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2005

## Reconstructed State Street Reflects Essence of City



Reconstructed State Street incorporates custom banners and lights, using a flexible design and other special features that celebrate the vitality and diversity of this pedestrian-transit mall.

The eyes of the Midwest were on the City of Madison's State Street as it was reconstructed to coincide with the Grand Opening of the world-class Overture Center for the Arts. The renovation of the State Street District in the heart of the downtown University/Capitol Square area needed to enhance the character of this well-known street, keeping what makes it

special while still meeting the needs of a variety of stakeholders, including businesses, pedestrians, residents, the Overture Foundation, and the City.

### Design Saves Trees

As the prime consultant for Phase 1 of this project, with a cost of \$5.9 million, MSA Professional Services (MSA) met a tight eight-month time frame for design. Since aesthetics were so critical to retaining the 'sense of place' for State Street, the team searched for a design to save the 52 existing trees, most of which had 30-year growth. A reinforced concrete structural sidewalk slab was designed to span the tree planting zones resulting in minimal disturbance of existing tree roots, giving them increased space and room to grow. This is the first time this application was used to improve growing conditions for existing urban trees.

Public involvement was a critical aspect of the project. The MSA team participated in approximately 100 meetings as they met with interested parties throughout the design and construction phases to identify and address concerns. Access was maintained for 50



Congresswoman Tammy Baldwin, D-WI, Mayor Dave Cieslewicz, with scissors (partially shown), and Madison City Council President Mike Verveer get set to cut the ribbon opening the renovated State Street Mall.

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small businesses and pedestrians. The MSA team, as designers of the first two blocks, also established the identity of the State Street District through a custom logo and banner system, lighting, bus shelters, kiosks, and newspaper corrals.

Brenda Konkel, District 2 Alderperson, City of Madison, said, “the MSA design team listened to committee and public concerns about the

duration of the project construction, access to businesses, and pedestrian movements and safety.”

MSA was recognized with a 2005 State Finalist Award from the American Council of Engineering Companies (ACEC) of Wisconsin for this project. ■

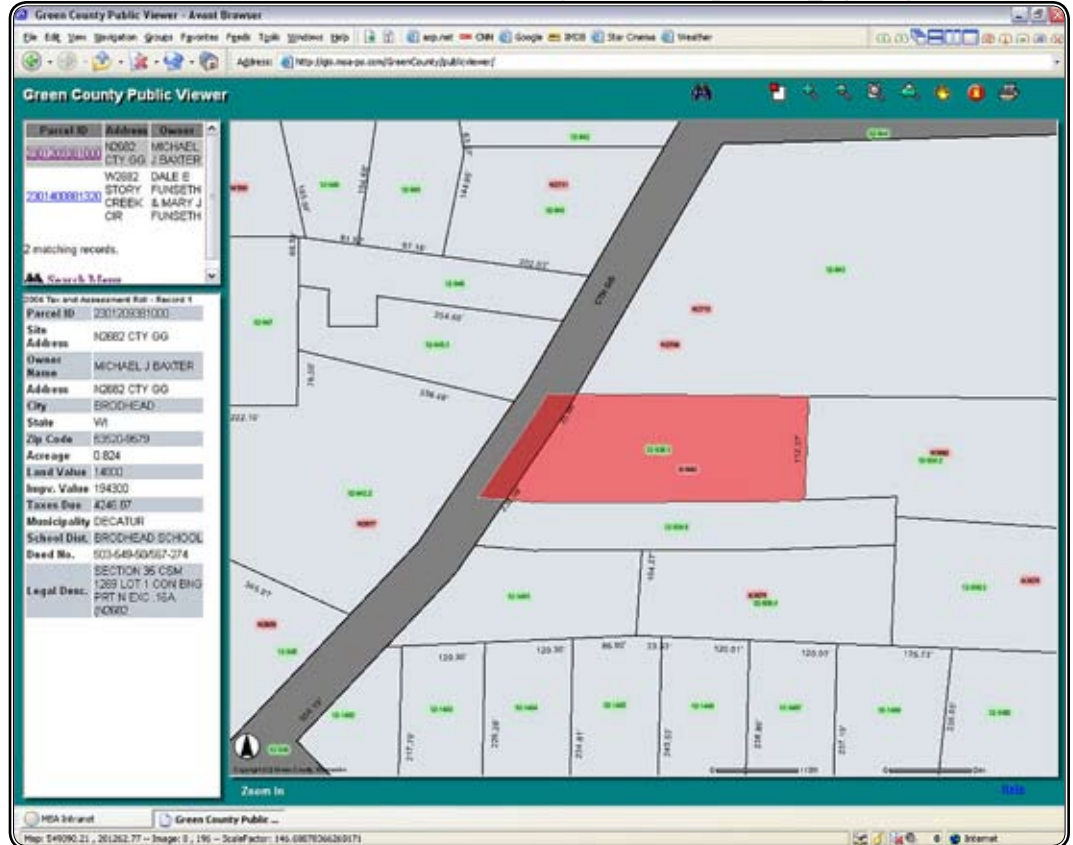
## Web-Based Applications Provide Quick Search

Accessing GIS information doesn't always mean leaving the comfort of your home or office for a trip to the courthouse. In some communities, you can quickly obtain the data you need simply by surfing the Internet. MSA Professional Services has helped counties and communities alike establish Internet web applications to allow users to obtain Geographic Information Systems (GIS) data, such as zoning, floodplain, soils, infrastructure, and parcel maps for property.

### Improves Access

“Green County, for instance, wanted to give county departments and businesses access to GIS information. The County Treasurer’s Department was experiencing a lot of requests for parcel maps and tax assessment lists related to property ownership. We developed a Web Viewer that uses ArcGIS technology through use of the Internet,” explained Todd Halvorson, MSA GIS Services manager. “The databases allow users to search by a zoning information, a lake or stream name, municipality or town name, or owner name to get the information they need.”

A major benefit of this Internet Viewer is that it allows easy access to GIS data minimizing recurring costs in hardware, software, and training. Officials can select a parcel and identify properties within a specified distance to create mailing lists for zoning notifications. Other uses include selecting properties based on a certain criteria, such as land and improvement values, and saving the returned results for future use. The real benefit of these Internet applications is the ability to build them to suit the client’s needs and share them among multiple users.



Using the Map Viewer, staff can retrieve information on features such as parcels, floodplain, environmental corridors, parks, and zoning information.

This new Internet GIS service is comprised of two components. The first is the building of the GIS application to the client’s specifications and the second is providing the Internet hosting services for the application. MSA provides both of these services, thus saving this Wisconsin county the cost and effort of maintaining the specialized hardware and software to run them, not to mention keeping the data secure.

### Two Applications

Sherri Hawkins, Green County Land Information Officer, said their system has two applications.

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**“This Internet Viewer has ... reduced the workload for our department and has made it easier for county officials at different locations to obtain the information they need.”**

**- Sherri Hawkins**

One is a public viewer, designed for the novice user. You can use this application, for example, to check on tax assessments and parcel size. Assessors, title companies, real estate agents, and attorneys use the more comprehensive subscription application that offers highly detailed information and a more sophisticated tool menu to complete GIS tasks. They can do searches for soil types, parcel mapping, school district residents, and more.

“This Internet Viewer has been a really good tool and will only get better,” she said. “It has reduced the workload for our department and has made it easier for county officials at different locations to obtain the information they need.”

The City of Delavan, WI also is taking advantage of this technology. City personnel no longer need to use unwieldy maps or search for files stored in different locations. Now they can go to their Internet site to determine the value of a property, find specifications on part of the water system, or quickly print a detailed map with sanitary sewers with two-foot contour overlays.

The Map Viewer was developed by MSA in conjunction with the Dela-

van Public Works and Water and Sewer Departments. Staff wanted access to information that integrates ownership, assessments, and utility records with past project costs.

### Data Readily Available

Water Utility Director Barb Stebnitz and Public Works Assistant Paul Weckel said city staff used to review three-four sets of books to find information for more complex issues, but now they can just go to the Map Viewer to find out what they need. With a click of the mouse, utility personnel can find out necessary data about a water line. That information comes in handy when improvements need to be done and nearby property owners must be notified. Weckel uses the application to find out street widths, location of curb and gutter and sidewalks, property owners, and tax numbers.

Halvorson predicts that web-based Internet GIS systems will continue to grow in popularity for many governmental entities. “Already we are seeing demands for GIS tools built specifically to meet a specific group’s needs, such as emergency services or a utility departments. Other uses include accessing the data ‘live’ from vehicles using wireless Internet connections on mobile computers for municipalities,” he said. ■

## MSA Merges With Two Firms in the Midwest



MSA serves clients from 11 offices.

**M**SA Professional Services, a full service engineering, architectural, and planning firm, merged with two companies in the Midwest to give clients additional opportunities. They are Gjersvik Consulting, Inc. (GCI), Des Moines, Iowa, and Perry-Carrington Engineering Corp., Marshfield, WI.

“With the addition of MSA’s manpower in these two areas, our menu of services is now broadened and a diverse staff of professionals are available to assist with the successful completion of projects,” noted

Gilbert Gerdman, CEO of MSA.

The Des Moines office now is known as MSA Professional Services – Gjersvik Division. Professionals based at this office include civil engineers, planners, surveyors, water/wastewater experts, and a landscape architect. The Perry-Carrington Division of MSA, located in Marshfield, provides services for municipal and aeronautics clients. These professionals include civil and transportation engineers and technicians.

### Comprehensive Services

MSA’s workforce consists of civil, structural, and transportation engineers, architects, planners, surveyors, GIS experts, and environmental scientists. The joined workforce of more than 300 individuals based at 11 offices has the shared goal of forming trusted partnerships with clients throughout the Midwest. The firm provides a complete range of services for municipal, environmental, transportation, and real estate and development clients. ■

## NRCS Funds Pollution Control Facilities

**M**any farmers throughout Iowa are taking advantage of funds offered by the US Natural Resources Conservation Service (NRCS) for pollution control from animal feeding operations. “Manure used to run off farm fields and enter streams and rivers. Now it is contained in pits and solids are separated out. The runoff is then treated to enhance

the quality of the state’s waters,” noted Duane “Butch” Doorenbos, P.E., of MSA Professional Services-Gjersvik Division, Des Moines, IA.

### Funding Provided

The NRCS, a division of the US Department of Agriculture, turns to

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MSA for design work for a majority of these pollution control projects now underway in the eastern part of Iowa. In addition, this agency provides participating farmers with 50 to 75% of the funding for the construction cost of these facilities through the Environmental Quality Incentives Program. Assistance is provided for dairy and beef cattle, hog, and turkey feeding operations.

### Three Approaches

Doorenbos explained that three different approaches are used to control the animal waste. They are as follows:

- Sediment basins are designed to capture runoff from open feedlots and separate the majority of the solids from the liquid. The liquid is then discharged into a grassy filter strip for further purification of the liquid portion.
- Manure pits are concrete tanks that hold liquid manure that needs total containment. It is land applied several times a year.
- Manure stacking is provided in a facility that stores manure that is not liquid. It is stacked up in piles and land applied at a later date.

Because funding is available, many farmers are now taking advantage

of this program, Doorenbos noted. “These pollution control facilities could one day be required, so many farmers are deciding to be proactive at this time and installing the facilities while funds are available,” he said. ■



Runoff from the feedlot, at right, travels across the sloped collection ramp and into the sediment basin, at left. The ramp was built wide so that the farmer could drive his tractor through it.

## Structures Resolve Sewer Overflow Problems

The scenic North Shore of Lake Superior is known for its massive rock outcroppings. Although dramatic, this geologic formation causes problems when it comes to the area’s sewer systems, explained Eric Shaffer, P.E., MSA Professional Services senior engineer. “Sewer lines installed in rock trenches and within the heavy clay soils native to this region will commonly have higher infiltration and in-flow rates than sewers in other areas.”

**“In a typical year, they were experiencing 10 to 20 sanitary sewer overflows, resulting in untreated wastewater flowing into Lake Superior.”**

**- Eric Shaffer**

The Minnesota Pollution Control Agency (MPCA) is working hard to reduce these sanitary sewer overflows. They occur when rainwater and groundwater seep into sewer pipes, exceeding their capacity.

They overflow, and the untreated wastewater can then end up in lakes and streams.

MSA has worked with the Cities of Two Harbors and Duluth, MN, to resolve these sanitary sewer overflow problems.

Two Harbors was under orders from the MPCA to stop overflows at their municipal wastewater treatment facility, Shaffer said. “In a typical year,



A concrete equalization tank in Two Harbors, MN stores influent from sanitary sewer overflows, preventing untreated water from flowing into Lake Superior. (See related article on Page 6.)

they were experiencing 10 to 20 sanitary sewer overflows, resulting in untreated wastewater flowing into Lake Superior. High wastewater flows inundated the City’s wastewater treatment facility, resulting in these overflows.”

To solve this problem, MSA designed a 2.5 million-gallon concrete equalization tank 150 feet in diameter and 19 feet deep. When high flows come to the wastewater plant, three new

high flow pumps with a total capacity of 7000 gallons per minute send the influent to the new tank. When the influent flows to the treatment plant decrease, the tank is then drained by gravity back to the head of the treatment facility and treated.

### Tank Stores Wastewater

“This tank is designed to have the capacity to store wastewater from a 25-year rain event,” Shaffer explained. In the event that a storm of greater magnitude is experienced and the tank is full, then the tank overflow is directed to a chlorine contact tank for disinfection. Fol-

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lowing disinfection, the effluent from the tank is blended with treated effluent. This blended effluent will meet all permit limits prior to discharge to Lake Superior.

“This tank, which went on line in February, has successfully stored two overflows in April 2005,” Shaffer indicated.

Wastewater Treatment Plant Operator Sven Bergerson, Two Harbors, agreed that the situation is now a lot better when severe weather occurs and operators respond to high-level alarms. Prior to the construction of this tank, it would be necessary to open valves allowing inadequately treated sewage to discharge into Lake Superior. Now, as a result of the new system, the influent is properly treated before discharge into the lake.

### Solution Eliminates Overflow

MSA also is working with the City of Duluth to resolve their overflow issue. Construction of both a 1.9 million-gallon and a 300,000-gallon concrete tank in the City’s Lakeside neighborhood was recommended. MSA’s comprehensive study outlined a solution that would eliminate three separate overflow points with two tanks and a new forcemain. Each tank will include a new submersible lift station. Wastewater will enter the tanks by gravity and then drain back to the lift stations by gravity as the flows recede.

The 1.9 million-gallon tank is currently under construction and the



MSA is working with the City of Duluth, MN to prevent sanitary sewer overflows caused by the heavy clay soils and aging infrastructure.

second tank is in the design stage. The installation of a new force main will allow the wastewater from the 300,000-gallon tank to be diverted to the 1.9 million-gallon tank. As a result, the larger tank will provide storage for both areas of the City. By diverting this wastewater, an overflow at another downstream location will also be eliminated. Both of these facilities will be sized to store wastewater for the 25-year rain event.

“This sewer overflow problem is created through a combination of the soil composition and aging infrastructure,” noted Dave Prusak, P.E., Chief Engineer for Utilities for the City of Duluth.

He explained that a tremendous amount of water goes into the service lines that run from the homes to the street, resulting in the sanitary sewer overflows.

### Address Long-Term Solution

The tanks now under construction will help the City meet the US Environmental Protection Agency’s mandate that the infrastructure not overflow when there is a 25-year rain event, he said. For a long-term solution, Prusak said, “communities should concentrate on replacing or renovating deteriorating sewer lines to reduce or eliminate infiltration and inflow.”

MSA’s wastewater experience and creative thinking have helped remove these four, plus two other, wastewater overflows from Lake Superior. ■

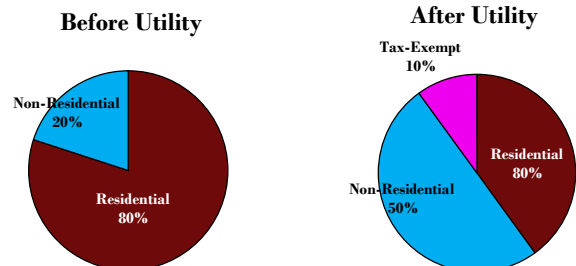
## Consider Stormwater Utilities as an Alternative Financing Approach

**The principal attraction of stormwater utilities is that they are viewed to be more equitable to the user than tax-based systems.**

In this day and age, taxes may not be the most equitable way to pay for stormwater management. It could be time to create a stormwater utility and adopt a user fee system. Stormwater utility fees can pay for stormwater-related operation and maintenance tasks such as cleaning catch basins, street sweeping, and maintaining stormwater detention basins. The principal attraction of stormwater utilities is that they are viewed to be more equitable to the user than tax-based systems.

“In most communities, residential parcels represent the vast majority of the tax base of the community. However, when land-use characteristics are evaluated,

the proportion of stormwater runoff from non-residential properties is proportionally much higher due to the high degree of paved and roofed surfaces associated with these uses,” noted Eric Thompson, P.E., MSA senior water resources engineer. “When communities fund stormwater programs out of the general budget, costs are unfairly assessed to residents based on tax values. Switching to a stormwater



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utility allows for reallocation of costs based on the service that each parcel in the community requires for stormwater management.”

Institutions like churches, universities, and a national armory that do not pay property taxes would have to pay the stormwater fee the same way they pay for electricity, sanitary service, and water. School districts also could be charged. They typically get their revenues from a broader base than one community, such as a city and surrounding towns.

### Revenue Source Shift

Another benefit of a utility is that it can shift the source of revenue from general obligation (GO) bonds to revenue bonds. Since communities can only borrow to a certain extent of equalized valuation for GO bonds, this shift allows more room for other projects – not just stormwater projects.

MSA is now working with three communities that are in various stages of implementing stormwater utilities.

The City of Monroe, WI has just completed its utility feasibility study and is now working toward establishing their utility. MSA worked with



A Citizen Task Force in Baraboo, WI evaluates financing options for their utility.

officials to identify the scope and annual cost of current and anticipated stormwater management programs. The firm’s water resources team is in the process of evaluating City land use patterns to identify an appropriate billing structure.

In Baraboo, WI, the City Council just adopted a Stormwater Utility Ordinance and will implement this system in January 2006. A key element leading to the council’s approval of the feasibility study was MSA’s education program and work with a Citizen Task Force .

The City of Sun Prairie, WI has implemented its Stormwater Utility. MSA was involved in the feasibility study, planning, and public education process.

### Start With Feasibility Study

Stormwater utilities aren’t for every community. They work best in communities with a significant amount of commercial, industrial, and especially institutional land use, but don’t work well in residential communities. MSA has performed feasibility studies for many communities that can help determine whether a utility is right for them. If the answer is yes, MSA has the necessary experience to develop and implement the utility. ■

## Contaminated Property Development - The Game’s the Same, But the Rules Have Changed

In communities of all sizes throughout the Upper Midwest, contaminated property redevelopments are fast becoming the economic and urban renewal catalysts that were promised in the 1990’s. Those cities that have proactively pursued contaminated land redevelopment (Brownfields) projects are now producing returns. Projects once deemed unworkable are now consistently meeting the economic, environmental, and aesthetic objectives that are commonly cited today in successful Brownfield revitalizations.

In the big picture, it seems the brownfield redevelopment game’s the same so what has happened with the “rules”?

### Land Use Helps Determine Risk

Essentially, the original framework and intent of environmental liability laws are still in effect. What has changed is the recognition that risks associated with environmental contamination, whether from soil, groundwater, or air, are now not just a function of concen-



Contaminated soil excavation was required for some of the land on the 13-acre Lyndale Green site.

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**“Once our team had a complete understanding of the environmental conditions, we were able to get comfortable with the short- and long-term risk assessment on the two primary parcels.”**

**- Bruce Carlson, Vice President, Retail Development at United Properties**

tration (i.e., parts per million), but also a function of exposure and, in general terms, land use. For example, in the 1980’s and 1990’s, many state agencies prescribed cleanup action levels in terms of a specific, table-based number like five (5) parts per billion benzene in groundwater. However, if this contamination level is found on a blighted property with no routes of exposure (like ingestion) and the contamination is stable (i.e., not migrating or getting worse), what’s the societal, environmental, and economic benefit to cleaning up the groundwater to 5 ppb?

To enable this important shift to risk-based rather than standards-based (i.e., numerical) cleanups in most states, a series of regulatory and legislative refinements leading to the development of Voluntary Cleanup Programs (VCPs) came about in the mid-1990’s. These VCPs, and, more importantly, the accumulated knowledge and experience gained by environmental agencies and the environmental and real

estate development industry since then, have fundamentally changed the rules of the redevelopment game.

### Redevelopment Success

Numerous examples of successful property redevelopments exist. Some involve municipal and private developers teaming to address an underutilized, yet valuable, property. On the Lyndale Green redevelopment project in Bloomington, Minnesota, the Bloomington HRA chose to partner with United Properties to redevelop a 13-acre property that for years had



Construction of a new Cub Foods store was a key element in the Lyndale Green redevelopment project in Bloomington, MN.

been the subject of numerous unsuccessful redevelopment proposals.

A prominent grocery retailer, Cub Foods, operated in an obsolete building and wanted to remain in the vicinity, and the City of Bloomington was in need of new multi-family housing for a wide demographic. Working within the framework of the Minnesota Voluntary Petroleum Investigation and Cleanup Program (VPIC), MSA worked with the HRA and United Properties to assess the property prior to acquisition, assist with the preparation and submittal of a successful environmental grant from Hennepin County, and to direct the remedial actions prior to construction of a new Cub Foods store, a four-story cooperative apartment complex, numerous row homes and townhomes, a retail shops building, and a small city park.



Environmental cleanup was required where this new Two Harbors equalization tank was constructed.

Bruce Carlson, Vice President – Retail Development at United Properties, said, “Once our team had a complete understanding of the environmental conditions, we were able to get comfortable with the short- and long-term risk assessment on the two primary parcels. That knowledge allowed us to structure purchase and redevelopment agreements with the property owners that will help the HRA and our company fulfill the redevelopment objectives of the City of Bloomington, the neighborhood, and our retail and residential users.”

### Two Harbors Improves Site

In the City of Two Harbors, Minnesota, the existing wastewater treatment facility (WWTF) is centrally located on an isthmus that separates Agate Bay from Burlington Bay along Lake Superior.

Over the past couple of years, the property surrounding the WWTF has attracted intense private, state, and federal redevelopment interest and investment in the form of a planned marina and several residential

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developments. Spurred by a state requirement and deadline to expand and upgrade the WWTF, the city purchased the property where the plant is located and retained MSA to move forward with facility expansion plans. (See related article on Page 4.) Environmental soil contamination stemming from former industrial uses of the property prior to the WWTF being constructed in the 1950's was addressed within the framework of Minnesota's VIC program.

Lee Klein, Two Harbors City Administrator, explained, "Before we could proceed with expansion of the WWTF, which will be vital to meeting the current and anticipated wastewater treatment demands, we needed to secure the property while mitigating soil contamination and minimizing environmental liabilities for the city."

**VIC Program Was Key**

Remediation of the contaminated soil in the area of the plant expansion was completed in time to keep the facility construction schedule intact. The flexibility and risk-based aspects of the VIC program were

essential in making the project work. In addition, the investigative and remedial work will serve and assist the neighboring public and private redevelopments that are progressing in this important and highly visible area of Two Harbors.

These redevelopment examples are economic catalysts for Bloomington and Two Harbors, and also serve to minimize or eliminate risks to the public and the environment. Armed with this newly acquired experience and capability and buoyed by a supporting regulatory environmental risk management climate, community leaders and developers are now tackling Brownfield redevelopments once thought impossible to consider. ■

**"Before we could proceed with expansion of the WWTF ... we needed to secure the property while mitigating soil contamination and minimizing environmental liabilities for the city."**

**- Lee Klein, Two Harbors City Administrator**

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