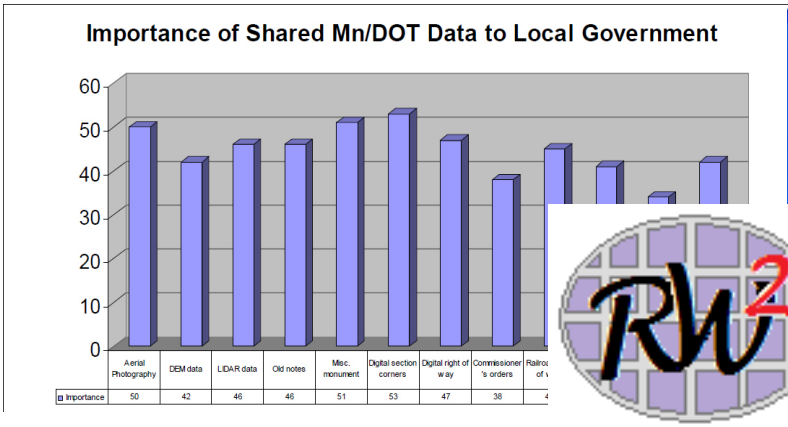
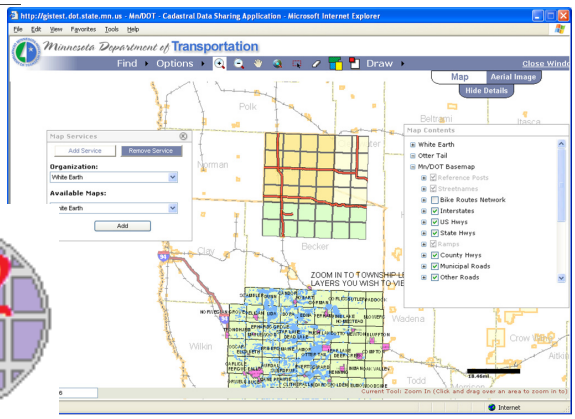
Office of Policy Analysis, Research & Innovation

2009 Research and Innovation Presentation Series





Right of Way, Right aWay (RW2)

Quick Access to Land Records
Cadastral and Right of Way Data Sharing Pilot Project

Presenters:
Annette Theroux, Pro-West & Associates, Inc.
Rick Morey, Mn/DOT Surveying and Mapping Section

Wednesday, February 18, Noon-1pm

Video Conference originating from CO Ground

Video Conf D1A Duluth, Video Conf D1B Virginia, Video Conf D2A Bemidji, Video Conf D2B Crookston, Video Conf D3A Baxter, Video Conf D3B St Cloud, Video Conf D4A Detroit Lakes, Video Conf D4B Morris, Video Conf D6A Rochester, Video Conf D6B Owatonna, Video Conf D7A Mankato, Video Conf D7B Windom, Video Conf D8A Willmar, Video Conf D8B Marshall, Video Conf D8C Hutchinson, Conf Rm WE 176 Train/ VidCon, Video Conf Oakdale Ground 4, Video Conf Golden Valley CR3

Background

Mn/DOT develops approximately 900 projects a year that require cadastral (property boundary and ownership) information. Each time a project is identified, Mn/DOT personnel must collect cadastral information from local government sources, such as Counties, Cities and Tribal organizations. Collecting information requires researching records and performing field surveys and then following up with analysis when discrepancies arise. Mn/DOT personnel time is required for research, as well as county personnel. Mn/DOT requests numerous recorded documents such as deeds, plats and certified survey information from local government organizations for each project.

Mn/DOT needs efficient and easy access to cadastral and right of way information developed and managed by local government. Local government, in turn, could save on personnel time required to respond to Mn/DOT information requests. Local government could also utilize Mn/DOT's geodetic surveys, base map data, and final right of way maps for local government work.

During the past year the Minnesota Department of Transportation (Mn/DOT) has been working with Pro-West & Associates, Inc. (PWA) to develop a web-based data sharing application as part of the Mn/DOT Cadastral and Right of Way Data Sharing Pilot Project. The Cadastral and Right of Way Data Sharing Pilot Project was developed to inventory the information that is needed and the information that currently exists in each organization (Mn/DOT and Local government), and provide a mechanism to better share the information. The data sharing pilot project is being funded by the U.S. Department of Transportation; Federal Highway Administration, the Local Road Research Board, and Mn/DOT.

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RESEARCH SERVICES SECTION

Cadastral and Right of Way Data Sharing Pilot Project

Mn/DOT develops approximately 900 projects a year that require cadastral (property boundary and ownership) information. Each time a project is identified, Mn/DOT personnel must collect cadastral information from local government sources, such as Counties, Cities and Tribal organizations. Collecting information requires researching records and performing field surveys and then following up with analysis when discrepancies arise. Mn/DOT personnel time is required for research, as well as county personnel. Mn/DOT requests numerous recorded documents such as deeds, plats and certified survey information from local government organizations for each project.

Mn/DOT receives requests from local government when local government work that requires geodetic surveys, base map data, traffic counts, and final right of way maps. Mn/DOT needs efficient and easy access to cadastral and right of way information developed and managed by local government. Local government, in turn, could save on personnel time required to respond to Mn/DOT information requests and better utilize Mn/DOT's survey and right of way local government work.

During the past year the Minnesota Department of Transportation (Mn/DOT) has been working with Pro-West & Associates, Inc. (PWA) to develop a web-based data sharing application as part of the Mn/DOT *Cadastral and Right of Way Data Sharing Pilot Project*. The *Cadastral and Right of Way Data Sharing Pilot Project* was developed to inventory the information that is needed and the information that currently exists in each organization (Mn/DOT and Local government), and provide a mechanism to better share the information. The data sharing pilot project is being funded by the U.S. Department of Transportation; Federal Highway Administration, the Local Road Research Board, and Mn/DOT.

Initially, the pilot project was conducted in Mn/DOT's District 4, which includes twelve (12) counties, four (4) cities, and the White Earth Indian Reservation in the western and northwestern region of Minnesota. PWA collected information on local government and Mn/DOT digital spatial data, land records databases and recorded imaged documents as they relate to right of way acquisition. PWA has consulted with numerous local government department heads, county boards and GIS committees to request information access for inclusion in the web-based data sharing application, called $(RW)^2$ or "Right of Way / Right aWay".

Currently, all counties, cities and the White Earth Indian Reservation in District 4 have agreed to share the data that is available digitally, and as technology allows in the individual organizations. Not all organizations have all requested data, nor is the data always accessible outside the organization. Mn/DOT is sharing data that is accessible from their organization in the web-based application, and will share additional digital data and databases as the data becomes accessible during the project.

The Data Sharing Pilot Project has been expanded in 2009 to include counties, cities and the Leech Lake Indian Reservation in Mn/DOT's District 3. In an effort to further research available data, existing technologies and opportunities for data sharing, District 3 was chosen because of the progressive local government organizations, more urban locations, and greater opportunities to test out the feasibility of data sharing between organizations. At the conclusion of the pilot project for both District 4 and District 3, the Data Sharing Pilot Project will be evaluated for return on investment, enhancement to relationships with local government and utilization of the$(RW)^2$ application by Mn/DOT and local government personnel.

Below is a list of data that was compiled as a result of meetings of the project Technical Advisory Panel. The Technical Advisory Panel, containing local government and Mn/DOT staff, met during 2007 and 2008 to discuss data that is useful for work related to their organizations.

<u>Valuable information for Local Government to acquire in relation to local government projects</u>

1. Low level and other aerial photography
2. DEM (digital elevation model) data
3. LIDAR (laser imaging detection and ranging)
4. Old notes – historical field notes or alignments (Available in District 4 and District 1 on EDMS)
5. Miscellaneous monuments picked up in an area (ex: project monuments – irons and property corners)
6. Digital section corners – electronic exchange of X, Y coordinates
7. Accurate locations of R-O-W in digital format
8. Commissioner's Orders – to know what is within Mn/DOT's jurisdiction
9. Railroad R-O-W maps
10. Roadway condition information – CPI indexes
11. Final certificate of filed condemnations (also file with County)
12. Old R-O-W maps of what was acquired (scanned but not coordinate correct)

<u>Valuable information for Mn/DOT to acquire in relation to R-O-W projects</u>

1. Deeds – abstracts or torrens
2. Survey records – section breakdowns, private certificates of survey, certificate of gov't. lot corner
3. Recorded plats – including condos, auditors subdivision, registered land surveys
4. Right of Way plats

5. Digital parcel data – line work classified by level of accuracy, documented with metadata
6. Municipal boundary line
7. Ownership database information – downloadable and in report format
    a. Assessment
    b. Market value
    c. 5 year sales history
8. Digital section corners – points classified by level of accuracy, documented with metadata
9. Monumentation on individual parcels – points that could be documented in metadata (requires a systematic approach and on an as needed basis).
10. CAMA – computer aided mass appraisal information and sales information
11. Zoning boundaries
    a. Appraisers need to know for property and comparable sales
12. Soils maps – high resolution
    a. Used for wetland mitigation
    b. Appraisers use for cropland valuation
13. Ditch maps
14. Road orders – generally township roads
15. Railroad R-O-W or centerlines

There are many datasets that would be valuable to Mn/DOT and local government that are outside the range of this project but would be worthwhile documenting. Below is a listing of additional datasets that were inventoried in an effort to include information that may be useful for future data sharing.

Additional data valuable to local government

1. Bridge hydrology information
2. MN/Model - statewide archaeological predictive model information for historical artifacts
3. Water resource data (ex: culvert inventory)
4. Sign inventory
5. Traffic counts and other related information

Additional data valuable to Mn/DOT

1. Road inventory information from local government and to have the ability to export Mn/DOT road inventory information to local government
2. As-builts from county road projects
3. Elevation data collected by local government
4. Aerial photography
5. Wetland information
6. Utility locations and metadata

It is not expected that all data in the lists exists within each organization, or is available for sharing. The list is a point of reference for researching what is possible for sharing.

The $(RW)^2$ web application is housed on Mn/DOT servers and connects remotely to existing web services, database services and imaged document services. The application is built on an ArcGIS Server 9.2 platform, and will be upgraded to 9.3 in February 2009. It is not necessary for any additional hardware or software to be installed on the local government servers for the $(RW)^2$ application to access the information. A small configuration file will be loaded on the local government server and accessed remotely from the Mn/DOT $(RW)^2$ application.

$(RW)^2$ is a secure application requiring a login user name and password (supplied by Mn/DOT). Each local government organization has permission to view their data and Mn/DOT's data. Local government organizations do not have permission to view other local government organization data. Mn/DOT supplies user names and passwords for the right of way acquisition staff within Mn/DOT. The load that will be placed on the local government organization servers will be in regard to project research and will change based on the number of road and right of way acquisition projects occurring in the organization's region.

The maintenance of the application and configuration files is the responsibility of Mn/DOT. The application has administrative tools that perform link diagnostics on each remote connection every night. The remote server is pinged to determine existence of the connection. If there is a connection that does not function, or functions improperly, it is the responsibility of Mn/DOT to inform the local government organization. If changes to the application are required as a result of the local government organization's changes to their servers or systems, Mn/DOT will perform the changes to the $(RW)^2$ application. Based on our experience working with organizations in District 4, it has required an average of 1-2 hours of local government Information Technology staff time to work with Pro-West & Associates and Mn/DOT Office of Decision Support – Enterprise GIS department to plan, prep and connect the organization's remote services.

Interviewing local government organizations is planned for January and February of 2009. After that time, the (RW)2 application will be programmed to include participating District 3 local government organizations, and add additional data as it is available from Mn/DOT. Following programming, Mn/DOT staff and all local government organizations will be given the opportunity to attend a training session in the use of the application. The training session is planned to occur in June 2009.