MOBILE DEVICES IN CONSTRUCTION

Rachel Falsetti
Construction Chief, Caltrans
CURRENT STATE OF E-CONSTRUCTION AT CALTRANS

Production
- Automated Contractor Pay System
- Electronic Extra Work Billing System
- Intelligent Compaction
- Inertial Profile

Pilot
- Mobile Devices - Tablets
- Electronic Document and Retention Management System
- Electronic Field Daily Reports
- Automated Machine Guidance
CHALLENGES

- Information Technology Office
- Standards
- Support
- Security
- Public Perception
- Inappropriate use
- Procurement Method
MOBILE DEVICE PILOT GOALS

- Leverage current mobile technology
- Improve staff performance and effectiveness
- Incorporate long-term sustainable solutions
- Improve project communications
- Improve Partnering
MOBILE DEVICE PILOT METHOD

• Eight contracts
• Electronic versions of project materials
• Tested field applications
APPLICATIONS

• Document Management
  • Projectwise by Bentley
  • PDF Cabinet

• Daily Report
  • Filemaker Pro developed in-house
  • Headlight by Pavia

• Microsoft Office
  • Excel
  • Word

• Calculators
PILOT RESULTS

• Improved Staff Effectiveness
• Email at the job site
• Plans, specs, change orders, letters on tablets
• Record information once
• Travel Reduction
PILOT RESULTS continued

Reduction in Greenhouse Gases

<table>
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<tr>
<th>Category</th>
<th>Reduction (lbs of CO2 per Year)</th>
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<tbody>
<tr>
<td>Total</td>
<td>2,920,137</td>
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<tr>
<td>Travel Reduction (CO2 from Gasoline)</td>
<td>2,489,848</td>
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<tr>
<td>Trees Absorption</td>
<td>72,451</td>
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<tr>
<td>Paper Production</td>
<td>357,838</td>
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PILOT RESULTS continued

- Documenting Contractor’s Activities
- More photos
- Easier documentation

Photo comparison - Similar Projects with Tablets and without Tablets

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<thead>
<tr>
<th>Photos/Day</th>
<th>Sum of Photos/Day with Tablet</th>
<th>Sum of Photos/Day Without Tablet</th>
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<tr>
<td>28</td>
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PILOT RESULTS continued

- Electronic vs. Paper Documents
- Tablet Portability
- Accessibility and ease
- Real time
- Records Management
DEPLOYMENT

• Apple Device Enrollment Program (DEP)
• Corporate Mobile Device Management (MDM)
• Phased deployment
• Identify super users
• Implement a training plan
CONCLUSION

Innovative, Efficient, and Environmentally Friendly