Capital Planning and Programming, Metro-North Commuter Railroad, 420 Lexington Ave., Floor 12, New York, N.Y. 10170-1200

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GIS Concept of Operations as a First Step towards Total Enterprise Asset Management: Metro-North Railroad Case Study

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For this Enterprise Geographic Information Systems (GIS) project, Metro-North adopted the Concept of Operations (ConOps) process to:
- define goals and objectives;
- inventory existing GIS assets;
- analyze data gaps, determine assets to be included and to be excluded from business processes;
- define staffing and resource requirements, project initiatives, and provide a roadmap towards comprehensive companywide GIS deployment.

In contrast to the top-down approach typically employed in Total Enterprise Asset Management (TEAM) planning, Metro-North used a dynamic grassroots approach, having planned 18 workshops attended by 92 employees, who were designed to collect GIS goals and objectives. The 323 goals generated from this process were distilled into 8 companywide goals ranging from increased efficiency to data sharing and decision support. Initiatives were developed for five critical business areas that had the potential to demonstrate the benefits of GIS would help Metro-North accomplish its companywide and broader organizational goals. The plan applications included:
- Establishing Straight Line Drawings;
- integrating property boundary data;
- retrieving Capital Plan Room drawings, tracking & delay visualization, and ridership and demographics.

This poster shows how a ConOps process could be used in rail environments to think through GIS-related issues and define concrete technology projects that provide tangible benefits to user departments, allowing them to manage their assets and business issues. Although the focus of this study was on non-asset related operations within the railroad, the ConOps offers a user-centric systems planning approach that could be applied to TEAM efforts within the railroad industry or for planning corporate initiatives in any business environment.

GAP ANALYSIS

CAMPAIGNWIDE GOALS & OBJECTIVES

PRIORITY AREAS

1. Define GIS/CAD/Asset Hierarchy Standards.
   - Define common CAD/Asset Hierarchy standards (e.g., naming conventions, and database formats).
   - Provide mid-year common cad/asset hierarchy standards.
   - Provide and disseminate asset hierarchy standards.
   - Provide guidelines and standards.
   - Provide improved data visualization.

   - Mobile devices are preferred data access points for field workers.
   - Mobile device development will allow data to be updated at the field.
   - Mobile devices are approved for use on MTA assets.

   - GIS data not accessible outside of Metro-North.
   - Non-sensitive datasets should be shared consistent with MTA's security policies.

4. Enhance Incident Management GIS Capabilities.
   - GIS systems deemed eligible for asset management.
   - SDDM enhancements to drive incident management.
   - Record incident data electronically and map.

5. Develop Definitive Data Updates.
   - Develop data sets for existing asset.
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   - Develop data sets for existing asset.

6. Replace Virtual Train Tracking System.
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STAFFING/CONSIDERATIONS

STRAIGHT LINE DIAGRAMS AND VIEWS

REPLACE VIRTUAL TRAIN TRACKING SYSTEM

CAPITAL PLAN ROOM DRAWDING RETRIEVAL

INTEGRATED PROPERTY BOUNDARY GIS

For this process, a virtual train tracking system (VTS) will be developed.

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