used to manage or track maintenance on projects after they are completed?** No.
15. **Strengths of the application:** P6 is the best PM tool on the market. It is intuitive even with a minimal amount of training. It can be used at a high level or a detailed low level, can be used on a multitude of projects, and interfaces well with legacy systems. Support from Primavera has also been good.
16. **Weaknesses of the application:** No real complaints.
17. **Overall experience with P6:** Having developed some internal expertise, it has been very good, especially now that there is more and more buy-in from the field. If someone is shown that they can eliminate 15 spreadsheets, they like that.
18. **Additional comments:** One of the struggles encountered was implementing best management practices for project management in a way that was in line with the department's business requirements. Simply saying to do it this way because it is industry standard, without users seeing a clear tangible benefit, did not work. Department needed to answer the question of how these processes and tools help WSDOT deliver projects, and what the benefits for the effort given are. Department developed a benefits document to convey this information. Department has also taken the implementation of P6 and Contract Manager to all region users to clearly define business requirements and needs, and then align those with best management practices. There has to be a benefit that is clearly defined and easily understood. This has worked well and the department has received great feedback.

All P6 interfaces are built to the Office of Information Technology's standards. This has presented some challenges. We've gotten around it a bit by creating duplicate databases. We also bought the Primavera Enterprise Reporting Database reporting system to try to address some of these issues.