



Outlook 2003

By Joe McMahon, P.E., CEO



McMahon Associates is a microcosm of the transportation engineering community, at least on the East Coast of the U.S., where we practice from Maine to Florida. Based on our 2002 year-end results, our backlog of work, and the views of our respective regional general managers,

the 2003 engineering business outlook is cautiously optimistic.

Finding funds at the federal level

Public sector backlog is reasonably strong for those doing state transportation work. The TEA-21 reauthorization proposal at the national level is working its way through Congress. As of this writing, funding for Fiscal Year 2003 transportation appropriations is approved at \$64.5 billion, with \$31.8 billion earmarked for highways.

Federal transportation infrastructure spending through the TEA-21 reauthorization should continue at least at the enhanced level of recent years and could be increased to combat recession. The Bush administration proposes a six-year funding of \$247 billion, compared to \$218 billion of TEA-21 — a 13 percent increase.

On the state and local front

State and local matching dollars are less certain, due to general tax revenue shortfalls. Those states that maintain the linkage rule, using fuel tax revenues only for transportation purposes, should be able to match federal dollars. One exception could be Massachusetts, where the last of the “Big Dig” (Central Artery/Third Harbor Tunnel Project) is making it hard to fund other needed transportation infrastructure projects, although the state remains committed to a \$400 million program to fund road and bridge projects in the rest of the state. Florida is also a concern, since there is talk of a \$200 million raid on the transportation trust fund due to shortages in general tax revenues.

Local government tax revenues have fallen, but the need still exists for infrastructure improvements. Opportunities for

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The Challenges of Ethical Professional Conduct

By Rod Plourde, Ph.D., P.E., President

In light of recent scandals revolving around professional misconduct by individuals from some major corporations and financial institutions, today's young professionals, whether engineers or not, may ask: “How would I act in the face of pressures from my employer or client to do something that I don't think is ethical?” Registered Professional Engineers (P.E.s) are bound by codes of ethics by state Boards of Registration. Further, most engineering societies or organizations, such as the American Society of Civil Engineers (ASCE), also have their own codes of ethics. Whether a state Board of Registration or an engineering society, the codes are meant not only as guidelines, but must be followed. Violations, in the case of state Boards of Registration, can lead to loss or suspension of one's P.E. license, fines, and even criminal prosecution. Violations of engineering society codes can lead to loss or suspension of membership and potential referral to the governing state authorities.

Bringing you *Standards of Professional Conduct*

To assist engineers, young or old, and small businesses, which don't have the resources to publish more detailed guidelines on the day-to-day aspects of ethics practices in the civil engineering profession, the ASCE's Committee on Practice Guidelines, which I chaired, issued a less-than-20-page publication entitled *Standards of Professional Conduct* in 2000. Alternatively, we called it the “Ethics Manual.”

In this booklet, guidelines are presented for a variety of issues and situations, including



McMahon President Rod Plourde chaired the ASCE committee that produced this ethics manual.

conflicts of interest; gifts, meals, and entertainment; confidential or proprietary information; relationships with competitors; relationships with clients, outside contractors, and consultants; and whistleblowing. Guidelines on what to do if potentially unethical situations occur are also provided, including the roles of the individual, company management, and applicable outside organizations, when appropriate.

I offer to those professionals who might be interested in this publication its availability through ASCE. If you are not a member, I offer to obtain copies for you. To our valued clients and friends, public and private, this article is intended to assure you of the paramount importance McMahon places on professional ethics in its day-to-day conduct of business.

Did You Know?

Inventor of 1923 Traffic Signal Sold Rights to GE for \$40K in 1963.

Garret A. Morgan invented the first traffic signal in the early 20th century and patented his device in November 1923. The traffic signal consisted of a T-shaped pole, with three positions: Stop, Go, and an all-direction Stop to allow pedestrians to cross the intersections safely. Morgan sold the rights to his invention to the General Electric Corporation in 1963 for \$40,000.



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New England Regional News

The Private Development Process in Massachusetts

Part 2 — Filing for the Massachusetts Environmental Policy Act

by Gary McNaughton, P.E., Associate & Senior Project Manager

When it comes to filing for project permits from state environmental agencies, thoroughness can save time.

In our previous newsletter, we outlined the thresholds for determining if a project is subject to review under the Massachusetts Environmental Policy Act (MEPA). If a project qualifies, there are several different approaches to filing with MEPA. The simplest MEPA filing consists of an Environmental Notification Form (ENF) — a 14-page checklist of project impacts under each of the MEPA categories. The form and filing procedures are available on the MEPA website (www.state.ma.us/envir/mepa/).

One of the first questions on the ENF asks whether the project requires an expanded ENF requesting a Single Environmental Impact Report, Special Review

Procedure, Waiver of Mandatory Environmental Impact Report (EIR), or a Phase I Waiver. The expanded ENF calls for information beyond the checklist to identify a project's impacts. It can also be useful in minimizing the MEPA review process for projects with limited impacts to request a special filing procedure or waiver. Larger projects that have more significant impacts, or impacts in multiple MEPA categories, must follow the traditional EIR process to address agency and public review comments from the draft submission before submitting final proposals.

Next Steps

After the ENF is reviewed, the Secretary of Environmental Affairs will notify the applicant if the project requires further review through the EIR process. The EIR filings can

be quite extensive if project impacts exceed a broad range of thresholds. Because the MEPA filing and review process occurs over a 37-day review period for each submission, it is best to file thorough EIR documents to both minimize comments and to avoid a re-file. Upon completion of the draft and final EIR reviews, the affected state agencies will issue Section 61 Findings under Massachusetts General Laws to identify the remaining required project mitigation before the state will issue a permit.

In addition to the MEPA reviews, most projects require local approval from Planning and Zoning Boards. This process occurs concurrently with the MEPA reviews and can often be more time consuming. Our next newsletter will discuss some general aspects of these local approval processes.

Mid-Atlantic Regional News

GIS Offers Time and Spending Advantages

by Harry R. Smith, Senior IT Specialist

A Geographic Information System (GIS) combines layers of information to create a more detailed graphic and textual presentation. GIS requires a combination of hardware, software, spatial data, and an educated staff to interpret the results. While often used for cartography, asset management, and analysis, GIS for Transportation (GIS-T) enhances spatial data such as:

- Pavement Management
- Bridge Management
- Regulatory Signing Inventory
- Traffic Signals Inventory



GIS can be used to streamline engineering projects.

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Building a Better Speed Hump

By John Kim, E.I., Project Manager

As the development of residential subdivisions and commercial centers increases and access to rights-of-way decreases, traffic calming solutions have become essential.

Congestion on major roadways encourages motorists to find other ways to get to their rush-hour destinations, like speeding through residential neighborhoods, which can cause noise and safety issues.

To address these concerns, traffic engineers may consider the speed hump to reduce vehicle speed. Before-and-after speed studies consistently show speed reductions of 25 to 35 percent. However, speed humps can create noise and increase emergency vehicle response time by as much as five seconds per hump. Some cities have even outlawed speed humps for their slow-down effects.

Traficop speed cushions accommodate all vehicles

Primarily used in Europe with excellent results, the Traficop speed cushion is relatively new to the United States. The cushion consists of a tapered, hard-wearing rubber module, with a standard dimension of 6.2 feet wide, 6.6 feet long and nearly three inches high. The module is placed in the center of each travel lane with gaps between



Speed cushions help reduce speeds, but their shape allows emergency vehicles to pass over unaffected.

it and the edge of the pavement so bicyclists can avoid the speed cushion. A narrow add-on module centered between two standard modules can be used on two-way lane roadways wider than 21 feet.

The rubber construction makes the speed cushion quieter than a typical speed hump, and its tapered design allows fire/rescue vehicles, with their wider wheelbase, to pass over them with minimal effects. Other vehicles and trucks get the full impact.

Observations indicate that the impact increases when vehicles attempt to straddle the gap and the cushion.

Various communities that McMahon serves are testing their effectiveness. McMahon will be preparing a report later this year that will study the before-and-after effects in South Florida. Those results will be published in a future *McMahon in Motion* issue.

GIS Offers Time and Spending Advantages *(continued from page 2)*

- Parking Management
- Street Lighting Inventory
- Pavement Markings Management
- Pothole Incident Reporting and Repair
- Accident History
- Emergency Vehicle and Bus Routing
- Traffic Counts Inventory
- Future Development Impact Analysis

Meeting traffic, funding needs

GIS can be an efficient and cost-effective way to manage infrastructure and to comply with new qualifications for funding.

By sharing multiple databases with spatial data, GIS maps paint a detailed picture of infrastructure characteristics and their effects. For example, by overlaying street lighting, signing, and traffic signal systems

with recent accident history on a street network, you may discover if the roadway characteristics actually contributed to those accidents. GIS can also be used to combine multi-disciplined roadway work orders to reduce construction conflicts and save time, money, and delays.

Providing GIS assistance

In 1998, the Federal Highway Administration created an Office of Asset Management to work closely with the American Association of State Highway and Transportation Officials to assist state Departments of Transportation in the development of their own asset management systems like GIS. With increased budget constraints and public accountability, municipalities will also be working with organizations like the American Public

Works Association to implement similar infrastructure management systems.

Additionally, state and federal funding agencies now require better management practices for more accurate and enhanced data for funding eligibility. In June 1999, the Governmental Accounting Standards Board established the Basic Financial Statements for state and local governments, which requires those agencies to provide annual financial statements more consistent with those by private-sector companies to cover all capital assets and long-term liabilities.

McMahon Associates would be glad to help you with any of your GIS needs, including implementation, training, programming, and/or data collection with hand-held computers and Global Positioning System devices.

New Projects

New England

- **Traffic Impact Study** for Villages at Stow, Stamski & McNary, in Stow, MA
- **Traffic Signal Design**, for Walgreens, Chelmsford, MA
- **Interim Roadway Design**, Additions for Central Artery/Tunnel Project, Boston, MA

Florida

- **S.R. 824 3R (Resurfacing, Restoration & Rehabilitation) Construction Project**, Pembroke Road for FDOT District Four, FL
- **Beach Area Master Plan Study**, for Deerfield Beach Community Redevelopment Agency, FL
- **S.R. 68 3R Construction Project**, Orange Avenue, for FDOT District Four

Mid-Atlantic

- **Traffic Signal Open-End Contract**, Districtwide, PennDOT District 6-0, PA
- **Bridge Rehabilitation Project**, Henry Avenue Bridge, in Philadelphia for PennDOT District 6-0, PA
- **Traffic Impact Study and Design** for St. Francis Tract/DeLuca Homes in Bensalem, PA

We Answer Your Transportation Questions

McMahon in Motion features one reader's question on transportation in each issue. Our traffic engineers answer your question in the following issue. Please submit your questions via e-mail to fortwashington@mcmtrans.com.

Question (from previous issue): How long does the average driver spend behind the wheel each day?

Answer: Since 1982, the U.S. population has grown nearly 20 percent, and the time that Americans spend in traffic has jumped an amazing 236 percent. On average, Americans spend one hour and 13 minutes behind the wheel each day.

Next Question: Would it be considered ethical for a transportation engineering firm to review development plans submitted to a municipality on behalf of a past or current private client?

Look for the answer in our next issue of McMahon in Motion.

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public-private partnerships should increase for aggressive and creative municipalities, as well as for private interests who want to leverage their infrastructure investment dollars.

A unique spending paradox

The consumer is the best hope for a successful 2003! Terrorism and the national mindset in the aftermath of 9/11, the Iraq situation, and the continuing ills of the stock market have created a unique paradox, which seemingly encourages consumer spending. Unemployment is believed to have peaked, and many think it will decrease slowly during the year.

With fewer places to invest, consumers are focused on residential real estate and personal spending. The recent International Builders' Show in Las Vegas was the largest ever, and reflected a broad-based optimism, particularly for residential construction. Additionally, advance indications relative to the upcoming International Conference of Shopping Centers Convention this May reflect a similar optimism. There is not a strong office market, but there is also not the huge inventory of vacant space that characterized the recession of the early 1990s.

A major terrorist incident or protracted Iraqi war involvement could change the outlook. From our somewhat limited, and arguably myopic perspective, the outlook for 2003 is cautiously optimistic.

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