Developing and Implementing an Electronic Project Management System for Engineering and Construction

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Improving mobility
Easing congestion
Strengthening our communities
Introduction and Met Council Overview

Chris Beckwith
Deputy Program Director, Metro Transit - Transit Systems Development
Met Council and Metro Transit Overview

**Metropolitan Council**

Metropolitan Council is the regional planning agency serving the Twin Cities metropolitan area.

**Metro Transit**

Metro Transit, a division of Met Council, oversees an integrated network of buses, light rail and commuter trains and operates one of the country’s largest transit systems.
CCLRT “Green Line” Route and Stations

• 9.8 miles of new double track
• 18 new stations
• Capital Investment: $957 million
• 40,940 average weekday ridership in 2030
SWLRT “Green Line Extension”
Route and Stations

- 15 miles of double track
- 17 new stations

- Capital Investment: $1.65 billion
- 30,000 average weekday ridership in 2030
BLRT “Blue Line Extension” Route and Stations

- 13 miles of double track
- 10 or 11 new LRT stations
- Capital Investment: $1.0 billion
- 27,000 est. rides by 2030
New Starts Projects

- Federal Transit Administration (FTA) requires stringent oversight to maintain eligibility for funding
- Existing Metro Transit construction procedures and manual processes were inadequate
- Central Corridor Project Office needed a system to track:
  - risks and exposures
  - enforce standardized procedures
  - serve as centralized repository for documents and information
Project Management System Implementation

Luke VanSanten

Project Management System Administrator
MnDOT-NorthStar/CCLRT/SWLRT/BLRT

Washington Avenue Bridge Reinforcement
Management Support / Buy-In

- Clear Direction
- Management Input
- Enforcement
<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
<th>Priority</th>
<th>Import Z</th>
<th>Submittal Code</th>
<th>Office Engineer</th>
<th>Designer</th>
<th>PTA</th>
<th>or Project Staff</th>
<th>External Parties</th>
<th>Contractor</th>
<th>Vendor</th>
<th>Document Management</th>
<th>System Admin</th>
<th>Alternative</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost Management</td>
<td>Track and report on estimated, budgeted, committed, and expended costs</td>
<td>1</td>
<td>m / L/M</td>
<td>m</td>
<td>m / E</td>
<td>m / L/M</td>
<td>E</td>
<td>M / E</td>
<td>m / E</td>
<td>m / E</td>
<td>E</td>
<td>m / L/M</td>
<td>Spreadsheet</td>
<td>Minimal need for non-network based access (not shared to Contractor, all people who will need it will be on our network, ...) Excel also provides easy to use charting / dashboard-style reporting...</td>
<td></td>
</tr>
<tr>
<td>Submittals</td>
<td>Facilitate, track, and report on required submittals (project deliverables)</td>
<td>2</td>
<td>V</td>
<td>V</td>
<td>E</td>
<td>A</td>
<td>E</td>
<td>?</td>
<td>A</td>
<td>A</td>
<td>D</td>
<td>M</td>
<td>SharePoint Library &amp; List</td>
<td>Definite need for external access by contractor, subcontractor, vendor, reviewers. SharePoint provides this in intuitive, easy to customize interface... Slightly more difficult to generate Log / Outstanding Action report if just SharePoint...</td>
<td></td>
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<tr>
<td>Daily Reports</td>
<td>Facilitate, track, and report on inspection activities, including:</td>
<td>3</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>R</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>M</td>
<td>Separate application (2)</td>
<td>Needs to be as easy as possible for Inspections (small devices, handwriting, voice, camera) and to a lesser degree RIS while still allowing capture of certain minimum required pieces of information for Project Controls needs. Minimal if any need for other access during normal business (PC personnel may need reporting level for claim defense, invoice review, etc)</td>
<td></td>
</tr>
<tr>
<td>Issue Management</td>
<td>Facilitate, track, and report on issues (conditions that may impact project in some way - typically cost, time, or quality)</td>
<td>5</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>R</td>
<td>A</td>
<td>M</td>
<td>A</td>
<td>Separate application (1) or SharePoint</td>
<td>We may only need reporting functionality? If so, no need for external access except ease of use? If in a separate application, could present potential problems in linking other documentation to the issue. However, given that some of our documentation won’t be in the CMS we are going to encounter this hurdle anyway? Slightly more difficult to generate Log / Outstanding Action report if just SharePoint...</td>
<td></td>
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</tr>
<tr>
<td>NonConformance Reports</td>
<td>Facilitate, track, and report on items not conforming to project requirements</td>
<td>3</td>
<td>A</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>?</td>
<td>R</td>
<td>M</td>
<td>Separate application (1) or SharePoint</td>
<td>Some need for non-network based access (shared to Contractor, only for reporting though). Reporting to Contractor easily handled in more traditional manner (generate report &amp; email). Slightly more difficult to generate Log / Outstanding Action report if just SharePoint...</td>
<td></td>
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<tr>
<td>Requests For Information</td>
<td>Facilitate, track, and report on questions about project documents (plans, specs, etc)</td>
<td>3</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>R</td>
<td>A</td>
<td>M</td>
<td>A</td>
<td>Separate application (1) or SharePoint</td>
<td>Benefit to having Contractor access, either through Web app / SharePoint or through CRM type access to project file server. Slightly more difficult to generate Log / Outstanding Action report if just SharePoint... Other documents - estimates, proposals, claims, proposed change orders, change orders, RFPs, NDAs, letters, memos, etc - use file server for working files, post to SharePoint for transfer...</td>
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<tr>
<td>Document Management</td>
<td>Store and preserve project relevant documents until such time as documentation is moved to Agency document retention system</td>
<td>7</td>
<td>V</td>
<td>V</td>
<td>V</td>
<td>A</td>
<td>A</td>
<td>D</td>
<td>M</td>
<td>A</td>
<td>X, SharePoint, project file server</td>
<td>Some need for having access to Correspondence through CMS (or DMC), especially given need of policy of keeping emails for only 30 days in Outlook / Exchange... Other documents - estimates, proposals, claims, proposed change orders, change orders, RFPs, NDAs, letters, memos, etc - use file server for working files, post to SharePoint for transfer...</td>
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Initial Process Development

- Determine Needs
- Brainstorming
- Develop Procedures
- Draft Workflows
- Repeat!
Programming the System

• Build Workflows
• Assign Roles
• Set Permissions
Working the Process

• Training
• Fine Tuning/Follow Up
• Administration
Continuous Improvement / Agile Configuration

- Staff Buy-in/Feedback
- Designated Administrator
- Reporting
Key Processes

Design
- Design Directives
- Invoicing
- Meeting Minutes
- Correspondence
- Deliverables

Construction
- RFI
- Submittal
- NCR
- Daily Report
- Change Order
- Correspondence
- Pay Requests

Close Out
- Punch Lists
- Deliverables
- As-Builts
Project Management Challenges/Successes

Josh Haider

Project Controls Manager
Metro Transit – CCLRT/SWLRT/BLRT

Civil East - Infiltration Trench
Solution Highlights

- Worked to establish the right levels of project controls and processes, and organizational structure
- Currently more than 1450 Users, 200+ unique users in last 30 days
Solution Highlights

e-Builder system utilized by individuals from all facets of project:

- Contractors/Subcontractors
- Managers
- Engineers
- Inspectors
- Project Controls Staff
- Designers
- Consultants
- Metro Transit Operations
- Funding partners
- Utility companies
- Local municipalities
- Project partners
Results

• Transparency, Visibility, and Trust

• Users can access up-to-date information in real time using accurate and easy-to-create reports
  – Reports are generated for regular status updates to project staff and management

• Funding sources are clearly identified making it easier to allocate project funds accordingly
Results

- Response time is streamlined
- Turnaround time for items like cost estimates, submittals, and RFIs has been shortened
- Accountability has improved to ensure the project keeps moving
- Communication and collaboration has improved
Results

- Standardized procedures are easy to enforce to achieve consistent processes
- Project Information and documentation is centralized and self-generating logs are constantly updated

Trackwork at Westgate Station
Recommendations/Lessons Learned

- Establish process controls and systems to support these as early as possible
- Persevere through any resistance
- Involve as many project partners as possible

Union Depot Station
Recommendations/ Lessons Learned

- Identify and implement high value/low investment functionality to gain early buy-in
- Establish reporting guidelines to keep management informed
- Beware of notification overload

Civil East – Lexington Station

Metropolitan Council
Recommendations/ Lessons Learned

- Keep an open mind to fine tuning processes as you move forward, but always communicate major changes
- Assign qualified staff as system administrators
- Communicate changes to processes and retrain as needed
QUESTIONS?