Case Study – Mid-Ohio Regional Planning Commission (MORPC)  
Web-Based Traffic Count System  

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1. **What should we learn from this case study? What is the key message?**

This is a case study of the transformation of the Mid Ohio Regional Planning Commission’s (MORPC) in-house traffic count database to a web-based version. This new web-based database system allows for efficient traffic count sharing in central Ohio by coordinating participating agencies’ counting efforts while reducing labor and human errors. With the new system, all participating agencies now have access to a comprehensive traffic count database. They are able to upload and manage their traffic count data online with a web browser, and if necessary, download the entire database in an Access format with GIS information for in-house use. The system includes historic AADT data, and through technology, allows for the cost effective inclusion of expanded data needed by current travel demand modeling programs.

2. **Description of the system and context**

A web-based traffic count database system was developed for MORPC by Midwestern Software Solutions, with the involvement of Ohio DOT, City of Columbus, Franklin County, Delaware County, and the Licking County MPO (LCATS). The new database system is web-based and can be accessed through a common web browser with no need of any special hardware or software. Traffic count data from counters can be directly uploaded to the new system without manual data entry. With the new system, details of current traffic county are shared among agencies and the public simultaneously.

3. **What was the problem or need?**

MORPC, the Metropolitan Planning Organization for the central Ohio area, has served as the repository of traffic count data in the region since 1968. Data sources included Ohio DOT, county, local jurisdictions in central Ohio, and consultants. The traffic counts are used for the validation of MORPC’s regional travel demand model, transportation planning, and traffic impact studies. Traffic count data are also regularly requested by citizens and the business community.

The traffic counting program has evolved from hand entries onto mylar maps, to electronic databases, and in-house GIS applications. Before the web-based version, almost all traffic counts came to MORPC as hard copies on paper requiring manual input into the database. Because of limited staff, only summary statistics derived from the paper counts were input to the database and maps were produced on a two year cycle. MORPC’s new tour based travel demand model requires peak hour statistics along with the usual daily volumes. In addition, the hard copy files varied substantially in format which required significant training for data input. Quality assurance was time consuming as this task is generally assigned to interns who have a high turnover rate. There were also increasing demands from the public for current information. Their expectation for newer, readily available and simple tools to facilitate data viewing and report generation was frustrated by the slow processing time of the agency.

4. **What actions or policies were taken?” How was the problem approached, solved?**
Realizing the need to find a solution to maintain MORPC’s traffic count database and meet the increasing needs for detailed and up-to-date data, MORPC investigated investing in an on-line traffic count management system. MORPC used STP planning dollars supplemented with local matching funds from participating partners to pay for the development and maintenance of the system. MORPC’s traditional AADT calculation method was included in this system. This was necessary for factoring partial day traffic counts to AADT. MORPC’s historic geo-referencing system was adopted in the new web-based system and an automated ID procedure was developed in the new system to facilitate power users to add new count locations. This provides linkage between the two modules in the new system: one for volume counts, and one for turning movement counts. The system was designed to accept data from a variety of traffic counting devices as each involved agency is responsible for uploading its own counts.

Three levels of users are defined in the system. As the “Site Manager”, MORPC has the full access to all the functions in the system. Agencies providing their own data are “Power Users”. “Power Users” can add new data and locations in the system, upload traffic counts to existing locations in the system, and have full functions to their uploaded count data. However, the power user cannot edit other power users’ counts. Although ODOT has a website for its traffic counts, there was desire to have a “one-stop-traffic count shop” for users in central Ohio. MORPC uses dots for count locations, and ODOT uses segments for traffic counts. Therefore, the ODOT counts were added as a separate segment-based layer but integrated with other counts in terms of view and search. The final user type known as “Public” can view details in the database and print reports, but cannot make any changes. Several training sessions for using the web-based traffic count database were conducted for Power Users. Midwestern Software Solutions provides technical assistance to the power users at all times. Contact information of MORPC staff is provided on the website for public assistance.

5. What were the confounding or mitigating factors, things that made the action work, or that made it difficult for the action to work?

While the responsibilities of the System Manager are centrally located at MORPC, the responsibility of getting the data uploaded is dispersed to the various “Power Users”. The new system adds data-uploading burdens on counting agencies that previously only collected traffic counts. This has become a challenge for all involved agencies to balance their staff time between collecting data in the field and uploading data to the web-based database.

Allowing for public access to data on-line also opens a Pandora’s Box to questions about the data. Previous maps were formatted to include only AADT volumes. The web-based system includes much more information including turning movements, directional and non-directional data, and historic data. This requires education on the part of the general public and media for accurately analyzing the information. In addition, ease of panning across the map allows all users to see the scarcity of current information. This may result in a more aggressive effort by local data providers to collect information. One of the goals of this project was to reduce the amount of resources necessary for processing data and to redirect it to collection and analysis. The potential demand for collecting data to meet public requests will have to be balanced against collecting data for system analyses.

6. What was the outcome, the results of the action?
The data from counters are now being uploaded directly to the new system, which largely saves staff time on manual data entry while all details in the raw data are preserved. Since the launch of the new web-based system in early 2008, there have been more than 4,000 (about 500 per month) hits on the system. This has saved MORPC staff time previously directed to responding to public requests for traffic counts.

7. What is the assessment of the outcome? That is, how can we evaluate the outcomes, and what is the result of this evaluation?

In summary, the transformation of MORPC’s traffic count database to the web-based system has modernized traffic data sharing in central Ohio. The improvement of the system will be a continuous effort. The system will be made more understandable to all users by adding extra help tools, such as pop-up notes, easy-to-read online manual and simple reporting functions. Currently, MORPC is planning to recruit more counting agencies as power users to fulfill the coordination of most (if not all) counting efforts across central Ohio.